

**JAPAN INTERNATIONAL COOPERATION AGENCY**

**THE UNITED REPUBLIC OF TANZANIA**

**THE DATA COLLECTION SURVEY  
ON ROAD SAFETY DATA AND  
MANAGEMENT  
IN DAR ES SALAAM**

**FINAL REPORT**

**JANUARY 2022**

**JAPAN INTERNATIONAL COOPERATION AGENCY**

**KOEI AFRICA CO., LTD.**

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JR
22- 001



# Location Map



**Tanzania**



Source: The Consultant

**DAR ES SALAAM**



# Data Collection Survey on Road Safety Data and Management in Dar es Salaam

## Final Report

### Table of Contents

Location Map

<b>Chapter 1: Background and Objective .....</b>	<b>1</b>
1.1 Background.....	1
1.2 Objective.....	2
1.3 Scope of Work .....	3
<b>Chapter 2: Methodology of the Survey .....</b>	<b>4</b>
2.1 Data Collection on Road Accident Data Management System in Dar es Salaam .....	4
2.1.1 Field Excursion for Black spot Assessment.....	4
2.1.2 Planned meetings and workshops.....	4
2.1.3 Data Entry and Analysis of Available Road Accident Data in the City (Including Black spot Mapping) .....	5
2.2 Major Challenges of the Study .....	5
<b>Chapter 3: Current Status of Road Safety in Tanzania.....</b>	<b>6</b>
3.1 Legal and Policy Frameworks for Road Safety in Tanzania .....	6
3.1.1 The Road Traffic Act, 1973.....	6
3.1.2 Road Traffic (Amendment) Act, 1996 .....	6
3.1.3 The Road Act, 2007 .....	7
3.1.4 Land Transport Regulatory Authority (LATRA) Act 2019 .....	7
3.1.5 Environmental and Social Management Policy (2018).....	8
3.1.6 National Road Safety Policy 2009 .....	9
3.1.7 A Guide to Road Safety Auditing 2009 .....	11
3.2 Institutional Framework for Road Safety in Tanzania .....	11
3.3 Road Traffic Accident Recording and Analysis.....	12
3.4 Current Data Management System.....	15
3.5 Road Accident Information System (RAIS) .....	15
3.6 Development Partners Projects in Road Safety .....	16
<b>Chapter 4: Assessment of Current Status of Road Safety.....</b>	<b>18</b>
4.1 Questionnaire Survey Findings .....	18
4.2 Key Informant Interviews findings .....	34
4.3 Blackspot Survey:.....	38

<b>Chapter 5: Gaps Assessment of Road Safety in Dar es Salaam .....</b>	<b>63</b>
5.1 Road Safety Awareness.....	67
5.2 Road Traffic Accident Data Collection and Compilation .....	67
5.3 RTA Data Management .....	67
5.4 Black spot Management.....	67
5.5 Road Accident Information System (RAIS) .....	67
5.6 Road Safety Stakeholder Coordination .....	68
5.7 Summary of Gaps Assessment for Road Safety in Dar es Salaam .....	68
<b>Chapter 6: Countermeasures for Road Safety in Dar es Salaam .....</b>	<b>70</b>
6.1 Road Safety Awareness is Enhanced .....	72
6.2 Road Traffic Accident Data Management is improved.....	72
6.3 Black spot Data Management is Established .....	72
6.4 RAIS is Properly Planned, Structured, Managed and Executed .....	73
6.5 Road Safety Stakeholder Coordination .....	73
6.6 Road Condition Improvement .....	73
6.7 Proposed Countermeasures .....	73
6.8 Selection of project to be proposed for formulation of Technical Cooperation Project by JICA .....	75
6.8.1 Road Safety Management proposed projects .....	75
6.8.2 RTA Data Management proposed projects .....	76
6.8.3 Road Safety Stakeholder Coordination and Management proposed projects .....	78
6.9 Project Design Matrices (PDM) for the selected projects.....	79
<b>Chapter 7: Recommendation and Conclusion .....</b>	<b>83</b>
7.1 Recommendation.....	83
7.2 Conclusion .....	83
<b>ANNEXES</b>	
Annex 1 Minutes of Meetings (MoM) .....	i
Annex 2 List of Stakeholders .....	xxv
Annex 3: Questionnaires .....	xxvi
Annex 4: RTA Form.....	xxxix
Annex 5: RTA Data for Dar es Salaam .....	xli

## List of Tables

Table 4-1: Key Informant Interview Findings .....	34
Table 5-1: Gaps and Suggested Areas of Improvement .....	69
Table 6-1: Proposed Countermeasures .....	74

