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Performance Audit of Safe and Sustainable Road Transport System

May 2022

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DISCLAIMER NOTE

The audit was conducted in accordance with the International Standards of Supreme Audit Institutions (ISSAIs). The audit was conducted based on the audit objectives and criteria determined in the audit plan and programme prepared by the Royal Audit Authority and the findings are based on the information and data made available by the Road Safety and Transport Authority, Royal Bhutan Police, Ministry of Health, Ministry of Labour and Human Resources, Ministry of Works and Human Settlement, Thimphu and Phuentsholing Thromdes, Dzongkhag municipals, and Driving Training Institutes.

This is also to certify that the auditors during the audit had neither yielded to pressure, nor dispensed any favour or resorted to any unethical means that would be considered as violation of the Royal Audit Authority's Oath of Good Conduct, Ethics and Secrecy.



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ROYAL AUDIT AUTHORITY

Bhutan Integrity House

Reporting on Economy, Efficiency & Effectiveness in the use of Public Resources



RAA/DPCA/TAD (PA-Road Transport)/2021-22/569

Date: 6 May 2022

Secretary
Ministry of Information & Communications
Thimphu

Director
Royal Safety and Transport Authority
Thimphu

Subject: Performance Audit Report on Safe and Sustainable Road Transport System

Dear Sir,

Enclosed herewith please find the **Performance Audit Report on Safe and Sustainable Road Transport System** covering the period 1st July 2016 until 30th June 2020. The Royal Audit Authority (RAA) conducted the audit in line with the mandate enshrined in the Constitution of Kingdom of Bhutan and Audit Act of Bhutan 2018. The audit was conducted in accordance with International Standards of Supreme Audit Institutions on Performance Audit (ISSAI 3000). The audit was also conducted in the context of Performance Auditing following the RAA's Performance Audit Guidelines.

The audit objectives were as follow:

- To assess the effectiveness in implementation of road safety strategies to ensure safe road transport system.
- To determine the extent to which the government initiatives have ensured accessible, available and affordable public transport.

The report has been prepared based on the review of available documents, analysis of data, and discussion with relevant officials of the Road Safety and Transport Authority (RSTA), Royal Bhutan Police (RBP), Ministry of Health (MoH), Ministry of Labour and Human Resources (MoLHR), Ministry of Works and Human Settlement (MoWHS), Thimphu and Phuentsholing Thromdes, selected Dzongkhag Municipals, and Driving Training Institutes (DTI).

The report contains shortcomings and deficiencies as well as recommendations aimed at improving the safety and sustainability of road transport system in the country.

The draft report was issued on 23rd November 2021 for factual confirmation, comments and feedbacks. Responses received have been incorporated in the report.

In line with the Audit Act of Bhutan 2018, the audited agencies are required to submit responses to the Final Audit Report in the form of a Management Action Plan. The Management Action Plan should specify the action plans for implementation of the recommendations with a definite timeframe aimed to address the underlying causes of the findings. Further, as specified by

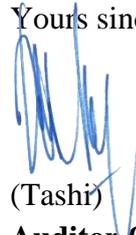
Section 55 (16) of the Audit Act of Bhutan 2018, the audited agencies concerned are required to submit a signed Accountability Statement for the implementation of the recommendations provided.

The RAA will follow-up implementation of the recommendations based on the Management Action Plan and Accountability Statement. Failure to comply will result in taking appropriate actions, which may include suspending audit clearances to the official(s) accountable.

*Therefore, the RAA would like to request the agencies concerned to submit a Management Action Plan for implementation of recommendations with definite timeframe **on or before 6th June 2022** along with the signed Accountability Statement (format attached). In the event of non-submission, the RAA shall invariably fix the overall supervisory accountability on the head of audited agencies in line with Section 55(17) of the Audit Act of Bhutan 2018.*

We take this opportunity to acknowledge the officials of the RSTA and agencies for rendering necessary co-operation and support which facilitated timely completion of the audit.

Yours sincerely,



(Tashi)

Auditor General of Bhutan

Copy to:

1. Hon'ble Lyonchhen, Royal Government of Bhutan, Thimphu
2. Hon'ble Gyalpoi Zimpon, Office of Gyalpoi Zimpon, Thimphu
3. Hon'ble Speaker, National Assembly of Bhutan, Thimphu
4. Hon'ble Chairperson, National Council of Bhutan, Thimphu
5. Hon'ble Opposition Leader, National Assembly of Bhutan, Thimphu
6. Hon'ble Chairperson, Public Accounts Committee, National Assembly of Bhutan, Thimphu (enclosed five copies)
7. Secretary, MoWHS, Thimphu
8. Chief of Police, RBP, Thimphu
9. Director General, Department of Roads, MoWHS, Thimphu
10. Thrompon, Thimphu Thromde
11. Thrompon, Phuentsholing Thromde
12. Superintendent of Police, Traffic Division, RBP, Thimphu
13. Director, Department of Occupational Standards, MoLHR, Thimphu
14. Director, Department of Medical Services, MoH, Thimphu
15. City Bus Services, Thimphu Thromde
16. Assistant Auditor General, Follow-up and Clearance Division, RAA
17. Assistant Auditor General, Policy and Planning Division, RAA
18. Office copy; and
19. Guard file

"Every individual must strive to be principled. And individuals in positions of responsibility must even strive harder."

- His Majesty the King Jigme Khesar Namgyel Wangchuck

MANAGEMENT ACTION PLAN

Recommendation No.	Audit Recommendation in brief	Action Plans: Action taken or to be taken	Estimated implementation date	Estimated completion date	Responsibility Entrusted to:	
					Name & Designation	EID No.
4.1.	The MoIC should come up with the comprehensive surface transport policy to provide overarching directions that consolidate approaches of agencies dealing with transport safety.					
4.2.	DoR and RSTA should adopt coordinated approach amongst relevant authorities in planning, designing, construction and operation of roads to ensure minimum safety standards.					
4.3.	RSTA/DOR should institutionalise the system of conducting road safety audits for all roads.					
4.4.	RSTA should initiate systemic improvements in ensuring safer vehicles.					
4.5.	RSTA should ensure stringent enforcement and regulation of private driving training institutes besides strengthening the current system of issuing driving license.					
4.6.	RSTA should enforce Road Safety & Transport Regulations, which restricts the drivers to drive for long distances and period of driving.					
4.7.	RSTA should institute demerit point system for the traffic infringement cases.					

4.8.	Emergency Response system must be reinforced with Standard Operating Procedures that would render well-coordinated mechanism, and adequately equipped resources (equipment and human resource). RSTA, RBP and MoH should work on forming separate emergency team to attain motor vehicle accident cases.					
4.9.	RSTA should review the need to have guidelines to drive public transport strategies and plans for enhancing social integration of vulnerable group in public transport services.					
4.10.	Thromde should make urban transport efficient to address the traffic congestions in urban areas.					
4.11.	Public transport should be made convenient and accessible.					
4.12.	RSTA should improve its efficiency of service delivery.					
4.13.	There is a need to mitigate risk of pollutions posed by steady increase in vehicle population.					

ACCOUNTABILITY STATEMENT

Recommendation No.	Recommendations	Accountability for implementation of action plans			
		Personal Accountability		Supervisory Accountability	
		Name & Desig.	EID No.	Name & Desig.	EID No.
4.1.	The MoIC should come up with the comprehensive surface transport policy to provide overarching directions that consolidate approaches of agencies dealing with transport safety.				
4.2.	DoR and RSTA should adopt coordinated approach amongst relevant authorities in planning, designing, construction and operation of roads to ensure minimum safety standards.				
4.3.	RSTA/DOR should institutionalise the system of conducting road safety audits for all roads.				
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4.12.	RSTA should improve its efficiency of service delivery.				
4.13.	There is a need to mitigate risk of pollutions posed by steady increase in vehicle population.				

TITLE SHEET

1. Title of the Report	:	Performance Audit on Safe and Sustainable Road Transport System
2. AIN	:	17636
3. Audited Entity	:	1. Road Safety and Transport Authority 2. Traffic Division, RBP
4. Audit Period	:	1 st July 2016 till 30 th June 2020
5. Audit Schedule	:	September 2020 to May 2021
6. Audit Team	:	1. Kinley Zam, 200801105, Dy. Chief Auditor 2. Pema Wangdi, 20140103325, Audit Officer 3. Dhendup Tshering, 20140103380, Audit Officer 4. Sangay Penjor, 200705109 Sr. Language Development Officer 5. Phuntsho Choden, 20200116203, Asstt. Audit Officer
7. Supervisor	:	Sonam Delma, 200301048, Asstt. Auditor General
8. Overall Supervisor	:	Dorji Wangchuk, 9610060, Deputy Auditor General

ACRONYMS AND ABBREVIATIONS

ADB	:	Asian Development Bank
BBR	:	Bhutan Building Rules
BGTP	:	Bhutan Green Transport Project
BOD	:	Bhutan Oil Distributor
BRT	:	Bus Rapid Transit
CPMS	:	Check Post Management System
DOA	:	Decade of Action
DOS	:	Department of Occupational Standards
DMS	:	Department of Medical Services
DTI	:	Driving Training Institute
GHG	:	Green House Gas
GoI	:	Government of India
IDEA	:	Interactive Data Extraction and Analysis
ISSAIs	:	International Standards for Supreme Audit Institutions
ITS	:	Intelligent Transport System
LG	:	Local Government
LPI	:	Logistics Performance Index
MoIC	:	Ministry of Information and Communications
MoEA	:	Ministry of Economic Affairs
MoH	:	Ministry of Health
MoLHR	:	Ministry of Labour & Human Resource
MoWHS	:	Ministry of Work and Human Settlement
MVA	:	Motor Vehicle Accident
NKRA	:	National Key Result Areas
NSB	:	National Statistics Bureau
ODE	:	Organisation Development Exercise
PPP	:	Public Private Partnership
PWD	:	Persons with Disabilities
RAA	:	Royal Audit Authority
RBP	:	Royal Bhutan Police

RMA	:	Royal Monetary Authority
RSTA	:	Road Safety & Transport Authority
RTO	:	Regional Transport Office
SUTI	:	Sustainable Urban Transport Index
TIN	:	Transport Infringement Notices
UN	:	United Nation
UNCRPD	:	United Nations Convention on the Rights of Persons with Disabilities
UNESCAP	:	United Nation's Economic and Social Commission for Asia and Pacific

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Executive Summary

Road transport sector is fundamental building blocks for creation of wealth, economic growth, access to services and social cohesion, while creating job opportunities and reducing the travel time and costs. Road transport aspects are becoming increasingly important due to their high impact on economic, environmental and social sustainability.

The main challenges facing the transport sector are lack of connectivity to services and markets, resulting in lost economic opportunity; high operating, maintenance, and logistics costs; lack of competitiveness, unsafe and unsustainable and accessible infrastructure. These problems are caused by incomplete national and regional transport policies and incomplete legal and regulatory frameworks; low institutional capacity; low private sector participation; and incomplete and inefficient transport infrastructure networks, especially regarding urban and rural roads.

In Bhutan, the number of private owned vehicles are increasing yearly due to lack of efficient, safe, affordable and reliable public transport system. This is leading to many issues such as the road related accidents, traffic congestion and environment pollution among others. Inefficient public transport system also results in substantial cost of transporting goods leading to high priced commodities. Currently, Bhutan also lacks proper mechanism and infrastructure to ensure safe and efficient traffic management.

Along with the concerns for road safety, high population growth coupled with accelerating urban migration, increasing number of vehicles and limited road coverage had led to growing traffic congestion and high vehicle emissions in Thromdes. Urban public transportation (commonly known as city buses) in Thimphu and Phuentsholing is limited with less ridership due to low frequencies, coverage, inconvenience to the passengers, and inadequate infrastructure.

The RAA conducted performance audit on “Safe and Sustainable Road Transport System” as mandated by the Constitution of the Kingdom of Bhutan and Audit Act of Bhutan 2018. The audit was conducted following Performance Audit Guidelines, which is in line with the International Standards of Supreme Audit Institutions (ISSAIs). The performance audit on safe and sustainable road transport system was conducted with the following audit objectives:

- To assess the effectiveness in implementation of road safety strategies to ensure safe road transport system;
- To determine the extent to which the government initiatives have ensured accessible, available and affordable public transport.

RAA conducted the performance audit in RSTA as a main agency covering the period 1st July 2016 till 30th June 2020 and entailing visits to office of various stakeholders such as RBP, MoH, MoLHR, MoWHS, Thimphu and Phuentsholing Thromdes, selected Dzongkhag Municipals, City Bus Service (Thimphu) and DTIs.

The RAA observed deficiencies and shortcomings of which, significant findings are briefly highlighted below;

- Lack of comprehensive transport policy in place which will synchronise and articulate the guiding principles for the development of transport sector, provide a framework for action, and create an enabling environment by defining the roles and responsibilities of institutions governing the transport sector.
- There is fragmentation of institutional set up for transport sector leading to disintegrated approach across government agencies, overlap of responsibilities and duplication of efforts in realising the overall national objective of the sector. Further, there is lack of ownership of the initiatives with inadequate coordinating leadership to set and steer strategies of transport sector.
- Contradiction of responsibilities between RSTA & DoR to conduct road safety audit since there has not been a formal road safety audit process in place due to conflicting functions.
- Inadequacies in existing mechanism in traffic offense management to enforce stringent penalties for major and repeat traffic offences.
- Lack of monitoring and enforcement of regulations related to freight vehicles to assess the load capacity due to non-utilisation of weighing machines.
- Weak enforcement of inclusiveness design and infrastructure, which will ensure safe road and access for differently abled individuals.
- There are lapses related to road safety including unsafe road conditions, lack of proper infrastructure, inadequate pre-departure inspections of passenger vehicles, lack of monitoring and enforcement of related rules, and inefficient monitoring of the driving training institutes.
- There is no efficient public transport even in the capital city resulting in traffic congestion and the existing public transport is inconvenient for commuters. Further, there is limited accessibility in terms of rural transport services.

These lapses were primarily due to unclear legal and institutional framework in terms of surface transport and weaknesses in monitoring and due to poor oversight responsibilities. In order to improve the efficiency of surface transport and ensuring safe and sustainable road transport system in particular, the RAA has provided 13 recommendations some of which are as follows;

- The MoIC should come up with the comprehensive surface transport policy to provide overarching directions that consolidate approaches of agencies dealing with transport safety.
- There should be coordinated approach amongst relevant authorities in planning, designing, construction and operation of roads to ensure minimum safety standards.
- There is a need to institutionalise the system of conducting road safety audits to seek improvement on overall safety of the road networks.
- RSTA should institute demerit point system for the traffic infringement cases in order to ensure appropriate behaviours of road users.
- RSTA should ensure stringent enforcement and regulation of private driving training institutes besides strengthening the current system of issuing driving license.
- RSTA should review the need to have guidelines to drive public transport strategies and plans for enhancing social integration of vulnerable group in public transport services.

- Urban transport should be made efficient to address the traffic congestions in urban areas.
- Public transport should be made convenient and accessible.

Chapter 1: About the Audit

1.1. Mandate

The Royal Audit Authority (RAA) conducted the ‘Performance Audit of Safe and Sustainable Road Transport System’ as mandated by Article 25 of the Constitution of the Kingdom of Bhutan to audit and report on the economy, efficiency, and effectiveness in the use of public resources.

Further, Chapter 5, Section 69 of the Audit Act of Bhutan 2018 stipulates, “The Authority shall carry out performance, financial, compliance, special audits and any other form of audits that the Auditor General may consider appropriate.”

1.2. Audit Standards

The RAA conducted this audit in accordance with the International Standards of Supreme Audit Institutions on Performance Auditing (ISSAI 3000). The RAA followed audit procedures as prescribed under RAA’s Performance Audit Guidelines 2019 to maintain uniformity and consistencies of approaches in auditing.

1.3. Audit Objectives

The RAA conducted the ‘Performance audit on safe and sustainable road transport system’ with the following audit objectives:

- i. To assess the effectiveness in implementation of road safety strategies to ensure safe road transport system;
- ii. To determine the extent to which the government initiatives have ensured accessible, available and affordable public transport.

1.4. Audit Scope

The performance audit on safe and sustainable road transport system was conducted in the following audited entities:

- i. Road Safety and Transport Authority including regional and base offices in eight dzongkhags namely Bumthang, Chukha (Phuentsholing), Mongar, Paro, Punakha, Thimphu, Trashigang and Wangdue Phodrang;
- ii. Traffic Division, Royal Bhutan Police in the aforementioned dzongkhags;
- iii. Department of Roads (DoR), MoWHS including regional offices in the aforementioned dzongkhags;
- iv. Department of Occupational Standards (DOS), MoLHR;
- v. Emergency Medical Services Division, Department of Medical Services, MoH; and
- vi. Thimphu and Phuentsholing Thromdes,

While the data from e-RALIS was analysed from the period 1st July 2016 to 30th June 2020, the actual field visits, physical verification, and assessment of documents were conducted during 5th February 2021 to May 2021.

The main thrust areas and focus of the audit were:

- 1) Governance
 - a. Legal framework
 - b. Institutional framework
- 2) Road safety
 - a. road safety management
 - b. safe roads
 - c. safe vehicles
 - d. safe road users
- 3) Public transport
 - a. accessibility
 - b. availability
 - c. convenience
 - d. affordability
 - e. reliability

1.5. Audit Approach Applied

The audit used a combination of result oriented and system-oriented approaches. Result oriented approach was applied as ensuring road safety for all and implementing an inclusive mass eco-friendly transport which is a national priority goal identified in the five-year plans. Similarly, system-oriented approach was applied to assess the implementation of processes and procedures in road safety and traffic management, vehicle registration, driver licensing, registration of driving training institutes and compliance to relevant legislation.

The audit focussed on effectiveness of the strategies and activities (means, targets and results), design and compliance of the systems and procedures (traffic management, road worthiness, driver licenses, vehicle registration, revenue collection, and coordination mechanism amongst the key stakeholders) that have led to safe and sustainable road transport system.

1.6. Audit Methodology

The RAA applied the following methodologies to gather information, analyse data and derive conclusions:

- i. Reviewed relevant legislation related to road safety – Road Safety and Transport Act 1999, RST Regulations 1999 (Updated in January 2019), and Road Act 2013.
- ii. Reviewed plan documents, policies strategy, and other publications – Bhutan 2020, 11th five year plan, 12th five year plan, Surface Transport Development Plan 2007, National Transport Policy 2017, Transport 2040: Integrated Strategic Vision, Decade of Action for Road Safety, Transport Liberalization Policy 2011, Intelligent Transport Systems Study Report 2015, Energy Efficiency in Transport Sector for Bhutan 2015,

- Bhutan Vehicle Emission Reduction Road Map and Strategy 2017–2025, Transport Sector Assessment 2014-2018.
- iii. Reviewed Contract Agreement for Operation of Passenger Transport services, SOP for Passenger Bus Services, bus schedules and passenger flow reports, Bus Fare 2020, Taxi Fare 2020, documents related to pre-departure inspections.
 - iv. Reviewed Annual reports of RSTA – 2019-20, 2018-19, 2017-18, 2016-17, Service delivery Standards for RSTA services, documents related to conducting theory/practical test, preparing theory questions, standards for conducting practical test, traffic offences, fines and penalties.
 - v. Visited Department of Occupational Standards (DOS), MoLHR to understand the processes involved in registration of driving training institutes, driving course accreditation, and assessment and certification of professional drivers.
 - vi. Reviewed documents related to driver training institutes, National Competency Standards for driver (Light Vehicle) National Certificate II (NC II), Guidelines for Accreditation of Courses 2011, Regulations for registration of training provider 2010, Competency based curriculum professional driving NC II, Guidelines for Competency Based Assessment and Certification System, Monitoring and Evaluation Reports of Driving Training Institutes and Action taken by DOS, MoLHR.
 - vii. Visited driving training institutes and inspected training grounds, classrooms and training contents.
 - viii. Reviewed documents related to city bus services and strategies and plans to address traffic congestion in Thimphu and Phuentsholing Thromdes.
 - ix. Analysed and reconciled revenue heads, revenue collected, revenue receipts and revenue accounted in IDEA¹.
 - x. Conducted comparative analysis of revenue accounted in RSTA and Department of Revenue Customs (DRC) using IDEA.
 - xi. Carried out measurement of driving test boxes in all the sites visited by the RAA.
 - xii. Observed current practices followed for vehicle road worthiness examination and driving tests.
 - xiii. Visited Thromdes and dzongkhag municipalities and met with urban planners to discuss the current and future provision of infrastructure such as bus stations, taxi parking lots, parking lots in town, bicycle routes, traffic signs, pedestrian footpaths, public toilets, and CCTVs.
 - xiv. Assessed the inclusiveness of disability friendly structures.
 - xv. Inspected the buses for compliance to safety and convenience of passengers.
 - xvi. Visited traffic division of RBP to understand the challenges in enforcement of safety rules and regulations, assessed and inspected the accident-prone areas.
 - xvii. Reviewed the route feasibility studies conducted by RSTA before the award of routes to bus operators.

¹ Interactive Data Extraction and Analysis (IDEA) is an auditing tool used by RAA for data analysis

- xviii. Conducted focus group discussions in Muenseling Institute and Draktsho East Centre in Trashigang and Wangsel Institute for the Deaf in Paro for assessment of their needs and challenges with regards to use of public transportation.
- xix. Interviewed officials responsible for issuing foreign vehicle route permits to ascertain if they are sensitizing the foreign drivers on the dos and don'ts of driving in Bhutan.
- xx. Held discussions with chairman of taxi associations and trucks association to obtain an understanding of their challenges and needs.
- xxi. Obtained and assessed the Traffic Infringement Notice booklets and verified in the e-RALIS system.
- xxii. Reviewed the regulation of freight vehicles and determined whether these freight vehicles are checked for overloading.
- xxiii. Visited the DoR and its regional offices in selected dzongkhags to discuss road safety considerations during the design, construction and post-construction of roads, roadside amenities, and road safety audits.
- xxiv. Inspected the traffic signage, and observed for obsolete vehicles and machineries along the national highways.
- xxv. Gathered pictorial evidences from the sites visited.
- xxvi. Reviewed past audit reports.

Chapter 2: Introduction

2.1 Rationale for this audit

Road transport sector is a fundamental building block for economic growth, improving rural access, facilitating access to services and social cohesion, while creating job opportunities and reducing the travel time and costs. Road network remains the primary means of transportation because of rugged geographical terrains. With cognizance of importance of road transport sector to socio-economic development, priority has been accorded in the 12th Five Year Plan (FYP) to improve road network under the NKRA 9. The aim of the transport sector in the 12th FYP is to improve the accessibility, reliability, and safety of transport services through strong road safety enforcement, inclusive transport services, and eco-friendly public transport.

Being a land-locked country, an efficient road network and transport system in Bhutan is of paramount importance as it plays a crucial role in supporting all development activities and in stimulating domestic and international trade.

The RSTA was established to provide safe, sustainable and inclusive road transport systems in the country. In order to deliver this mandate, RSTA has developed and implemented various road safety programs to prevent and reduce the road traffic accidents such as developing plans and policies, strengthening regulations, conducting driver awareness programs, and enforcing rules and regulations. However, continued increase in number of vehicles, traffic volume, limited road density and coverage have made road safety very challenging. Number of road accidents still remains highest in South Asia² despite the numerous interventions and measures.

Along with the concerns for road safety, growth in population coupled with accelerated urban migration, enhanced affordability and increase in numbers of vehicles, and limited road coverage have led to growing traffic congestion and vehicle emissions. Urban public transportation (city buses) in Thimphu and Phuentsholing Thromdes is limited with less ridership due to low transit frequency, limited coverage, low usage, and inadequate infrastructures to accommodate the range of commuters.

Similarly, inter-Dzongkhag public transportation is privatised and the passenger bus services cater to mostly commercially viable places where transport demand is high. Reliability of public transport in rural areas is still an issue due to low frequency and the limited transport services in the rural invariably lead to limited access to services (such as health, education, market) that potentially fuel rural isolation and poverty.

Moreover, Bhutan depends entirely on fossil fuel (petrol and diesel) imported from India which is not a sustainable source of energy. In order to combat the environment and economic impacts, the RGoB has been exploring alternative modes of transport in the country and

² Government of Bhutan. 2013. Fifth Annual Report of Lyonchhen Jigmi Yoezer Thinley to the Tenth Session of the First Parliament on the State of the Nation. Thimphu.

encouraging electric and hybrid vehicles through tax incentives. This initiative will not only reduce the emission of toxic gases but also reduce the fuel imports.

The government priorities and interventions towards this sector give all the more reason to conduct a performance audit to highlight the issues, challenges and bring about improved efficiencies. There are opportunities and scope to enhance and strengthen the road transport sector in the country.

Thus, recognizing the need to improve road safety, and create an inclusive and sustainable road transport system, the RAA decided to carry out the Performance Audit of Safe and Sustainable Road Transport System covering the period from June 2016 to July 2020.

2.2 Road Safety

Road safety is measures undertaken to reduce the risks of road traffic accidents that lead to injuries and deaths. As per recent reports of WHO, road traffic accidents now represent the eight-leading cause of death globally and road traffic injuries and deaths have had a huge impact on individuals, communities and countries all over the world causing severe social and economic consequences by burdening the already overburdened health care systems. There is, however, other indirect cost involved with road accidents such as loss of productivity, damage to vehicles and property; and reduced quality of life.

The road fatality rate rose from 6.4 deaths per 10,000 registered vehicles in 2003 to about 17.0 per 10,000 vehicles in 2011. It is one of the highest in South Asia³. Additionally, as per the current estimates of the World Health Organisation (WHO), the death rate is 17.4 per 100,000 people.

From the review of the motor vehicle accident recorded maintained by the RBP Traffic, it was found that the bad road conditions, weather and human error, which includes speeding, drink driving, carelessness and un-licensed driving, were the major causes of vehicle accidents. Amongst them, drink driving continues to be a concern causing accidents topping the traffic violations list in Thimphu for nine years in a row.

To curb this problem, the RSTA in collaboration with the RBP Traffic has implemented several measures to ensure safety of all the road users and public and private properties. However, road accidents have continued to be on the rise.

2.3 Sustainable Road Transport System

Accessibility is the defining development issue in Bhutan, be it access to opportunity, enterprise, markets or services. Accessibility to a large measure depends on availability of appropriate, reliable, and affordable transportation.

In theory, a sustainable road transport refers to the use of transportation to provide services to both the passengers and goods while respecting the social, environment and economic standards. The main challenge in Bhutan in relation to sustainable road transportation is to curb

³ Government of Bhutan. 2013. Fifth Annual Report of Lyonchhen Jigmi Yoezer Thimley to the Tenth Session of the First Parliament on the State of the Nation. Thimphu.

the problems arising from the combination of urbanization and motorization in the more populated towns/areas.

It was noted that increasing number of vehicle imports lead to several problems such as air pollution, traffic congestion, and safety risk to the road users. The government has been trying to curtail the imports and sustain the road transport system environmentally, economically and socially.

The relevant government agencies have collaborated and taken many initiatives considering the convenience of road users including easing of vehicle congestions especially in Thromdes and allocation of parking spaces to ease the increasing parking issues.

Further, several apps (Ride Sharing app, Oie mobile app, MyDrukRide, Yana) were also launched and an online bus ticket booking system (Bbooking) and Bus Information System was also developed besides installing CCTVs.

On the environment front, several measures have been initiated such as revision of vehicle emission standards, reduction of vehicle loan ceiling for other vehicles from 50% to 30%, increasing vehicle loan ceiling for electric cars from 30% to 50%, introduction of green tax on motor vehicles, reduction of vehicle transfer tax from 5% to 1%, import of electric taxis and monetization of vehicle import quota.

Economically, the RSTA has revised the public transport fares and also reduced the fare in some areas like Thimphu-Phuentsholing after the opening of Damchu-Chhukha bypass road.

However, there is much left to desire for and much to do to achieve the government's vision for sustainable, eco-friendly (mass) and inclusive transport system in the country.

2.4 Legal framework

The long-term strategic vision for development of transport sector is “***Bhutan Transport 2040 Integrated Strategic Vision***” developed by Asian Development Bank, wherein various goals, objectives and series of integrated strategies were developed to guide government policy and investment planning. The transport 2040 details the transport visions and strategies; road network strategy, civil aviation strategy, passenger transport strategy, freight transport strategy, regional transport connectivity strategy, urban transport strategy, road safety strategy, and transport sector management strategy.

The overall governing legislation for road safety is ‘***Road Safety and Transport Act 1999***’ which provides framework for all polices and plans related to Road Safety and Transport Authority. The plans and programmes under the transport sector in the country are guided by “***Transport Policy 2006***”.

The ‘***Road Safety and Transport Regulations 1999***’ (updated in January 2019) is the subordinate legislation supporting the RST Act 1999 for road safety and the transport sector.

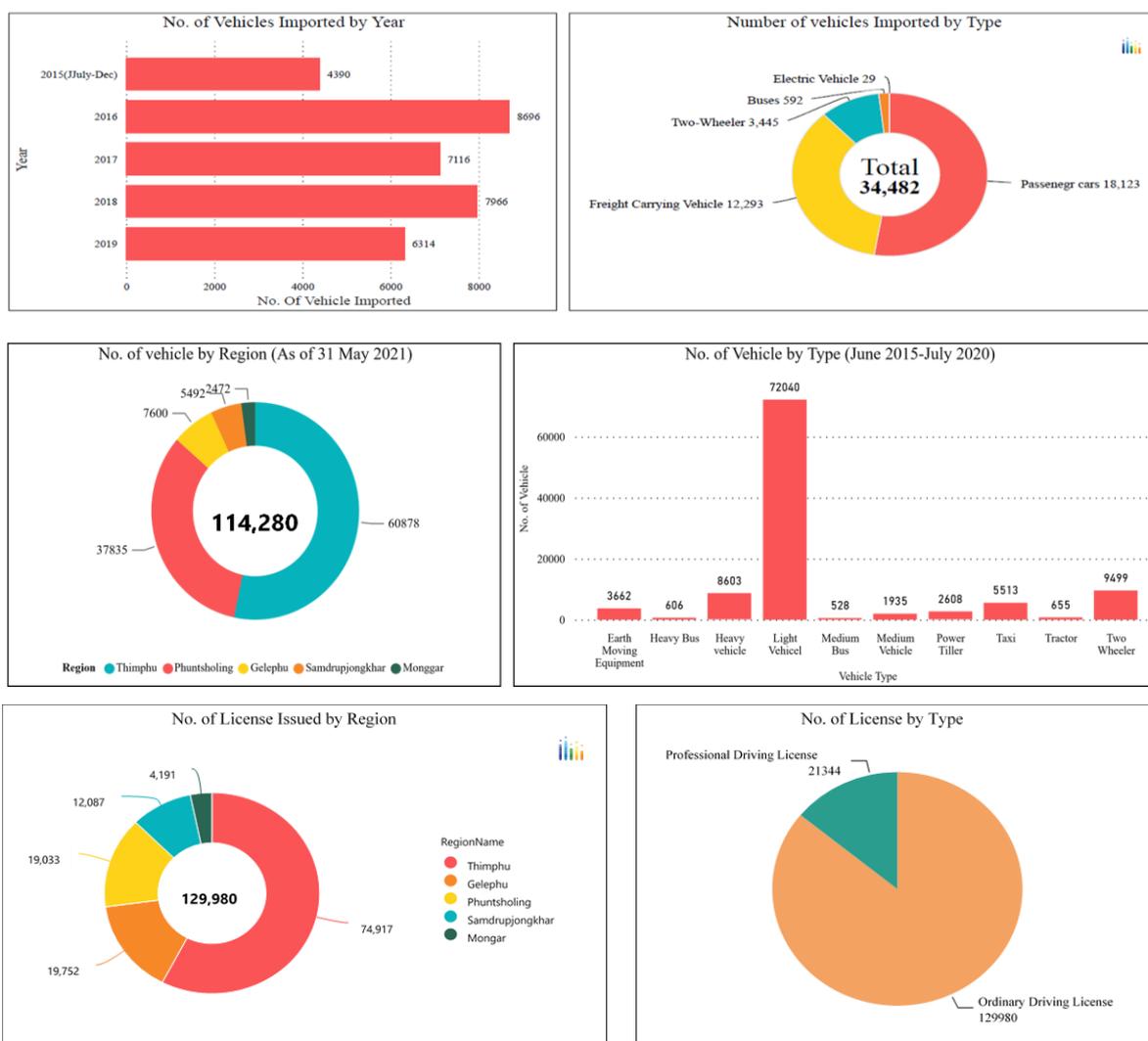
For development of roads and road related issues, the ‘***Road Act of Bhutan 2013***’ was enacted to define and establish a safe and efficient system of road network at national and local level so as to assist and foster the process of socio-economic development in the country. To support this, the ‘***Road Sector Master Plan 2007-2027***’, a 20-year planning document was developed to provide guidance to planners for development of road transport network in the country.

In order to improve public transport system especially the passenger bus services in the country, the RGoB has adopted '*Transport Liberalization Policy*' in 2011. According to this policy, the passenger transport services are liberalised with minimum intervention from the government.