## List of Figures

Figure 1-1: Dar es Salaam Map.....	1
Figure 2-1: Structure of Black spot Mapping .....	5
Figure 3-1: Example of the summarized RTA data .....	13
Figure 3-2: Trends of fatalities 2016-2020.....	14
Figure 3-3: Trends of Injuries 2016-2020 .....	14
Figure 3-4: Trends of causes of RTA 2016-2020 .....	14
Figure 4-1: Five districts of Dar es Salaam vis-à-vis the road transport network.....	18
Figure 4-2: Hours of driving per day by public transport drivers.....	19
Figure 4-3: Hours of driving before taking break .....	19
Figure 4-4: Use of Safety Belt while driving.....	20
Figure 4-5: Law on the use of mobile phone and frequency drivers uses mobile while driving ...	20
Figure 4-6: Driving test before renewal of driving licence.....	20
Figure 4-7: Overtaking on wrong side to avoid traffic .....	21
Figure 4-8: Availability of first aid kit and knowledge to use the kits .....	21
Figure 4-9: Adequate road signage and road user obedience of road signs .....	22
Figure 4-10: Involvement in a RTA by drivers .....	22
Figure 4-11: RTA Information Sharing.....	23
Figure 4-12: Frequency of using public transport and preferred mode .....	23
Figure 4-13: Rating of Daladala drivers and reason for rating them poorly .....	24
Figure 4-14: Rating of Commercial Motorcyclist and reason for rating them poorly .....	24
Figure 4-15: Rating of BRT drivers .....	24
Figure 4-16: Rating of Bajaj drivers and reason for rating them poorly.....	25
Figure 4-17: Major road hazard and rating of risk on the routes .....	25
Figure 4-18: Use of seat safety belt when on road trip.....	25
Figure 4-19: Observation of traffic rules by drivers of public transport.....	26
Figure 4-20: Concentration levels of pedestrians while walking on the road .....	27
Figure 4-21: Pedestrian crossing roads when the red traffic lights were on.....	27
Figure 4-22: NMT Facilities available on the roads .....	28
Figure 4-23: Frequency at which pedestrians use the NMT Facilities.....	28
Figure 4-24: The most likely vehicular type to knock pedestrian.....	28
Figure 4-25: Possessing First Aid Skills and intervening at RTA Scene .....	29
Figure 4-26: Use of mobile phone while riding motorcycle and the reason why .....	30

Figure 4-27: Number of passengers that a motorcyclist carries per trip.....	30
Figure 4-28: Places where motorcyclists received their training for riding .....	30
Figure 4-29: Safety measures that motorcyclists have put in place .....	31
Figure 4-30: Motorcyclist proclivities of riding on pedestrian pathways and lane of oncoming traffic.....	32
Figure 4-31: Reasons for riding on pedestrian pathways and lane of oncoming traffic .....	32
Figure 4-32: Vehicle likely to cause RTA and the common type of RTA.....	33
Figure 4-33: Frequency at which Commercial Motorcyclist witness RTA .....	33
Figure 4-34: Whether the Commercial Motorcyclist possesses basic first aid skills .....	33
Figure 4-35: Awareness of medical inpatient wing for motorcycle RTA .....	34
Figure 4-36: The road users mostly admitted in hospital as a result of RTA.....	34
Figure 4-37: Ilala Municipality potential Black spot map.....	39
Figure 4-38: Kinondoni Municipality potential Black spot map .....	40
Figure 4-39: Temeke Municipality potential Black spot map .....	40
Figure 4-40: Ubungo Municipality potential Black spot map .....	41
Figure 4-41: Kigamboni Municipality potential Black spot map .....	41
Figure 4-42: Map of some of the major blackspots in Dar es Salaam.....	42
Figure 5-1: Problem Tree for Road Safety Management in Dar es Salaam.....	64
Figure 5-2: Problem Tree for Road Safety Data Management in Dar es Salaam .....	65
Figure 5-3: Problem Tree for Road Accident Information System.....	66
Figure 6-1: Objective Tree for Road Safety in Dar es Salaam .....	71



## Abbreviations

Term	Definition
BRT	Bus Rapid Transit
DC	District Commissioner
DAS	District Administrative Secretaries
DMDP	Dar es Salaam Metropolitan Development Project
DROMAIS	District Road Management Integration System
DTO	District Traffic Officer
EAC	East African Community
EWURA	Energy and Water Utilities Regulatory Authority
ICT	Information and Communication Technology
JICA	Japan International Cooperation Agency
JST	JICA Study Team
LATRA	Land Transport Regulatory Authority
MOWT	Ministry of Works and Transport
NMT	Non-Motorized Transport
PDM	Project Design Matrix
RAIS	Road Accident Information System
RAS	Regional Administrative Secretaries
RC	Regional Commissioner
RTA	Road Traffic Accidents
TANROADS	Tanzania National Road Agency
TARURA	Tanzania Rural and Urban Road Agency
WHO	World Health Organization

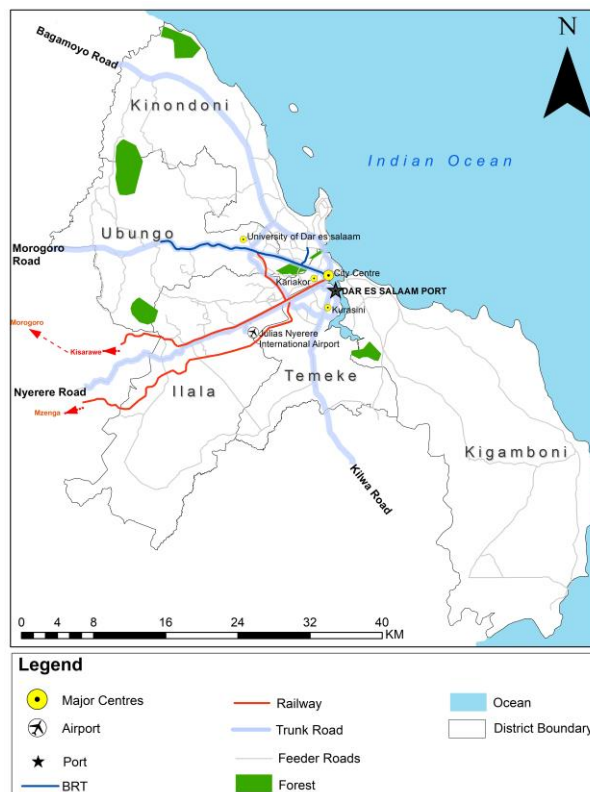


## Chapter 1: Background and Objective

### 1.1 Background

Dar es Salaam is located in East Africa, on the east coast of Tanzania, and bordering the Indian Ocean to the west. Dar es Salaam is the largest city in Tanzania and one of the gateway coastal cities in East Africa. It is governed by Regional Commissioner (RC) and Regional Administrative Secretaries (RAS). Dar es Salaam city is divided into five municipalities (districts) Ilala, Kinondoni, Temeke, Ubungo, and Kigamboni which are governed by the District Commissioner (DC) and District Administrative Secretaries (DAS). The Regional and District administration fall under the “Prime Minister’s Office Regional Administration and Local Government”. Dar es Salaam port provides a freight linkage to other parts of the country as well as other countries in the East and Central Africa region. The port also acts as a gateway for trade for the country and surrounding countries; some of which are landlocked.

Dar es Salaam is one of the most important transport terminals, with some of the major transport corridors traversing through the city including the TAZARA corridor, Central Corridor and Coastal Corridor. Figure 1 below shows the map of Dar es Salaam.

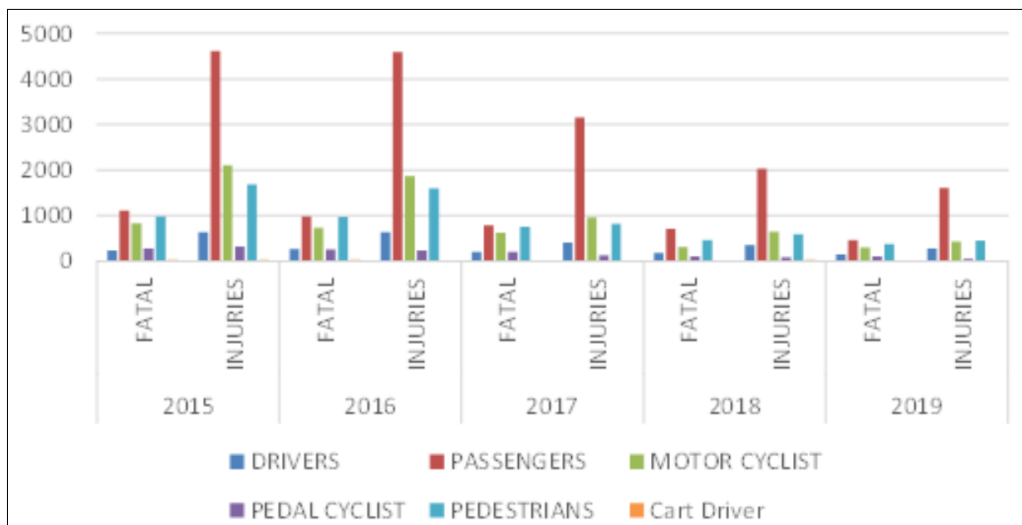


Source: JICA Study Team

Figure 1-1: Dar es Salaam Map

The Africa region, despite having the lowest level of motorization in the world, suffers the highest estimated road traffic mortality at 26.6 per 100,000 population (2016 data). The World Health Organisation (WHO) Global Status of Road Safety (2018), reports that road fatalities for Tanzania was 29.2 per 100,000<sup>1</sup>.