2.5 Situational Analysis

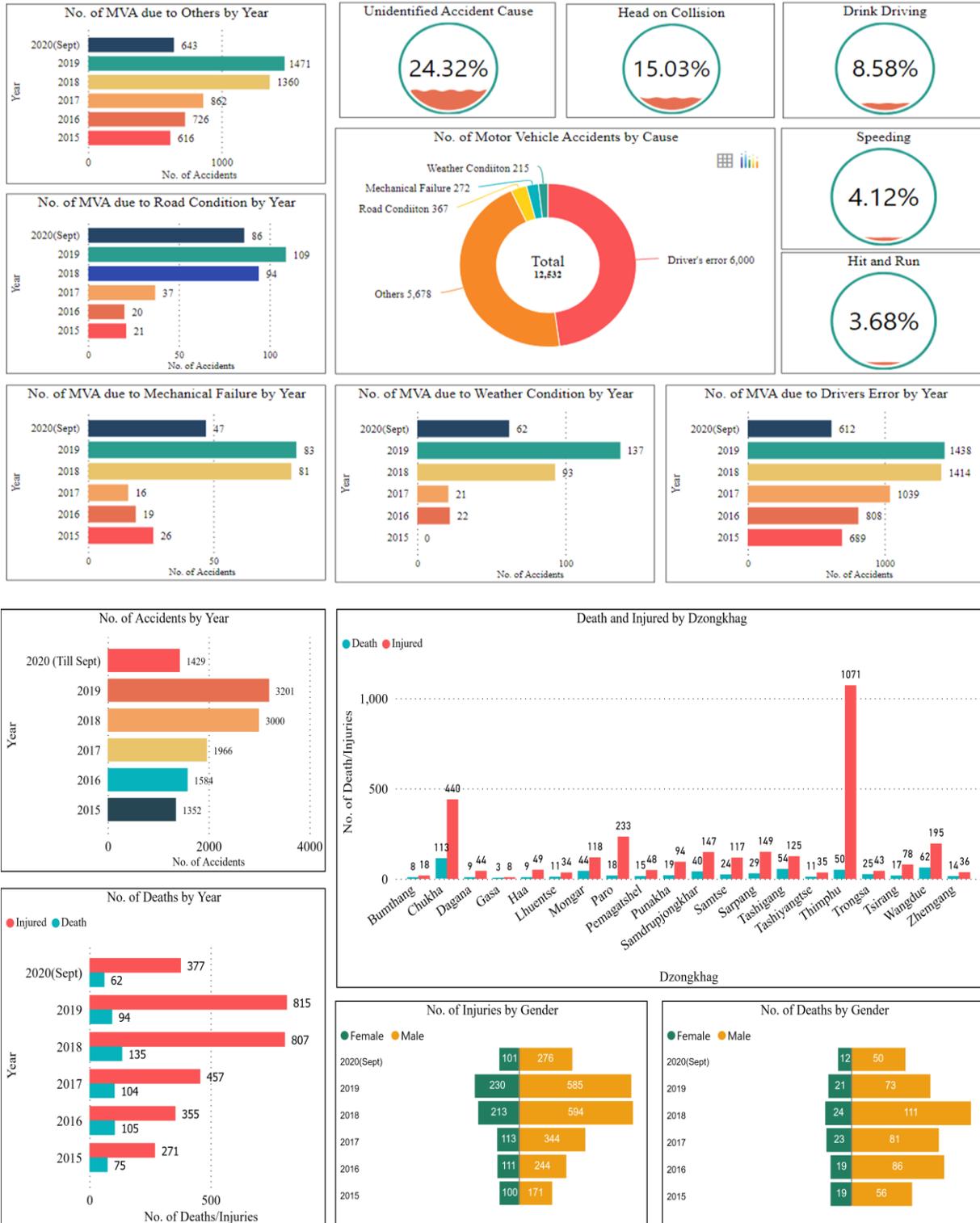
With access to road connection and interlinking different parts of country, the number of vehicles for public transport owned by government and private has increased drastically. The total number of vehicles registered with the RSTA as of 31st May 2020 was 114,277 vehicles with highest in Thimphu regional office and lowest in Monggar regional office as shown in figure 1. This means that the per-capita car ownership rate is approximately one car per seven people, which is very high. Some of the facts and information at a glance pertaining to transport sector in Bhutan prepared by the RAA are presented in the dashboard below:

Figure 1: Showing the situational analysis at a glance as Dashboard



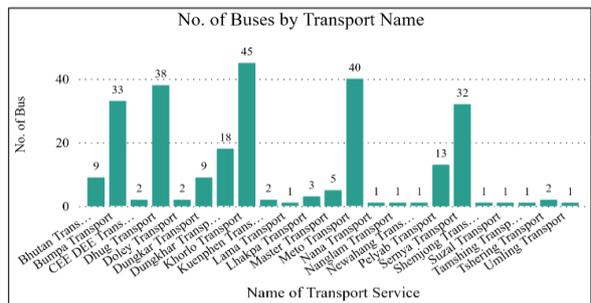
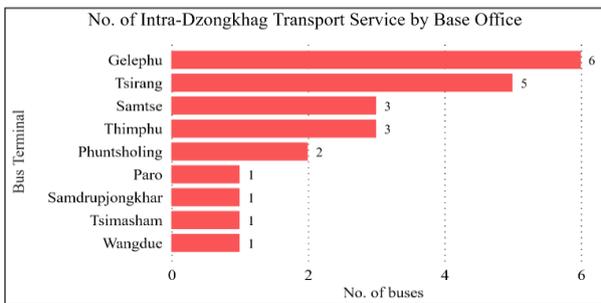
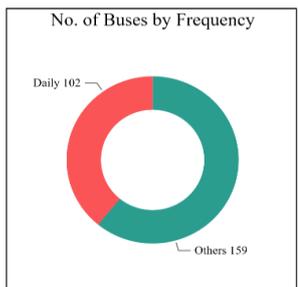
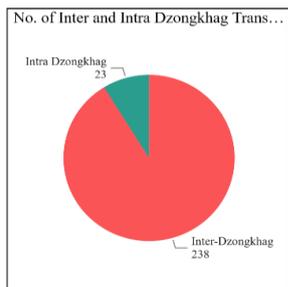
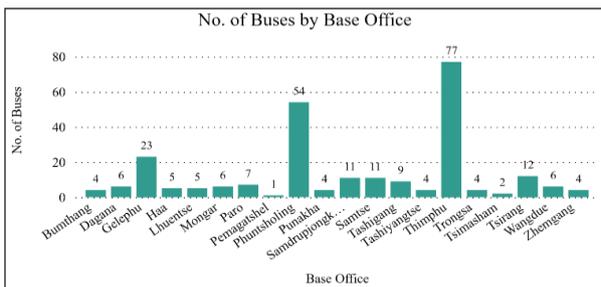
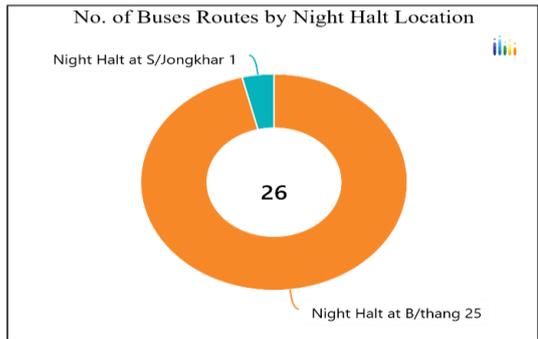
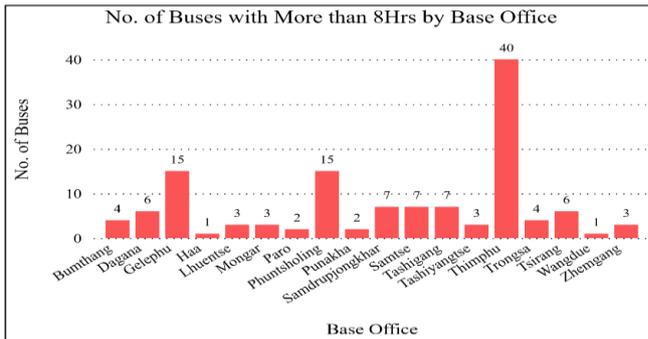
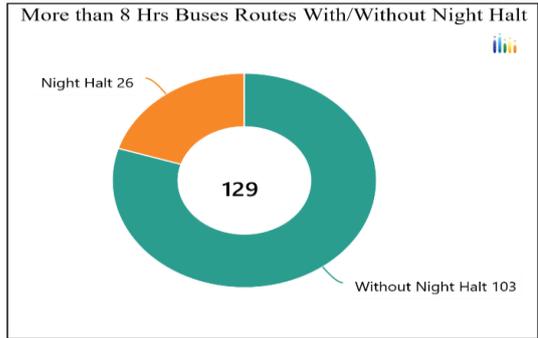
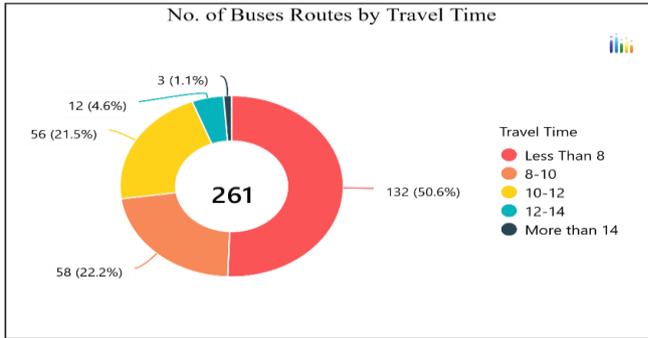
Source: RAA Analysis of eRALIS data and RSTA website

Accident Statistics:

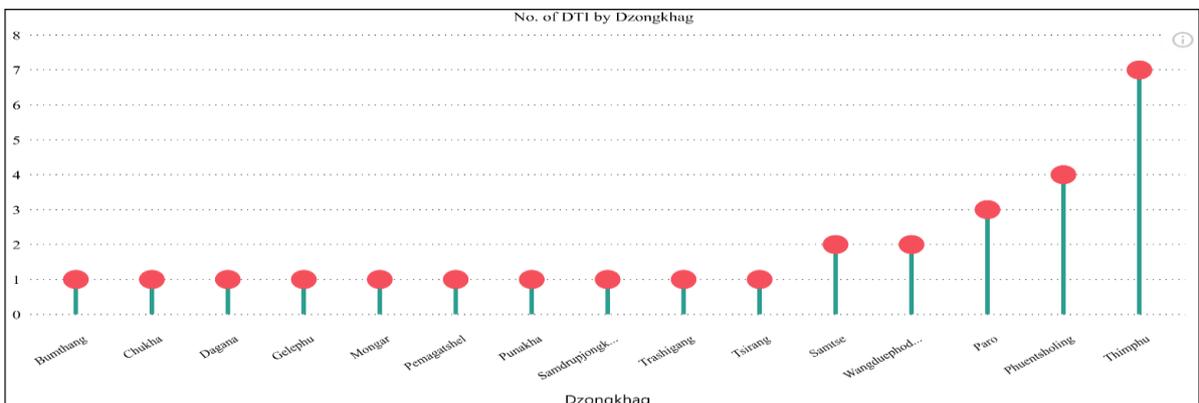


Source: RAA Analysis of eRALIS Data

Bus Statistics:

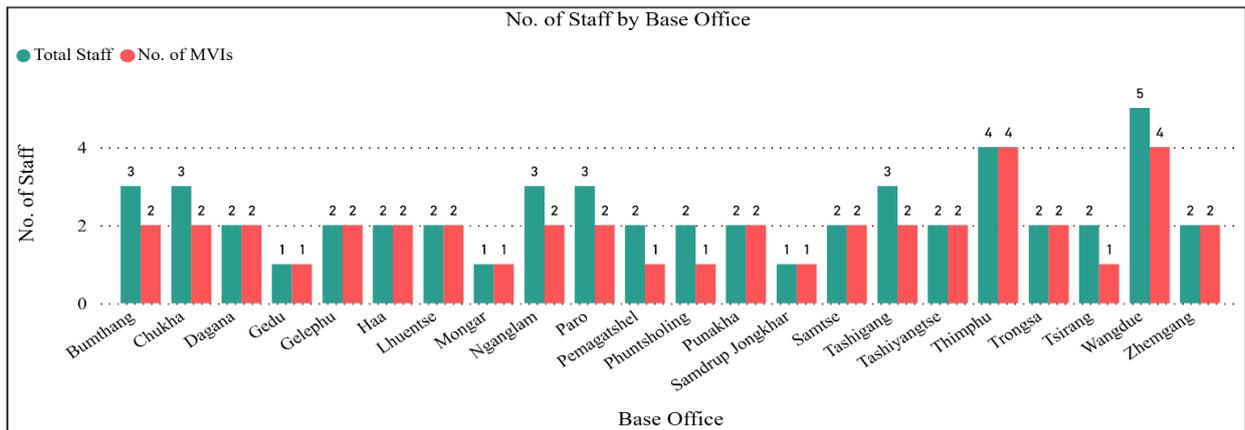
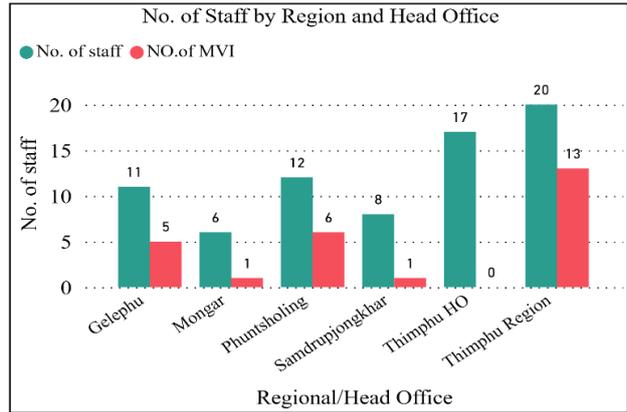
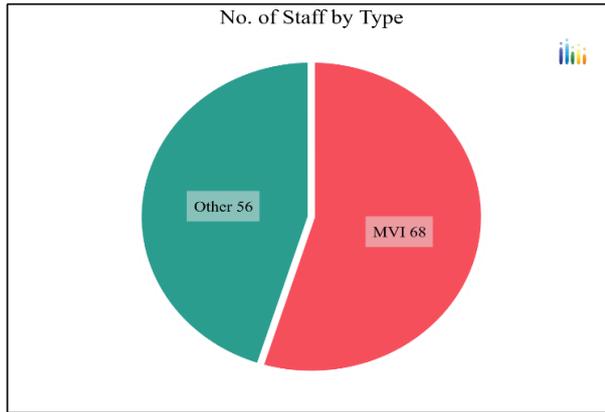


Source: RAA Analysis of eRALIS data



Source: MoLHR

HR Statistics:



Chapter 3: Audit Findings

This chapter discusses the shortcomings and deficiencies in ensuring safe and sustainable road transport system.

Shortcomings and deficiencies

The findings were made based on reviews of available documents, interviews and analysis as discussed in the subsequent paragraphs.

3.1 Governance

3.1.1 Surface Transport Policy

Being a landlocked country, our economic development predominantly depends on trade and tourism activities. In order to boost our country's economic prosperity, having a strong network of roads, road transport system is critical. This will not only improve accessibility and convenience, but also plays a critical role in improving productivity, reducing transportation costs, and contribute to the overall growth of our economy.

Our country's long term strategic vision for development of transport sector is "***Bhutan Transport 2040 Integrated Strategic Vision***" which was developed in 2011, wherein various goals, objectives and series of integrated strategies were developed to guide government policy and investment planning. To achieve this vision, there should be an overarching policy which will synchronise and articulate the guiding principles for the development of transport sector, provide a framework for action, and create an enabling environment by defining and delineating roles and responsibilities of institutions and agencies operating the transport sector.

Currently, the development activities of transport sector in the country are governed by "***Transport Policy 2006***". As it was developed in 2006, there are several issues where the policy is unable to address the entire road transport system (whole-of-government, cross sectorial collaboration and dependencies) and other emerging issues such as the intelligent transport system, innovative traffic management, inclusive and sustainable public transport system including urban transportation. Unclear institutional arrangements create an issue of duplication, overlap and diffusion of responsibilities among agencies. The policy is not comprehensive in respect of all vital elements that are necessary to achieve the long-term aspirations in transport sector.

In the view of the above needs, the MoIC had submitted proposal for development of sustainable and inclusive National Transport Policy which was approved by government vide letter No. C-3/96/216 dated 4th March 2016. This proposal included the aviation sector as well.

The development of the policy was carried out in line with the OD exercise recommendation 2015 which was conveyed through cabinet vide letter No. c-3/92/169. According to the recommendation, the RSTA was to be renamed as "Department of Surface Transport" and placed under MoWHS. However, this recommendation could not be implemented because it

was found to be inconsistent with the Road Safety and Transport Act 1999 and change of name is possible only if the RSTA Act itself is revised.

In the initial stage of development of the policy in 2017, the need for a separate aviation policy was strongly emphasised by the aviation sector and accordingly, the Ministry had changed the scope of policy which was approved by the government on 28th February 2018. The policy had to be re-drafted and clear instructions were provided to have separate policy for surface transport and civil aviation.

Later in February 2020, the OD exercise again recommended for the formation of Department of Transport under MoIC and the RSTA to function with same mandate under the Ministry. Accordingly, the drafting team had to make changes on the draft surface transport policy in line with the recent recommendations.

Although the approval for development of sustainable and inclusive national transport policy was accorded five years ago, the RAA found that the policy is still in draft stage. The Transport Policy 2006 still continues to guide the functioning of the transport sector.

RSTA stated that the delay in formulation and development of surface transport policy was primarily due to repetition of the policy drafting works with the constant change in priorities and decisions by the Ministry (MoIC) and also due to various recommendations provided by the OD exercise reports over the years.

The urban areas have already started to experience the ramifications of not having all-encompassing transport policy that ensures coordinated and harmonised approach in guiding the transport sector development. The problems of traffic congestion, vehicular pollution, and increased GHG emissions due to unprecedented growth of vehicles take toll on the health and safety of people in the urban areas. These are fuelled by limited urban transportation choices and alternative modes of transport apparently resulting from policy inadequacies and lack of coordinated approach and integrated actions of multiple agencies. Unclear institutional arrangements are also evident with duplication and overlap of responsibilities which are discussed at length in observation 3.1.2.

If the existing policy is not upgraded to provide coordinated approach in development of transport sector, it will only allow disintegrated approach to development that will have far reaching impact on realising the intended outcomes. Transport sector having a multi-sectoral dimension, will have effect on other sectors too.

The RSTA explained that the initial draft policy covering all aspects of surface transport was presented to the Ministry (MoIC) on 19th November 2021. The Authority assured that the draft policy will be submitted to GNHC within this fiscal year.

The RSTA should continue their efforts to get the policy approved and endorsed for a safe, sustainable, and inclusive surface transport in the country. The RAA will assess the same during the follow-up review.

3.1.2 Institutional Framework

The overall governing legislations for road transport outline the mandates and functioning of the agencies involved in provision and development of roads, and regulation for road safety

and transport sector. The road transport sector in Bhutan is governed and guided by the following authorities and instruments:

- ✓ National Transport Policy 2006
- ✓ Transport 2040: Integrated Strategic Vision
- ✓ Road Sector Masterplan 2000-2027

The policy objective is to provide the entire population with a safe, reliable, affordable, and sustainable transport system in support of strategies for socio-economic development. To uphold the government policy objectives of road transport, there should be strong institutional mechanism with vertical and horizontal coordination of actions in planning, development and management of the road transport sector.

Further, an enabling environment for the transport industry depends on the following institutional mechanisms and instruments:

- ✓ effectiveness of the government bodies with which it deals;
- ✓ the market freedoms that it is permitted;
- ✓ the regulatory constraints under which it operates;
- ✓ the confidence with which it can plan long term business initiatives and investments.

Thus, the governance structure should follow a comprehensive and integrated approach to planning and policy development across the sub-sectors and other related sectors. However, transport having a multi-sectoral dimension, it is a challenge to ensure integrated governance and coordinated efforts across related sectors. Transport responsibilities are spread across many stakeholders as shown in table No.1.

Table No. 1: Role of agencies in the road transport sector

Agencies	Role
MoIC/RSTA	As the parent agency of RSTA, the achievements and progresses of RSTA depend to a large extent on the commitment and support from the ministry. MoIC is responsible for policy formulation, providing directions, and setting targets, identifying alternative modes of transport. RSTA is responsible to ensure road safety and administer surface transport.
DoR, Local Governments (LG)	Provision of road infrastructure and road side amenities adhering to the road safety measures including traffic signs and road markings, maintain register of roads. These agencies need to collaborate with RSTA for assessing road safety aspects before, during and after the construction of roads.
Thromdes and City Bus Services	Provision of reliable, frequent, affordable, convenient, inclusive, and environment friendly city bus services and identifying new routes.
Bus Operators and Taxis	Provision of safe, reliable, frequent and convenient public bus services and taxis. To operate in non-profitable routes with subsidy from RGoB.
Freight Transport Operators	Provision of reliable, safe (including load), affordable and economic freight transport for carrying essential and non-essential goods and raw materials.
Emission Testing Centres	Facilitating emission tests and ensuring Reducing vehicular emission through strict implementation, compliance and monitoring.
Driving Training Institutes	Providing driver trainings to produce safe and good drivers in the country.

Agencies	Role
Traffic Division, Royal Bhutan Police	Enforcement of traffic regulations to ensure road safety and improved traffic conditions in the country.
Ministry of Economic Affairs	Exploring and implementing energy efficient vehicles
National Environment Commission	Set emission standards
Ministry of Labour and Human Resources	Licensing and monitoring the driving training institutes, assessment and certification of professional drivers in the country
Department of Medical Services, Ministry of Health	Set up trauma unit and provide post-crash recovery

As can be seen from table No. 1, there are numerous government agencies and private operators involved in the development of infrastructure, delivery of services, enforcement and regulation of the transport sector. Given the complexity of the task at hand, all stakeholders have a role to play: governments can set up the playing field right and enable sufficient flow of funds; infrastructure providers can build comprehensive plans for construction, maintenance, and improved use; service providers can streamline service planning and operations; regulatory bodies can set up effective monitoring and enforcement mechanisms, and citizens can make their voices heard on effectiveness measures. Further, it is necessary to develop an organizational culture and professional capacity to work in a multi-sectoral environment and in collaboration with other agencies.

Deficiencies in present institutions, particularly laws, regulations, rules, and governance structures outlining how organisations function and conduct their dealings with other organisations and stakeholders could pose as barriers to road transport sector development. Therefore, there should be robust institutional environment, comprising overall road transport sector governance including planning, policy formulation, resource allocation, and coordination among multiple actors involved in road transport development.

Recognising the importance of integrated approach for governance of transport sector in the country, the RAA reviewed the existing institutional framework and noted certain issues that need to be addressed to achieve the sectoral outcomes as explained under:

3.1.2.1 Coordinating leadership to set and steer strategies of transport sector

Although the Transport Policy 2006 provides the basic framework for policy coordination, it is very limited in terms of ensuring integrated approach of setting strategies amongst different players and coordinating its enforcement and implementation to steer the overall sectoral development outcomes. Due to the involvement of several agencies with different mandates seen in table No.1, it is vital to ensure that there is greater coherence and coordination across different agencies operating the sector. The RAA noted that there are institutional challenges relating to central leadership, management, capacity and coordination at all levels for ensuring cohesive policy, integrated planning and implementation. This is attributable to absence of coordinating leadership charged with the responsibility of integrating efforts of agencies involved in the transport sector. Therefore, there is a lack of coordinated approach to set and steer strategies to attain long term sectoral visions.

Although the MoIC is mandated to increase safe, reliable and affordable surface transport and enhance access to sustainable, green and inclusive public transport, the ministry's role also includes improving access and enhancement of ICT and media in the country. Moreover, the development of road and transport infrastructure is not under the purview of the ministry.

With the institutional structure for the transport sector fragmented, it offers challenges of coordinating efforts across government or other sectors in realising the overall national objectives of the sector. Besides, the absence of coherent and overarching transport sector policy would result in overlaps and duplication of responsibilities that would fuel inefficiencies and waste of resources.

The RSTA was confident that issues related to multi-sectoral coordination and leadership would be made clear with the development of Surface Transport Policy and Surface Transport Strategic Roadmap. In view of the institutional challenges, the RSTA stated that the OD exercise recommended the bifurcation of RSTA into Department of Transport and Road Safety Authority, which is pending Cabinet and RCSC endorsement.

As assured and stated earlier, the RSTA should not only ensure that the Surface Transport Policy addresses the institutional challenges but also continue their efforts to get the policy approved and endorsed. Further, the RSTA should consult with the different players of the sector and develop strategies to address the current challenges regarding the central leadership, management, capacity and coordination at all levels. This will be reviewed in the next follow-up.

3.1.2.2 Overlap in responsibilities and duplication of efforts

The RAA has observed some overlaps and duplication of efforts in some responsibilities of the regulatory and implementing agencies as discussed below:

a) Advocacy and awareness on road safety

The RSTA and Traffic Police provides education on road safety and traffic rules to the general public to build responsible road users at every opportunity. During such campaigns, bus operators, taxi drivers, bus drivers, school children and general public were given awareness on the subject. The RSTA and Traffic Police have also taken initiatives to create drug free drivers enhancing safety for drivers and road users.

Since both the RSTA and RBP Traffic conduct road safety education and awareness on similar topics, the RAA observed issues which is discussed in detailed under observation 3.2.3.

b) Highway inspection and monitoring

Road authorities and enforcers must guarantee adequate levels of safety on existing roads. Similarly, as stated above there are also overlaps and duplications in conducting highway inspection and monitoring by the RSTA and RBP Traffic.

The RSTA explained that it is necessary that both the RBP and RSTA carry out enforcement activities given the common purpose of road safety and the shortage of

manpower. The RSTA further explained that such collaborative practices are common in most countries with very excellent track record of road safety.

While agreeing with the response, the RAA insists that enforcement activities should be carried out in collaboration to avoid overlaps, and duplication of efforts, and save resources.

c) City Bus

Thimphu Thromde has started managing the city bus services within the city. To this effect, a memorandum of understanding was signed between Thromde and Bhutan Post. This shift in management is for efficient use of Thromde services and efforts to minimise the number of vehicles in the country. The primary aim is to restructure the mandates of the relevant agencies, to provide better coordination and to ensure convenient and efficient services since the Thromdes are responsible for developing the urban transport infrastructures.

However, the service planning and provision for city bus services in Thimphu is carried out by officials of Bhutan Postal Corporation (Bhutan Post) placed under the Thimphu Thromde while the permit for private operators providing city bus services in Thimphu is issued by the RSTA. Thimphu Thromde has no role in service planning of city bus transport in Thimphu for private operators. The RAA observed issues which is detailed under the observation **3.1.2.4 & 3.6.3.**

d) Road Safety Audit

In the same way, there are conflicting functions of the agencies in terms of conducting road safety audit. Chapter 16, subsection 221 of the *Road Act of Bhutan 2013* mandates the DoR to conduct the road safety audit when the core functions of the department include the construction and maintenance of the road network in the country and these two functions are seen conflicting in nature. The road safety audits should be conducted by a body that is independent of implementation functions. On the other hand, the existing legislations of the RSTA do not mandate the RSTA to conduct road safety audits even when the core mandate of RSTA is road safety. As a result, there are contradiction and duplication of responsibility diffusing the importance of road safety audit if there is no clarity in the legislations.

The RSTA responded that the RSTA may be mandated to conduct road safety audit with the change in legislations. It is an on-going discussion between MoWHS and MoIC.

The RAA acknowledges the response of the RSTA. As the nodal agency for road safety, it is to stress that there is a need to have clarity on the mandate in order to avoid conflicting functions.

These instances of overlaps and contradictions amongst agencies are a result of ambiguity or absence of rules and regulations. This would lead to duplication of efforts and conflicts resulting in wastage of resources.

3.1.2.3 Alternative modes of transport

The MoIC, being the nodal ministry for planning and policy formulation, is also responsible to explore the implementation of alternative modes of transport such as electric vehicles, rope ways/cable car, waterways, and cycling.

While this has been a priority in the national plans and a strategy in the 12th Five Year Plan, except for electric vehicles, there are no implementation plans for the other alternative modes

of transport in the Plan. Moreover, the MoIC's role is limited to only exploring and planning for alternative modes of transport and there is no clarity about who should be responsible for infrastructure development, service planning and operations.

Absence of implementing agency for development and operations of alternative modes of transport could lead to losing focus on other modes of transport. Since there are no implementing agencies identified, there are overlaps on the initiatives taken and lack of ownership to take the initiatives forward. For example, the electric vehicle initiative was undertaken by both MoIC and Ministry of Economic Affairs (MoEA).

The RSTA justified that such overlaps are bound to happen with all emerging technologies. However, the mandates would become clear with the Surface Transport Policy and the Strategic Roadmap. Additionally, Boards and Working Groups have been formed to take on board all relevant stakeholders for greater efficiency and buy-ins. The RSTA has proposed for establishment of a Division for Alternate Surface Transport within the agency.

The RAA expects clarity in the policy to assign relevant agencies to take a lead role in coordinating and implementing programmes related to alternative mode transport.

3.1.2.4 Operations of City Buses

Until recently, the responsibility for operating city bus services in Thimphu Thromde was entrusted to Bhutan Post and the service planning (fare and route) was regulated by the RSTA. Since 2021, the buses along with two officials involved in service planning (route, timing and frequency planning) and management of the city bus services under Bhutan Post were transferred to Thimphu Thromde. It operates and functions like a State-Owned Enterprise reporting to the Thimphu Thrompon. There is also a steering committee for the city bus services but there is no integrated approach to planning and development of city bus services within a Thromde.

Aside from urban road development and maintenance, it is not clear how and when Thimphu Thromde will take over the complete role of service planning and delivery including the service planning for delivery of city bus services by private operators as the permit for private operators are still issued and approved by the RSTA. Having an integrated approach to planning and development of city bus services would not only lead to greater efficiency and effectiveness of city bus services (by Thimphu Thromde and private operators) but would also lead to integrated land use and urban transport planning.

The current system has led to inadequate public transport system leading to increased use of private vehicles with rapid urbanisation resulting in increased traffic congestion and emissions. Despite all these issues, Bhutan is yet to see an integrated urban transport strategy.

The City Bus Service under Thimphu Thromde responded that the City Bus Service functions under the modality of State Owned Enterprise, reporting to Dasho Thrompon of Thimphu Thromde since 6th April 2020. Also, there is no Bhutan Post Staff working with the City Bus Service.

The City Bus Service has signed a contractual agreement with the RSTA for operation of the city bus services in Thimphu. Additionally, the RSTA has agreed to draft and implement a separate act for Urban Transport.

Furthermore, the City Bus Service approached the RSTA for a close consultation with relevant stakeholders to rule out duplication of buses on same route. The City Bus Service has also requested the RSTA for monitoring and enforcement of RTSA rules and regulations. This will keep the operators in line, meeting the mandate of serving the commuters efficiently with reliability, reducing the traffic congestion, and vehicular emission.

The RAA noted the City Bus Service's efforts to collaborate with the RSTA and urges both the agencies to bring clarity in the service planning and delivery of city bus services, and have in place an integrated urban transport strategy.

3.1.2.5 Freight Sector

Bhutan is completely dependent on road and freight vehicles for movement of goods and products due to absence of rail network, low containerisation and multi-axle vehicles. Further, transport development should follow a programmatic approach since the benefits from improved transport (for example, reduced time and cost for freight transportation) are passed through prices of products and factors of production. Thus, the freight sector is very important considering its potential to contribute positively to the country's economic development. Moreover, with the increase in population and economic growth, there will be an increase in freight demand, thus, concerted focus and emphasis needs to be given to this sector.

Nevertheless, there is no central governing body for the freight sector to provide the market freedoms and oversee regulatory functions, and provide overall coordination with relevant government agencies and the private service providers for seamless freight services that would result in a cost-effective sector.

Presently, the transport and logistics sector are liberalised and left entirely to market forces with very little regulation. Transport companies only have to register for a service license and drivers have to obtain a truck driving license. The freight rates in Bhutan are higher than the region as per the diagnostic trade integration study conducted by MoEA (this issue is discussed in detail under observation 3.4.4 & 3.8.2.3). Moreover, Bhutan is ranked at 149 on the Logistics Performance Index (LPI) in 2018.

Without a central governing body, the freight sector would remain underdeveloped hindering overall trade and commerce of the country.

While acknowledging that existing regulations and policies do not address this concern, the RSTA assured that the Surface Transport Policy will address these pertinent issues, including mandates and modes. The RSTA explained that the freight industry depends to a large extent on the treaty agreements and other bilateral negotiations of the Royal Government and as such requires the involvement of agencies such as MFA and MOEA.

Recognising the importance of the freight sector, the RAA reiterates the need for governance to provide the certain regulations for the sector to ensure seamless freight services (through

warehouse infrastructure, efficient clearance services) that will have huge impact on the prices in the market.

3.1.2.6 Professional capacity

The development of the road transport sector depends on the professional and technical capacity of the agencies involved in delivering the transport mandate. The technical capacities need to be augmented to achieve intended policy objectives.

There is a need for professionals such as road safety engineer, traffic engineer, and highway safety engineer in the RSTA and DoR to conduct road safety audits, to integrate safety design considerations while planning and constructing roads in order to reduce the frequency and severity of crashes. Yet, there are capacity constraints faced by the agencies involved in the road transport sector. Currently, there is only one traffic engineer in RSTA. While the local governments (LG) including Thromdes have the responsibility for provision of infrastructure (roads, bus stops, parking, bus terminals.), and service delivery for urban transport, there is capacity constraints in the LGs in terms of traffic and safety engineers to plan and achieve safe and efficient traffic flow in Thromdes and Dzongkhags. Capacity constraints will hinder the development of the road transport sector leading to non-achievement of the policy objectives.

The current practices, administrative arrangements and institutional issues mentioned above reveal that institutional reforms and capacity need greater attention to reap the benefits of an integrated road transport sector in the country. Fragmentation of authority between multiple agencies under different levels of government and under different ministries together with institutional, resource and capacity constraints has further compounded the problem.

In the absence of formal institutional arrangement, it is hard to ensure close collaboration between all such parties which is essential for the purpose. As a result, although the necessity for strengthening the road transport sector is recognised and outlined in national plans, their implementation is hindered.

3.1.3 Strategic vision for Transport Sector

The strategic vision for development of efficient and integrated transport system is crucial for creating a framework of sustainable policies and regulators and implementable models to support government strategies for economic, social and international development. Considering the importance, the RGoB over the years had commissioned several studies to maximise the contribution of transport to the economic and social development goals of the society by providing basic infrastructures with periodic maintenance and consistently striving for quality and affordable transport for all.

An effective coordinated and collaborative framework for the transport sector is therefore critical to the successful implementation of the plans. In this regard, RAA's review of comprehensive plan revealed the following.

3.1.3.1 Bhutan Transport 2040: Integrated Strategic Vision

Bhutan Transport 2040 Integrated Strategic Vision was prepared by Asian Development Bank under the Development Partnership Program for South Asia⁴ financed by the Government of Australia through the Australian Agency for International Development. The transport vision incorporates all existing transport related plans, policies, initiatives and actions to create long-term comprehensive strategy for the country. Recognizing the importance of road transport sector, the RGoB developed several strategies and plans in order to strengthen and enhance the sector. The strategic vision which is built on earlier studies intended to create one integrated and sustainable plan. The overall vision covers both the implementation of transport infrastructure as well as the execution of institutional and management functions associated with the delivery of transport services.

Transport 2040 Integrated Strategic Vision establishes the building blocks to enable Bhutan to achieve its vision for transport encompassing building of transport infrastructure as well as institutional responsibilities in delivery of transport services. The vision is ambitious and reflects the changing socioeconomic development of the country. The ‘Bhutan Transport 2040: Integrated Strategic Vision’ document specifies the development and implementation of a national road safety action plan.

The strategic vision has strategies and recommendations provided with regard to restructuring organizations responsible for transport to respond to the changing needs of the sector and developing technical capacity in the government and the private sector and better coordination of policy, planning, investment, enforcement, maintenance and regulation.

3.1.3.2 Decade of Action for Road Safety 2011-2020

Decade of Action Plan 2011-2020 is one such plan for the country’s national road safety action plan. Understanding the devastating health, social and economic impacts caused by road accidents, the Decade of Action (DOA) on road safety was endorsed by the UN Road Safety Collaboration and the global plan of DOA 2011-2020 was established in May 2011 to garner coordinated and concerted efforts towards achieving objectives of DOA. The global action plan recommended member countries of UN to develop their national action plan for the decade where the World Health Organisation plays a key role in overall coordination responsibility. The RGoB, being committed to the improvement of road safety, developed its own road safety action plan for 2011-2020.

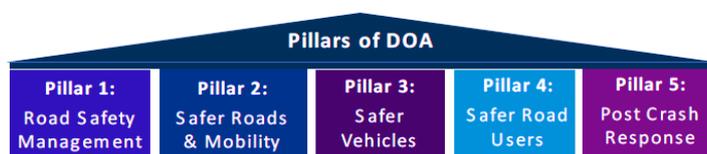
The RGoB launched the long-term, multiagency DOA on Road Safety (2011-2020) in May 2011 in order to save lives particularly to:

- ✓ comprehensively address road safety issues,
- ✓ reduce road deaths to less than 5 per 10,000 vehicles by 2020 from 17 per 10,000 vehicles in 2011, and
- ✓ reduce vehicle crashes by 50% by 2020.

⁴ Asian Development Bank 2006. Technical assistance for the Development Partnership Program for South Asia. Manila

The action plan was designed through extensive consultations with all major stakeholders; the RSTA, RBP Traffic, DoR, the then Municipal Corporations and the MoH. The action plan aspired to educate the public, enforce tougher traffic rules, improve road engineering and designs, and strengthen post-accident response. The activities of the action plan are categorised and structured within the five pillars of DOA which are presented in figure 2.

Figure 2: Pillars of DOA



The action plan specified the implementation matrix identifying the stakeholders responsible for implementation of the planned activities with timelines and the financial resources required. Further, the plan mentioned the accountability and evaluation framework. The progress and performance of the plan is to be monitored by carrying out multiple evaluations which included monitoring of indicators and tracking milestones throughout the decade (2011-2020). During the evaluation process, both outcome and output (process indicators) were to be assessed by the identified evaluation team.

As far as the action plan and the strategic vision for road safety was concerned, it was a well laid out plan and vision developed through involvement of multiple agencies under different ministries and at different levels. Both the plan and vision outlined road safety strategies and programmes to reduce morbidity and mortality due to road accidents. A proper implementation reinforced through monitoring and evaluation would have led to achieving intended results.

On the contrary, the RAA found little evidence to show that the progress of the action plan was tracked and reported. Even though a clear evaluation framework was developed, the evaluation of the action plan was carried out only once in 2017. The RAA also learned that the progress and performance of the plan was assessed in 2020 during the Annual Road Safety Promotion Conference but there was no report of progress and evaluation of the plan maintained by the RSTA. Further, the RSTA plans to develop the DOA for road safety 2021-2030.

Similarly, in 2015 the Prime Minister had directed the MoIC to draw up a plan of action focusing on addressing road congestion in urban areas. Following multi-sectoral consultations, the MoIC submitted a set of 15 recommendations to the government. There was no record of implementation of the recommendations. Likewise, most of the recommendations of the surface transport masterplan for Bhutan 2007 remain unimplemented.

Thus, the fragmentation of institutional structures and implementing apparatus without clear delineation of responsibilities and accountability have apparently led to series of plans and strategies not delivering the results aspired. This may be attributable to phenomena of diffusion of responsibilities when no lead agency is identified to provide overall leadership and steer the goals and objectives of the transport sector. It was evident from the fact that most officials from the agencies responsible for implementation were not aware of the existence of such plans.

The RSTA refuted that the Decade of Action for Road Safety 2011-2020 is well incorporated into the APA of RSTA and an evaluation of progress of the same is carried out quarterly.

The need to boldly point out the issues regarding the forgotten nature of the document by agencies concerned was also discussed during the Annual Road Safety Promotion Conference held in 2020. Moreover, the RAA reviewed the APA of RSTA and found most of the activities from the action plan are not in the APA. Similarly, most of the recommendations of the surface transport masterplan for Bhutan 2007 remain unimplemented due to weak accountability mechanisms.

The RAA would like to stress that plans and strategies without implementation renders the plans and strategies useless by not achieving the intended results. Thus, the implementation of plans should be reinforced through monitoring and evaluation.

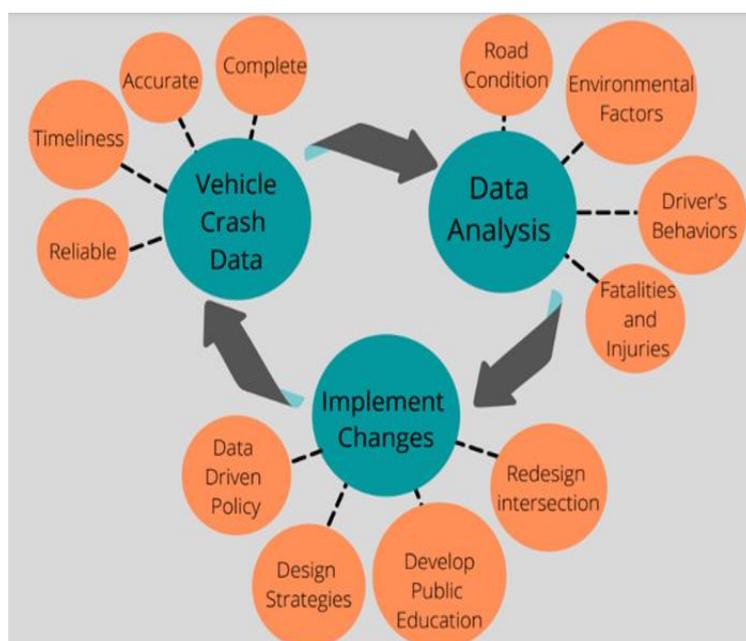
The RAA expects the RSTA to take up ownership, track progresses, assess the feasibility of the activities (point out the gaps and challenges for not being able to achieve), and implement the activities of the studies and plans pertaining to the transport sector. In addition, there should be strong accountability mechanisms when the DOA for road safety 2021-2030 is developed and implemented.

3.2 Road Safety – Road Safety Management

3.2.1 Motor vehicle accident data: Collection, maintenance and post-crash analysis

Motor vehicle accident (MVA) data is the information gathered by the Traffic Division of RBP describing the locations, circumstances, persons, and vehicles involved in motor vehicle crashes. The incident crash reports should be consolidated into one generally accessible national motor vehicle accident database with a clearly defined organisational custodian.

Figure 3: Benefits of analysing of motor vehicle accident data



Source: RAA

motor vehicle crashes thereby saving lives and reducing motor vehicle accidents. The benefits of analysing the MVA data is given in figure 3.

Accurate and complete database coupled with post-crash analysis will enable relevant stakeholders to develop accurate diagnosis and select countermeasures, develop data driven policies, and long-term, nationwide strategic plans for road safety, and help educate the public. Furthermore, the data would be useful in examining the effect of environment, road and driver's behaviour in causing

Therefore, given the practical importance of motor vehicle accident data, there is a need of system-wide reliable, timely, consistent and accessible vehicle accident data that enables RSTA in carrying out post-crash analysis to identify the main causes of motor vehicle accidents and implement corrective as well as preventive measures.

With regard to MVA, the RBP has procedures in place to report a motor vehicle accident which includes recording date, time and place of occurrence, obtaining statements from the driver, passenger (if any), and pedestrian (if involved), details of the driver(s) (license number and validity, age and sex), details of the car(s) (vehicle type and registration), type of accident, causes of the accident (mechanical, road condition, driver negligence), nature of accident and casualties (injured and killed). These detailed collections of data show that there is comprehensive information requirement related to accidents. The information is also recorded manually in the MVA case register maintained by the individual Police Stations as shown in figure 4.

Figure 4: MVA case register maintained by the RBP Traffic Police

ROYAL BHUTAN POLICE MOTOR VEHICLE ACCIDENT CASE REGISTER															
Case No.	DTD	DTR	POD	Name & address of the informant	Name & address of the victim	Name & address of the driver	Driving License No.	Vehicle No. & Type	Name & address of the owner	Type of accident	Causes of accident	No. of persons injured	No. of persons killed	How case disposed off	Remarks
01	17/11/2017	17/11/17	17/11/17	Mizneko- Dh.	Thinley Dong, Lamsak 700p, Punatla	Thinley Dong, Age 30m Lamsak, 700p, Punatla	PT-15732	MT-1- 06087 Mira sub	Thinley Doron Thimphu, Bhutan	Head Collision	Vehicle No. 00- 2- A 8112-2017 has on same side	-	-	Charged to the Police court and sent to prison 14/12/17 12/1/2018	
02	10/11/2017	10/11/17	10/11/17	Rena Namgyal Khangar	Khangar, Jambha	Same as	-	AT-0 K-10	Same as	Self Accd.	Car crash	1	1		
	20/10/2017	0057/17		Linche Sara 700.	27/11. Kangsuk Sungang.	Same as	Column No. 6		Column No. 6		Carving				
03	07/10/2017	07/10/17	07/10/17	Tarka Mr Phub Gyeltshen Age 22/M. 370	Phub Gyeltshen 22/M. 370. Dawa	Phub Gyeltshen 22/M. 370. Dawa	T-45354	AP-1-0 2-205	Chimi Uden. Dangchu.	M.V Accident (Fatal)	Carroll driving	1	1	Charged to the Police court and sent to prison 19/11/17	
	07/10/17	07/10/17		Dawa Tashi Kawacha, Neebo	Yamathu Neebo Khamthang.	Tobi Neebo Guleka, Neebo		Subpart LX	Wangchuk Phodrang						
				Wangchuk Phodrang S/Gamleha.	Wangchuk Phodrang S/Gamleha.										

Further, The RBP even draws a sketch map detailing the circumstances of the MVA, prepares MVA police report and issues a MVA certificate if deemed necessary.

On review of the existing system of conducting post-crash analysis, the RAA observed the following:

- i. The MVA data collected is not complete as it does not record the details of the crash location such as road coordinates, road type, and other attributes such as road design and alignment which can be used to identify the hazardous roads and accident-prone areas, and implement countermeasures for the existing roads and guide future road constructions.
- ii. Across RBP, there was no consensus regarding the appropriate level of details to include in the narrative section of the MVA police report and in the MVA rough sketch map.
- iii. The MVA data are not collected electronically in the field that impedes uniform and efficient MVA data collection. Instead, the data of each accident is collected and recorded manually in the MVA case register along with the forms and supporting documents such as photocopy of the vehicle registration details, certificate of road worthiness, vehicle insurance details and driver license.

- iv. Since the MVA data is maintained manually at each Police Station, the consolidated MVA data of each division of RBP is sent to the Traffic Division on a monthly basis. The Traffic Division would then consolidate the MVA data of all the divisions which is time-consuming and cumbersome process. Although the Traffic Division, RBP maintains the consolidated information, the detailed information as to exact location and time, number of fatalities and injuries, vehicle number and driver's detail are available only at the Police Station where the accident was actually recorded. This is apparently due to incomplete information submitted to Traffic Division.
- v. There is no centralised national MVA database. Further, even though there is a module to record accident data in the eRALIS system, this feature has never been used either by RBP or RSTA officials.
- vi. There is no agreed and defined standard specifying the circumstances in which to classify the cause of the accident as “others” and “unknown causes”.
- vii. The RSTA has never conducted analysis of MVA data to identify accidents by vehicle types, identify at-risk groups of drivers, study the relationship between driver behaviour and crash risk, and to identify accident prone areas and hazardous roads in order to implement corrective measures and design specific interventions.

Above lapses have occurred due to lack of systematic information sharing mechanism among relevant stakeholders and lack of standard procedure for managing vehicle crash data. Further, non-automation of MVA cases and the reluctance of the users on using the eRALIS feature to record the accident details also led to such lapses.

These lapses clearly show that although MVA data is maintained, it was found to be incomplete to render basis for conducting analysis for decision making. A detailed analysis would help in identifying the issues and developing appropriate strategies to improve overall safety in the transport sector.

The RSTA agreed that this task requires strong coordination between DoR, RBP, MoH and RSTA. The RSTA is currently exploring FA and TA from development partners (UN Road Safety Fund and The World Bank) for the development of integrated vehicle crash data collection and analysis system.

Moreover, the RSTA, in their response, clarified that the Authority has carried out preliminary studies on MVA crash data (data from 2011-2016) and the report on the same is available. However, the RSTA accepted that the audit finding is very pertinent and it will be discussed with DoR.

During the Exit Meeting conducted on 30th December 2021, RBP informed that a system has been developed to maintain detailed information of MVA which will be soon implemented.

The RAA reiterates the need for a central comprehensive MVA system to be used by relevant agencies and to conduct periodic post-crash analysis on the complete and comprehensive data.

3.2.2 Emergency response

Motor vehicle accidents are on the rise despite many measures put in place. As per the statistics compiled by traffic police, 5,945 cases of motor vehicle accident were reported over five years

from 2015 to 2020. While initiating measures to reduce motor vehicle accidents through various means such as advocacy and awareness, road safety audit, enforcement and inspections, it is also imperative for RSTA and other relevant agencies to have efficient system that responds quickly to post-crash emergencies.

The crash victims have a better chance of recovery, or avoiding death, if they receive quick response at the scene of an injury. This can be catered only through an efficient and well-equipped response team. Good post-crash care reduces deaths and reduces disability and suffering for road crash survivors. The emergency medical care system elements and processes need to be effective to attain this objective.

Emergency response teams should comprise of trained and competent manpower to have efficient response (man), well documented and tested procedures or response strategy (mode), and adequate equipment fit for purpose which are well maintained (machine).

In regard to emergency response, the RAA observed deficiencies in following areas:

i. Standard Operating Procedures

With regard to traffic police call centre, all the 20 Dzongkhags have one call centre each. Whenever the caller dials 111, the network automatically connects it to the call centre of respective Dzongkhag. Call related to road accident is communicated to official on duty, the receiver through wireless phone (traffic mobile duty at the nearest location is deputed). Although each Dzongkhag is provided with one phone number, it does not use the multi-line hunting method. Currently, the official on call duty uses a mobile phone to answer all the emergency calls. Since there is only one receiving end, there is an issue of not getting the phone connection promptly as all the calls (within Dzongkhag) need to wait in queue for getting service line from a single receiver. This might lead to delay in response for emergency calls, increase the risk of not getting to the victim on time to nurse their injuries or saving their lives.

After receiving emergency call, officials are deputed for respective duties. Presently, the traffic police are deputed for search and rescue operation by respective traffic heads, and health officials and ambulance services for pre-hospital care and referring critical accident victims to nearest health centre. There is no standard response time specified for attending to motor vehicle accidents.

A SOP is being developed in line with WHO and international standards following which, RSTA will discuss with RBP and other stakeholder concerned.

The SoP pertains to road management during the event of road disaster such as landslides, debris flow, rock fall, and flooding. The RAA would like to stress that a SoP for emergency response is imperative as it involves various stakeholders, and an efficient and well-equipped response team could potentially reduce deaths and disability.

ii. Psychological follow up support to persons involved in crash

There are a total of 13 trauma centres identified in the country. The trauma centres are classified into three different levels according to the availability of facilities and staff. The victims are referred in different trauma centres based on distance and severity. However,

there is no proper data on the care provided to the victims and no centralised trauma registry system in the country.

The MoH responded that while the Health Emergency and Disaster Contingency Plan (HEDCP) 2016 has identified 13 health centres as trauma centres, only 3 referral hospitals have been able to function as full-fledged trauma centres as of today. Additionally, the MoH is undergoing major clinical reforms whereby the identified hospitals will be equipped with all the necessary infrastructures and human resources to function as a trauma centre.

The Ministry clarified that a trauma registry is being maintained at the established trauma centres and this will be further strengthened with the establishment of an electronic patient information system (EPIS).

The MoH mentioned that most of the hospitals are manned with the clinical counsellors who provide necessary post-trauma counselling to the victims.

The RAA notes the response and urges the MoH to strengthen the psychological follow-up support to victims and enhance the maintenance of a central comprehensive trauma registry system rather than being maintained individually at the moment.

iii. Emergency response team and proper equipment

The most important part for search and rescue team is competent team members (well trained) with useable equipment (well tested). Having competent team with required equipment will not only help in responding to emergency cases on time but will also avoid risk of endangering the injured person while evacuating. However, there is no designated team formed as yet for emergency response. As discussed earlier, the cases are attended mostly by the traffic police and health officials but they work in silos. With regards to traffic police who are deployed for attending emergency cases, they are not trained and also not provided with the required equipment. At times, the body of the injured person or deceased had to be brought in makeshift stretchers with bed sheets.

According to the traffic police officials, it is not possible to have designated team in each Dzongkhag as they are made to serve on rotation mainly to cover the shortage of officials where ever necessary. In some cases, even the police personal from general category (not trained traffic police) are deputed for manning traffic duties without having proper knowledge on traffic rules and procedures including search and rescue operations.

There is a lack of system of spotting the exact location of the accident although it is imperative to have a system to identify exact spot to render necessary assistance on the shortest time possible. There are cases when the rescue operations were delayed due to lack of information on the exact location of where the accident occurred (although not documented).

Operating emergency cases without skills and required equipment will not only endanger the lives of victims but will also risk the lives of the rescuer. For instance, during the emergency evacuation carried out in Gelephu on 21st July 2020, two-armed force personnel died while attempting to rescue five people stranded in the river. Similarly, there was a case of a civilian dying while attempting to help a tripper truck driver stuck with his truck at the crash site in Punakha in April 2021. Such cases show that there are no procedures from the RBP to stop untrained civilians to help out at the crash site as it could also endanger their lives. Figure 5 shows a scene of rescue operation without designated skilled team or equipment.

Figure 5: Untrained team in a rescue operation without proper equipment



The MoH responded that the casualties are provided with pre-hospital care before transported to the health facility. The medical teams (RRT) are immediately dispatched to the accident site based on the location described by the callers.

While there are some levels of coordination and communication between the responders at the site, the formal coordination mechanism can improve the efficiency of the emergency response at the site.

The Health Help Centre (HHC) is currently staffed by 24 health staff headed by 1 medical doctor. According to the approved 12th FYP staff profile, the HHC is required to have 26 staff including 1 doctor. The Emergency Medical Services Division is working closely with HRD to have additional staff, which will strengthen and enhance the HHC services.

The RAA notes the response from MoH. The RAA would urge the RSTA, RBP and MoH to work on forming a designated, trained and well equipped emergency team to attend to motor vehicle accident cases.

iv. Coordination of response task

Although it is very critical to have an emergency response team with standard operating procedures, it is not documented as yet. Each stakeholder work in silo and there is no mechanism for collaboration to share information. This could lead to confusions amongst different stakeholders who are involved in emergency rescue operation. The confusion not only hinders the efficiency of the operation but also pose risk to the victim's life. It is also because of the culture of working in silos, there is no comprehensive information available from one source.

At present, RSTA is involved only when there are accidents related to passenger transport buses. Further, the DoR as one of the stakeholders for road safety should be informed on the road condition and requirement of correction if the cause of accident is due to road condition but it was noted that the department is not involved during such event. This is apparently due to lack of information sharing between the two.

The RSTA stated that a SOP was jointly developed by DoR, RSTA and Traffic Division, RBP to provide rapid response to road users during motor vehicle crash.

While acknowledging the lack of systematic mechanism to coordinate amongst stakeholders, the MoH responded that the emergency medical response provided by the Health Help Centre (HHC) depends on the calls received through the hotline number 112.

The MoH agreed that there is a need to develop a SOP delineating the roles and responsibilities of each agency and draw a clear mechanism to coordinate in responding to emergency situations.

The SoP mentioned by the RSTA pertains to road management during the event of road disaster such as landslides, debris flow, rock fall and flooding. In line with the response from MoH, the RAA would like to stress that there is a need to develop a SoP.

v. Helpline

In Bhutan, different toll-free emergency call numbers are used for different emergency services. Currently, 113 is used for Police service, 110 is used for Fire Brigade and 112 is used for Ambulance services as shown in the figure 6. Other three-digit short numbers are

Figure 6: showing the present scenario of emergency number system



being used by different organizations. For example, 111 for Traffic Police, 999 for Disaster Communication Helpline, 219 for National Emergency for Disaster and 214 for Youth Support Services (Nazhoen Helpline). There are also four-digit short code numbers used by different agencies including 1250 for electricity service, 1300 for Drukair and 1255 for Financial Services.

Bhutan is one of the many countries in the world where people need to call different numbers for emergency services operated by different emergency response organizations. As a result, multiple emergency number causes confusion in situation of distress. For example, during emergency situation multiple number creates confusion since every passing second is important during emergency period, and vital seconds may be lost by the callers while determining relevant number to use. Such situation creates delay thereby increasing the risk and degree of damage. A common number and single point of contact can eliminate these avoidable risks.

The MoH replied that Emergency Medical Services Division is happy to coordinate with the relevant stakeholders to come up with the single emergency hotline number to enhance the efficiency of providing the emergency responses.

The RAA acknowledges the response and agrees that a single contact point (universal number) throughout the country would enhance the efficiency and effectiveness of emergency response services. Accordingly, there is a need to institute single hotline number for all types of emergencies.

3.2.3 Advocacy and Awareness Program

A road safety awareness program is crucial and one of the ways to disseminate knowledge and information about road safety to the public. Regular and periodic road safety awareness will inform the public about the changes in rules and regulations, road signage, traffic offences, fines and penalties, passenger rights, driver’s duties and responsibilities, and environmental effects of a transport system. In addition, awareness program increases the awareness of risks associated with breaking laws and assists in changing users’ behaviours, thereby, enhancing the enforcement of rules and regulations and reducing motor vehicle crashes and traffic offences.

Since human behaviour has a dominant influence in road safety, it is important to have effective, timely and influencing awareness programs that will motivate and persuade the public to refrain from hazardous behaviours. Likewise, the increase in new drivers and road users demands an effective, timely convincing awareness program to ensure a safe and sustainable road transport system in the country.

Table No. 2: Expenditure of RSTA on safety education and awareness campaign

Year	Expenditure (Nu.)
2015-2016	3,126,569.00
2016-2017	3,216,749.00
2017-2018	623,324.00
2018-2019	1,797,180.00
2019-2020	2,044,432.00
Total	10,808,254.00

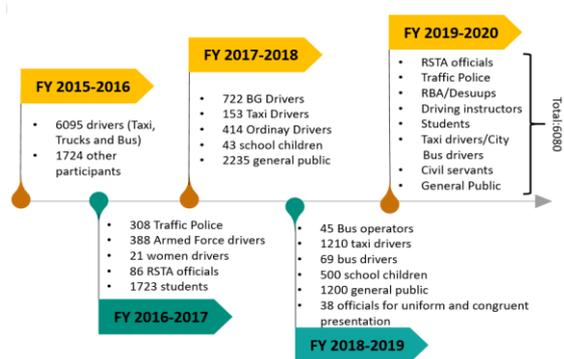
Source: ePEMS and PEMS

year 2015-2016 to 2019-2020 as shown in table No. 2.

The RSTA conducted awareness programs and refresher courses including training on first aid and enforcement of traffic rules, targeting the traffic police, armed force drivers, civil servants, public transport

To enhance safer roads and minimise motor vehicle crashes, the Regulatory and Safety Division of RSTA conducts awareness programs annually. The government gives priority and allocates a separate budget to RSTA for road safety education and awareness programs. A total of Nu. 10.808 million was spent on awareness programs from the financial

Figure 7: Participants of awareness campaign by RSTA



Source: RAA compilation from RSTA Annual Reports

drivers, students, local leaders (Gups and Mangmis) and RSTA officials. The number and type of participants is depicted in figure 7.

Additionally, RSTA also celebrates Global Road Safety Week annually, in which all officials are involved in disseminating road safety information through printed, broadcast and social media platforms.

The Traffic Management and Awareness Unit under the Traffic Division of RBP also conduct traffic awareness programs. The division has been conducting awareness programs for civil servants, students, Driving Training Institutes (DTIs), heavy vehicle drivers and refresher courses for the taxi drivers.

Moreover, the RAA also learnt that the RSTA regional offices, base offices, and RBP divisions visit DTIs as guest lecturers to create awareness on road safety and traffic rules to the driving trainees. The frequency and number of the awareness programs depend on the requirement.

The RAA conducted comparative analysis of the target audiences, and the advocacy and awareness content covered during the awareness program by RBP and RSTA based on the available documents and the result indicate duplication and overlapping efforts between two agencies, with similar content and same target audiences. The comparative analysis is provided in the table No. 3.

Table No. 3: Comparative Analysis of Topics covered by RBP and RSTA in Road Safety Awareness programs

Topics	RSTA	RBP
Road Safety Issues	✓	
Provisions Under RST Act and Regulation 1999 pertaining to the safety of road users	✓	
Traffic/Road Signs and Signals	✓	✓
Road Markings	✓	✓
Road Safety Tips	✓	
Use of mRSTA	✓	
Traffic Regulations	✓	
Parking Regulation	✓	
Main Cause of Motor Vehicle Accidents & Preventive Measures & Traffic Violation reports	✓	✓
Special Rules for Pedestrian	✓	✓
Rules for Bicycle		✓
Enforcement Mechanism	✓	✓
Giving Way to Pedestrian, Vehicles and Animals	✓	✓
Operating Provisions for Taxis		✓
Traffic Awareness for Highway Checking		✓

Source: RAA Analysis of Documents from RBP, RSTA

The awareness program covers the road safety and transport regulations including licensing details, traffic offences, fines and penalties, operating provisions for taxi, training on

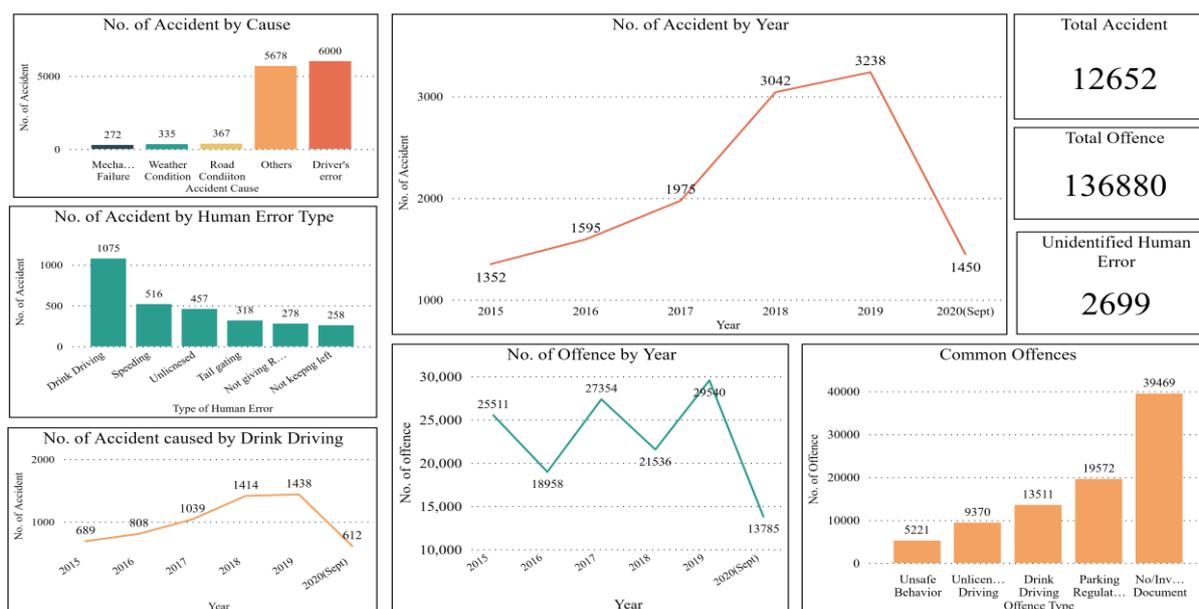
enforcement of traffic rules, and emergency responses. However, necessary information for the public transport passengers such as code of conduct of drivers and passengers, fare regulations, the importance of maintaining safe vehicles and the need to transfer ownership is not included. Moreover, there is no road safety education in schools for young children as well as for youths who might start driving soon.

Further, the motor vehicle crashes caused by driver errors and offences of non-compliance to traffic rules and road safety aspects have been increasing since 2015. As evident in figure 8, drivers without or with invalid documents, offences related to parking regulation and drink driving are common offences.

Further, drivers' error and drink driving are the highest cause of motor vehicle crashes, causing loss of human lives due to road crashes. The rise in accident cases over the period despite continuous effort in creating awareness show that there is need for reinforced strategies and interventions to induce behavioural change.

Lack of proper coordination between RSTA and RBP in organizing the awareness and advocacy programs have resulted in duplication and overlap of efforts. Besides, lack of standardised content of the awareness programs and identification of the target audience by both RSTA and Traffic Police would undermine the overall effectiveness of the program.

Figure 8: Total Number of Accidents and Offences from 2015 to Sept 2020



Source: RAA Analysis from eRALIS data & RBP data

A well designed and standardised awareness and sensitisation program would not only lead to behavioural change in road users to reduce incidents of offences, accidents, non-compliance but also create awareness on the basic rights of commuters and create conducive and convenient environment for commuters in all public transport.

The RSTA responded that the awareness program conducted covers all the aspects mentioned in the audit finding. Moreover, the RSTA had conducted awareness program for Thimphu Thromde Schools in 2018 and 2021. The RSTA was unable to implement the initial plan to conduct awareness across all schools due to the pandemic.

With regards to lack of proper coordination between RSTA and RBP, the RSTA clarified that awareness and advocacy is carried out in coordination with RBP and a senior RBP official is always invited as a resource speaker. To that effect, a user training manual was developed to be consumed by all RSTA offices since July 2021 which will be shared to RBP for uniformity.

While noting the responses, the content of the advocacy and awareness programs should also include code of conduct of drivers and passengers, fare regulations, the importance of maintaining safe vehicles, and the need to transfer ownership. Additionally, road safety education in schools should not happen sporadically but should be a regular programme to educate young children as well as youths who would eventually become drivers.

Moreover, there should be a consolidated approach to creating general awareness amongst the public on overall safety of the transport system based on the respective mandates of the RSTA and RBP. This would allow consolidation of efforts as well as resources in conducting such programmes.

3.2.4 Revenue collection and deposits

The RAA found discrepancies in the figures of revenue as per e-RALIS and RAMIS which are yet to be reconciled as shown in the table No. 4 below.

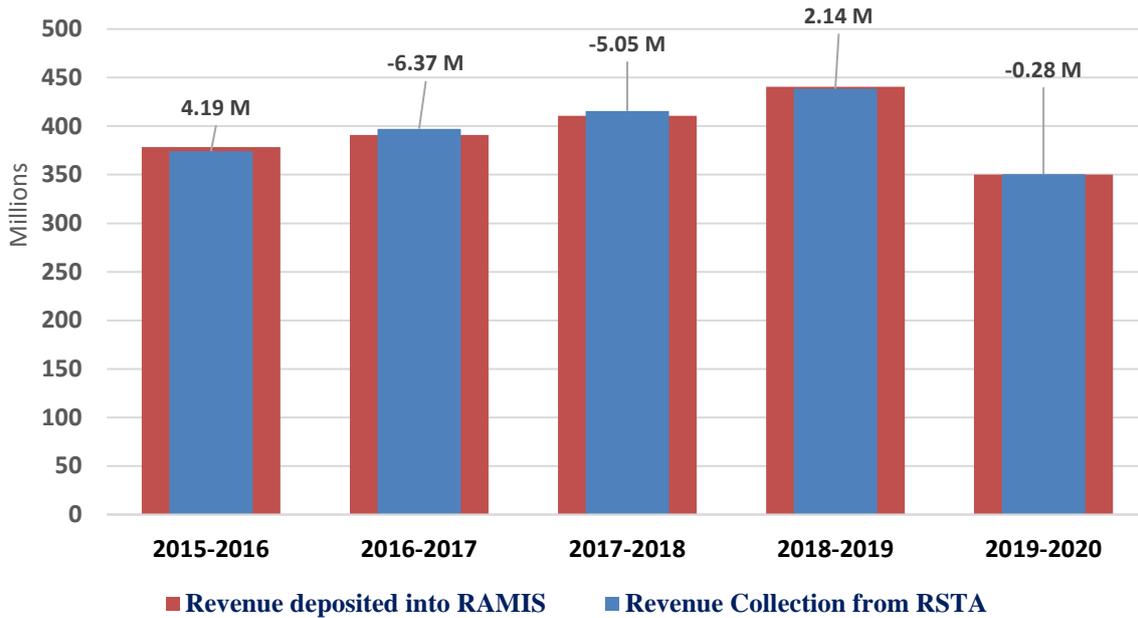
Table No. 4: Discrepancies in revenue Collection & Deposit

Year	Revenue Collection from RSTA	Revenue deposited into RAMIS	Difference (Nu. In Million)
2015-2016	374,287,978.10	378,475,546.49	4.19 M
2016-2017	397,299,971.90	390,933,525.11	-6.37 M
2017-2018	415,613,749.91	410,563,266.81	-5.05 M
2018-2019	438,525,198.87	440,669,735.27	2.14 M
2019-2020	350,568,298.15	350,290,475.52	-0.28 M
	1,976,295,196.93	1,970,932,549.20	-5.36 M

Source: RAA calculation

As indicated in the table above and figure 9, the total revenue amount collected is more than the revenue deposited in the RAMIS. During the financial years (2015-2016 and 2018-2019) revenue was deposited in excess (Nu. 6.33 million) of what is actually collected and in contrast during the financial years (2016-2017, 2017-2018 & 2019-2020) revenue collected was deposited short in the RAMIS which constituted Nu. 11.7 million. The overall difference amounting to Nu. 5.36 million was short deposited in the RAMIS.

Figure 9: Mismatch of overall revenue collection (e-RALIS) & deposits (RAMIS)



In general, we found, and our findings are further supported by financial audit reports conducted at various RSTA regional offices where large amounts of unreconciled differences were pointed out. The RSTA officials only reconciled the RAMIS system and make the deposits. The e-RALIS transactions were not reconciled as needed.

Some possible causes for such differences were due to the following.

- In some cases, the TIN booklets issued to respective traffic divisions were not accounted for and reconciled to ensure necessary check and balance.
- At times, when TINs are not entered into the eRALIS system, individuals cannot make online payment for the offences committed. Ultimately, the individual needs to personally visit the RSTA office to make payments which are then entered and recorded into RAMIS but not recorded in the eRALIS system.
- RAMIS and eRALIS are not integrated and hence, do not share data.

The RAA is of the view that the use of two different process of recording the information, the figures of collections reflected in the system and the actual receipt may vary. Moreover, there is possibility of misusing the cash received when payments are not completely recorded in both the systems.

The RSTA justified that the field officials are given 24 hrs to update the TIN in the system and offenders are provided a week's time to pay the fine manually through RAMIS or online through eRaLIS. Without update of the payment record in the eRaLIS, seized documents do not get released. Further, the system restricts any other transactions against the vehicle and driving license if the TIN is not cleared as not paid in the system.

The RSTA stated that it prohibits the use of manual receipts and use of single receipt for renewal of documents of more than one vehicle or driving licenses of more than one person. The same has been incorporated in the eRaLIS which will prevent potential misuse of cash.

In the report, Table No. 4: Discrepancies in revenue collection & deposit, for the year 2019-2020, the revenue collection through eRaLIS is reflected as Nu. 420,024,771.15 (which is inclusive of online payments deposited directly to RGR account) owing to the printing error in the RSTA annual report 2019-20. The RAA may note that the correct figure is actually Nu. 350,568,298.15, which is also reflected in the RSTA annual report.

The RSTA further explained that this had happened due to online payments being deposited directly to the RGR account and not accounted in the RAMIS. The RSTA is hopeful that after the integration of RAMIS and eRaLIS through BITS initiatives which DRC is currently working on will address this issue.

The decision during the exit meeting was that the RAA and RSTA will rework on the unreconciled figures and correct the errors if any. Subsequently, the RAA followed up on the issue and had asked the RSTA official to share the file for the revenue collected in 2019-2020. However, the RAA had found that the figure has been corrected in the RSTA annual report 2019-20 and has accordingly corrected the figure to Nu. 350,568,298.15 in the audit report.

The difference of Nu. 5.36 million representing less deposit of revenue still needs to be resolved. The RSTA and DRC should collaborate and integrate the systems in the near future.

3.3 Road Safety – Safer Road

3.3.1 Urban Infrastructure for safe urban road

In Bhutan, the cases of road accident are still on the rise despite many measures in place. As per the statistics from Royal Bhutan Police (Traffic division), there had been 19,235 motor vehicle accident cases reported with 1,678 deaths and 9,792 injured cases from 2000 to mid-2021.

Ensuring safe road is one of the aspects to minimise road accidents and related death and injuries among other measures. The safe road includes both urban road as well as the highways.

The RSTA and Traffic police in collaboration with the Thromdes and Dzongkhag municipals should have clear segregation of duties for ensuring urban road safety. With the clarity in the role, there will be collaborative initiatives towards development of safer infrastructure.

In the current scenario, there is no single agency to lead the transport sector or responsible for policy, strategic planning, coordination, and performance monitoring (which was discussed in detail in policy observation) which had led to unclear delineation of responsibilities for ensuring safer urban roads.

Urban infrastructure for safe road comprises of two aspects which are traffic calming measures and safe road for non-motorised traffic besides advocacy and education.

3.3.1.1 Traffic calming measures

Traffic calming measure includes installation of speed bumps, pedestrian crossing, roundabouts, proper traffic signage, clear road markings, safe bus and taxi stops, and CCTVs.

During the visit to Thromdes and Dzongkhags, the RAA found that some of the roads were not designed so as to ensure safety. These are discussed in the following paragraphs.

i. Pedestrian crossing

There is no raised or underground pedestrian in all the urban areas except for few in Thimphu and Phuentsholing. Although there is one raised pedestrian crossing in Phuentsholing and few underground crossings in Thimphu town, it was seen that the facilities are hardly put to intended use (Figure 10 and 11) because of it being non-inclusive (stairs) and not safe (dark and dingy in Thimphu) causing inconveniences.

Figure 10: Pedestrian Bridge in Phuentsholing



Figure 11: Underground crossing in Thimphu



Further, there are inadequacies in identification and development of pedestrian cross roads. In some cases, there are less crossings while there are several crossroads in town areas allowing huge numbers of pedestrians to cross in uncontrolled manner. For instance, between BoD deport in Lungtenzampa to Chubachu junction, there are 14 cross road marked (Zebra cross). Figure 12 shows the traffic flow of vehicle and pedestrian along Norzin Lam (Thimphu town) area during peak hour. Currently, traffic police is physically engaged in managing the traffic for pedestrians.

Figure 12: Pedestrian crossings in Thimphu Thromde



Further, it is observed that some of the crossroad markings are not visible and inappropriately designated in some cases as shown in (figure 13 and 14).

Figure 13: Faded Pedestrian crossings



Figure 14: Incomplete pedestrian crossing



Zebra cross have ended before reaching the main road

The RSTA stated that the committee (RSTCC) comprising of RSTA, Traffic Division, RBP and Thromde meets on a quarterly basis. The general understanding is that the traffic regulation enforcement within the town is with the traffic police while policies, enforcement on highways are with RSTA. The urban planning is done by Thromdes in consultation with the MoWHS. However, the RSTA also mentioned that as a nodal agency for surface transport, it is looking into resolving this issue through pertinent policy statements in the new surface transport policy.

The RSTA acknowledged with the audit finding and would enhance collaboration with Thromdes and LGs through RSTCC.

There should be a coordinated and integrated approach to planning and development of such infrastructure to ensure safe commuting by both the vehicles and pedestrians by properly assessing the need for infrastructure, and placing the pedestrian crossings at appropriate places with clear and visible markings.

ii. Obstruction of clear view

The roadside environment should be clear of any obstructions particularly in the urban roads where there are cross roads for pedestrians so as to mitigate the risk of accidents. Nevertheless, in some urban roads, it has been noted that there are obstructions caused by shrubs on the road divider blocking the clear view of both drivers and pedestrian as shown in figure 15.

Figure 15: Bushes on road dividers blocking the sight of drivers



The RSTA acknowledged the audit finding and assured to improve through collaboration with Thromdes and LGs through RSTCC.

iii. Traffic signage and road markings

There are also inadequacies in installation of traffic signage and road markings in the urban areas. Although the proper traffic signage and clear road markings have great advantage of guiding the motorist and pedestrian, it is not properly marked in the current situation as shown in figure 16. Without proper traffic signage and road markings, there is a possibility of creating confusion that might lead to accidents.

Figure 16: Absence of road markings create confusion and could increase the possibility of accidents



In some cases, there is lack of coordination among the stakeholders while marking the roads and placing traffic signage in the urban areas resulting in improper road markings. For instance, the Municipal officials in Mongar town have drawn road markings without consulting the RSTA or RBP traffic. The parking spaces marked are very narrow and do not even fit a small car properly as shown in figure 17.

Some road markings drawn are very narrow making it unsafe for both vehicles plying on the road and pedestrians (figure 18).

Figure 17: Narrow markings of parking spaces in Mongar

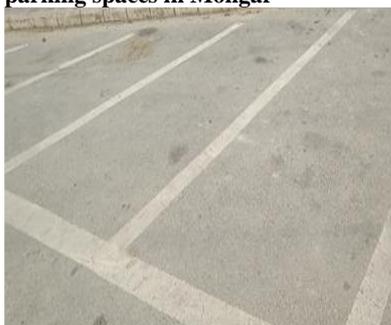


Figure 18: Narrow urban road as a result of road markings



The RSTA acknowledged the audit finding and agreed to take it up with the Thromdes. It stated that a forum on a social messaging app involving the relevant stakeholders was set up for easy communication which has proven to be effective. Regarding the road markings in Mongar, the RSTA had notified the Dzongkhag for rectification.

iv. Bus and taxi stop

Proper identification and construction of bus and taxi stops is one of the measures for traffic calming in urban areas. This will ensure safety of buses and taxis without compromising the safety of other vehicles on the roads and also will help in decongestion of traffic.

While there are bus and taxi stops identified, these have been installed without proper space leading to traffic congestion along the urban roads and posing risk to safety of the passengers and other road users. Within the stretch of urban road between Lungtenzampa to Babesa, there are more than 40 bus stop signs installed but without proper space for parking as shown in figure 19 leading to buses blocking one entire lane of urban road.

Figure 19: Bus and Taxi stops along the urban roads



If the current infrastructure is not improved, it would be even more challenging to manage the traffic with increasing trend of number of vehicles in the country.

The RSTA stated that being a member of City Bus Services Board under Thimphu Thromde, these issues were raised in the board meeting but the reason for non-rectification was due to the limited spaces along the roads.

v. CCTV

To ensure safe city through the use of intelligent transport system, almost all the urban areas are installed with CCTV. This technology not only helps in reducing crimes through timely detection but also plays significant role in efficient traffic management reducing the dependency of human intervention in manning traffic.

While assessing the effectiveness of the CCTV installed in urban areas, the RAA noted that there is a need for proper study and planning for installation of CCTVs. Currently, there is an issue in terms of coverage (strategic location) and the quality of footage (poor resolution) in some cases.

Further, there is lack of clarity on the ownership specially in terms of maintainance and replacement of equipment. At present, the CCTVs are installed by municipal office and handed over to RBP for monitoring and controlling except for Thimphu. Due to non-clarity in ownership, some of the defunct CCTVs are not replaced on time resulting in not achieving the intended objectives despite huge investment.

In the case of CCTV, the task was spearheaded by the Safe City Project under the RBP.

3.3.1.2 Safe road for non-motorised traffic

The safe road for non-motorised traffic includes development of separate and secure road space for pedestrian and cyclist in the urban areas. In the current senario, none of the urban areas in the country have safe road for non-motorised traffic. The adequacy of the infrastructure differs from one urban area to another. Although Thimphu and Phuentsholing have provision for footpaths and cycling lane, they are not adequately provided while other urban areas do not even have the provisions for having one.

i. Footpaths

Even though the provison for footpath is better in class A town like Thimphu and Phuentsholing, it is not adequate and safe for the pedestrain to use. As shown in figure 20, some streches of footpath end abruptly making it unsafe for both motorists and pedestrains.

Figure 20: Footpath ending abruptly with the bridge across



Figure 21: Manholes along the footpaths



Some of the footpaths are constructed with very high elevation making it difficult for the older people and people with disability to commute (discussed in observation 3.6.3). Manholes are commonly seen along the footpaths in all the urban areas as shown in the figure 21.

These are unsafe and inconvenient for pedestrains particularly for persons with disability. This in turn has resulted in pedestrain walking along the main road in most of the streches.

Currently, there is no system of fixing accountability for the accidents caused as a result of such lapses. It can be noted that there are many unsafe footpaths along the road sides of Thimphu town (figure 22).

Figure 22: Obstructions along the footpaths



ii. Cycling trail

Another aspect of safe road for non-motorised traffic is having safe cycling trail. Having safe cycling trail will not only ensure safety for the existing cyclists but also encourage others to take cycling as a transport option which in turn can reduce the traffic congestion and related problems.

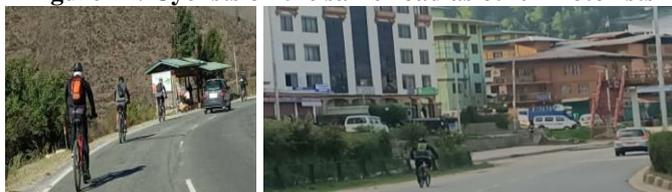
Thimphu Thromde has only 1500-meter stretch of cycling lane marked along the road side of Doebum Lam. The lane drawn as shown in figure 23 does not appear safe as there are no links connecting to another road.

There is no proper cycling trail identified or built in all the urban areas except for the stretch mentioned above under Thimphu Thromde despite increase in number of cyclists (both tourist and local). It is common sight to see cyclist and motor vehicles plying in same lane and road compromising the safety of both cyclist as well as the motorist as shown in figure 24.

Figure 23: Unsafe and narrow cycling lane along Doebum Lam



Figure 24: Cyclists on the same road as other motorists



The aforementioned lapses were as a result of not integrating land use with transport planning. In other words, transport planning in urban areas is not given due consideration while planning for new towns and

improving the existing towns.

These lapses have resulted not only in unsafe urban road but also contribute to traffic congestion.

The RSTA expressed that the mandate for such developments lies with the MoWHS and the Thromdes and that these issues would be communicated to the relevant agencies.

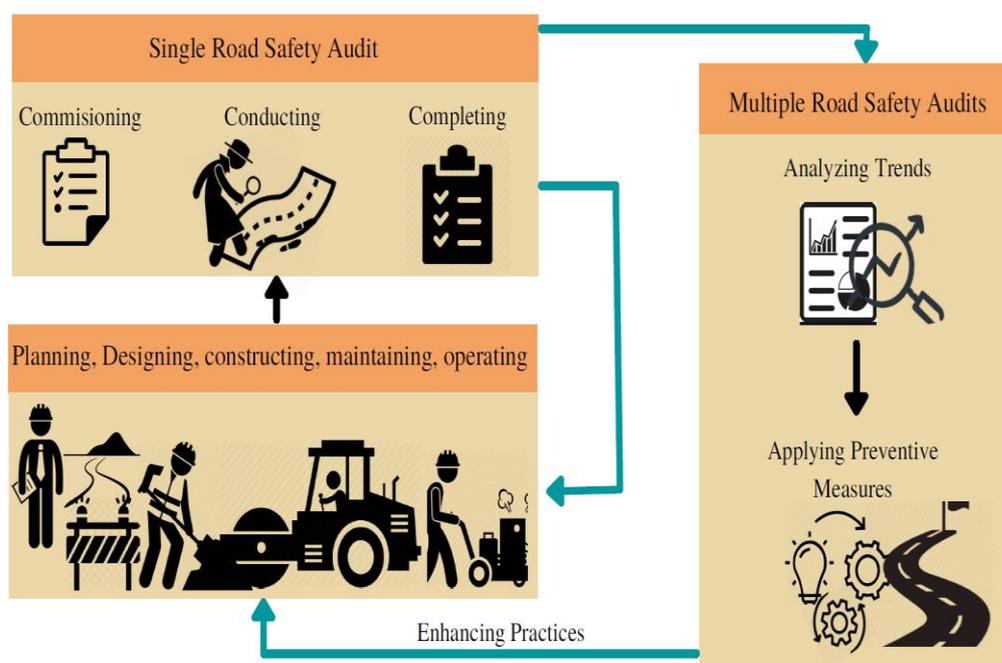
The RAA reiterates the importance of collaboration amongst Thromde, RSTA and MoWHS in making provisions of spaces for non-motorised traffic through integration with development plans.

3.3.2 Road Safety Audit

Road safety audit is part of road safety management that independently examines and assesses the safety standards especially in terms of safety hazards/risks, traffic signs, roadside topographies, environmental risk factors, and surface conditions of existing or future roads. A road safety audit provides valuable inputs for improvement of road safety by identifying safety hazards and providing recommendations for mitigation measures.

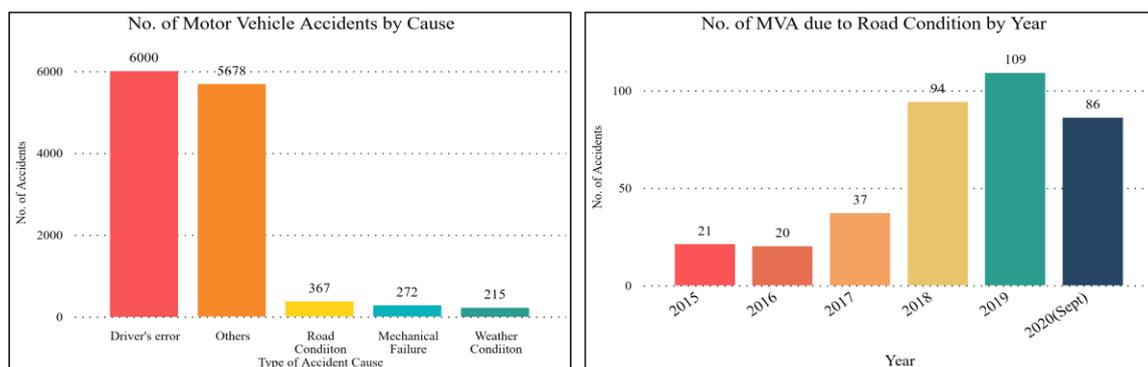
Road safety audits can be undertaken throughout the planning, designing, construction, and maintenance of road projects by competent team that is independent of the road project as depicted in figure 25. Timely and effective road safety audit ensure that the new traffic schemes and safety measures are implemented.

Figure 25: Results of road safety audits incorporated in planning, designing, constructing, maintaining and operating the roads



The rapid expansion of the road network compounded with increasing number of vehicles and road users intensifies the need to improve the safety of existing roads and incorporate the safety design considerations in new roads. Correspondingly, the increasing motor vehicle accidents prompted by road conditions necessitates road safety audit to put preventive measures in place. As per the accident's records maintained by the RBP, road condition is one of the causes for motor vehicle accidents. Figure 26 depicts the accidents caused due to the different conditions of the road.

Figure 26: Causes of Accidents from 2015 – Sept 2020



Source: RAA Analysis of MVA data from RBP

In order to have safer roads and to decrease crashes due to road conditions, there should be proper policies and legislations in place to encourage multi-sectoral partnerships and lead agency to conduct timely and effective road safety audits. Further, documents such as 'Draft Transport Policy 2017', 'Decade of Action for Road Safety 2021-2020' and 'Bhutan Transport 2040: Integrated Strategic Vision' call for setting up the road safety audit process.

In this aspect, the RAA found that the following activities were carried out:

- a. DoR has developed a Road Safety Audit Manual 2018 funded by the Asian Development Bank (ADB);
- b. DoR has been including road safety aspects during the design and construction of roads;
- c. RSTA had assessed the safety aspects at the Phuentsholing-Ganglakha highway (along the Thimphu-Phuentsholing highway) in 2018;
- d. RSTA had issued the Thimphu-Phuentsholing Traffic Hazard Report in September 2018; and
- e. RSTA and Ministry of Works and Human Settlement jointly assessed the Thimphu-Phuentsholing and Chudzom-Paro highway in 2019.

Yet, a formal road safety audit process has not been institutionalised by making it a regular activity of RSTA. The activities seem sporadic in identifying safety issues without the implementation of the recommendations from road safety audit activities. For instance, the Thimphu-Phuentsholing Traffic Hazard Report issued by the RSTA highlighted the safety issues related to road alignments, markings, crash barriers and retro-reflective stickers, signage, and settlements along highways.

The report provided relevant recommendations which were submitted to the MoIC with the expectation that this report will be forwarded to MoWHS for further course of actions. However, on physical verification, the RAA observed that the recommendations were not implemented.

There has not been a formal road safety audit process in place due to conflicting functions of the agencies. Chapter 16, subsection 221 of the *Road Act of Bhutan 2013* mandates the DoR to conduct the road safety audit when the core functions of the department include the construction and maintenance of the road network in the country.

On the other hand, the existing legislations of the RSTA that is the '*RSTA Act 1999*' and the '*RST Regulations 1999*' do not mandate the RSTA to conduct road safety audits even when the

core mandate of RSTA is road safety. The other reason for not conducting road safety audits is due to limited capacity of the agencies.

The RSTA responded that the Road Act 2013 mandates DoR with Road Safety Audit at all stages. The Road Safety Audit has been left out from the existing Road Safety and Transport Act 1999. Nevertheless, the RSTA, during the review of the Act for amendment, has captured the legal mandate to conduct periodic road safety audits and has started working towards making it readily implementable once the mandate comes to RSTA legally.

However, it may be noted that no single agency can handle such a vast and technical area and the auditing of road safety by a single agency is neither feasible nor advisable. Road Safety Audit will be conducted in coordination with relevant agencies. This would resolve contradiction and duplication of responsibilities.

Further, the authority has developed a draft Road Safety Audit Manual for existing roads which might be useful to all stakeholders while carrying out road safety auditing.

In view of the significant number of accidents attributable to road conditions and inadequacies in safety measures put in place, frequency of such review and audits are not adequate.

3.3.3 Safer Highways

Bhutan, being a land-locked country, recognises road network as an enabler and driver of economic development and because of geographical rugged terrain, road remains primary mode of transportation. While road connectivity has reached almost every corner of the country, keeping them safer for road users has become a big challenge due to increasing number of vehicles and roads damages caused by severe climatic conditions. The DoR is mandated to provide safer roads and has measures in place to review standards pertaining to safety in the design of rural and urban roads, and bring them in consonance with international best practices keeping in view of the prevailing traffic condition.

In this context, MoWHS has issued a notification vide reference No. *MoWHS/SEC/29/2020/744 dated 13th January 2020* pertaining to strict compliance and enforcement of rules to enhance better road conditions and safer road along the National Highways to all the Regional Offices under DoR. In reference to the above notification, the RAA observed the following:

3.3.3.1 Access Road

According to the aforementioned notification, point number 2 **Access Roads** states that *'all the access road provided from the Highways must have full provisions of proper drainage so as to not obstruct the flow of any water including rain water. The section of such access road beginning from the Highways must be black topped or applied with concrete for at least 10 meters to avoid debris and soil flowing on the Highways. All Regional Offices shall ensure that both existing and new access roads shall comply with the new requirement. The cost for all such provisions shall have to be borne by the applicant'*.

The RAA during the field inspection noted bad conditions of roads with cracked pavement, potholes, deteriorated asphalt surface, and runoff road shoulders at the junctions from where access roads connect with the highways.

The drainage systems were found damaged by rain water resulting in flow of soil, debris and gravels on the highway roads causing damages. Further, the RAA also noted that the access roads for quarries have affected the conditions of highways due to spillage of gravels and improper dumping along the road as shown in the figure 27.

Figure 27: Damages caused by improper access road



3.3.3.2 Right of way for Highways

The road right of way or clear areas beside the highways provide space for road users to avoid crashes. Even in Bhutan, considering the safety aspect of roads, Road Right of Way is made mandatory by law to maintain a space of 50 feet on either side of the highway. This means any type of structure whether permanent, semi-permanent or temporary should not be allowed within 50 feet from the centre of the road on either side. Thus, all constructions along the national highways and other roads shall maintain the prescribed setback for the road right of ways. This was re-enforced through aforementioned notification to all regional offices of DoR.

On contrary, during site visit to eight Dzongkhags, the RAA observed several permanent structures along the highways not meeting the requirements and also noted lack of uniformity in the implementation of the road right of way in different dzongkhags. For instance, the RAA during the inspection along the Asian Highway (AH) from Rinchending to Sorchen noted that sheds were built without maintaining 50 feet as depicted in figure 28. These sheds or structures built without maintaining road right of way and some even built on crash barriers are seen to undermine the safety of users. Some structures were built before the enactment of the road act (2004).

Figure 28: Sheds along highways



Although some sheds are constructed by the Ministry of Agriculture & Forests to sell farm produce, the number of sheds is increasing with an increase in vegetable vendors.

In addition, there are cases of archery range constructed nearby and in between the highway, posing threats to the commuters. An instance is highlighted in the figure 29.

Figure 29: showing highway in between the archery range in Bumthang



Archery ranges need more safety
“The stray arrow has become a major concern for Thimphu residents where the number of archery range has been growing over the years. There are around 20 archery ranges between Dechencholing and Khasadrapchu, mostly near roads or houses, posing a danger to commuters and residents. Within less than a year, nine mishaps have occurred. Alcohol consumption among players is one of the main reasons.”

Source: Kuenselonline 21 April 2021

3.3.4 Traffic signage on national highways

Traffic signs are very helpful in providing instructions to the road users helping them navigate the roadways safely and guiding them through hazardous roads and so, the signs should convey a clear and simple message. The purpose of traffic signage is to promote safety and efficiency on the highways, and to minimise the occurrence of accidents and crashes. There are three types of traffic signs that are installed in Bhutan namely mandatory, cautionary, and informational signs for the safety of road users.

Since it is necessary to command the attention of all drivers, the signs should be of uniform design, and follow certain standards such as size, shape, and colour, lighting, and contrast. Likewise, the signs should be placed in strategic locations that can be seen clearly by drivers during day and night. Traffic signs should be assessed from time to time to check the appropriateness and need for replacement.

However, RAA during the inspection of highways of eight dzongkhags noted the following instances:

- i. Traffic signs were found to be inadequate on most highways.
- ii. In some cases, there were too many traffic signs installed at places that do not need within a certain range or distance as shown in figure 30 (Yadi to Trashigang road).

Figure 30: Excessive traffic arrow signs (6 signs) in 100m stretch



iii. No standardised nomenclature specifying the list of approved spelling for all the destination and locations which are either written on the kilometre post or the information board. Spelling mistakes were found on the information board especially with respect to Dzongkha spelling of the locations as shown in figure 31.

Figure 31: Spelling mistakes in Dzongkha



iv. Signs and traffic posts do not comply with the standards. The RAA found that the signs were of different sizes and colours. One of the cases is as shown in figure 32.

Figure 32: Non-reflective hand painted traffic sign – not as per standard



The issues of traffic signs are basically fuelled by inadequate coordination between agencies.

The standards for signage are prescribed in *Bhutan Standards – Road Safety Signs and Symbols, Bhutan Standard Bureau (BSB)* published in March 2017 which is incorporated in the *RST Regulations*.

The RSTA clarified that the installation and maintenance of signage are executed by DoR and DANTAK on primary and secondary highways and by the Thromde/LGs in urban areas. The RSTA stated that the installation of signage are executed by the DoR without consultation Regional Office or Tashigang Base office. The authority will raise the issue to DoR and corrective measures will be initiated.

Regarding the standards, the RSTA explained that the road safety and traffic signs in the RST Regulations 1999 were designed and instituted before the establishment of BSB (the national standard regulating body). However, with the approval of standard traffic signs by the BSB, the RSTA has been following the approved standards. Further, the authority, as a member of the technical working group in the standardization of the road signage, will take up the issue with the BSB for communication to relevant stakeholders (LGs, DoR, and DANTAK) for compliance to the BSB standards. The revised RST Regulations 2021 incorporates the traffic signs standards approved by the BSB.

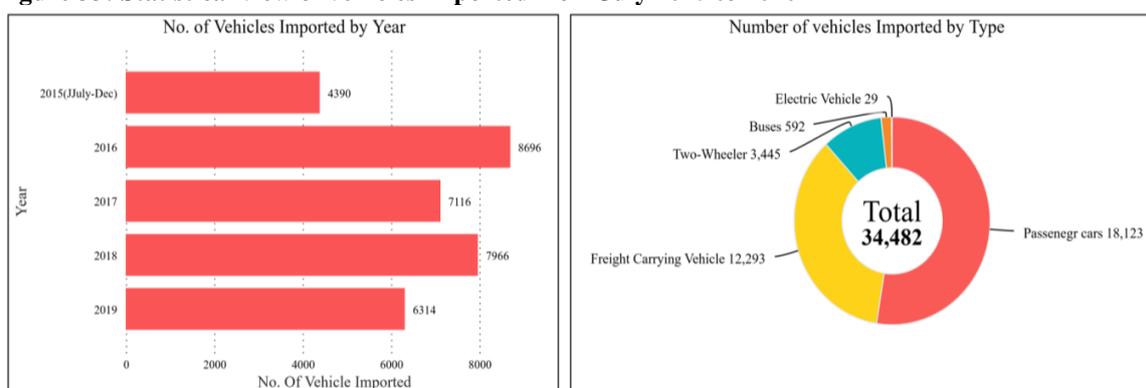
3.4 Road Safety – Safer Vehicle

Safe vehicles play an important role both in averting crashes and reducing the likelihood of serious injury in the event of a crash.

3.4.1 Safety standards for vehicles

Rapid motorisation with limited infrastructure and a geographical landscape that contributes to the risk of motor vehicle accidents is a growing concern. The increase in number of vehicles and vehicular accidents demand the need to establish and implement minimum vehicle safety standards in the country. Bhutan imports a large number of vehicles annually. The vehicle import data from DRC shows 34,482 vehicles imported between July 2015 and 2020 as shown in figure 33.

Figure 33: Statistical view of vehicles imported from July 2015 to 2020



Source: RAA analysis of vehicle import data from DRC

Therefore, instituting minimum vehicle standards considering the road environment and infrastructure will ensure the imports of safer vehicles in the country, which will improve road safety.

The RAA noted that in terms of safer vehicles, there are no safety standards defined for any of the the vehicles yet. Moreover, except for one model of vehicle which was prohibited in the country (Tata Nano was prohibited as per the officials of RSTA and there is only one Tata Nano registered in the country), the RSTA had not identified the type and make of vehicles including two-wheelers which are safe to ply on the Bhutanese roads.

The minimum safety standards are not defined because even the RST Regulations 1999 emphasises only the emission standards and physical structure specification of commercial and passenger transport vehicles. The vehicle standards and requirements for safety features are neither covered in the Road Safety and Transport Act 1999 nor in the RST Regulations.

BBS on 23rd November 2020 reported that *‘The Road Safety and Transport Authority (RSTA) is revising the Road Safety and Transport Regulations 1999 with a priority on the safety features in a vehicle. Once finalised, every vehicle that comes into the country will have to fulfill certain safety features requirement.’*

Nevertheless, it is not clear when the revised bill and regulation will be approved to reflect this need to ensure that only safe vehicles ply in the country.

Without safety standards for the vehicles instituted, there is a possibility that the new vehicles do not come equipped with the necessary safety requirements. This increases the risk of motor vehicle crashes resulting in loss of lives, causing serious injuries, and impacting quality of life.

'Many vehicles that were registered in the past do not have safety features like airbags but we have been insisting on seat belts, wearing of seatbelts by both the passengers and the drivers. When we amend the regulations, there will be the features required for a motor vehicle to be registered and therein will be incorporating the required safety standards' Prem P. Adhikari, Chief RTO, RSTA

Source: BBS

The RSTA responded that the automobile manufacturing companies set the vehicle standards. As Bhutan does not have automobile manufacturing company, we adhere to the safety standards set by standards agencies of respective countries. Additionally, all vehicles entering Bhutan meet the NCAP standard. The authority added that RSTA is a member of APRSO which entails adherence to the standards of APRSO.

The RSTA responded that the Regulations 2021 prescribes safety requirements of two-wheelers (helmet, pillion rider, safety gloves, gears) and these requirements are enforced by RSTA and Traffic Police.

Moreover, the revision of RST Regulations 2021 launched on 21st November 2021 will be implemented from 2022. Meanwhile the sensitisation of RSTA officials and Traffic Police is being carried out. All the concern raised are addressed through appropriate provisions under the revised regulation.

During the exit meeting, the RSTA mentioned that the authority will hold discussions with the MoEA, being the agency to issue licenses for vehicle imports, and look into the possibility of the authority's role to issue technical clearance before the issuance of trade import license particularly on the safety standards.

The RAA found that RST Regulations 2021 do not prescribe the safety requirements for motor vehicles and would like to stress that minimum vehicle safety standards should be defined considering the road environment and infrastructure.

3.4.2 Roadworthiness of vehicle

Vehicle fitness test is an important function within the RSTA to ensure that the motor vehicle running on roads is in good and appropriate conditions in order to avoid and reduce road accidents due to mechanical failure. Such regular inspections will ensure that the vehicles are up to standard, maintained as per the set norms, and are fit to drive on the road. A roadworthiness certificate is then issued following the vehicle fitness test.

3.4.2.1 Vehicle fitness testing

According to RST Regulations 1999, the RSTA should inspect a motor vehicle for roadworthiness as per the schedule given in table No. 5. The frequency of vehicle fitness test should be based on the type of vehicles as well as the age of the vehicle.

Table No. 5: Frequency of vehicle inspection for road worthiness

Type of Vehicle	Frequency
Commercial vehicles including taxis	Every six months
All other type of vehicles	Every year

Inspector (MVI) should ensure that the vehicle is inspected as per the checklist given in figure 34 before the issuance of road worthiness certificate. Moreover, to enable the MVIs to properly inspect vehicles for road worthiness, there should be a proper designated testing ground/station besides having experienced and competent inspectors.

Figure 34: Checklist of motor vehicle inspection list for vehicle fitness test

Inspection Criteria	Items Tested	Why? (based on RAA's review and study)
 1 Electrical system	<ul style="list-style-type: none"> • Head Lamp • Wind shield wipers • Side indicator lights • Break and parking light • Taxi light/back light • Speedometer and horn • Heat/Fuel meter 	As evident, a car's visual system is a guide for both the driver and others on the road. Damaged components may be misleading.
 2 Brake System	<ul style="list-style-type: none"> • Service breaks • Parking break 	The brakes of any car ultimately save lives. This should be inspected thoroughly, right from brake pads to fluid pressure. Both parking and service brakes should be inspected.
 3 Steering and Transition	<ul style="list-style-type: none"> • Steering box and column • Sector shaft • Universal Joints • Steering Dampers • Draglink and tie rod 	For directional stability and driver control. Loss of steering control can be fatal, even when all systems are functioning well.
 4 Suspension system	<ul style="list-style-type: none"> • Shock absorber • Front and Rear Spring • Clamps and 'U' bolts • Front and rear axis • Hanger and breakets 	The suspension system helps to protect the passengers inside during frontal or rear collision.
 5 Wheel and Tyres	<ul style="list-style-type: none"> • Rims and wheel nuts • Tyres condition • Wheel alignment 	Many accidents happen due to wheel issues. Thus, emphasis should be on inspecting the tyre condition, wheel bearing and alignment.
 6 General	<ul style="list-style-type: none"> • Engine sound • Emission/smoke • Body Structure • Side/rear mirror • Windscreen • Operation of all doors • Upholstery 	The emissions and noise level must meet the standards. Even the body paint matters that indicate internal rusting. Any small malfunctioning part can compromise the safety of all drivers. The concern is both safety-oriented and environmental.

Source: RAA representation based on motor vehicle inspection report booklet, RSTA.

Additionally, the RBP should also direct vehicles to RSTA for vehicle fitness test in the event of vehicles being found un-roadworthy as part of the RBP's routine inspection.

However, the vehicles are assessed only based the type of vehicles and not the age of the vehicle. The validity of road worthiness is maximum one year irrespective of vehicles being fairly new or more than 15 years of age as older vehicles might be more prone to mechanical failures. The analysis of traffic offences data from 2015-2020 showed cases of drivers committing offences of driving damaged vehicles in the town/highway, which should have been prohibited with proper road worthiness assessment. The analysis also revealed 416 instances of offences with invalid road worthiness.

Moreover, during the field visits, the RAA noted that the MVIs seldom inspect the vehicles as

per the inspection criteria mainly due to manpower and space constraints. Most of the time, the MVIs issue the roadworthiness certificate based on visual assessment and at times based on the confirmatory explanation given by the vehicle owners.

For instance, the vehicle fitness test is carried out in the small parking lot adjacent to RSTA office building in RSTA regional office in Thimphu as shown in figure 35. The parking lot serves as both parking for people coming to avail services at RSTA as well as the space for vehicle fitness testing.

Figure 35: The parking lot serves as both parking as well as vehicle fitness testing station



It was also noted that the RSTA neither has the proper testing equipment nor competent inspectors to assess vehicles with sophisticated features. Furthermore, the RBP, during normal or highway inspection, does not inspect vehicles which might not be roadworthy based on rusted body structure, engine noise, and emission.

With an intent to build a designated testing station in base offices for carrying out proper vehicle assessment, RSTA submitted a proposal to the MoIC along with an option to outsource the vehicle fitness testing but no progress was made as of now.

The vehicle inspection is not carried out properly due to additional responsibilities of MVIs apart from their primary responsibility. They are made to shoulder other responsibilities such as revenue collection and deposit, highways inspections, registration of new vehicles, conducting driving test, printing and issue of driving and learner licenses, processing vehicle ownership transfers, cancellation and registration of licenses, attending emergency cases, and sector head meetings among others.

Inadequacy in the current system of ensuring vehicle fitness indirectly indicates that a greater number of unsafe vehicles are allowed to ply posing risk to road users and properties besides causing environmental hazard. As per the current motor vehicle accident statistics from RBP Traffic division, it can be seen that the accident caused as a result of mechanical failure is on rise. Within less than 5 years, that is, from January 2015 to September 2020, there were 272 motor vehicle accidents caused as a result of mechanical failure.

The RSTA clarified that roadworthiness of vehicles is physical inspection of the vehicle and not the age or type of vehicle except for commercial vehicles which have serviceable life defined.

The RSTA stated that during roadworthiness test, proper physical inspection is ensured by the MVIs. Further, the observation on traffic offences regarding driving damaged vehicles might be the cases where damaged vehicles had not reported for inspection as the vehicle documents were not due for renewal. However, the authority will take up the

issue with RBP.

With regard to inspection of vehicles, the RSTA expressed difficulty in conducting thorough inspection of vehicle due to large number of vehicles that need to be inspected daily by the limited number of MVIs, who are required to meet the TAT for service delivery. However, essential features are now checked and further enforcements done during highway inspections by RSTA and Traffic Police.

The RSTA has already changed the vehicle inspection system and started carrying out proper physical inspection including verification of vehicle engine and chassis numbers. To that effect, a formal order vide letter No. RSTA/TDD-02/2021-22/276 dated 26th October 2021 was issued by the HO to all RSTA offices and is being strictly implemented.

The RSTA explained that the issue of space constraints in Thimphu was taken up with DNP/MoF to permit use of the space across the present RSTA parking. DNP has expressed their inability to permit the use of the space within their boundary for security reasons. However, the opening of Base Office in Babesa has eased the congestion at Lungtenzampa parking.

The RSTA expressed that it will incur huge expenditure to procure and equip all of its regional and Base offices with proper testing equipment. Further, the revised RST Regulations 2021 permits RSTA to outsource such services to the private sector and accordingly the authority will work on outsourcing this service. The RSTA will develop standards, checklist and criteria for outsourcing this service in all 20 Dzongkhags.

The RSTA expressed that the cause of MVA is assigned as mechanical failure, due to lack of advanced technology and expertise to ascertain the cause of the accident.

The RAA reiterates that limit of vehicle age would also play a greater role in ensuring safety of vehicles. The physical checks exercised on vehicles seems inadequate as it may not detect technical deficiencies of the vehicles.

3.4.2.2 Vehicle aging and conversion system

The vehicle age for commercial usage (taxis and passenger buses) is defined in the Road Safety and Transport Regulation (1999) as given in table No. 6. Thereafter, the permits are not renewed and such vehicles can only be used for private purposes.

Table No. 6: Vehicle Serviceable Age

Vehicle	Vehicle serviceable age as per Road Safety and Transport Regulation (1999)	Vehicle serviceable age as per the revised contract agreement between RSTA and passenger bus operators
Taxi	9 years	
Toyota Coaster Bus	14 years	9 years
Buses (Indian make)	8 years with one year extension	7 years
School/Institute bus	15 years	

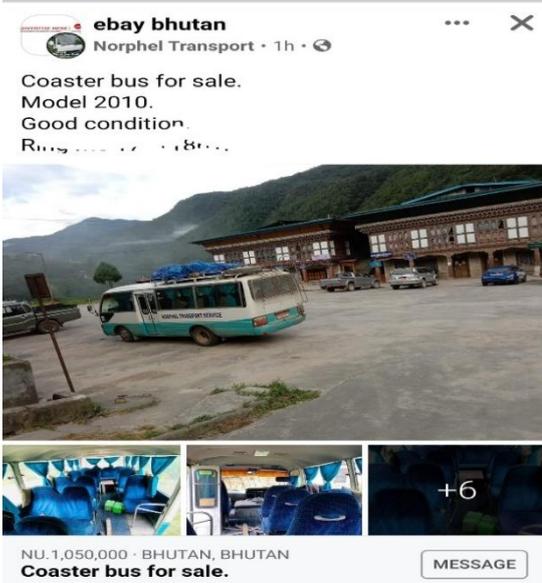
Source: RAA compilation based on review of the RST Regulation and the revised contract agreement

A vehicle aging and conversion system should provide criteria for defining the serviceable age, conversions from commercial to private ownership and end of life of vehicles. Such a system would limit number of unsafe vehicles in the country.

On review of the age limits set for the vehicles for different purposes and the conversions, the

RAA noted the following:

- i. As evident from table No. 6, the specification of vehicle serviceable age for passenger buses of both Indian and Toyota are different as per Road Safety and Transport Regulation (1999) and the revised contract agreement between RSTA and passenger bus operators.
- ii. There is no specification of serviceable age of passenger buses imported from third countries other than Toyota in the regulation.
- iii. In practice, some of the bus owners sell their buses before the end of the serviceable life and these buses are used in the tourism sector and in some cases in schools as illustrated in the *case study-I*.



Case Study I

As shown in the picture, this particular bus (used previously as a passenger transport bus) was found posted in Facebook page for sale. According to RSTA Regulation, the serviceable life of passenger bus is 9 years for Indian made and 14 years for Toyota coaster bus. Since this particular bus is coaster bus whose serviceable life is 14 years and there are still few more years left until its serviceable life end (according to the model given in post).

Since it's common trend for the bus owners to sell the buses before end of serviceable life so that the buyers can deploy it in tourism companies which then will have no aging applied to it until it breaks down completely.

- iv. There are instances of passenger buses that have reached the end of serviceable age but are still reflected as passenger buses as evidenced from the data analysis of eRALIS data and is summarised in table No. 7.

Table No. 7: Number of passenger buses that have reached end of serviceable age but still reflected as passenger buses

Vehicle	Vehicle Age	No of Vehicles
Toyota Coaster Bus	< 14 years	7
Buses manufactured in India	< 9 years	37

Source: RAA data analysis of data from eRALIS system

- v. The data analysis also revealed that there are 28 buses used in Schools and Institutes that exceeded the serviceable age provided in the regulation (15 years).
- vi. While it is easier to track the conversion of taxis when it reaches the end of serviceable age as the vehicle registration number is converted from BT to BP, it is challenging to track the conversion of passenger buses after the serviceable age.
- vii. For non-commercial vehicles (private and government vehicles), there is no limit of the serviceable age. In other words, these vehicles can be used until it breaks down completely.

The aforementioned points can be attributed to the following:

- ambiguity in the regulation (mention of only Toyota and Indian make cars, no vehicle aging for non-commercial vehicles),
- issues in enforcement of the regulation,
- undefined process and procedures in vehicle aging and conversion system.

The use of old vehicle will not only cause threat to the safety of passengers or road users but is also a major environmental concern because of carbon foot print. It is important to note that serviceable life of the vehicle is not only influenced by the age of the vehicle, but varies based on the geographical area of operation, the driver, the nature of the parts used and replaced and the rate of maintenance of the vehicle.

The RSTA clarified that the contract document does not stipulate the bus life but the contract period to ply on route.

Further, the RSTA clarified that serviceable age of the buses are categorised into two (Indian made and third country made) on the ground of quality and make of the buses. Therefore, regulation captures the lifespan for coaster bus and ordinary bus only.

The RSTA stated that some buses become unsafe for use before the completion of the operational life. For safety reasons, operators propose to replace such buses by new buses which is being facilitated by RSTA till now. The old buses are then purchased by institutions, schools, and tourism firms since these institutions do not use on regular basis. As such, these buses are being allowed to be used by schools and institutions so long as they are fit to ply on the road and are subjected to six-monthly fitness inspection.

The RSTA stated that eRaLIS restricts transactions against buses with more than 15 years of age (in line with the existing RST Regulations). In case of scheduled passenger buses, no passenger bus is allowed to operate on the route after the expiry of its operational life. Bus operators are issued reminder and approval to place order for replacement of the buses. However, the life of the other non-scheduled buses (school/institution buses) has been lifted in the revised regulation and operation shall be subjected to the six-monthly fitness inspection.

The RSTA responded that in absence of the vehicle scrapping policy, there is no mention of the operational age of non-passenger motor vehicles. The RSTA is recommending the need for end of life for vehicles and also a scrapping policy through the surface transport policy.

The RAA rechecked and noted that the contract document stipulates, 'No Passenger Transport vehicle shall be used after 7 years (in case of Indian make buses/trucks) and 9 years (in case of imported buses) reckoned from the date of registration'.

The RAA's stance is that the maximum serviceable life of passenger bus should be applied for all irrespective of their use as scheduled bus or non-scheduled bus. Similarly, there should be vehicle serviceable age defined for non-commercial vehicles and also have in place proper processes and procedures for vehicle aging, conversion, and scrapping system.

3.4.3 Pre-departure inspection of passenger buses

The inter-dzongkhag passenger transport services in the country are operated by private operators. The contract agreement obligates the operators to deliver the transport services in conformity with the policy objectives of the government in providing safe, reliable, efficient, sustainable and green transport services to the public.

To ensure utmost safety of the passengers, the RSTA, as a regulatory body, should have adequate monitoring mechanisms such as pre-departure inspection, luggage weigh-ins to ensure that the operators adhere to the contract agreement.

However, upon physical verification and interview with the passengers, RAA observed the following:

3.4.3.1 Pre-departure inspection

For the safety of passengers and buses, the RSTA has instituted the pre-departure inspection form with 19 checklists as in figure 36. Before the departure of the passenger buses, an inspector should physically inspect the components of the bus as given in the inspection form including the condition of the drivers to see if the driver is under the influence of drugs and alcohol.

However, in reality, as evident in figure 37, the form is used only for the passenger count, which can also be obtained from the ticketing counter and recorded by the Check Post Management System (CPMS).

In most cases, the drivers sign the form with only the passenger count while in some cases the drivers themselves inspect the buses and submit the form. This indicates that the RSTA does not conduct the pre-departure inspection thoroughly as also evidenced from the pre-departure forms and records maintained over the years at the base and regional offices visited by the RAA.

This is further supported by observation made in some bus terminals randomly visited by the RAA to ascertain the conduct of pre-departure inspection by the RSTA. A case supporting this is presented in *case study-II*.

Moreover, the RSTA does not conduct pre-departure inspection when the passenger buses halt at places further from the RSTA base office. A case in point is presented in *case study-III*. This issue was also reported in Bhutan Broadcasting Service (BBS) on 28th January 2020 (<http://www.bbs.bt/news/?p=127549>).

Figure 36: Pre-departure inspection form for passenger buses

Case Study II

On 10 November 2020, the RAA visited the Thimphu bus terminal to observe the pre-departure inspection of the passenger buses. The bus, plying from Thimphu to Wangdue, was preparing to travel as per the scheduled time. However, the RAA team observed that the tyres of the bus were not in good conditions as depicted in the picture below and more so, the driver had signed the pre-departure inspection form without RSTA officials not being on the site.

Upon enquiry, it was noted that the bus was allowed by RSTA to leave the terminal with a condition to replace the tyres on return.

Without proper and regular pre-departure inspections, the buses often operate in these conditions, compromising the safety of the passengers.



Case Study III

During the field visit to the RSTA base office Bumthang, the RAA noted that some buses plying between Thimphu and Mongar halt at Nangar, Chumey. Nangar is 18 KM away from the RSTA base office which is located at Chamkhar town. As Nangar is far from the base office, the officials are not conducting post arrival and pre-departure inspection of the buses stopping there. There were also complaints regarding the only accommodation (hotel) available at Nangar. It was also noted that the departure time for the bus lies with the prerogative of the drivers causing inconveniences to the passengers.

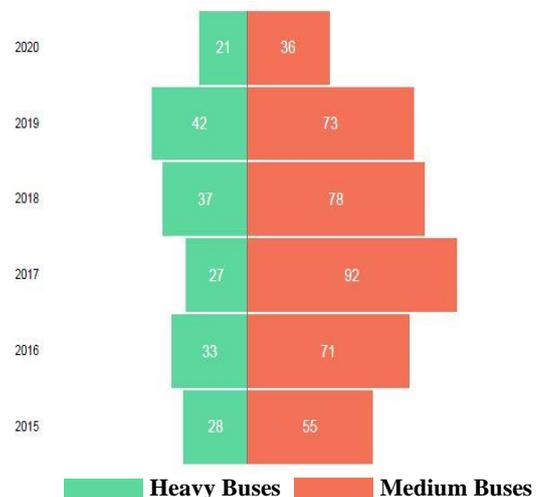
There is no uniformity in enforcement of post arrival and pre-departure inspections as these inspections are done only those buses stopping at Chamkhar town.

In addition to physical observation, the RAA also carried out data analysis of eRALIs data from 2015 to 2020. The data analysis revealed 405 cases of medium buses and 188 cases of heavy buses charged for carrying extra passengers as shown in the figure 37.

This was as a result of improper pre-departure inspection and non-enforcement of rules by the official concerned. This issue can compromise the safety of the public transport passengers.

The RSTA responded that they are discussing with DITT and RBP to integrate CPMS and eRaLIS for online PDI to resolve the issue. Further, data analysis of Pre-departure

Figure 37: No. of offences on excess passenger by medium & heavy buses



inspection (PDI) and Post arrival inspection (PAI) will be carried out to assess performance and efficiently, and to guide continued improvement.

With regard to case study III, the RSTA clarified that it has provided the bus operators with the option to halt either at Chamkhar or Nangar bypass depending on the convenience of bus operators and passengers.

The RSTA agreed with the observation and has made pre-departure and post-arrival inspections mandatory. Further, RSTA has started on-board inspection of passenger buses, where the MVIs conduct surprise inspections by boarding buses at different locations. The RSTA also conducted sensitization program for all bus drivers.

While integration with CPMS and online PDI could solve the problem of carrying extra passengers to a certain degree, the PDI would require and entail verification onsite. The case study III reflected in the report talks about the non-feasibility of the current location to conduct pre-departure inspection given its location being away from the base office. As such, the RSTA should ensure that PDI is enforced as per the PDI form with 19 checklists to decrease risk of accidents.

3.4.3.2 Passenger luggage weigh-ins

Clause 2.25. Luggage Charge of the Contract Agreement (*Clause before April 2018 and latest*) with the bus operators states

- ✓ *Passengers are allowed to carry free of charge accompanied luggage up to 20kgs. Subject to weight restrictions, extra luggage shall be charged @ ch.10/km for every 10kgs.*
- ✓ *All un-accompanied parcels shall be charged @ ch.10/km for every 1 kg. However, the total weight must not exceed the maximum load limit specified.*

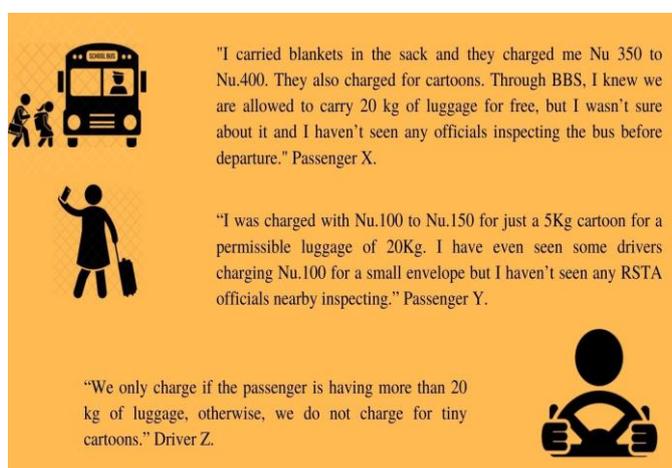
Additionally, RSTA notified the public via BBS on 24th April 2018 vide reference No. RSTA/TD-03/2018/063 about the updated luggage charges states:

- ✓ *A passenger is allowed to carry 20kgs of luggage free of charge while traveling in a Passenger Transport Service*
- ✓ *Extra luggage charge of Nu. 0.10 or Chhetrum 10/Kilogram/Kilometer will be charged for carriage of extra luggage beyond the 20Kgs of free luggage. The unaccompanied parcel shall be charged at the same rate but without the 20kgs free luggage quota.*

However, the updated luggage price is not included in the contract agreements signed after 2018. Further, the physical verification and interviews with the passengers established that there are no weighing machines at the bus terminals to measure the luggage as given in figure 38.

The luggage charge depends on the type of packaging and visual assumption of

Figure 38: Interview with passengers on luggage charges



the drivers. Similarly, the charges of the unaccompanied parcels are also at the discretion of the drivers instead of the actual weight.

On the other hand, the RAA found that drivers have total discretion of the type and weight of luggage that they themselves can carry as presented in *case study-IV*.

Case Study IV

The RAA, during the visit to the Thimphu bus terminal on the morning of 18 November 2020, observed that Dhug Transport bus scheduled from Thimphu to Mongar for departure at 6 AM was full of luggages even before the arrival of passengers. It was learned that the luggages belonged to the driver. The luggages of the passengers were adjusted along the aisle with a little or no space to move around and sit comfortably as shown in the pictures.

The RAA also noted that there was no RSTA official to conduct the pre-inspection of the buses or oversee the comfort of the passengers in order to ensure safety of passengers.



The RSTA responded that the extant rate for excess passenger baggage beyond 20 kg is Nu. 0.10 per km/kg or part thereof. RSTA will continue to enforce this uniformly.

The RSTA mentioned that the on-board passenger buses inspection has been introduced on pilot basis in the low-risk areas, which will be replicated to other regions. It will take care of the concerns related to passenger transport services, such as, the excess luggage, fare, and passenger comfort issues. In addition, base offices have been instructed to enforce PDI and PAI inspections strictly.

The audit findings explicitly mention that the luggage charges are not enforced uniformly and that drivers have total discretion on the charges as well as on the type and weight of luggage that they themselves can carry which needs to be rectified.

3.4.3.3 Periodic inspection of buses to check medical first-aid and fire extinguisher

Similarly, Clause 2.19 (b) SAFETY of the contract agreement between the bus operators and the RSTA, states ‘All buses should have a fire extinguisher and first-aid kits.’ Further, clause 2.18 (c) of the agreement stipulates that ‘All buses should have Speed Sensor installed in the bus for warning/alerting the driver if he is speeding beyond the permitted speed limit’.

However, on physical verification, RAA found that most of the passenger buses do not have emergency equipment while some of the buses have expired fire extinguishers.

The RSTA replied that strict enforcement of PDI, PAI and on-board passenger buses inspection will take care of the requirements.

The RSTA needs to be ensure the enforcement of the contract agreement for the safety of the passengers.

3.4.3.4 Drivers' medical fitness and drugs checks

To ensure the safety of public transport commuters, the RSTA conducts drug tests for commercial drivers. The enforcement mechanism includes using alcohol breath analysers and speed radar guns to monitor drink driving and speeding. However, there are no separate mechanisms to ensure the medical fitness of the passenger bus drivers.

The RSTA expressed the challenges in conducting PDI and PAI due to high passenger bus-official ratio in bus terminal. However, the RSTA will ensure that PDI/PAI are made mandatory for all MVIs.

The RSTA needs ensure that the bus operators comply with the contract agreement for safer public transport services.

3.4.4 Safety of freight vehicles

Being a mountainous country with rugged terrain and narrow roads, ensuring safety of the vehicles especially the passenger transport and heavy freight vehicles should be a priority.

In regard to safety of freight vehicles, there is robust regulation in place. As per the RSTA regulation, the carrying capacity of the freight vehicle should be as specified by the manufacturing company, meaning the freight vehicles should not carry goods heavier than the factory recommended weight limit. Moreover, the same regulation requires freight vehicles to ensure that there is no spillage of material along the road while transporting materials such as sand, stones, stone aggregates and gravels or any other material and display a red flag on protruding goods exceeding the vehicle body at the rear end. Accordingly, there is a need for regular monitoring of the freight vehicles in order to ensure that the freight vehicles are carrying goods as per the allowable loading capacity and in the manner prescribed by the regulation.

However, in the current scenario, the following instances were observed during the field visits:

- i. There is no system instituted by the RSTA to monitor freight vehicles regularly to assess if they are transporting goods as per the load capacity and in a manner required by the RSTA regulation. Moreover, there is no system for declaration of the details of the load at any checkpoints and even the highway inspections do not inspect the weight of the freight vehicles.

The main reason for not regulating the freight vehicles is due to non-utilisation of weighing machines and lack of weigh stations at different locations. Without such infrastructure and mechanisms, it is difficult for the officials to ascertain if the freight vehicles are carrying load as per factory recommended weight limit. Currently, the inspection, if any, is only limited to checking if the loads are securely covered or tightened as known from the analysis of traffic offence data from 2015-2020, which showed 624 instances of offences recorded for insecure loads of the heavy and medium vehicles on the highway.

- ii. The RSTA had procured five portable weighing machines costing **Nu. 4.389 million** (877,856 per each) and distributed in five regions. The portable weighing machines were

bought in 2019 and 2020 (3 sets bought on 15th October 2019 and 2 sets on 17th February 2020). The officials were also given training on the use of portable machine. However, these machines were not utilised till date as the RSTA officials could not calibrate the machine. The portable weighing machines in other regions also remained idle due to non-calibration of the machine.

- iii. There were no weigh stations or bridges to verify the loading capacity and other safety requirements of the freight vehicles at mining and quarry sites across the country. For instance, the RAA found that there was no weigh stations or mechanisms to ensure compliance to weight limits at three of NRDCL’s sand depots in Wangdue Phodrang (along Punatsangchu near Wandue Phodrang bridge, YBM Rinchengang, Tshokona in Lobesa). The sands are transported to different parts of the country like Paro, Haa, Thimphu Chukha, Gasa, Bumthang, Trongsa and Zhemgang. As per the records maintained by the NRDCL sand depots, on an average they load 150 trucks per day (including all three sites). Similarly, there are trucks transporting other consignments such as log, timber, stones, stone aggregates, lime and gypsum, which are unmonitored and unregulated in terms of safety.

Meanwhile, transporters have tended to overload in order to reduce their running and overhead costs for freight transport causing spillage on the roads. The RAA through the analysis of traffic offence data from 2015-2020 noted 51 offences with regard to spilling gravels and sands on the road by medium and heavy vehicles. During field visits, the RAA found spillage of materials along the highways damaging the road pavement. One such case is depicted in figure 39.

Figure 39: Spill over wet sand along Wangdue-Trongsa Highway



As a result of overloading and spillage of materials on the road, the road infrastructure gets damaged and there is also economic impact induced because of high expenditure on maintenance of damaged roads. Deteriorated road conditions compromise the safety of the road users.

With the rapid growth of the economy and the corresponding freight demand, the road network cannot bear the excess traffic and will only accelerate the rate of deterioration of roads. Consequently, the road service life cannot reach the original design life. The RAA noted that the left side of the highway from the NRDCL’s sand depots towards Thimphu has recessed and deteriorated with many potholes and the maintenance of the left side of the highway is an annual activity. This is evidenced by figure 40 which illustrates the damaging effects of overloaded heavy vehicles on sections of road.

Figure 40: Recessed sections of the road along the Wangdue – Thimphu highway



Uncontrolled loading not only affects the road conditions but also damages bridges and culverts, which are ultimately repaired by the government. There are many cases reported wherein overloaded heavy vehicles had damaged bridges in the country (Figure 41).

Figure 41: Bridges damaged by overloaded trucks

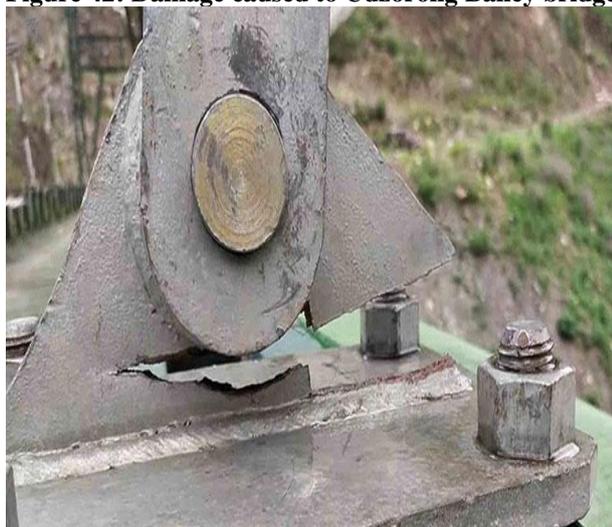


Bailey bridge at Kuchidiana- Samtse

Bridge collapse at Pasakha reported in Kuensel

Moreover, a Kuensel article dated 23rd June 2021 reported that “a bailey bridge over Drangmechu at Shing Phurtumo in Udzorong gewog has been temporarily closed to traffic since 20th June 2021 for public safety. Dzongkhag engineer confirmed that seven bottom suspender connectors had cracked and another one, broken. They suspect the overloading of vehicles plying on the bridge to be the cause.” The damage to the bridge is shown in figure 42.

Figure 42: Damage caused to Udzorong Bailey bridge



Source: Kuensel

Although cases of overloaded trucks cannot be totally eliminated, it can be controlled through effective monitoring, legislation and education.

The RSTA acknowledges the observation and mentioned that the monitoring of freight vehicle is included as a provision of the RST Regulation 2021, implemented from January 2022.

The RSTA responded that five portable weighing machines have been procured in 2019 and used by the MVIs during highway inspections. The RSTA agreed to recalibrate the machines and train the MVIs.

The RSTA assured to inform relevant agencies on the need to institute such mechanisms for freight vehicles and sustainability of road infrastructures. The RSTA will look into the possibility of collaborating with other relevant agencies in regulating the freight vehicles according to the SOP being developed.

While the RAA is aware and agrees that there is robust regulation in place for the safety of freight vehicles, the issue is only on enforcement. As assured, the portable weighing machines must be calibrated and put to use.

3.4.5 Route Permit Process for foreign Vehicle

The regional tourists from neighbouring countries under the current arrangement have choice of their transportation while visiting the country. They can either arrange through tour operators or use public transports within the country. Additionally, the regional tourist can use the foreign tourist vehicle and foreigners can drive their vehicles. The foreign vehicles plying temporarily in the country are called visiting motor vehicles. The visiting vehicles are allowed until the first interior check-post, after which a vehicle permit from RSTA is required. The process flow with the required documents for the vehicle route permit is shown in figure 43.

As the number of foreign vehicles plying in the country increases, traffic congestion is a growing concern due to limited road infrastructure within the country. Further, the difference in geographical landscape, traffic rules, signs and signals, cultural aspects, and inexperience in navigating the roads are some safety concerns for both foreign and local road users.

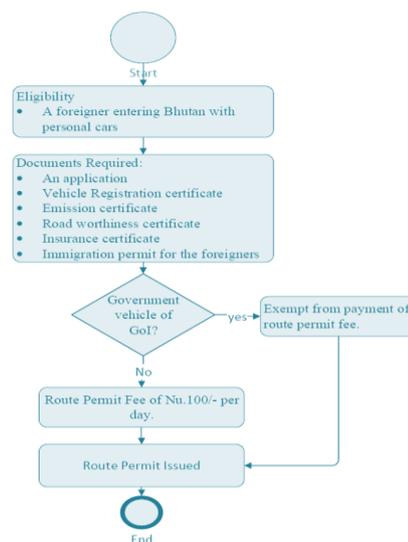
Therefore, it is important to sensitise visiting vehicles about the road safety practices, protocols for giving way to VVIP cars and traffic rules of the country before issuing the vehicle route permit. Further, to ensure the roadworthiness of the visiting vehicles, the base offices should physically test the fitness of the vehicles.

Although there are no separate rules and regulations for the visiting vehicles, Chapter 1, Clause 24.C of the Road Safety and Transport Regulation 1999 mandates ‘*all vehicles of other countries visiting or plying within Bhutan to abide by prevailing traffic and transport laws, rules and regulations of Bhutan.*’

Additionally, the Guideline for Management of Regional Tourist requires a foreign tourist vehicle to be less than 10 years and ‘*A driver operating a foreign vehicle shall adhere to all relevant rules and regulations, including the carrying capacity and roadworthiness of the vehicle as adopted by the Road Safety and Transport Authority.*’ The driver operating foreign vehicles should produce the following documents during verification:

- ✓ Original Driver’s license;
- ✓ Registration certificates;
- ✓ Vehicle insurance;
- ✓ Vehicle emission and roadworthiness certificates; and
- ✓ Any other documents as per the prevailing rules during verification.

Figure 43: Process Flow for Issuing Route Permits for Foreign Vehicle



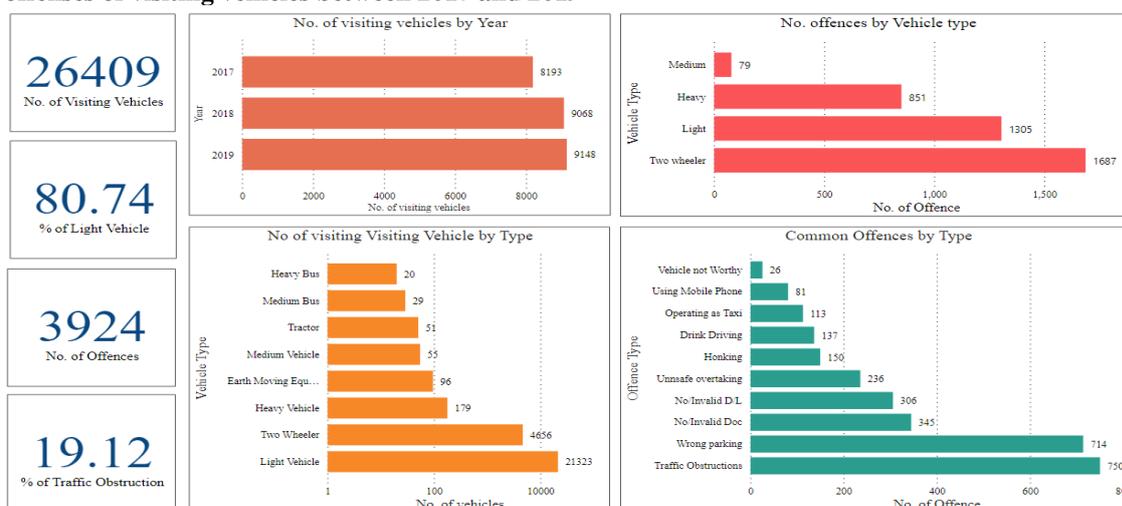
Source: SDS_G2C, RSTA

However, due to the overwhelming number of visiting vehicles and shortage of manpower in the RSTA for issuing route permits, the base offices only check the required documents and do not check if the foreign vehicles are road worthy and safe to ply on Bhutanese roads.

Further, the RSTA does not provide awareness and road safety education to the foreign vehicle drivers on traffic rules and giving way to VVIP vehicles. For instance, foreign vehicles often use wrong signals which the other road users will misinterpret.

These issues can be evidenced by the number of traffic offenses committed by foreign vehicles. Figure 44 shows the number of route permits issued from the Phuentsholing base office between 2017 and 2019 with the number of offenses and common offences types.

Figure 44: Statistics of Route permit issued from Phuentsholing Base office and common foreign vehicle offenses of visiting vehicles between 2017 and 2019



Source: RAA analysis

As evident in figure 44 in the last bar graph, there were 750 cases of traffic obstructions and 714 cases of wrong parking. The offences of vehicle not worthy, invalid driving license and documents indicate improper verification of documents by RSTA

Not providing awareness on road safety and other important aspects to foreign vehicle drivers and also not assessing the road worthiness of these foreign vehicles would result in unsafe vehicles plying on roads within the country and not adhering to traffic rules posing unnecessary risk to road users.

The RSTA agreed and assured the physical verification of visiting vehicles are carried out and monitored strictly. Sensitization program and briefing by the concerned base offices prior to issuance or renewal permit will address the traffic violations.

Further, the RSTA will ensure that the documents are verified as per the requirement.

The RAA notes the response. However, for the sake of safety, the RSTA should create awareness and develop procedures to enforce the requirements for processing route permits to the foreign visiting vehicles.

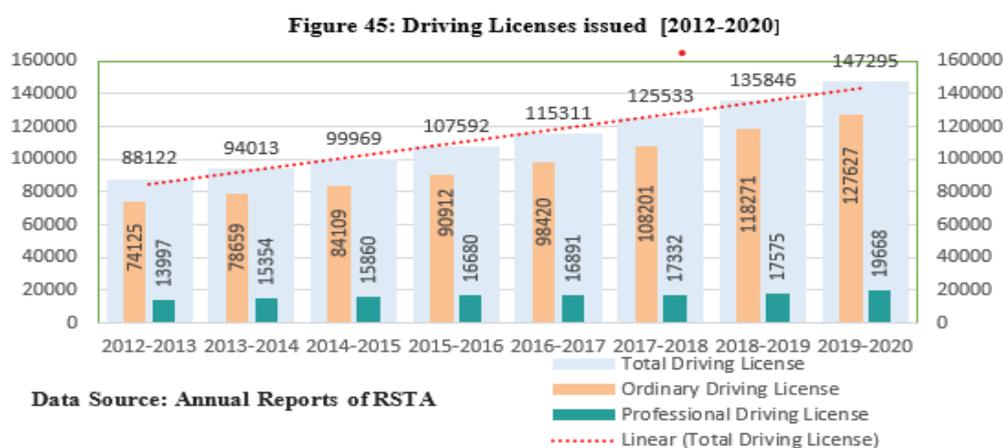
3.5 Road Safety – Safer Road Users

3.5.1 Driver licensing and testing system

Most road users respect and comply with traffic rules, have good safety awareness and use the roads in a sensible manner. But even these people make unintended mistakes – and sometimes those mistakes result in death or serious injury. Besides, almost 27% (*RAA analysis of Motor Vehicle Accident data from 2014 to 2018 maintained by the RBP*) of the motor vehicle accidents from 2014-2018 can be attributed to bad road user behaviours such as drunk driving and driving without licenses.

A large part of the solution lies in improving licensing, education, and information systems. An effective licensing and testing system is one of the measures that helps in minimising such risks and accidents while ensuring people to have the necessary competencies required for independent driving.

There are 147,295 driving license holders, out of which 19,668 are professional driving license holders, and the rest are ordinary driving license holders. Ordinary driving license continues to increase linearly while there is no appreciable increase in the number of professional driving license holders in the country. On an average, there is an increase of 7.6% (8452) annually in the issuance of new driving license as indicated in figure 45.



Recognising the role of driving licensing and testing system in improving road safety, the RAA inspected the procedures in the issuance of driving licenses in RSTA and noticed the following:

3.5.1.1 Learner license

Learner licenses are issued to learner drivers who have no or very little knowledge on driving and road safety. While the dos and don'ts are prescribed in the learner license, there are no set eligibility criteria for obtaining learner license except for requirement to attain 17 years of age. However, the RAA analysis of learner licenses issued data from 2015-2020 revealed 137 instances of learner licenses issued before attaining the eligibility age.

Further, there is no requirement to complete pre-learners' course before obtaining the learner license. There are no pre-learners course on road safety, traffic signage and other dos and don'ts on the roads for the applicants before the issuance of the learner license.

Although the learner license permit has content on traffic signage and other important details, these are not explained by the RSTA official. Instead, those applicants, upon completion of the period for learner license, wanting to apply for ordinary driving license has to attend a mandatory one-day refreshers course at the driving training institute of their choice. Consequently, without providing pre-learner course, the learner drivers would not know the risks associated with driving while learning or practicing driving.

RAA noted that learners practice driving on highways and urban areas accompanied by licensed driver and using the vehicles bearing “L” sign. While it is allowed on roads other than urbans and highways, it poses risk to safety when highways and urban roads are used for practice.

Further, there is no requirement to maintain a log of the number of training hours and also practice driving in specific conditions (e.g., night-time, wet roads, urban areas, motorways) prior to driving test. The learner drivers with formal training in driving training have to fulfil specific number of training hours and kilometres of road to be completed with a qualified driving instructor. However, this is not true in the case of learner drivers with self-learning or informal training with an accompanying driver license holder. The number of training hours of self-learner drivers is not maintained nor required by the RSTA. Similarly, there is no requirement for learner drivers from both formal and informal training to practice driving in specific conditions.

Without proper awareness on road safety, eligibility criteria and pre-course training before the issuance of learner license, and unregulated practice on highways and urban roads, it poses risk of lives and injuries to the learners and commuters.

The RSTA stated that age validation is incorporated in the eRALIS and the lapses will be taken care by the system revamp.

The RSTA clarified that there is no requirement to have pre-learners' course as the Learners License contains basic traffic rules, signage, and other requirements. Furthermore, the RSTA will weigh the pros and cons of both the pre-learners' course and one-day introductory course prior to issuance of driving license, and incorporate whichever has more weightage.

Further, the RSTA informed that the revised RST Regulation stipulates that the learner license holder can learn on highways/urban areas only after completing two months from the learner license issue date. Moreover, the RSTA also mentioned that there is requirement to maintain training hours record for self-learners as the activity depends on individual.

The RSTA further explained that it conducts Road Safety Awareness annually and aims to cover all DL holders, LL holders and anyone wishing to learn to drive in the future. Further, the Traffic Police and RSTA conduct inspections verifying documents of both DL and LL.

While acknowledging the RSTA's assurances to correct the lapse through system revamp, the necessary measures need to be in place to ensure that minimum and necessary requirements are fulfilled before applying for learner license.

3.5.1.2 Theory (written) Test

Testing plays an important role in setting the competency levels required for licensing and judging a candidate's performance in a number of areas.

Prior to qualifying for the actual practical test, the candidates must pass the theory test, which checks the competency of the candidate's knowledge on the road traffic signs and rules. Generally, a theory test should cover:

- ✓ Road traffic regulations;
- ✓ Using the road;
- ✓ Awareness of oneself as a driver and other road users;
- ✓ Vehicle mechanics and vehicle safety equipment; and
- ✓ Hazard perception.

As per the procedure, the questions are to be generated randomly from the questions banks and 30 minutes is allotted to each candidate to answer the objective type questions. The threshold passing mark is set at 24 to successfully clear the written test.

Thimphu regional office conducts the theory test online as the e-Test is a part of the government's paperless initiative. Moreover, the e-Test will also speed up the written test process, since the results will be evaluated instantly by the computer system. There is also an added advantage of the e-Test by reducing personal contact.

However, upon inspection of the conduct of theory tests and verifying these test papers with the past candidates, RAA noted that there is no question bank repository and the RSTA offices had been using the same theory test paper of 2015 till now as illustrated in figure 46.

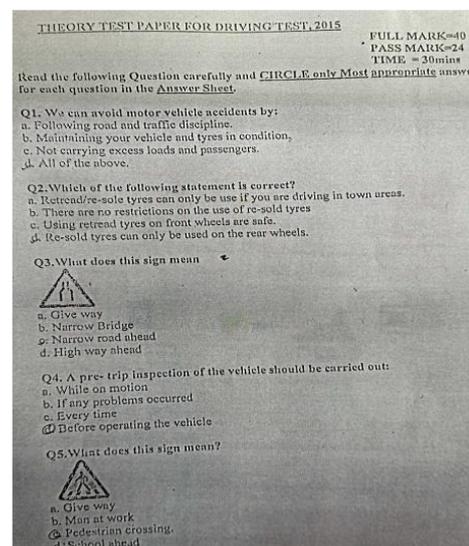
Even for theory test conducted as recent as May 2021, the same test paper was used without even changing the year that is 2015. There are no digitised tests in other regional and base offices.

Furthermore, there is no testing on hazard perception of the candidates through scenario-based questions and the theory questions only addresses road traffic signs and rules.

These deficiencies may undermine the effectiveness of the theory test which may ultimately lead to certifying individuals who may not possess even the minimum theoretical driving and safety knowledge.

The RSTA stated that they will review the theory questions and incorporate observation. The Regulatory and Safety Division is collecting questions from all the regional and base offices to process of validate and create question bank.

Figure 46: Theory test paper of 2015 used even now



Further, the RSTA responded that e-Test (for theory) is being implemented in all Regional and Base Offices. However, paper based and verbal based test are also provided for those who cannot read/write or use a computer.

The RAA reiterates that present system of conducting test are not designed to test the competencies required to get the driving licence.

3.5.1.3 Practical driving test

During a test, examiners not only need to be able to check that the learners have the necessary skills-based competencies, but also that they are capable of driving safely in regular traffic in a transparent and fair manner.

The practical driving test is divided into two – i) box driving test and ii) highway drive test. The overall control of the vehicle and the point turning competency including the usage of triangle mirror vision is assessed while conducting the box-driving test. A standard driving test box of 6.5x6.25 meters length is used, with one entry point as shown in figure 47. The main purpose of the test box is to check the 5-point turn test that is:

- ✓ Front in front out
- ✓ Reverse in reverse out
- ✓ three minutes for both requirements

During the field visit, RAA noted that several base offices were without a test box and resorted to using the test boxes of the DTIs for conducting their practical driving tests. The RAA also conducted physical measurements of test boxes and found that test boxes were much bigger than the standard box. It was also learned that several batches of driving learners have passed the practical tests based on these test boxes.

Upon physical inspection of 18 test boxes of RSTA and DTIs, RAA noted that only Wangdue Base Office and Sompal Driver Training Institute, Thimphu and Paro comply with the standard measurement of test box while remaining do not comply with the standard measurements as illustrated in figure 48.

As represented in figure 48 that 83% does not comply with the standard measurements. A handful of these test boxes were corrected at the time of audit.

In addition to the box driving test, the highway drive should reflect the real traffic and road conditions. Thus, highway locations that give access to a wide range of driving environments

Figure 47: Standard measurement of test box

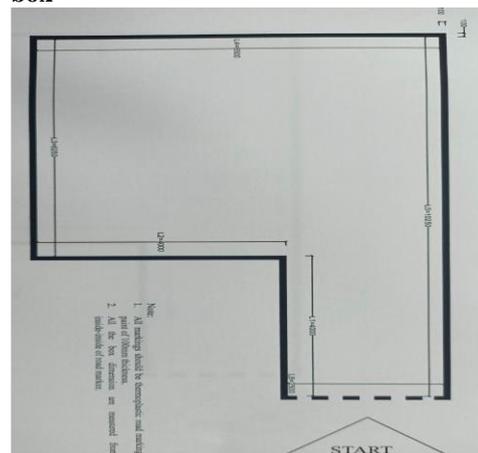
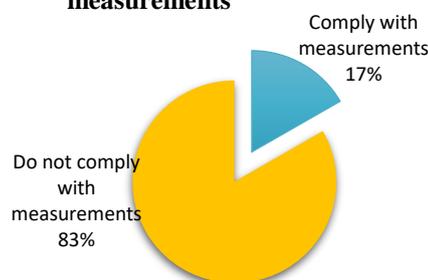


Figure 48: Out of 18 test boxes, only 3 meet the standard measurements



should be used, for example those that allow for both rural and urban driving, although this may be difficult in heavily populated urban areas.

However, the highway drive tests do not necessarily mimic all the required traffic and road conditions (such as driving on bridges, uphill, roundabouts, requiring special manoeuvres, recognise traffic dangers, give due respect to other road users) and the highways selected for testing is left entirely up to the discretion of the examiner.

The inadequacy of procedures in practical driving test apparently does not ensure proper assessment of learner's ability to drive the motor vehicles. This in turn will inevitably result in issuing licenses to drivers who may not demonstrate minimum required skills and competence in driving.

The RSTA expressed that it has directed its offices to use the facilities of driving institutes since most of the office are housed in rented buildings without required facilities. The RSTA has notified its offices to re-check the box size in their compounds, re-inspect the box size of all driving schools and maintain the approved standard measurement on 29th November 2021.

The RSTA explored government lands to develop fully equipped driving testing range/ground but to no avail. The RSTA will review the driver's assessment criteria to address the inadequacy of practical driving test procedure.

3.5.2 Driving Training Institutes

Driving Training Institutes (DTIs) were established to impart professional driving skills through adequate infrastructure and instructors. DTIs impart the basics of operating a motor vehicle, and using turn signals, checking blind spots and gauging how much pressure to apply on to the pedals. These are blended as basic curriculum of 3 months of theory and practical classes for ordinary driving learners and 21 days of professional driving courses with strict assessment by Ministry of Labour and Human Resources (MoLHR).

As of March 2021, MoLHR has approved 28 DTIs which are spread across the country. Every year the number of people registering to learn driving via the DTIs is increasing and these DTIs are geared to provide the best training to these learners with a well-rounded monitoring and assessment curriculum developed by MoLHR. However, during the site visits of the 8 Dzongkhags and upon physically inspecting DTIs, the RAA observed the following inadequacies:

3.5.2.1 Infrastructure

To promote quality training to produce competent drivers in the country, all DTIs are expected to have better infrastructures and facilities for trainings. As per the RST Regulations 1999, a DTI established in the country shall comply with the standard infrastructural requirements including the driving training ground as prescribed by the MoLHR.

However, the RAA noted that there was a lack of proper driving grounds with clear road signs marked, parking spaces and other infrastructures for almost all the DTIs. The Department of Occupational Standards (DOS) vide letter No. MoLHR/DOS/QAD/01/2020-2021/199 dated

5th November 2020 had served letters to all the DTIs regarding the mandatory requirement of a designated driving ground for practical driving training. In this regard, the Department had specified the requirement to develop a proper driving training track with all the facilities within 31st December 2020 with the caution to suspend the licenses of the institutes if they failed to do so within the timeframe provided.

Upon physical inspections, RAA observed that with a few exceptions, most DTIs did not comply with the requirements of the MoLHR in terms of putting in place a dedicated driving ground and other minimum facilities.

Although the MoLHR is supposed to issue the license to DTIs after thorough inspection of establishment of infrastructure as per requirement, the RAA noted that almost all of the DTIs were issued licenses even when they lacked the basic amenities and infrastructure to operate. Some of the inconsistencies in the infrastructures are presented in the figure 49, 50 & 51.

Figure 49: ¼ of the RSTA premises is being used as training ground by 4 DTIs in Phuentsholing.



Figure 50: Planks used for marking the training box



Figure 51: Training ground without basic facilities.



Inadequate and lack of driving training tracks in DTIs would compromise the quality of training as well as give rise to safety concerns as the trainees learn to drive on public roads without basic driving skills posing risks of traffic accidents.

The RSTA clarified that DOS, MoLHR certifies DTIs on fulfilling the standards.

The DOS, MoLHR responded that a notification dated 5th November 2020 was issued to DTIs on the need to have a standard driving training ground as per the design and drawing from RSTA after consultative meeting with the RSTA. The DTIs were given extension complete the infrastructure development by 31st December 2021.

Further, the DOS in collaboration with RSTA will conduct on-site evaluation & rectifications of the driving grounds beginning January 2022 and those institutes failing to meet this mandatory requirement within the above dateline shall be dealt accordingly.

The DOS, MoLHR further stated that it now registers the DTIs only if it fulfils all the requirements.

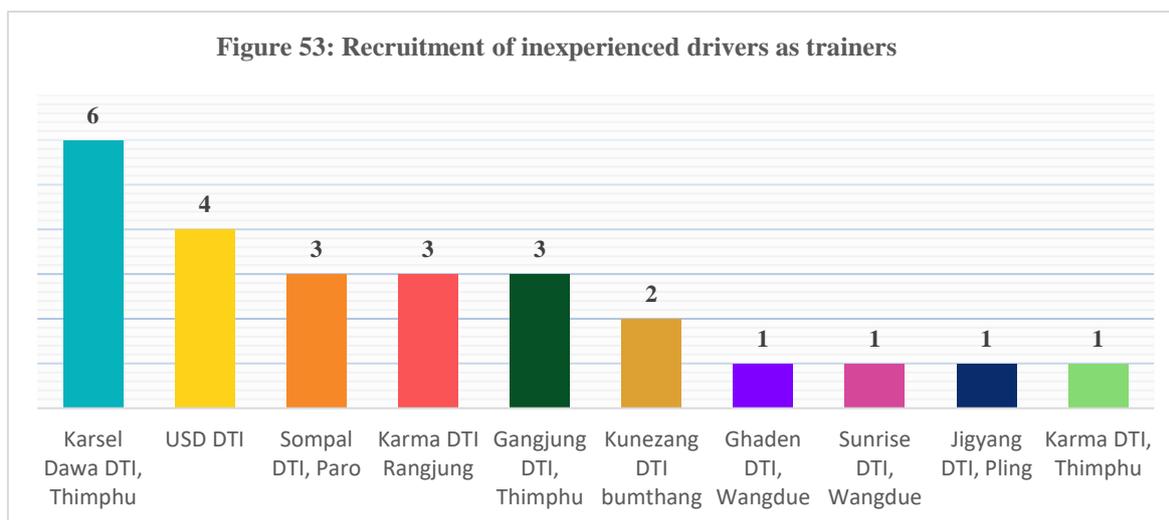
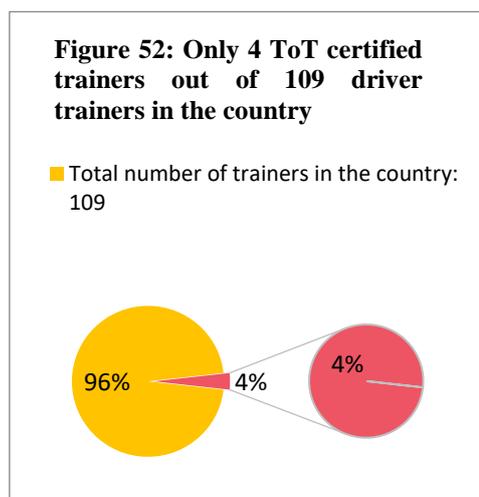
3.5.2.2 Competencies of Trainers

As per the clause 3.1.1 of the Regulations for registration of Training Providers 2010 (Revised 2014), a trainer should possess the qualification requirements of Academic/Technical/Vocational/Professional issued by a recognised institution and have a minimum of one level higher than the course offered or five years teaching experience.

The RST Regulations 1999 also stipulates that the applicant of driving instructor license should have a driving experience of at least five years pass driving skills, have knowledge about traffic rules and be able to communicate knowledge on driving effectively by producing a certificate issued by the Authority.

The RAA on review of the detailed curriculum vitae of the trainers noted that 28 DTIs in the country have a total 109 trainers of which only four are certified Trainer of Trainers (ToT) as depicted in figure 52.

Additionally, it was also observed that in some DTIs, the learners/participants have applied for the trainer's job and was recruited on the same date. Upon further examination of trainers' driving license, it was noted that, some of the trainers were recruited even before they were issued driving licenses. The RAA noted 25 such instances from the available data as depicted in figure 53. Many batches of driving training participants were trained by these newly qualified drivers without the required experience, which was in deviation to the regulations.



The RSTA clarified that 106 driving training instructors were trained on road safety and traffic discipline in 2019. Further, joint ToT with DOS was conducted in batches in June 2021, training 72 DTI instructors.

The DOS, MoLHR stated in their response that though the Regulations for Registration of Training Providers 2014 requires minimum one level higher than the course offered or

five years teaching experience, the Department had been considering the registration of candidates with minimum experience of three years for Light Vehicle Driving due to shortage of qualified and trained trainers. However, since NC2 is the highest level for PD courses and all trainers are PD license holder with minimum experience of three years.

The Department and RSTA collaboratively provides Training of Trainers-Occupational Skills Development (TOT-OSD) for the driving instructors. The RSTA and DOS conducted TOT-OSD training for all the interested trainers of the DTIs in the country in two batches in between June and July 2021, except for those from the southern regions of Phuentsholing, Gelephu and Samdrup Jongkhar. A total of 77 driving trainers were trained so far. The Department plans to conduct similar courses.

While noting the initiatives taken to train the trainers, the fact remains that inexperienced trainers who have only recently gotten their driving licenses are recruited. Even if there are regulations, the enforcement seems inadequate which indicates weak monitoring controls.

3.5.2.3 Learner Drivers using highway for training

The RST Regulations 1999 states that a learner driver shall not be allowed to learn along the highways and in town areas for first three months of learning to drive. In addition, he/she shall not be allowed to carry any passenger other than his/her driving instructor. However, the RAA observed that DTIs around the country take the learners to drive on the highway within the second week of the driving training lessons. This had resulted in a case of accident by the trainee during the highway driving which nearly cost a life in Thimphu.

Using highways for training from the second week of training can be attributed to the following:

- Inadequate or lack of training grounds as mentioned in the observation earlier;
- As per the Regulations, the RSTA is required to designate and notify training routes in consultation with DoR, Thromdes, or any other agency concerned. There were no routes officially identified and designated by RSTA. Instead, the DTIs and self-learners use any routes of their choice;
- One of the requirements of the DTIs as per the RST Regulations 1999 is to have simulators for conducting training. During the field visit, the RAA noted that none of the DTIs had installed the driving simulators;
- Enforcement of driving on highways and town areas are not regulated strictly nor monitored.

The RSTA replied that the Regulation specifies the DTIs to ensure minimum vehicle-trainee ratio of 1:12 for practical training and 1:4 on the highway. Also, DTIs must impart training courses for 3 months; that is 20% theory & 80% practical. The RSTA clarified that DTIs should identify the routes in urban areas in consultation with LGs/Thromdes. With regard to simulators, the RSTA responded that the installation of driving simulators are very expensive which will result to increase in driving course fees.

The RAA notes that there is inadequate monitoring in designating highways for test driving and also to ensure fulfilment of conditions to permit driving on highways.

3.5.3 Fatigue Driving

The fatigue driving is one of the major and potentially growing risks to safety. Fatigue results from long trips and extensive periods of continuous driving, and also in short trips when the driver has previously been deprived of proper sleep or rest. The RST Regulations restrict the drivers of commercial passenger vehicle from driving more than 8 hours with continuous journey and also stipulate the requirement of having substitute drivers for routes requiring continuous driving hours of more than 8 hours.

In accordance to letter No. RSTA/TM-21/2018-2019/698 dated 18th June 2019, two drivers are required for any public transport bus service when the travel duration is more than 8 hours in a day. However, not all the bus operators abide by the aforementioned rules and circular. The RAA noted that the buses from Thimphu to Mongar and Phuentsholing to Bumthang ply without having two drivers and there are more bus routes where the travel time takes more than eight hours.

The RAA on verification and examination of bus schedule revealed that in the country, there are 261 routes. The time taken for journey for various routes are as depicted in the figure 54.

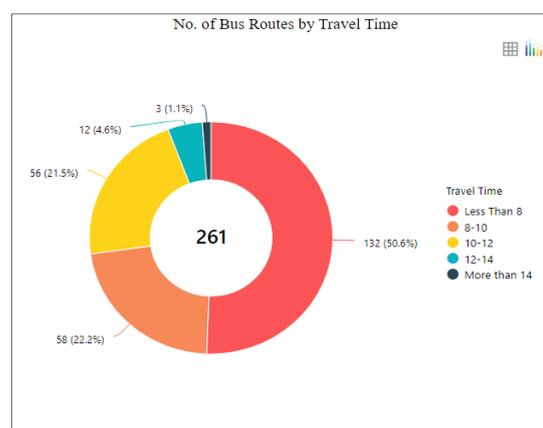
As illustrated in the figure, 50.60% (132) represents the time taken less than 8 hours journey, while 49.40% (129 buses) shows the travel time of more than eight hours journey. It is also known that some buses take more than 14 hours journey representing 1.10% (3 buses) of the route. Almost half of the routes take more than 8 hours travel time which needs immediate attention of the responsible agency in enforcing the rules and enhance the safety of the commuters.

The non-enforcement of rules to ensure maximum hours of continuous driving increases the risk of fatigue driving. There is a need for enforcement of the rules by RSTA through constant monitoring of the engagement of drivers specifically for the routes that take more than 8 hours of journey.

The RSTA started a pilot on-board inspection of passenger buses in Thimphu and Mongar Regional Offices including the base offices in these regions to monitor the lapses. The RSTA will ensure strict implementation and adherence to eight hours or maintain two drivers for those operators operating beyond eight hours.

As assured, the RSTA should develop enforcement mechanisms to minimise the risk of fatigue driving.

Figure 54: Time taken for different routes



3.5.4 Traffic Offence Management

With the increasing number of vehicles, the cases of offences have also been consistently high in the recent years with slight drop in 2020-21 possibly due to lockdown during Covid-19 pandemic. There were 138,509 cases of offences registered as per e-RALIS from 2015-16 to 2020-21. The trend of offences per licensed driver as well as with respect to number of vehicles also show pattern as shown in the figures 55, 56 & 57.

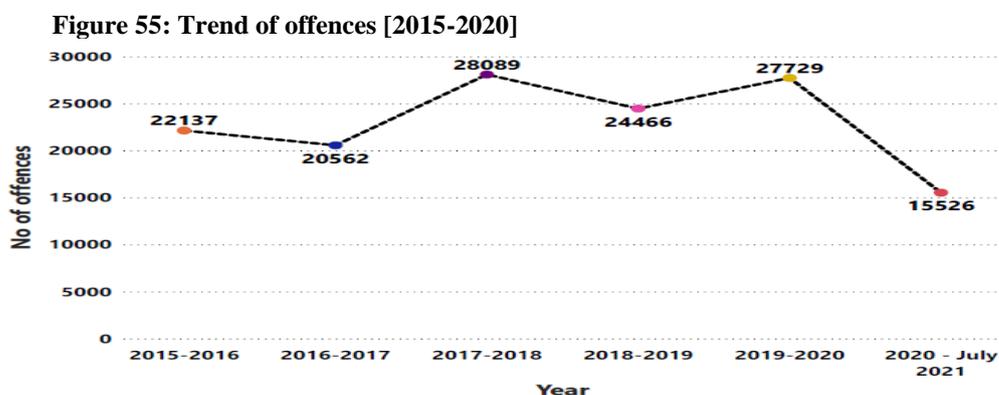


Figure 56: Trend of offences and No. of vehicles

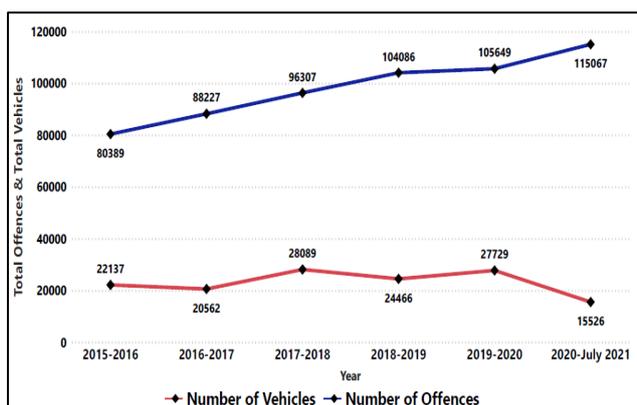
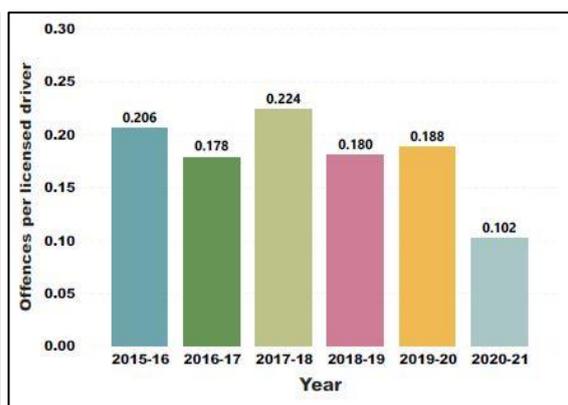


Figure 57: Offences per license holders [2015-2020]



RAA Computation: data source-No of vehicles taken from RSTA annual report 2015-2020 and 2021 RSTA website

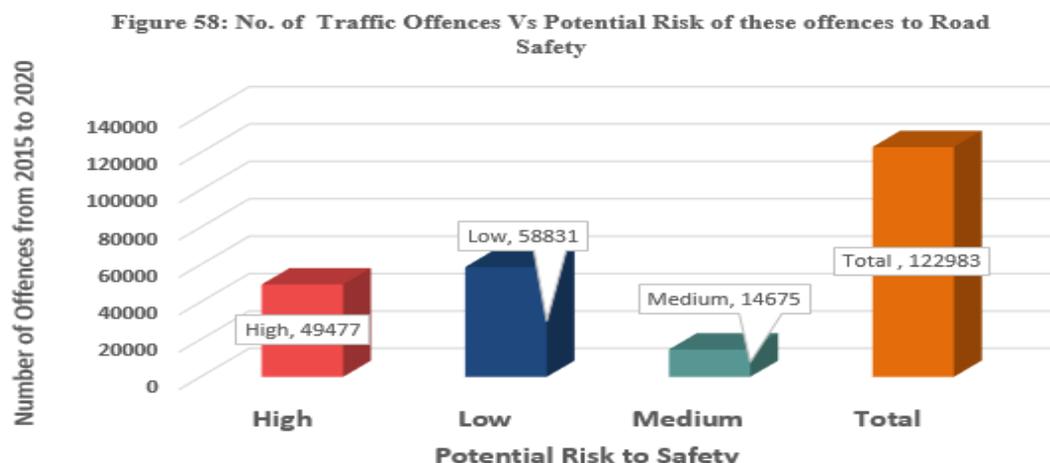
As shown above, with consistent trend of offences over the period, the traffic offence management has become a major concern today.

The RAA reviewed the system of managing traffic infringements and enforcement of fines and penalties by the RBP and RSTA. The RST Regulations prescribe fines and penalties for both the major and minor offences. The RAA noted the following.

3.5.4.1 Enumeration of offences

Based on the data extracted from e-RALIS, there were 122,983 traffic offences (after cleaning missing data) committed from 2015-16 to 2019-20. The enforcement officials select specific offences from the list of 156 types of offences maintained in the system.

Based on the RAA’s perception of risk to safety and the description of the offences, the lists of offences were categorised into “High”, “Medium” and “Low” to analyse the nature of offences committed during the period as shown in the figure 58.



As evident from the figure 58, offences posing high risk to road safety constituted 41.7% indicating high vulnerability to road accidents that may result in injuries, damages and loss of lives. Further review of the offenses and management of information in the system showed that:

- a) High risk offences are mostly those which have potential to result in severe consequences to lives if appropriate interventions are not initiated by relevant agencies. The top ten high risk offences based on the frequency of occurrences are compared in the figure 59.

Figure 59: Top 10 Traffic Offences posing high risk to road safety [2015-2020]



As depicted in figure 59, from the top 10 traffic offences, a significant portion of the offences are contributed by drink driving, unlicensed driving and use of phones during driving while others are of equal concerns in terms of frequency of occurrence.

- b) Those offences which are categorised as “medium and low risk” also pose risk and need to be managed. These are mainly non-compliances that may or may not contribute to compromising of safety. These risks also need to be treated through adequate enforcement by authorities.
- c) The RST Regulations 1999 specifies *penalty units* for all types of offences specified and the collection of the financial penalty is based on it. However, the RAA noted that the *penalty units* prescribed for offences are not based on the severity and its potential to pose

risk to road safety. For instance, driving without proper vehicle brakes, which has the potential to pose serious risk is assigned with only 15 penalty units. Similarly, offences like unsafe overtaking, not having control over vehicle, faulty tyres, invalid road worthiness, driving without learner's license have been assigned with lower penalty points.

- d) The list of offences coded in the system are fraught with numerous inconsistencies in terms of nature and description of offences. For instance, it contains description like “court case underway/objection, call this number” and “ownership transfer requested by owner”. These inconsistencies would lead to undermining the integrity of data and distortion of information for informed decision making.
- e) The offences also include those which are not at all related to transport safety. For instance, offences like “charging uniformed police” “smoking in the vehicle” “drivers and conductors not observing dress code” in any way do not relate to road safety. Such offences could be non-compliances to other governing authorities of rules and codes, and the sanctions for violations should be dealt with separately from offences under traffic safety.

The RSTA responded that the observation is well noted. The penalties based on the severity of traffic offences will be revised at the time of amendment of RST Act. The inconsistencies in nature and description of offences will be addressed with the enforcement of revised RST Regulation which include both the "Offence description" and "Penalty Units". As regards to smoking, a driver smoking in a vehicle distracts him/her thus posing substantial risk to the passengers and other road users; so this offence is for safety reason.

An exercise on assessment of the complete inventory of offences should be taken up along with studying and reassigning the penalty units as some offences that had potential to pose serious risk to road safety are prescribed lower penalty units.

3.5.4.2 Penalty Points

The RST Regulations 1999 prescribes *Penalty Units* to be assigned to all types of offences supposedly based on the severity. For instance, for offence of “hit and run”, the prescribed *penalty units* is 50 and for violation of maximum number of passengers, the *penalty units* is 20 for every additional passenger.

The *penalty unit* system is intended to accumulate demerit points after every offence for more severe penalty in the form of suspension and cancellation of driving licences, and deregistration of vehicle. It is to prevent and deter high risk driving behaviour, identify repeated offenders and rehabilitate reform drivers' behaviours for overall safety.

However, there is no clarity on how the accumulated *penalty units* of offenders could be used for levying further penalties. Currently, the *penalty units* are used only for imposing financial penalties on the offenders (that is Nu. 50 per penalty unit). As such, having the system of *penalty units* does not contribute to ensuring safer roads and driving except for imposing financial penalties.

The RSTA responded that the authority will look into the possibility of addressing the issue through automation of the enforcement system with the upgradation of eRALIS system in line with the revised Regulations.

The RAA would like to reiterate that penalty units should not only be used for financial penalties but also for accumulating demerit points for more severe penalty to prevent and deter high risk driving behaviour.

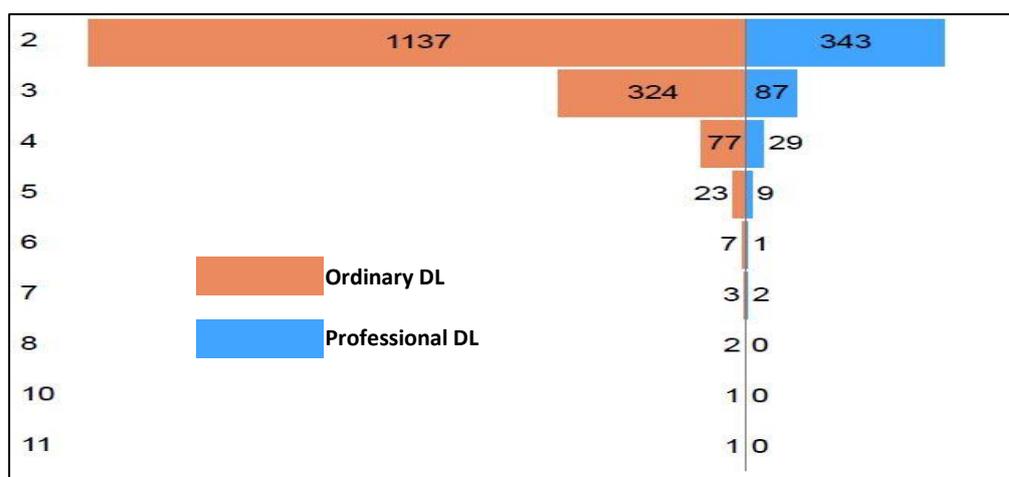
3.5.4.3 Repeat Offences

The enforcement of penalty had not been consistent as per the records maintained by the RSTA in the system. As illustrated in figure 59, the RSTA have recorded 12,161 drink driving offences from 2015 to 2020 inclusive of 14 instances of offences related to *driving under the influence of drugs*. The RST Regulations specifies degree of penalties for repeat offences for ordinary and professional licenses.

However, the analysis of data showed that penalties of punching licenses and suspension were not enforced despite repeating the offences. The regulations require imposition of fines by the traffic disciplinary committee to the offender, and for repeat offender, the driving license is to be punched after which the repeat offender is not allowed to drive for a certain period of time and for drivers driving under the influence of drug are to be penalised as per the provisions of the Penal Code of Bhutan. However, in practice with most cases, it was found that the driving licenses are not punched, cancelled and suspended as per the provisions of the RST Regulations 1999.

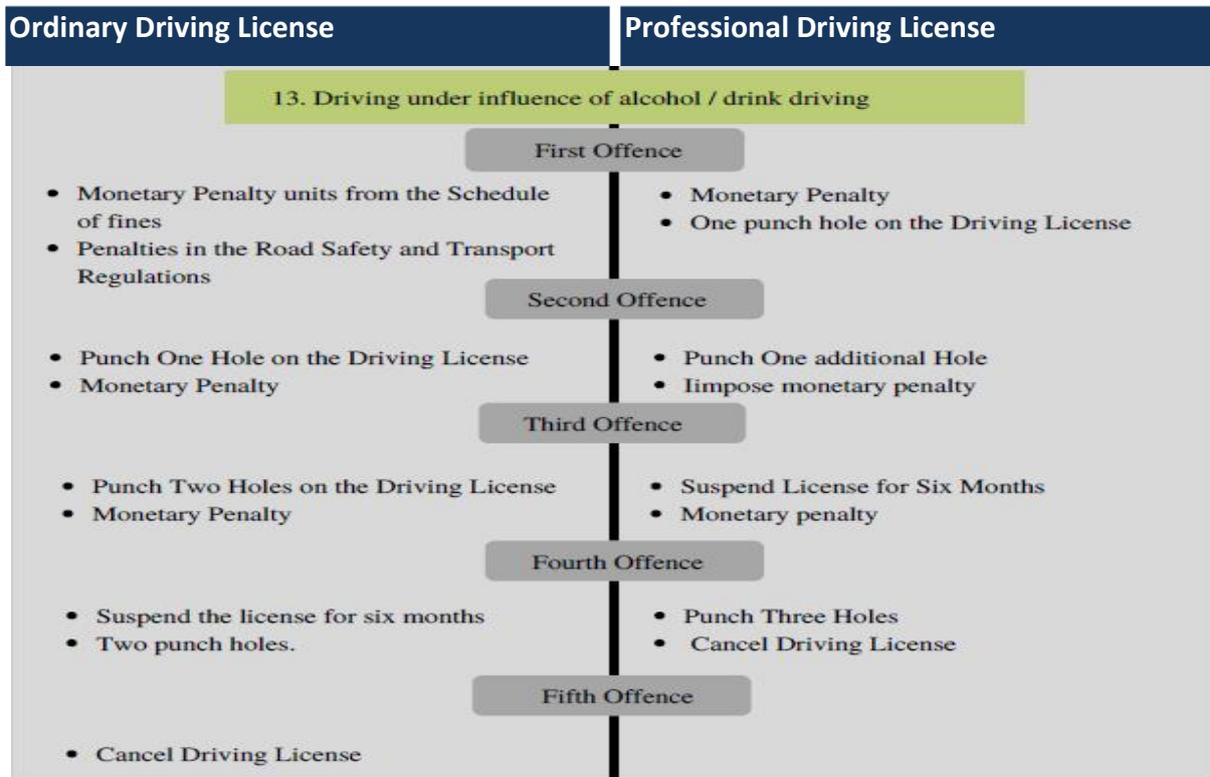
On further scrutiny of drink driving offence data from 2015-2020, it was noticed that there were cases of repeated drink driving offences by individual licence holders and appropriate actions not taken by the authorities. The highest repeated drink driving cases found is 11 times for one Ordinary Driving License (ODL) holder and seven times for two Professional Driving License (PDL) holders. There are 1137 ODL holders and 343 PDL holders with two times repeated offences of drink driving. As required by RST Regulations 1999, 128 PDL and 114 ODL holders should be suspended. Nevertheless, five ODL licenses were suspended for repeated offence of drink driving as per e-RALIS data. The individual license holders with repeated offences with the frequency of occurrence is depicted in the figure 60.

Figure 60: No. of repeated Offence with frequency of occurrence.



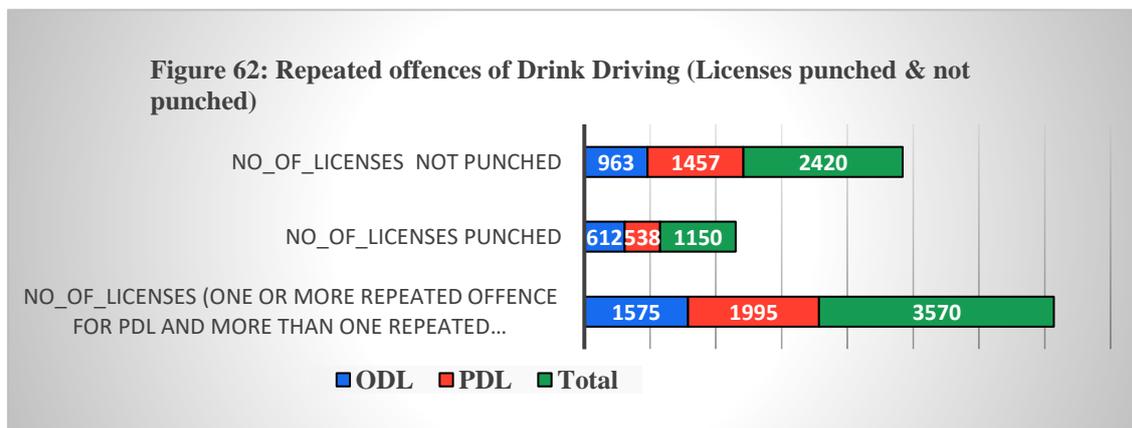
The penalty imposed for drink driving with regard to ODL and PDL is indicated in the figure 61.

Figure 61: Penalties to be imposed for PDL & ODL for drink driving as per the RST Regulations 1999.



The penalties, as seen from the figure 61, are different for ODL and PDL even though the nature of offences is same. Since the risks posed by both the professional and ordinary license holders are same, it is not logical to prescribe different penalties for similar offences.

Further comparison of drink driving offences (repeated offences- one or more for professional license holders and more than one offence for ordinary license holders) with licenses punched data showed that all drink driving offences have not resulted in punching of the licenses. The bifurcation of drink driving offences with license categories/type by Professional Driving License (PDL) and Ordinary Driving License (ODL) is illustrated in the figure 62. Out of 3570 cases (after cleaning missing data of driving license number), 1995 licenses were PDL and 1575 ODL. As evidently shown in the figure 62, 1457 and 963 licenses were not punched constituting 73% of PDL and 61% ODL respectively although it is required by the Regulations.



With regard to inadequacies of application of penalties for drink driving in the system, the RAA noted instances, some of which are highlighted in the *case study-V*.

Case study V

Case A.

There is one ordinary driving license holder (T-21107) who has committed a total of 11 drunk driving offences. For the entire offences recorded in e-RALIS, his license got punched only once and it was suspended for six months. However, as per the record, his license got replaced three times indicating weak control mechanism in the e-RALIS because the system allowed to replace his license despite committing several drink driving offences.

Case B.

Another individual holding driving license number, T-61222 has committed 12 times drunk driving offences. However, the record in the e-RALIS doesn't show any action taken for the offences committed and the license is still valid in the system which otherwise should have been suspended or cancelled. This case clearly indicates that RSTA is not using the e-RALIS data for decision making.

Case C.

A PD license holder (PD-7355) has committed 7 times drink driving offences. Although drunk driving offence is considered severe for PDL holders, this particular case revealed lapses in enforcement of stringent penalties. According to the e-RALIS, this particular license was neither suspended nor cancelled but got punched once and replaced 5 times. This shows weak control mechanism in the e-RALIS because the system allowed replacement of license despite having several records of drink driving offences.

While agreeing with the observation, the RSTA responded that the lapses had occurred in the past due to non-automation of the system. However, with the enforcement of revised RST Regulations, the issue will be addressed automatically by the system based on the number of offences and nature of offences committed by the offenders.

With regard to repeat offenders and the case study, the RSTA clarified that once the driving license is forwarded to the disciplinary committee, the DL is punched in line with the RST Regulations. However, the license holders appeal for removal of punch on the driving license after six months of the punch date. The disciplinary committee then withdraws the punch if there is no offence after the punch during the review period of six months.

Further, the RSTA mentioned that the system will take care of all these issues once the revised regulations come into force.

It is evident that existing mechanism instituted is inadequate to enforce penalties specified in the RST Regulations. This would have effect on less deterrence and increasing the cases of repeat offences.

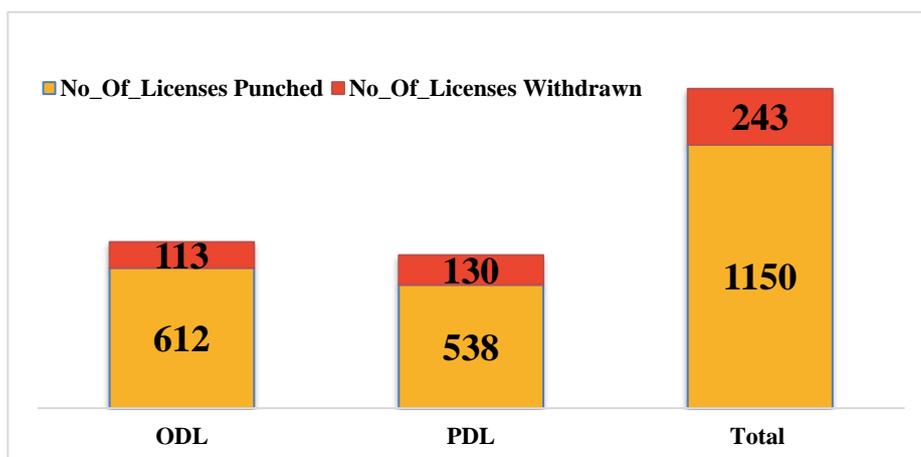
3.5.4.4 Withdrawal of penalties

Traffic Infringement Notice (TIN) is a notice issued for offences related to all nature arising out of use or as a result of the use of a motor vehicle. The RST Regulations 1999 empowers

the Traffic Disciplinary Committee at the level of Region and Authority to review cases involving major traffic offences and impose penalty which may include punching offence holes on the license, suspension and cancellation. It is also entrusted with the responsibility to review cases received for appeals and may alter or overrule any earlier decisions taken thereof.

On review of the drink driving cases, which is one of the major traffic offences, the RAA noted that there were cases of withdrawal after TIN were issued. From the license punched data, the RAA found that out of 1150 (612 ODL & 538 PDL) licences punched, 243 licences were withdrawn from punching of licenses by the authorities. Of 243 withdrawn licences, 130 pertains to the professional driving license holders and 113 are Ordinary Driving license holders as shown in the figure 63.

Figure 63: No of licenses withdrawn from punching



As shown through the analysis on the traffic offences, consistently high occurrences during the period have become cause of road safety concerns. Despite using e-RALIS as information management system, information from the system were not used to formulate strategies to address the concerns. The traffic offence management would be rendered robust only when information is processed, analysed and used for informed decision making for strategic interventions.

The current system of sanctioning the traffic offenders by way of punching the licenses and paying of fines does not seem to serve the purpose of deterring unprofessional driving behaviours as well as ensuring overall safety of commuters. The risk is further fuelled when the prescribed sanctions for repeat traffic offenders are not enforced strictly. The traffic offenders are notified to pay financial penalties for their reckless actions and after the payment, they are cleared to drive on roads without prescribing minimum length of time after which the offenders would be allowed to drive. The penalty units do not culminate into any form of major penalty and hence, do not form any deterrence. The offenders are neither held accountable for their actions or the risk they put to other people by their actions nor are steps taken to reform their reckless behaviour. These have resulted basically from inadequate enforcement of traffic safety by the authorities.

The RSTA clarified that eRALIS data is the main source of information/data used in planning. The RSTA mentioned that it is focusing on awareness and education with strict monitoring of traffic offenders in addition to punching license and fines.

The RAA stance is that the eRALIS data should be analysed to gain insights to formulate strategies to address the concerns. As noted in this report, the current system of sanctioning the traffic offenders does not prevent and deter risky driving behaviour. The RSTA should have strong enforcement and accountability mechanisms for offenders.

3.6 Sustainable Road Transport - Social

3.6.1 Travel fare concession

Concessionary fares offer certain sections of the population particularly students, elderly people and persons with disabilities, the opportunity to travel on public transport at a reduced fare, which in some cases can mean free travel.

Although Bhutan's public transport systems are still developing to meet increasing demand and ridership expectations for higher quality of service, the concessionary fares to different section of groups are not being provided except for students. According to population housing and Census of Bhutan, 2017, it was revealed that 2.1% (15,567) of the population represents the people with disabilities in the country. In addition, it also states that there is substantial increase in elderly population every year and the share of elderly will continue to rise which is expected to cross 100 thousand by 2043.

Affordability is one of the major concerns for certain sections of populations. Hence, ensuring access to transport system for all segments of the society at affordable rates so that there is a reasonable opportunity to employment, education, health and other services is of utmost importance. In this regard, the RAA while reviewing accessibility for travel fare concession observed the following:

3.6.1.1 Travel fare concession for students

It was understood travel fare concession is provided for all the students which is reflected in the fare schedule uploaded on the RSTA website. However, it is dependent on the willingness of the bus operators as part of their Corporate Social Responsibility. In addition, it was cited that the RSTA does not have the authority to regulate and insist the provision of student fare concession. Moreover, it was also noted that concession by taxis was not provided since it is neither stated nor specified in the regulations.

The RAA on further scrutiny of the fare schedule found that concession of Nu. 1 per Kilometre (km) is being provided for students availing passenger bus services for 24 seater buses and above. In addition, 10% less on the normal fare are being provided for coaster and medium buses.

On enquiry about the modality of giving different rates as concession to the students, it was found that the RSTA officials do not have clear knowledge on how concession was computed and what parameters were used for different rates of Nu. 1 and 10%. As a result, without the basis of computation on concessions, the RSTA have been publishing the fare schedule based on the Microsoft Excel file maintained by the official responsible.

Further, it was also known that students are not advocated for such offers and most students end up availing the services with the same fare as the general public. The RSTA justified that there is no need to advocate on the concession because the fare schedule uploaded on the

website is adequate. The RSTA is yet to regulate and monitor whether the agents (ticketing counters) are implementing incentives provided as per the fare schedules.

The RAA carried out analysis (fare schedule March 2020) of gain from availing Nu. 1 per km for the students (24 seater and above buses) as compared to normal fares as well as 10% less on normal fares for coaster and medium buses and found that on an average concession of Nu. 25 will be benefited for availing 24 seater and above buses and concession of Nu. 45 on availing coaster and medium buses services as represented in table No. 8 and 9 respectively.

Sl. No.	Station		Kilometre	Normal Fare (Nu.)	Student Fare (Nu.)	Difference
	From	To				
1	Thimphu	Phuentsholing	171	190	171	19
2	Gelephu	Zhemgang	133	148	133	15
3	Dagapela	Thimphu	193	214	193	21
4	Thimphu	Samtse	245	272	245	27
5	Thimphu	Haa	121	134	121	13
6	Thimphu	Punakha	71	79	71	8
7	Thimphu	Paro	54	60	54	6
8	Thimphu	Gelephu	258	286	258	28
9	Thimphu	Mongar	460	511	460	51
10	Thimphu	Phongmey	584	648	584	64
Average Nu.						25.2

Sl. No.	Station		Kilometre	Normal Fare (Nu.)	Student Fare (Nu.)	Difference
	From	To				
1	Thimphu	Phuentsholing	171	274	246	28
2	Thimphu	Trashigang	551	882	793	89
3	Thimphu	Trashiyangste	582	931	838	93
4	Thimphu	Gelephu	258	413	372	41
5	Thimphu	Samtse	245	385	346	39
6	Sarpang	Phuentsholing	228	365	328	37
7	Bumthang	Phuentsholing	406	650	585	65
8	Lhuntse	Mongar	75	120	108	12
9	Paro	Thimphu	54	86	78	8
10	Gelephu	Punakha	211	338	304	34
Average Nu.						44.6

The RSTA in its response mentioned that the RST Regulations do not specify bus/taxi fare concession to the students. However, 10% discount from the regular fare is given to students (holding a student card) wishing to avail the concession. Additionally, MoIC has issued executive order issued dated 15 November 2013.

The Authority takes note of the observation and will work further in disseminating this information through announcement of fare concession on RSTA social media and website.

The RSTA responded that it strictly regulates/monitors the bus/taxi fares in the ticketing counters as per the fare schedule published in the Authority's website. The upper limit of fare is set by RSTA and operators can charge the fare lower than the fixed fare. Any complaints made against the bus/taxi operator is addressed and the complainant is refunded upon verification.

The student fare discount of 10% should be implemented uniformly and as assured, this should be disseminated.

3.6.1.2 Travel expenses for person with disabilities

People living with disabilities requiring long-distance journeys are generally less well serviced by public transport almost everywhere. This is partly due to limited demand, which in turn leads to reduced services. Moreover, the National Policy for Persons with Disabilities 2019 under clause 19.1.15 stipulates the RGoB to introduce mechanisms to subsidise the cost of public transport for persons with disabilities.

In this regard, the RAA studied one case on the expenditure incurred while availing public transport. The detail is depicted in the *case study-VI*

Case study VI - Extra Costs incurred on Transportation for persons with Disabilities

Persons with disabilities bear costs associated with health care, transportation, personal assistance or assistive products, and modified residences, among others. The result is that two households with the same level of consumption (or income) – one with a member with a disability and one without- are not enjoying the same standard of living due to the extra costs incurred by persons with disabilities. The RAA specifically calculated extra costs associated with regard to the transportation based on the focus group discussion with the Teachers, Staffs and Students of Muenselling Institute, Khaling and Draktsho East, Kanglung.

For instance, a child with disability from Thimphu who has to report to Muenseling Institute in Khaling spends triple than the normal students traveling to the same institute. It is inevitable that persons with disability have to be accompanied by guardian or the parents while traveling anywhere escalating the travel costs. The RAA team studied the extra cost incurred for differently abled person. Table No. 10 shows the analysis made as compared to ordinary person.

Table No. 10: Cost comparison of persons with disabilities and persons without disabilities

Route	Travel fare for person with disabilities		Travel fare for person without disabilities	Remarks
	Student	Accompany		
Thimphu to Trashigang (Bus)	882.00	882.00	882.00	Student with disability and accompanying parent reporting to school and accompanying parent going back.
Trashigang to Khaling (Taxi)	243.00	243.00	243.00	
Khaling to Trashigang (Taxi)	0.00	243.00	0.00	
Trashigang to Thimphu (Bus)	0.00	882.00	0.00	
Thimphu to Trashigang (Bus)	0.00	882.00	0.00	Accompanying parent travelling to Khaling to pick up the student for mid-term vacation .
Trashigang to Khaling (Taxi)	0.00	243.00	0.00	
Khaling to Trashigang (Taxi)	243.00	243.00	243.00	
Trashigang to Thimphu (Bus)	882.00	882.00	882.00	
Thimphu to Trashigang (Bus)	882.00	882.00	882.00	Student with disability and accompanying parent reporting to school after Mid-term vacation and accompanying parent going back.
Trashigang to Khaling (Taxi)	243.00	243.00	243.00	
Khaling to Trashigang (Taxi)	0.00	243.00	0.00	
Trashigang to Thimphu (Bus)	0.00	882.00	0.00	
Thimphu to Trashigang (Bus)	882.00	882.00	882.00	Accompanying parent travelling to Khaling to pick up the student for winter vacation .
Trashigang to Khaling (Taxi)	243.00	243.00	243.00	
Khaling to Trashigang (Taxi)	0.00	243.00	0.00	
Trashigang to Thimphu (Bus)	0.00	882.00	0.00	
TOTAL Nu.		13,500.00	4,500.00	

Distance to institute/schools is seen as a barrier for many persons with disabilities. Public transport is often inaccessible, unreliable, and expensive when compared to the persons without disabilities travelling to same institute/school, while private transportation can be prohibitively expensive as can be compared in the table No. 10. In a year, the cost incurred by the persons with disability spent triple (Nu. 13,500) the amount spent by the persons without disability (Nu. 4,500). It is evident that transportation cost is expensive compared to others.

As clearly pointed out in the case study, not providing concessionary fares to persons with disability will not only result in incurring additional cost of travel but also risks of creating inequalities and exclusionary practices in terms of public transport services. Further, during the course of focus group discussion with the students and teachers of Muenseling Institute Khaling, some of them stated that there are cases when students had to drop from school owing to additional travel expenditure (Complete data related to students drop out from schools due to this particular reason could not be obtained as there are other factors involved besides the additional travel cost).

Like many other countries, Bhutan also needs to establish a range of measures within transport policies, including concessionary fares, subsidised public transport services and free special transport services for vulnerable groups such as older people, children, and/or people with disabilities in order to make the transport sector an inclusive sector.

The RSTA responded that it strives to provide services to people of different vulnerable groups. The RSTA will assess and develop a modality to address the accessibility of transport to vulnerable groups in the public transport sector.

The RAA has noted the response and reiterates that concessionary fares to persons with disability should be captured in the overall transport policy of the country.

3.6.2 Accessibility of Public Transport Facilities and Services

Urban environments, infrastructures, facilities and services, depending how they are planned and built, can impede or enable access, participation, and inclusion of members of society. Persons living with disability are more vulnerable and have experienced the lack of accessibility to basic urban services such as education, transportation, and access to information and communications at large.

In regard to accessibility to public transport facilities and services, the RAA observed the following discrepancies as follows:

3.6.2.1 Guideline for differently abled-friendly construction

The MoWHS issued a guideline for differently abled-friendly construction to cater to the needs of the persons with disabilities in the society (figure 64). The guideline provides basic criterion and checklist that any structure or component of a structure should comply to declare it as accessible for differently abled person. The guideline also provides design considerations like proper signage, footpath, street furniture, ramp and pedestrian crossing requirements among others.

However, it was learned that this guideline is seldom considered while designing buildings or public spaces. It is evidently clear that almost all construction works across the nation are hardly having these designs considered or implemented for the differently abled community. For instance, the construction of the Bus terminal and RSTA Office at Chamkhar, Bumthang Dzongkhag lacked the inclusiveness in the plan, drawing, design and implementation as can be seen in the figures 65 & 66 below.

Figure 64: Guideline

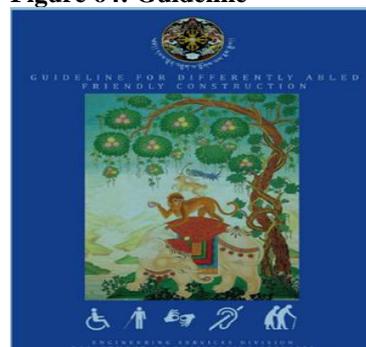
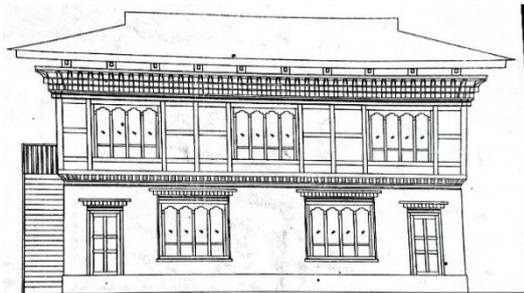
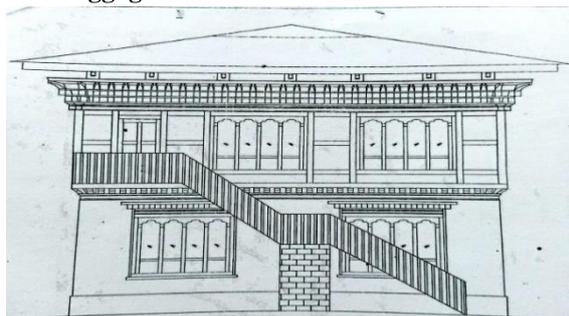


Figure 65: Design for RSTA office, Ticket counters and luggage room.



Front Elevation- ground floor meant for ticket counter with two door which is not accessible to wheel chair and without ramp.



Left side Elevation- Steep stair case without ramp facility.

Figure 66: Ongoing construction of Bus Terminal at Chamkhar, Bumthang



Inaccessible toilets for persons with disabilities

Persons with disability not only face issue of not having a lift or ramp in office buildings but also encounter challenges in using public washrooms because their needs for special facilities are not incorporated or considered while designing or during construction.

Further, there is no provision of ramps at most of the bus terminal and those provided does not meet standard. People with disabilities cannot access the facilities due to high end stair cases and there are no parking spaces allocated for them.

The lack of effective enforcement of the legislation that aims to address barriers for disabled peoples' accessibility to public services is due to weak collaboration and awareness.

The RSTA justified as per the Common Minimum Infrastructure Guidelines, the Dzongkhags are responsible for construction of bus terminals. Dzongkhags are required to align the requirements of the Authority, in terms of public service delivery and public transport services in the structure designs, during the planning stages which has been missed in case of Bumthang Bus Terminal.

Additionally, the RSTA is developing guideline for public transport infrastructure to set the benchmark functional standard for such infrastructure in the country.

Nevertheless, the RAA would like to state that there is adequate legal mechanism which needs to be enforced rather than developing additional guidelines. The guideline for differently abled-friendly construction needs to be followed for public transport infrastructure.

3.6.2.2 Urban design considerations for persons with disabilities

The RAA assessed the public transport and urban infrastructure with regard to accessibility and noted that most are constructed without considering the universal design leading to barriers to mobility.

According to the Population Housing and Census of Bhutan 2017, about 2.1 % (15,567) of the country's population (8111 females and 7456 males, figure 67), regardless of age and gender, have some form of disability. The report stated that highest record of people with disability were from the rural areas (80%).

Some of the instances are:

a) Footpaths around infrastructure

As shown in figure 68, footpaths across the nation are not designed or constructed conveniently restricting smooth mobility. These make it difficult for free mobility of persons with disability as well as others.

Figure 67: Persons with disability as per gender



Data Source: Population Housing and Census of Bhutan 2017

Figure 68: footpaths inhibiting accessibility with reduced mobility of persons with disabilities



b) Accessibility to overhead bridge crossing

As shown in figure 69, the overhead bridges and underpasses are constructed in due consideration of the safety of the pedestrian crossing the roads. Nevertheless, the RAA also observed limited accessibility to these infrastructures by persons with disability and other vulnerable groups leading to underutilisation as was discussed in observation 3.3.1.1. Traffic calming measures.

Figure 69: Lack of universal designs impedes the accessibility



c) Public Toilet

As depicted in the figure 70, inaccessible toilet facilities was observed in bus terminals and public toilets, causing persons with disability to experience difficulties in using this space, in addition to dependence, stressful moments, embarrassment, discomfort, and losses in performing self-care.

Figure 70: Public Toilets at Bus terminals



As illustrated in the pictures above, there are many things that need to be considered for providing accessible infrastructures to people with disabilities. Apart from public facilities, roads are also unsafe for persons with disability.

Some causes of not providing equal access to public infrastructure for persons with disability could be:

- Inadequate mechanism or procedures are not in place to ensure compliances to policies and guidelines while designing or constructing public infrastructure.
- Insufficient forward planning and budget by the government, be it for new infrastructure or modifications to existing infrastructure and facilities.

In addition, the Road Safety and Transport Act and Regulations does not take into account the concerns of the disabled people with regard to accessibility to infrastructure and public transport. Inaccessibility to public infrastructure and facilities to all sections of population creates inequality and defeats the objective of building inclusive human settlements or cities.

3.6.2.3 Rural Accessibility

Accessibility to facilities and services is an important factor in rural development and balanced regional development. Bhutan gives utmost importance to rural development. One example is through connecting every farm road for better accessibility throughout the country improving rural accessibility thereby reducing isolation and alleviating poverty.

The comprehensive vision statement of “Bhutan’s future: Bhutan 2020: A Vision of Peace, Prosperity and Happiness envisaged three broad objectives and one of the objectives included “to improve rural accessibility (especially access to markets, employment, and education, health and social services) in an environmentally sustainable and socially responsible manner”. The 11th FYP and 12th FYP have also prioritised rural connectivity by increasing access to public transportation in rural areas. The national plans specify the provision of subsidy schemes for public transportation plying in rural areas where the ridership is very low.

While roads have reached almost every corner of the country, efficient public transport in rural areas is still a challenge. The bus services cover a majority of the country, yet barriers still persist in terms of quality and reach to the most isolated areas. The current public transportation, the passenger bus services in particular, cater mostly commercially viable places where transport demand is high although subsidy schemes are provided. Moreover, the 12th FYP has earmarked Nu.3 million as government subsidy for non-profitable routes.

Availability of transport services from gewogs to dzongkhag centres and towns are limited and had impacted in availing different services provided at the Dzongkhags leading to poor rural access resulting in rural isolation and poverty.

Although route permits within Dzongkhags are approved by RSTA, there is no integrated information on the overall number of approved route permits, routes, frequencies, and number of buses plying on that route in the country.

The role of transport is regarded as one important factor to facilitate people to have access to goods, services and facilities. People need to have access to a wide variety of goods, services and facilities in order to live an economic and social productive life. Improved transport in

terms of rural accessibility leads to faster, safer, cheaper, more reliable and more comfortable (less spoilage) travel of people and products resulting in a more connected nation.

The RSTA mentioned that they have information on routes which is not 100% accurate. However, the RSTA is coming up with the online passenger bus route approval process as an additional feature in eRALIS to have an integrated route information within the country.

In addition to having integrated route information of the country, the RSTA should carry out an exercise to identify non-profitable routes and possibility of providing routes to unconnected rural areas. The RSTA should then encourage bus operators to avail government subsidy and ply on non-profitable routes in order to enhance rural accessibility.

3.6.3 City Bus Services

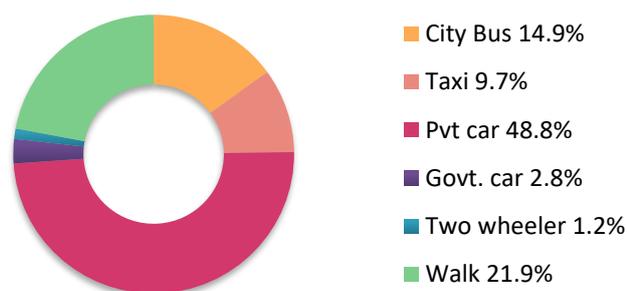
As per National Statistics Bureau (NSB) in their National Population Projection report (2017-2047), the total population of Bhutan is expected to reach more than 884,000 by the end of 2047. Further, the same study projected that the half of the population is expected to reside in the urban areas by 2047. In order to address the needs of expanding population, the cities and towns require integrated transport plans.

According to Bhutan Transport 2040 Integrated Strategic Vision, the urban transport strategy should focus on providing attractive public transport services and facilities for pedestrians, so that walking becomes the dominant mode in the central area and for short trips. The strategy must also seek to control the impact of private cars through careful management of vehicle numbers and use. The overall objective is to create vibrant, functional, and liveable “green” cities, thus minimising the adverse effects of traffic growth. The integrated strategic vision identifies Thromdes as the principal coordinator and provider of urban services for implementing and realizing the strategy.

An efficient and reliable public transport service can reduce the number of private cars on the roads and thus, improve traffic congestion, reduce carbon footprint, minimise noise pollution, and most importantly lead to cost savings for people and the country as a whole from reduced import of fossil fuel and spare parts.

In absence of other modes of transport in the country, city buses and taxi services are the dominant mode of public transport in urban areas besides use of personal cars. According to the Sustainable Urban Transport Index (SUTI) report studied by the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), 49% of commuters use private cars, 2.8% use government cars, 9.7% use taxi services, and only 15% of the commuters use city bus services as depicted in figure 71. As evident from figure 71, the dominant mode of transport in the urban areas is use of personal car.

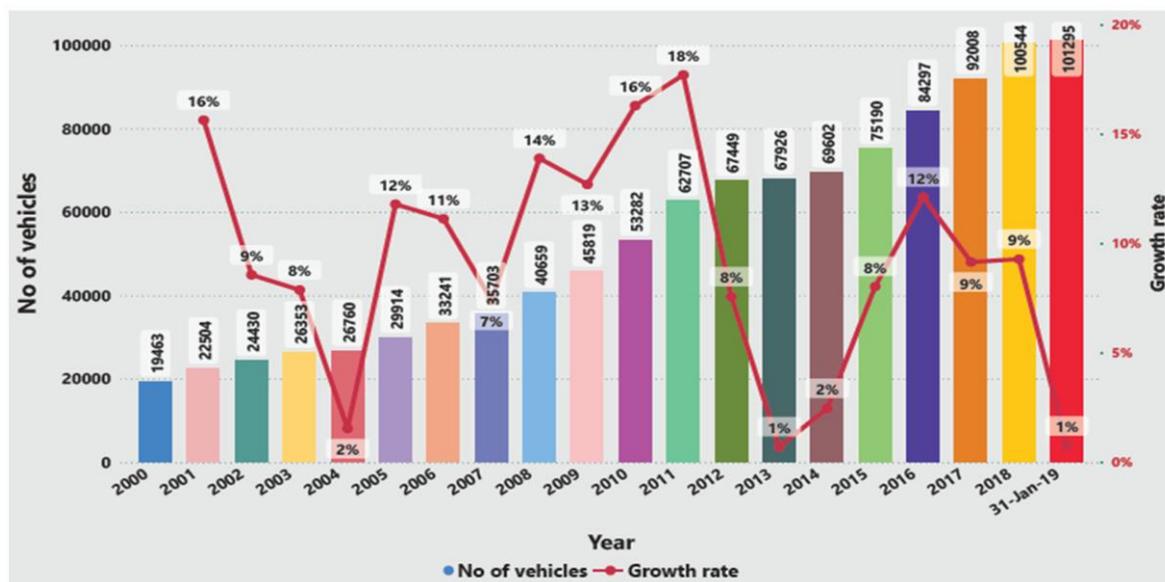
Figure 71: Modal Transport Share in Thimphu



Source: RAA Representation based on SUTI report by UNESCAP

The introduction of bus services for some schools in the Thimphu have eased traffic congestion to some extent. Despite school bus services and the city bus services, the increasing number of vehicles is overwhelming as depicted in figure 72. The number of vehicles in the country is growing at an annual rate of 8 - 9 percent and the number of light vehicles on the road has tripled since 2005.

Figure 72: Trend in vehicle numbers



Source: CBS & GNHR’s illustration from Annual Info-comm & transport statistical bulletin, MoIC (2019)

The increase in number of personal cars in the urban areas is as a result of inefficient public transport besides other factors such as the rise of income level, and easy access to credit facilities.

The efficiency in terms of reliability and availability of public transport is lacking in the current situation. For instance, there are in total only 49 city buses as of April 2020 (45 in Thimphu and four in Phuentsholing) catering services to more than 174,257 population (138,736 in Thimphu and 35,521 in Phuentsholing – statistics as per NSB, 2017 Population survey). According to a study conducted by the MoIC for the drafting of National Transport Policy, ideally there should be at least 60 buses for every 100,000 population which, at present, is short of 56 (105-49) buses. Thus, adding to non-availability of bus services for the population in Thimphu and Phuentsholing.

In addition to the government owned city buses, the RSTA have approved two private buses to cater services from city to outside boundaries of the Thimphu. Currently, the private buses fail to depart for destination on time unless there are adequate numbers of passengers as these private operators are not monitored adequately. Inefficient urban transport especially the urban bus service is due to lack of integrated approach to planning and development of city bus services (detail discussed in institutional framework).

The City Bus Service under Thimphu Thromde has ordered 27 buses with integrated smart card system. According to the plan, with the new fleet of city buses, the office is planning to start the Bus Rapid Transit (BRT) covering route from Babesa in the south to Pangrizampa in the

north. The existing buses will connect to main BRT route and cater services to other parts of Thimphu Thromde.

Further, there are also plans to identify pick and drop points along the main route and build the necessary infrastructure including keeping the waiting time to 10 minutes of scheduled arrival time. The efficiency in the public transport service especially in terms of reliability is expected to improve with the implementation of the plan. Nevertheless, there is need of a plan to identify/build a designated lane for the BRT which is missing in the present plan.

Furthermore, the RAA learned that the government has signed a \$975,000 grant with World Bank that will be spent in providing access to efficient, safe and green transportation options in Thimphu under the Bhutan Green Transport Project (BGTP).

Therefore, there is a need of coordinated and integrated management of the urban transport in order to execute and operate the plan so that the intended objectives are achieved, there is return on investment made in terms of purchasing the buses, building infrastructure, providing subsidies, and thereby ultimately benefitting the public from such initiatives.

The current number of buses does not suffice given the need of the population in the urban areas which has resulted in less frequency, limited cover of required areas and unreliable services. Due to this, the public are forced to either use taxi services or personal cars. The preference use of personal cars over public transport is exacerbating traffic congestion in urban areas particularly in Thimphu and Phuentsholing.

The RSTA mentioned that the authority is a member of City Bus Steering Committee where fleet management and monitoring is discussed and decided for city buses. Thus, new city buses have GPS devices and are monitored from CBS control room. The RSTA monitors the city and local buses within thromde and gewogs. Additionally, the RSTA has signed contract agreements with City Bus Service and periodically inspects it.

While noting the response, the RAA reiterates the need for integrated approach to planning and operation of efficient urban transport services given the major plans for expansions in the future.

3.6.4 Convenience

Passengers' choice of mode in public transport depends on several factors including travel time. In order to boost the public transport ridership, transport service should be designed in a way that it accommodates the service levels required by the public transport users. Despite being one of the most important determinants of public transport demand in the country, convenience is often neglected in transportation systems design and assessment of operational performance.

Public transport patronage has been continuously declining especially in Thimphu and Phuentsholing Thromdes as number of private car keep on rising. Public transport has lost its competitive edge to private cars because people tend to prefer more convenient modes as their income increases and owning a car has become a necessity due to inadequate and poor public transport. Moreover, growth rate of vehicles has outpaced the growth rate of infrastructure which results in inconveniences to the commuters thus resorting to private cars and taxis.

The RAA observed that convenience and access to public transport services have major challenges. Development of dedicated bus stops and bus bays require commitment and investment. Designated bus stops are either unsigned or poorly marked, and the reliability are limited for both passenger buses and city buses due to low frequency.

With regard to convenience of public transport, the RAA noted the following.

3.6.4.1 Before the trip

- i. **Shelter** – Weather protection and seating capacity at the bus stop shelters and terminals are inadequate. For instance, the model bus stop provided at the Changjiji has now become a shelf item and bus information screen and charging points are not functional. Nonetheless, it was a good initiative taken to improve public transport under the Intelligent Transport System (ITS) funded by UNDP.
- ii. **Ticketing** – In Bhutan, fare leakage in both public transport and city buses are widespread, deeply rooted, and largely uncontrolled due to tickets being mostly sold over the counter. Selling tickets over the counter is creating inconvenience for the people to access the services with regard to passenger buses because physical presence is mandatory to buy the tickets. Moreover, the ticket agent is not always available at the ticket counter which impedes obtaining tickets. Hence, people are not given different avenues to buy tickets.

Currently, there are no online e-ticketing systems, mobile apps, and QR code using banking apps or other mobile apps for passenger buses to buy at their conveniences. In the case of city buses, availability of smart card and QR code for easy convenience for the commuters are not put in place.

Detailed study and recommendations were also provided in the Intelligent Transport Systems- feasibility study and preparation of a comprehensive ITS action plan for Thimphu city, 2015 commissioned by MOIC but the RAA found that recommendations provided from the study were not implemented.

Evolution of e-payments in public transport – Singapore’s experience

Public transport ticketing in Singapore has evolved over the past 20 years from manual cash collection to an advanced e-payment system using smart cards - developing from the automatic fare collection system introduced in 1987 for the first metro system in Singapore, to the current contactless smart card system used for travel across the entire public transport network.

Source: ITS Feasibility Study, Page 38

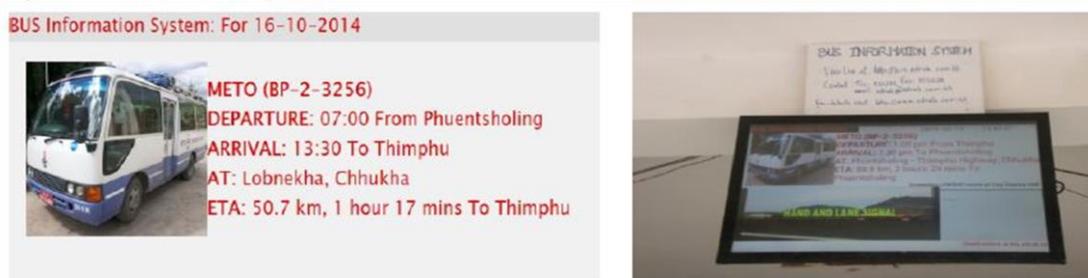
- iii. **Bus information system** – Bus Information System (BIS) was initiated and launched at the Changjiji bus stop as a pilot project by National Environment Commission (NEC) and Green Technology Centre of South Korea in December 2017. The BIS was intended to provide city bus information about its route and travel time to passengers in real time. However, the BIS has become a showpiece item which is not functional as can be seen in figure 73 due to lack of monitoring and maintenance.

Figure 73: Non-functional Bus Information System at Changjiji



Similarly, the BIS (figure 74) installed by eDruk ICT consultancy in Thimphu bus terminal was non-operational. Since there is no BIS in the bus terminals, passengers are often confused because of the same transport name engraved at the body of the bus (for e.g., 6 to 7 Meto Transport Service buses parked at the terminal departing at similar times). Passengers are not informed indicating the bus bay with bus number, destination and departure time. It will be even more challenging for persons with disabilities availing passenger bus services.

Figure 74: BIS in Thimphu Bus Terminal



Picture source: Intelligent Transport Systems (ITS) feasibility study and preparation of a comprehensive ITS action plan for Thimphu City

- iv. **Luggage Room** – Luggage rooms/storage facilities with some fees or charges are provided for the passengers’ convenience. However, the RAA during the field visits noticed that some RSTA base offices like Paro, Punakha, Bumthang Base offices do not have luggage room facilities. Moreover, though Wangdue Base office has luggage room facilities, such facilities are not used and instead the luggage are kept at the ticket counters. At Mongar Base Office, the luggages are kept at the office canteen. More so, the luggage storage charges/fees are not uniform.

With regard to the shelter, the City Bus Service responded that they have surveyed and assigned bus stops, bays and shelters considering the density of the population in that area and availability of public land.

The City Bus Service mentioned that the smart card system has been installed on 27 buses since 14th November 2020 and will be installed on 18 more buses to start full-fledged smart card system by February 2022. Smart card agents will be appointed all over the city for accessibility. Regarding BIS, the City Bus Service clarified that the BIS at Changjiji is functional only with buses equipped with MDVR and so, the BIS was shut down.

The RSTA in their response stated that the integration of passenger bus information with eRALIS will enable easy update of public transport schedule and relevant information on website, making it easily accessible to public. The RSTA has initiated the pilot of GPS in passenger buses which will be integrated with Valuable Message Board (BIS) to broadcast related information at the bus terminal.

Regarding luggage facilities, the RSTA clarified that in places without bus terminals, providing ticketing counter and luggage room is ancillary facilities. The RSTA will review the issue and take remedial action.

While noting the responses, the RAA would like to stress in having proper shelters, different avenues to purchase tickets, and real time bus information for the convenience of passengers of city and passenger buses.

3.6.4.2 During the trip

- i. **Physical comfort** – Physical comfort during the trip is one of the key considerations for people choosing between using public and private transport. Nevertheless, during peak hours, the city buses are crowded and uncomfortable especially for women, elderly and small children wherein they have to stand and travel during this hour. The availability of seats is not taken care in the city buses as a matter of priority for these vulnerable groups of commuters.

In the case of passenger buses, every individual is provided a seat each but the comfort level experienced in long distance travel, in particular the Thimphu – Phongmey route, is very minimal as the buses are heavy vehicles with seating capacity of 30 seats. These buses are filled with luggage inside and passengers cannot freely move in between the aisle.

- ii. **Meals & Toilet facilities** – Meals and toilet facilities are important for every passenger traveling on passenger buses. The bus drivers stop at their specific restaurant/hotels which are convenient to them rather than the passengers and at times the food and toilet facilities are quite bad. Sometimes, the bus drivers stop the bus in the middle of nowhere for recess and women and persons with disabilities in particular are facing serious challenges without buses stopping at the place which has a proper toilet facility.

The RSTA responded that they will review the issue and take remedial action.

The RAA takes note of the response.

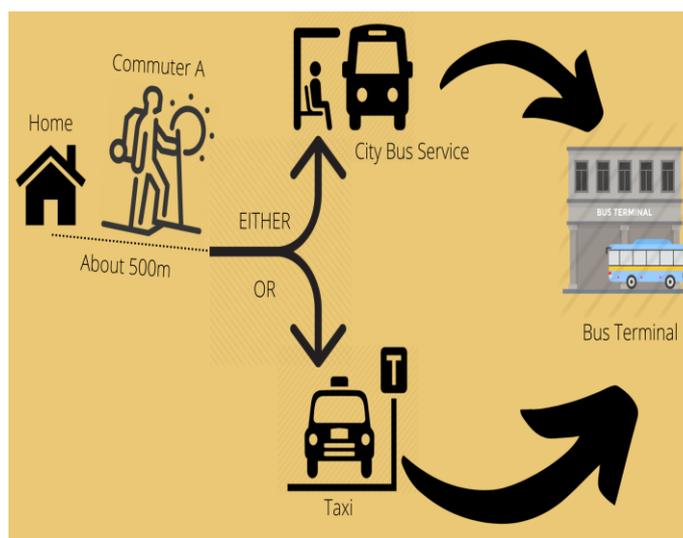
3.6.4.3 Seamless public transport connectivity

Bhutan, without railways, ports and waterways and, with only road infrastructure in place to connect every dzongkhag, public transportation is the only mode of transport to bring ease and efficiency, comfort, safety, accessibility and convenience to the commuters. In order to achieve this, there should be seamless public transport connectivity which is integrated wherein the commuter would have a choice of public transport as shown in figure 75.

However, the integrated and seamless public transport connectivity is currently missing. The requirement for integrated public transport connectivity was

identified in the Surface Transport Master Plan for Bhutan 2007. Yet, it was never implemented as recommended wherein it was proposed to convert the existing bus terminal in Thimphu for intra-city bus operation and plan a new bus terminal with integrated taxi stand and city bus

Figure 75: Example of transport options for a commuter from his home to the bus terminal



shelter for inter-city operation preferably at the periphery of city (Babesa) as a long-term measure. Additionally, the masterplan recommended providing facilities such as waiting hall, drinking water facility, canteen, and lodge facilities at the inter-dzongkhag passenger terminals. For example, people de-boarding at the bus terminals have to take taxis for both inter-city and inter-dzongkhag connectivity all over the country due to lack of city bus connectivity at the bus terminals.

From the series of observations under 3.6.5 Convenience, the issues had apparently occurred due to the following:

- poor service planning;
- service implementation was not carried by the responsible agencies recommended through various studies conducted as well as in the masterplan; and
- lack of monitoring mechanism wherein even though huge resources was spent in developing the infrastructure, maintenance of these structures has always been a problem and doing away with the initiative which was once successfully implemented.

All above lapses have resulted in causing inconveniences to the commuters leading to lower ridership of public transportation, wastage of resources, commuters opting private car over public transport and increasing the traffic volume, and traffic congestion.

The RSTA clarified that development of infrastructure to promote multi-modal transport system to ensure the last mile connectivity is not under its authority and scope but involves LG, MoWHS, NLC, and other relevant agencies. Furthermore, the RSTA will propose the government to consider RSTA as one of the key stakeholders in the development of all the human settlement and land-use plans (such as master plans, structural plans).

The RAA agrees with the response and has pointed out the need to have an integrated approach to transport plans.

3.6.5 Service Delivery

RSTA is one of the highest revenue contributors for the government, which generates revenue by providing a host of online and offline services to the public as shown in figure 76. During fiscal year 2018-19, RSTA contributed a total of Nu.1,485.954 million⁵ in the form of vehicle sales tax, green tax, vehicle renewal fees, and vehicle ownership transfer fees.

It is important to ensure that the services are accessible, effective, reliable and customer-friendly. The RAA observed the following in regard to service delivery:

⁵ National Revenue Report 2018-2019

Figure 76: Services delivered by RSTA



3.6.5.1 Turnaround Time

To enhance efficiency in the service delivery, the RSTA should have defined performance measures such as Turnaround Time (TAT).

Upon review, it was noted the RSTA has clearly defined TAT documented in the following.

- ✓ Manual for standard operating procedure and turnaround time for various services delivered;
- ✓ Standard Operating Procedure for online services of RSTA;
- ✓ Service Delivery Standards.

However, even with defined performance measures, the RSTA has not instituted a system of monitoring and evaluation of the performance of its services; the actual performance was not measured against defined TAT. As such, the RSTA is yet to embrace performance reporting system for delivery of its services.

To ascertain the efficiency of the service delivery, the RAA tried to carry out the analysis of TAT for some of the services. However, due to the unavailability of relevant data, the analysis could not be carried out. There were no data for application verification dates, and approval dates and time stamp in eRALIS system for all the services.

Further, it was noted that the process of delivering some of the services was inconvenient undermining the efficiency of service delivery. In the head office, in order to reduce long waiting queue, a token system was instituted wherein tokens are given to the clients on first-come-first-serve basis within certain period of time and those without tokens are denied services for which they are fined for late payment. Some clients travel from far flung places to avail services and if they cannot get a token on that day, they have to visit the RSTA office again.

The RSTA stated that measurement of performance against definite TATs is being done annually as part of APA. The RSTA clarified that date and time of application (physical and online) approval can be obtained from the system. The same is used by the NTC for assessing TAT in reviewing the APA target achievements.

The RSTA responded that 10 of its services are made online so that the clients do not have to visit the office for these services. Additionally, the RSTA has established service centre in Babesa for efficient service delivery. Further, the RSTA has plan to establish additional Base Offices based on the 12th Five Year Plan.

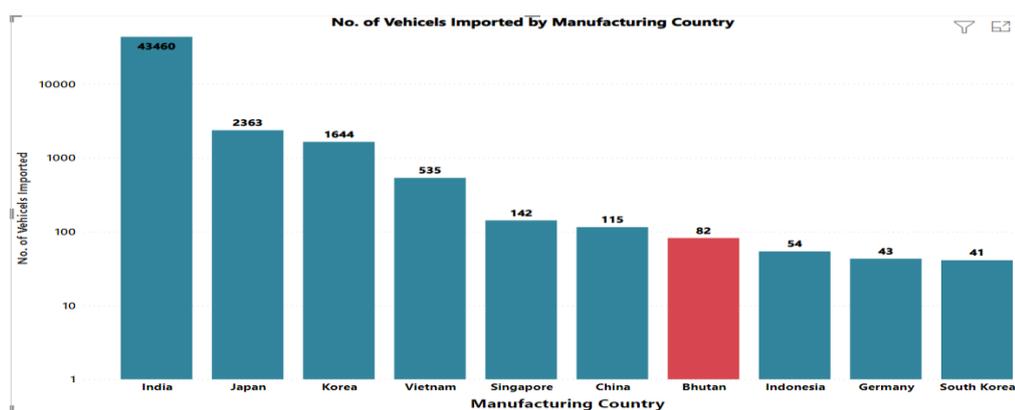
Since there is no documentations/reports of monitoring and evaluation of service delivery for each type of services and evaluation as to their specific TATs, it is not clear how APAs of RSTA was assessed. Besides, such exercises should be a regular feature to ensure TATs are achieved.

3.6.5.2 eRALIS

The following were observed with regard to eRALIS.

- i. To improve the service delivery, the RSTA has integrated online payment with eRALIS to accept online payment for RSTA Services. However, there have been several reports in the media regarding the problems and difficulties faced by the public while generating the acknowledgment receipts and making e-payments resulting in delays and inefficiencies in services.
- ii. Despite developing eRALIS to provide online services, some of the services such as the renewal of registration certificates (getting renewal dates) and fitness testing require the clients to visit the RSTA offices in person. This causes inconveniences to the clients and defeats the objective of online services.
- iii. There is an allocation for only 50 individuals per day to be registered for the driving test. However, the RAA noted many instances when there were more than a hundred individuals reporting on the test day. The main issue was because of the lack of input control in the system. The current system does not limit the number of registrations as required and the payment is made. Since the payment is deducted while registering, people report on test day with the bank statement even though they are not provided with a system-generated receipt.
- iv. There are inaccuracies in eRALIS data. For instance, the data indicates that out of 48,818 vehicles registered in Bhutan from 2015 to 2020, 82 are manufactured in Bhutan as shown in the figure 77.
- v. There are invalid dates caused mainly due to lack of validation checks on dates. For instance, between 2015 and 2020, 478,103 vehicle registration certificates were renewed, of which 1128 records indicate the renewal dates after 1st July 2021. There were 62 cases of licenses which have issue dates earlier than the birth dates of the license holders.

Figure 77: Graph indicating the number of vehicles registered in eRALIS from 2015 to 2020 by manufacturing country



Source: RAA analysis of eRALIS data of vehicle registration

- vi. It was also noted that RSTA have issued 55 driving licenses to those who are less than the eligibility legal age of 18 years as envisaged in the RST Regulations for issuing driving licenses.

The RSTA responded that the system revamp in the financial year 2020-2021 will ensure reliability, security and authenticity of data and will also take care of invalid dates and other errors.

The RAA notes the response to improve eRALIS. However, unless existing data is cleaned and appropriate IT controls are corrected and implemented, this problem will continue to persist. Besides, responsibility for data correctness must be entrusted to appropriate officials.

3.6.5.3 Grievance Redressal System

Many grievances are shared through social media and even during the field visit, the RAA noted issues concerning the services provided by RSTA and passenger transport vehicles. The issues such as the deferred services, inconsistencies in services provided, harassment of passengers, charge of fare beyond allowable rate, unsafe and unethical behaviour of drivers, untimely lunch break are raised frequently. One of reasons for these allegations could be due to lack of complaint redressal mechanism.

The current system does not provide platform to the public to raise the issues and lodge complaints. Not having a compliant redressal system in place deprives public from giving positive or negative feedbacks regarding RSTA services that can be used as an input to improve public service delivery.

With regard to the lapses related to service delivery, the management cite human resource constraints as one of the reasons for compromising on quality of services. Most of the base offices have only two to three officials who are often engaged in multitasking. Another cause for inefficient service delivery could possibly be due to lack of monitoring and evaluation of service delivery with reference to the defined TATs as performance is not gauged and future improvements are not sought.

The RSTA responded that they will institute formal Grievance Redressal System. The monitoring and evaluation of service delivery is being carried out annually by the Authority and the NTC as a part of RSTA's APA.

The RAA noted the response to institute formal grievance redressal mechanism but there is also a need to further strengthen its services and institute a performance reporting system.

3.7 Sustainable Road Transport - Environment

3.7.1 Vehicle emission and fuel quality standards

Bhutan takes pride in being the only carbon-neutral country in the world and emphasises green development at all times. There is a huge potential for reducing greenhouse gas emissions if we strive towards reduction of emission from the transport sector.

The country's Transport Integrated Strategic Vision 2040 also includes a regulation strategy that emphasises using more energy-efficient transport modes, improving transport choices, utilising cleaner fuels and technologies, applying information technology, and introducing incentives for fuel efficient, green vehicles.

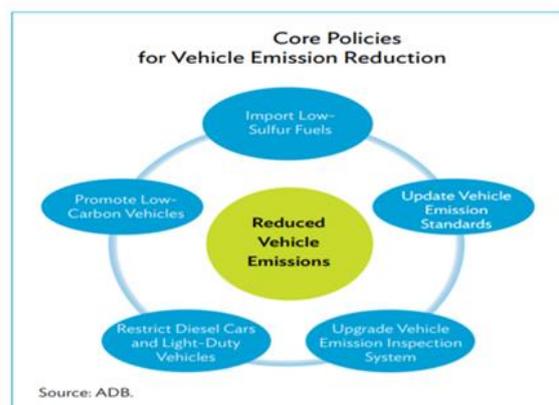
Until we achieve full energy efficient mode of transport, it is imperative to have much stricter standards on the import of vehicles given that Bhutan does not manufacture its motor vehicles and imports as much as 80% of its vehicles from India. The Asian Development Bank (ADB), with the request of NEC, has developed Bhutan Vehicle Emission Reduction Road Map & Strategy 2017-2025. The emission targets recommended for Bhutan according to the report are as follows:

- ✓ To reduce average annual levels of all air pollutants to better than WHO standards by 2025 (Since 2009, particulate matter (PM) levels have consistently been higher than the standards set by the World Health Organization as per the study);
- ✓ By 2030, achieve 65%–95% reduction from 2015 levels in emissions of sulfur dioxide, nitrogen dioxide, and particulate matter from vehicles;
- ✓ And by 2030, attain transport sector carbon dioxide emission levels that are 25% lower than under a business-as-usual scenario.

According to the study, the core policies for reduction of vehicle emission are to import low sulfur fuels, update vehicle emission standards, upgrade vehicle emission inspection system, restrict diesel cars and light-duty vehicles, and promote low-carbon vehicles as shown in figure 78.

In adherence to the promotion of low-carbon vehicles, the government has undertaken policy initiatives such as encouraging electric and hybrid vehicles in the country through tax exemptions. Bhutan also started importing low sulfur fuel from India (Bhutan started importing euro 6 fuel since April 2020 –equivalent to Bharat stage 6).

Figure 78: Core policies of vehicle emission



However, the vehicle emission standards and emission inspection system are not updated as of now. Currently, Bhutan follows euro 2 standard which is equivalent to Bharat Stage Emission Standard 2, which has been followed since 2006. According to the ADB's report, India has introduced measures to implement standards equivalent to Euro 4 by 2018 and Euro 6 by 2020. As India is main source of vehicle import for Bhutan, there is a need to adhere to these standards and upgrade the vehicle emission standards in line with India to avoid Bhutan becoming a dumping ground for vehicles.

Moreover, the emission testing was outsourced to private agencies (M/s Yangki automobile) on contract until end of December 2019. The contract expired on 31st December 2019 and the vehicle emission testing was suspended since then. The suspension of vehicle emission testing work is to continue until a new tender is floated and awarded. The RSTA is yet to sign new agreement (tender) even though it has been almost two years since the expiry of previous agreement. Further, the RSTA also has not enforced the requirement of having emission test done by vehicles during the renewal of vehicle registration. Intervention is done only during the random highway inspection by RBP, which is corroborated from the analysis of data 2015-2020 showing 2092 instances of traffic offences consisting of vehicles failing to produce emission test certificate, emission of excessive smoke and production of invalid emission certificate.

The prolonged suspension of emission testing may lead to uncontrolled emission of harmful gas (GHG) from vehicles as a result of lack of proper mechanism and may cause adverse effect on the human health as well as on the environment and there will be huge cost burden on health expenses in the future.

The RSTA stated that no new standards have been issued by NEC. However, all new vehicle imported from January 2022 will have to meet BSVI/ EURO6 standards. The RSTA acknowledged the delay in signing the new agreement and informed that new agreement have been signed with two private firms in July 2021 resuming emission test from October 2021.

The RAA would like to stress that emission testing is one of means to control carbon footprint and harmful emission of gases which should be enforced and even checked for validation during the renewal of vehicle registration.

3.7.2 Noise Emission

Noise emission from vehicle is a major environmental concern which should be assessed and controlled before it becomes a major issue in the future. The major cities around the developing countries are facing issues related to air and noise pollution caused as a result of increasing vehicle population. The challenges of air and noise pollution from the vehicles is caused mainly due to the lack of proper traffic system and driver discipline.

Although there is system of ensuring vehicles fitness while renewing the registration documents, there is no formal standard and mechanism to assess level of noise (to qualify vehicle fitness). In the recent past, there are many motor bicycles in the urban areas with modified sound system producing loud noises, which are actually prohibited from modification by the RST Regulations. There were also 131 instances noted during the data analysis of traffic

offences from 2015-2020 regarding excessive noise from vehicle engines and horns. This is because of lack of formal standard to define the threshold of the noise and procedures to rate the level of noise. The uncontrolled noise pollution causes adverse effect on human health.

According to journal of traffic and transportation engineering published on 4 August 2016, there are four major effects of noise pollution to human health, which are as follows:

- Physical effect (hearing defects),
- Physiological effects (high blood pressure, irregularity of heart rhythm and ulcers),
- Psychological effects (sleeplessness and going to sleep late, irritability and stress), and
- Effects on work performance (reduction of productivity and misunderstanding what is heard).

The RSTA stated that the noise level and standard is in domain of NEC and agreed to devise the requirements in coordination with NECS.

As assured, the RSTA should devise the requirements in coordination with NECS and intimate RAA.

3.7.3 Abandoned vehicles and machineries along the highways

As per the ‘Road Rules and Regulation 2016’, under “Removal of objects from road”, the DoR or Local Government (LG) concerned can remove, sell or destroy any object, refuse, rubbish or other materials deposited or left on a road. The regulation further stipulates that

- If the owner is known:
 - DoR or LG shall serve a notice stating that the object or material will be destroyed or sold if not collected within 14 days
- If the owner is not known:
 - DoR or the LG concerned shall remove the object or material from the road
 - Wait for 14 days.
 - If the rightful claimant/owner is not found after 14 days, then the DoR or LG shall sell or destroy the object as per the prevailing rule and regulations.

In this line, the MoWHS has issued a notification vide reference No. *MoWHS/SEC/29/2020/744 dated 13th January 2020* pertaining to strict compliance and enforcement of rules to enhance better road conditions leading to safer roads along the national highways to all the Regional Offices under DoR.

Although there is adequate legal mechanism to remove and dispose vehicles and machineries left along the roadsides, the RAA noted poor enforcement of rules, which is further aggravated with inadequate mechanism or procedures in place to ensure compliances. This is caused due to absence of proper procedures to dispose the vehicles and machineries, and challenges in tracking the rightful owners of the abandoned vehicles. Moreover, there are no strong penalties for abandonment of vehicle or machinery except payment for expenses incurred in removing the vehicle or machinery and hence, limiting voluntary compliance.

Consequently, it has led to several inoperable vehicles and machineries abandoned along the national highways observed during the field visits to seven Dzongkhags. Instances are given in figure 79.

Some regional offices, like Lingmethang have served a notice to the proprietor of the abandoned vehicle to be lifted in November 2019 but it was still unclaimed despite another reminder in October 2020.

Owners might abandon the vehicles or machineries due to the following factors:

- breakdowns of the machineries or vehicle accidents wherein the repair costs exceed the vehicle's value;
- owners of older cars do not buy comprehensive insurance, and may opt to abandon rather than repair a damaged vehicle;
- vehicles or machineries are no longer functional or useful;
- owners are unaware of ways to dispose or recycle them.

Abandoned unserviceable vehicles and machineries along the roads occupy the clear zone that provides safe space to road users and is also causing obstructions to a clear view for drivers affecting the visual amenity of the area. Moreover, these abandoned vehicles and illegal dumping are turning the national highways into a de facto junkyard.

Aside from the obvious concerns, abandoned vehicles and machineries are also a major environmental hazard and pose considerable risk for public health. Considering the effects and consequences, there is a need to enforce strong actions and remove obsolete vehicles and machineries along the national highways.

The RSTA clarified that the Road Act 2013 mandates DoR to clear any obstructions on the road to keep traffic clear without any danger to the road users. However, there is no specific agency responsible to remove vehicles parked outside driveway.

The RSTA will take up the issue with relevant agencies while addressing the need to formulate appropriate legislation to address the issue.

The RAA would like to state that there is adequate legal mechanism that mandates DoR and/or LG to remove objects from road but there should be proper procedures which, as stated by the RSTA in the response, should be addressed to the relevant agencies.

Figure 79: Abandoned vehicles/machineries along the national highways



3.8 Sustainable Road Transport - Economic

3.8.1 Alternative modes of transportation

The road network has been gradually improving providing better connectivity and transport facility. Nevertheless, owing to the rugged geographical terrain, ensuring a reliable and quality road network is a challenge because often the roads are blocked due to landslides in summer and snow in winter, posing safety risks to the commuters. Therefore, alternative modes of transportation should be implemented to enhance reliability and provide commuters with different options of transportation.

Moreover, alternative modes of transport in the country will reduce pressure on the limited road transport infrastructures, address environmental issues caused by the road transport sector and reduce dependency on fossil fuels while providing better, reliable and variety of transportation options.

In this regard, the RAA noted that exploring alternative modes of passenger and freight transports such as ropeways, cable car, railway links, cycling, waterways, light railway system and electric vehicles were identified since the 10th Five Year Plan. Correspondingly, the RGoB had conducted several feasibility studies as follows:

3.8.1.1 Internal railway network

In line with the 11th Five Year Plan to conduct a feasibility study for the alternative modes of eco-friendly transport systems, the MoIC has been exploring various modes of transportation in the country. With the technical support from the United Nations Centre for Regional Development (UNCRD) in 2017, the MoIC conducted a pre-feasibility study to introduce mass transit system (Light Rail Transit) along Paro-Thimphu and Phuentsholing-Thimphu.

The study was conducted to assess the rail configuration range, carriage options and complementary measures for both the intercity connector rail and to further examine the potential for an electrified rail network. The study estimated the total cost of construction to be approximately USD 3.1 billion. However, there is no secured funding for the detailed feasibility study as of now.

3.8.1.2 Electric car initiatives

Bhutan launched electric vehicle initiatives in 2014. The Gross National Happiness Secretariat (GNHS) under the World Bank Green Transport and Electric Vehicle Initiatives Technical Assistance project coordinated the study called “The Bhutan Electrical Initiatives: *Scenarios, Implication and Economic Impact*”. With this, the government approved the import of second-hand electric Nissan Leaf vehicles with mileage less than 30,000 km.

Additionally, to facilitate low-carbon transition in the transport sector and promote the use of electric vehicles as the preferred mode of transport in the country, the MoIC through the GEF funding implemented the *Sustainable Low-emission Urban Transport Systems* project. The project, which cost USD 12.958 million (GEF USD 2,639,726 and RGoB USD 10,318,000), is to replace 300 fossil fuel taxis by electric vehicles.

Similarly, the project funded by United Nations Industrial Development Organization (UNIDO), Promoting *green electric mobility (e-mobility) solutions for urban transport in Bhutan and the wider Hindukush-Himalaya region*, had been approved. The project costing Euro 505,000 aims to have two electric buses as urban transport (City bus) and establish charging stations in the country.

A budget outlay of Nu.69 million has also been allocated under the 12th Five Year Plan to install charging stations across the country for electric vehicle owners. Currently, there are 21 charging stations installed in six dzongkhags (Thimphu, Paro, Punakha, Wangdue Phodrang, Chukha and Haa).

The RAA learned that the management unit for these two projects was moved under the Prime Minister’s Office from mid-2020. Therefore, there are several stakeholders involved in electric car initiative with fragmented activities as shown in figure 80 but no clarity in responsibility for implementation.

The RAA noted that despite identification and exploring alternative modes of transport as an important area to develop in national plans, policies and efforts made so far, there has not been progress beyond that.

The little progress could be due to diffusion of responsibility amongst multiple stakeholders, with no particular agencies designated to take the lead role.

Figure 80: Stakeholders involved in Electric car Initiatives



Source: RSTA

3.8.2 Affordability of Transport

Public transport is key to ensuring people’s ability to access the opportunities offered by the government. The fare computation for both taxi and buses are computed as per the fare computation parameter developed. It includes both the operating costs of the vehicles and the fares are revised every six months.

The RAA reviewed the affordability in the public transport and observed the following:

3.8.2.1 Regulation

RSTA being a regulatory authority has the responsibility to regulate fares charged by commercial vehicles carrying passengers. The fare schedule should be approved and further disseminated to be implemented by the operators.

In this regard, the RAA found that the operating schedule and fares provided by the RSTA is effectively being implemented for passenger buses. The fares charged are printed on the tickets as per the given fare schedule.

However, in the case of taxis it was noticed that taxi fares are not regulated properly once it is approved. As per the RST Regulations, the permit holder must ensure that relevant fares are

displayed or made available in the vehicle in the manner and form required by the Authority. The RAA learned that fares are not displayed or made available in the taxis. Commuters are charged extra fares as evident from the analysis of traffic offence data from 2015-2020 with 28 of such cases. A *Kuensel* article reported on the same as given below.

Media excerpt on noncompliance to public transport fares

Passengers complain of non-compliance to RSTA fares by taxis

An employee working in Thimphu said that the taxi drivers complied with the change in fare when the fare is increased and not when it is decreased. “When I stayed at Taba, the fare was about Nu 30 a person and later when RSTA decreased the fare, a taxi driver charged me the same fare. When I argued about the rate, he said the fare keeps changing and taxi drivers can’t keep changing the fare. I wanted to complain but then I thought it was just Nu 10 or so.”

According to the revised RSTA fare, those travelling from the city centre parking to Taba in a four-seated vehicle are required to pay Nu 23. The taxi drivers charge Nu 35 or Nu 40. Similarly, for those travelling to Babesa from the city centre parking, the taxis charge Nu 50 a person, which according to the RSTA’s revised fare is Nu 32 per person. While many remained unaware of the revised RSTA local fares, those who knew complained of non-compliance by the taxi drivers.

Source: Kuenselonline

<https://kuenselonline.com/passengers-complain-of-non-compliance-to-rsta-fares-by-taxis/>

The BBS also reported on the same issue (<http://www.bbs.bt/news/?p=86657>). Such lapses have occurred due to lack of stringent monitoring mechanism in place.

The RSTA expressed the difficulty in monitoring of taxi fares due to human resource constraints. However, the RSTA addresses the complaints from general public. With the digitization of services, the taxi fare is made available on the RSTA website for reference by the public and it is very difficult to display all the fare on the taxi.

The RAA is of the view that the RSTA should be proactive in ensuring that the approved taxi fares are applied by the taxi operators through periodic monitoring and also facilitating submission of complaints to authorities through efficient means.

3.8.2.2 Freight Transport Fare

The cost of freight transportation has a rippling effect. Fully dependent on imports, and on road transport to bring them in, the driver of all costs is transportation. The prices of the goods transported in the country totally depend upon the freight fares since transportation cost is one of the main determinants of price of goods and services.

Presently, the freight transport fare is unregulated and left entirely to market forces. As such, there is no mechanism to ensure that the fares charged by the freight operators are fair and uniform.

Although the freight fares are unregulated, the RSTA should, at the minimum, commission a study on de-regulated fares to assess whether to de-regulate or regulate the freight transport fares and ascertain the affordability.

Due to lack of assessments, the freight fares are not uniform in the country. The transportation cost if not regulated would impact the general public as the costs are ultimately passed on to consumers.

The RSTA stated that freight transport fares are left to the market given its impact on the economy of the country. Further, this is being taken up as a part of surface transport policy.

Given its impact on the economy of the country, the RAA would reiterate that the RSTA should, at the minimum, commission a study on de-regulated fares to assess whether to de-regulate or regulate the freight transport fares and ascertain the affordability in collaboration with relevant agencies. As stated in the response, the surface transport policy should encompass this issue and bring clarity in freight transportation.

Chapter 4: Recommendations

Based on the audit findings, the RAA has developed the following recommendations with an aim to address areas where issues were identified and guide the management to correct the deficiencies and problems. It also highlights some areas for authorities to consider consolidating efforts to address range of issues confronting transport sector in ensuring safe and sustainable transport services in the country. The RSTA may review the relevancy and appropriateness of these recommendations for implementation and also note that, there may be better alternatives to address the shortcomings. As such, the recommendations are not intended to restrict the ability of policy and decision makers in their decision making or selecting better alternatives to address the findings in this report.

The recommendations are as discussed below:

4.1 The MoIC should come up with the comprehensive surface transport policy to provide overarching directions to ensure consolidated approaches to developing transport sector.

A safe, efficient, sustainable and inclusive transport system has become one of the common aspirations of nations around the world as it has a potential to play a significant role in contributing to most of the goals in the 2030 Agenda for Sustainable Development that are relevant to food security, health, energy, infrastructure, human settlements and climate change. As noted through the review, the development of transport sector is governed by the Road Safety and Transport Act 1999 and its subordinate instrument, RST Regulations 1999.

The current situation is characterised by fragmented approaches in developing safer, efficient, sustainable and inclusive transport system by different agencies having roles in different aspects of transport sector. Such situation is basically fuelled by the lack of well-defined institutional framework delineating responsibilities and accountability amongst agencies. A rising number of vehicles and consistently high incidences of accidents, injuries and fatalities raise concerns on public health. Despite persistent efforts of authorities in ensuring road safety management, the trend of traffic infringement and incidences of accidents do not show a decreasing trend.

The Transport Policy 2006 is seen to be deficient in terms of addressing scattered mandates of multiple agencies and face challenges of forging an overarching strategy in the country. There is a need to give consideration for framing a single and overarching direction that consolidates and offers integrated approaches to various aspects of transport sector including freight through a revised Transport Policy. A multi thronged strategies through cohesive working system and effective collaborative mechanism with relevant stakeholders can only be achieved through such interventions. It should specify responsibility, authority and accountability and ensure organizational systems and structures and professional capacity to deliver.

4.2 DoR and RSTA should adopt coordinated approach amongst relevant authorities in planning, designing, construction and operation of roads to ensure minimum safety standards.

The accidents due to conditions of road is one of the causes of death. Ensuring safer roads can be one way to reduce such accidents. The minimum safety measures are therefore, desirable for all types of roads –highways, urban and rural. With fragmented roles of authorities in development of different roads in the country, there is apparently a diffusion of responsibility as far as addressing the safety needs are concerned. A robust collaborative approach could be attained in the following areas, amongst others:

- i. In planning and designing road infrastructures (highways, urban roads, rural roads, access roads), the minimum safety standards must be ensured;
- ii. During construction, the quality standards must be constantly monitored to ensure compliance to safety standards in terms of technical specifications, alignment, gradient;
- iii. The installation of signage, security systems like CCTVs, and infrastructure for traffic calming measures must be carried out in a more coordinated manner;
- iv. Maintenance and improvement of existing roads must be based on requirement to restore required safety of the roads;
- v. Continuous monitoring of operation of roads, annual reporting on the safety situations, trends and remedial work undertaken must be ensured for improving the safety of the road network.

4.3 RSTA/DOR should institutionalise the system of conducting road safety audits for all roads.

Road safety audit is part of road safety management that independently examines and assess the safety standards especially in terms of safety hazards/risks, traffic signs, roadside topographies, environmental risk factors and surface conditions of existing or future roads. A road safety audit provides valuable inputs for improvement of road safety. The Road Act 2013 mandates the DoR to conduct road safety audit. However, a system of conducting a road safety audit is yet to be institutionalised.

Thus, there is a need to institutionalise the system of conducting road safety audits to seek improvement on overall safety of the road networks. Such exercise should be initiated for all phases of planning, designing, construction, maintenance and operation of the roads as deemed appropriate.

4.4 RSTA should initiate systemic improvements in ensuring safer vehicles.

Safe vehicles play an important role in both averting crashes and reducing the likelihood of serious injury in the event of a crash. RSTA as an agency responsible for promulgating motor vehicle safety regulations, there is a need to assess and review the safety regulations and reinvigorate its enforcement and monitoring functions to ensure that vehicles that are used are safer in terms of meeting minimum safety standards and technical performance. Some of the areas that need attention to ensure safer vehicles are:

- i. In terms of promulgating vehicle safety regulations, there is a need to define safety standards for the vehicles imported and incorporate the requirements in the RSTA regulations to regulate import of vehicles based on these standards. The regulations should be complemented by policies on technical safety, age limits, fuel efficiency, and environmental friendliness of vehicles;
- ii. In terms of monitoring the safety regulations of the vehicles, the RSTA should:
 - have proper and designated location for vehicle fitness testing to avoid risks to other commuters;
 - develop comprehensive fitness checklist for holistic inspection of vehicles;
 - provide required equipment and training to the MVIs to enforce the safety requirements of vehicles;
 - develop comprehensive checklist for pre-departure inspections of passenger transport vehicles and ensure that it is complied with;
 - inspect loading capacity of the freight vehicles by making effective use of weighing machines procured by the Authority; and
 - develop guidelines for processing route permits to the foreign visiting vehicles.

4.5 RSTA should ensure stringent enforcement and regulation of private driving training institutes besides strengthening the current system of issuing driving license.

- i. In the existing system, learner's license is issued to anyone who applies and has attained minimum age of 17 years on production of medical fitness certificate. After six months of its issue, the holder is eligible to sit for test (both theory and practical). In order to ameliorate the process of training and to ensure that the novices meet certain minimum criteria, knowledge and experience deemed necessary to drive vehicles, the licensing systems must be reinforced. These may include some of the following:
 - Introducing pre-learning course before issue of learner's license on safety aspects, traffic signage, and laws and rules to ensure that learner possesses minimum understanding of safety aspects and skills to operate the vehicle in the designated places;
 - A complete question bank for theory test must developed to be used for tests. The theory test content should not be limited to traffic signage but also on operation of vehicle;
 - Learning hours and supervision by licensed drivers must be prescribed and monitored to ensure that learners have undergone minimum hours of practice before applying for full-fledged license;
 - Ensure proper infrastructures are in place to facilitate proper practice of driving for both the self-learners and those trained by the training institutes;
- ii. In collaboration with MoLHR, the driving training institutes must be regulated to ensure compliance to basic infrastructural requirements, safety features of vehicles used for trainings, employment of instructors, use of highways for driving practices, and adherences to other requirements under the Act.

4.6 RSTA should enforce Road Safety & Transport Regulations, which restricts the drivers to drive for long distances and period of driving.

Fatigue is a major contributing factor in crashes worldwide, which involve long trips and extensive periods of continuous driving, and in short trips when the driver has previously been deprived of proper sleep or rest. Fatigue driving occurs when a driver, after prolonged periods of continuous driving experiences mental and physical functional disorder. For the safety of passengers travelling by commercial vehicles, the RSTA should enforce the maximum hours of drive as per the RST Regulations. In contracting the services of the public transport, it must be ensured that commercial passenger vehicles have substitute drivers for the journey/routes which generally involve more than eight hours.

4.7 RSTA should institute demerit point system for the traffic infringement cases.

The RST Regulations specifies offences and corresponding penalty points for violations of the rules. Except for few major infringements, the penalty points are only used for application of monetary fines and does not accumulate further to attract more severe penalties for repeat offenses. Even in major infringement cases, it was noted that the repeat offences have not attracted specified penalty as prescribed by the rules.

In order to ensure appropriate road behaviours by drivers, there is a need for a more effective deterrent system by way of assigning demerit points for every offence (major or minor) that would accumulate over a period of time to impose stricter penalties and sanctions. It can either lead to temporary suspension or cancellation of driving licences for a specified period of time based on the threshold points specified. The conditions and process for revocation of suspension or cancellation of licences can also be specified. Such a system would facilitate to identify, deter and penalise repeat offenders and would go a long way in improving the road behaviours of the drivers.

4.8 Emergency Response system must be reinforced with Standard Operating Procedures that would render well-coordinated mechanism, and adequately equipped resources (equipment and human resource). RSTA, RBP and MoH should work on forming separate emergency team to attain motor vehicle accident cases.

The crash victims have a better chance of recovery, or avoiding death, if they receive quick response at the scene of an injury. This can be catered only through an efficient and well-equipped response team. In the current scenario, there is no designated specific emergency response team except for contact point to request assistance during emergency. There is a need for Standard Operating Procedures that minimally specifies the following:

- Form designated emergency response team comprising of officials from different stakeholders such as the Traffic police, Ministry of Health, Road Safety and Transport Authority and the DoR;
- The emergency response should be trained and well equipped and made available round the clock;
- A single contact point (universal number) throughout the country to request the response services and interventions to either to mitigate risk or initiate palliative measures by designated agencies;

- Maintenance of uniform and comprehensive MVA data for conducting post-crash analysis;
- Mechanism to build information on emergencies and response actions taken for post-crash analysis;
- Monitoring of implementation of SOPs.

4.9 RSTA should review the need to have guidelines to drive public transport strategies and plans for enhancing social integration of vulnerable group in public transport services.

This relates to social considerations for vulnerable groups in designing and planning the transport infrastructure as well as facilitating enhancement of social integration through public transport.

- i) The RSTA should review the need to have appropriate guidelines on providing infrastructures and facilities that address the convenience of general users and that of vulnerable group for enhancement of community integration and reduce social isolation of persons with disability and of elderly people. The facilities provided must be to the extent possible, based on the ergonomic dimensions of intended users and also maintain provisions for additional specific requirements. This should also include safeguards against harassments and inconveniences that are created in using the transport services.
- ii) Having a policy on fare concession for specific section of society like differently abled, elderly and children.

4.10 Thromde should make urban transport efficient to address the traffic congestions in urban areas.

In order to address the needs of expanding population, the cities and towns require integrated transport plans. The efficient public transport in the urban areas will reduce the number of private cars and ultimately reduce the traffic congestion and its adverse effect on the environment. As of now, there is no efficient public transport even in the capital city resulting in traffic congestion which is most discussed topics in the main stream and Social Medias. Lack of clarity in the governance structure of the urban public transport is one of the main causes for its inefficiency among other reasons.

There is a need for an integrated approach in developing a transport plan in collaboration with relevant stakeholders and enforcement through constant monitoring by relevant agencies and authorities.

4.11 Public transport should be made convenient and accessible.

In order to boost the public transport ridership, transport service should be designed in a way that it accommodates the service levels required by the public transport users. Despite being one of the most important determinants of public transport demand in the country, convenience is often neglected in transportation systems design and assessment of operational performance. This has resulted in the rise of private vehicles causing traffic congestion, compromising safety and environmental hazard. In order to provide convenient and accessible public transport services, some of the areas that need special focus are:

- i. Developing shelter at bus terminal, bus stops and taxi stands where the commuters can take rest comfortably while waiting for the transportation service;
- ii. Making ticketing process more convenient with use of ICT such as e-ticketing systems, mobile apps, QR code using banking apps and other mobile apps;
- iii. Maintaining reliable information on bus services availability throughout the country;
- iv. Provision of luggage rooms for keeping luggage of the passengers at bus terminals;
- v. Constant monitoring of provision of comfortable seats, recess time, convenient lunch and breakfast point, destination information, etc. for passengers;
- vi. Provision of transport connectivity and enhanced frequency to public services at identified locations for robust urban transit systems as well as rural transports.

4.12 RSTA should put in place regular monitoring of service delivery including complaint redressal mechanism.

RSTA should ensure that the services provided are accessible, effective, reliable and customer-friendly. This will ensure that quality services are provided while ensuring a safe and sustainable road transport system in the country. There are opportunities for improvement of the various services delivered by the RSTA. Some of the aspects to be considered for initiating improvements are:

- i. Monitoring and evaluation of performance as per Turn Around time (TAT) for range of services and reporting systems must be reinforced. Accountability for underperformance and strategies for improvement must be developed;
- ii. Leverage ICT for eRALIS and online payment system and accordingly increase its daily intake of service. In addition, RSTA should look into alternatives where the physical requirement of people to avail services should be minimal once initiated through online platform;
- iii. System enhancement is required for eRALIS especially the incorporation of input validation in the system and data cleaning;
- iv. The forms used for services provided should be available in both Dzongkha and English thereby encouraging the service users to use the services without being dependent;
- v. Establish Grievance and Redressal System to address grievances of service users and develop strategies for future improvements.

4.13 There is a need to address the risk of pollutions related to vehicles

The growing number of vehicles in the country is fuelling concerns on environment and the impending risks that imposes needs to be mitigated through various measures. The damage to environment brought about by vehicular emissions needs consideration of the policy makers on priority basis. Some of the areas that need to be focussed are:

- i. The RSTA in collaboration with NEC should adopt appropriate vehicle emission standards and proper monitoring/inspection system to regulate compliances;
- ii. Noise pollution caused by vehicles also have also become a concern to both the human and wildlife. There is a need to lay down permissible noise level and monitor its compliance on a regular basis.

- iii. Abandoned vehicles and machineries along the highways causes obstructions to the drivers and compromise safety concerns. Further, it creates environment hazard in terms of compromising aesthetics of the place and hazardous chemicals emitted by it. The RSTA in collaboration with DoR should enforce its regulation in removing abandoned vehicles and machineries that may compromise the safety of road users.

Chapter 5: Conclusion

Recognising the criticality of the road system in the country, the RAA carried out the performance audit of “Safe and Sustainable Road Transport System” covering the period 1st July 2016 till 30th June 2020. The audit was conducted with the objective to assess the effectiveness in implementation of road safety strategies to ensure safe road transport system and to determine the extent to which the government initiatives have ensured accessible, available and affordable public transport.

The development of transport sector is governed by Transport Policy 2006 and the Road Safety and Transport Act 1999 and its subordinate instrument, RST Regulations. Transport sector is a multi-sectoral requiring involvement of multiple stakeholders in the planning, development of infrastructure, provision of transport services, enforcement of controls and legislation with regard to transport. Because of this, the current situation is characterised by fragmented approaches in developing safer, efficient, sustainable and inclusive transport system, which is aggravated by the lack of clear institutional framework delineating responsibilities and accountability amongst agencies. Moreover, there is fragmentation of institutional set up for transport sector leading to disintegrated approach across government agencies, overlap of responsibilities and duplication of efforts in realising the overall national objective of the sector. The Transport Policy 2006 is not comprehensive in respect of all vital elements that are necessary to achieve the long-term aspirations in transport sector.

A rising number of vehicles and consistently high incidences of road accidents, injuries and fatalities raise concerns on public health. Despite persistent efforts of authorities in ensuring road safety management, the trend of traffic infringement and incidences of accidents do not show a decreasing trend. With fragmented roles of authorities in development of different roads in the country, there is apparently a diffusion of responsibility as far as addressing the safety needs of roads are concerned.

Further, the review also showed lapses related to road safety including unsafe road conditions lack of proper infrastructure, lack of monitoring and enforcement of related rules, and inefficient monitoring of the driving training institutes. With regard to sustainability and accessibility of the road transport system, there are improper road infrastructure which lack inclusiveness; inefficient urban transport leading to traffic congestions; less connectivity of rural public transport services, and lack of proper standards and monitoring system in reducing vehicular pollutions.

Therefore, to consider consolidating efforts to address range of issues confronting transport sector in ensuring safe transport services in the country, the RAA provided 13 recommendations.



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