In 2020, the JICA Tanzania office conducted the *Data Collection Study on Road Safety in the East African Community*. That study reported that the road traffic accident trends for road users in Tanzania was as presented in the figure below:



**Figure 1-2: Trends of RTA fatality for different road users in Tanzania**

The above study also identified key challenges for road safety in Tanzania and singled out the Data Management of accidents as a key challenge. The study further stated that lack of coordination and collaboration between different players involved in traffic accident data collection was a major issue that was a critical challenge for road safety hence this Survey.

## 1.2 Objective

The objective of this Survey is to collect necessary information for formulating a technical cooperation project in the area of road safety based on the findings of the EAC study for Tanzania.

<sup>1</sup>WHO Global Status of Road Safety 2018

### **1.3 Scope of Work**

The scope of the work involves collecting information on the road accident data management system in Dar es Salaam, analysing available road accident data in the city (including black spot mapping) and proposing improvements to the road accident data management system in Dar es Salaam for formation of a technical cooperation project by JICA.

## **Chapter 2: Methodology of the Survey**

### **2.1 Data Collection on Road Accident Data Management System in Dar es Salaam**

The Consultant, through the deskwork review and in concurrence with the JICA Tanzania Office, developed a list of key stakeholders (refer to Annex 1). The key stakeholders were targeted for key informant interviews. The face to face key informant interviews with the key stakeholders were held from 14<sup>th</sup> to 24<sup>th</sup> September 2021 and during these key-informants interviews, the Consultant adhered to all COVID-19 protocols enforced by Government of Tanzania. The summary of the Key Informant Interview is outlined in Chapter 3.

The Consultant also identified the following road users: passengers, drivers, commercial motorcyclists and pedestrians, and developed four sets of questionnaires that targeted each respective group for survey. These questionnaires were also translated to Kiswahili for ease in administration to the targeted road users (refer to Annex 2). The findings of the questionnaire survey are discussed in Chapter 3.

#### **2.1.1 Field Excursion for Black spot Assessment**

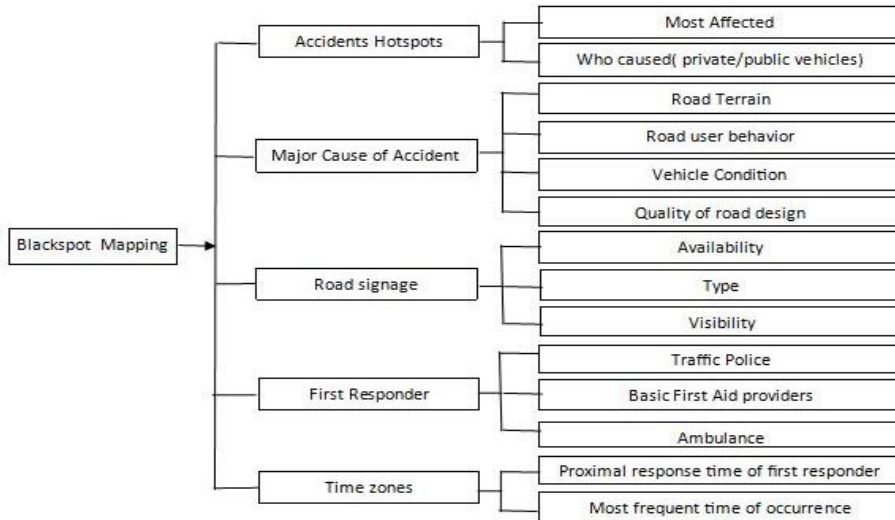
Black spot assessment and analysis was undertaken across Dar es Salaam City through field excursions from 25<sup>th</sup> to 31<sup>st</sup> October 2021. The Consultant observed the COVID-19 protocols as instructed by the Government of Tanzania while undertaking field excursions. The field excursions were based on the findings from the questionnaire survey and key informant interviews. In addition, the Consultant confirmed the black spots through interviews with residents and with the Traffic Police at the identified black spots. Moreover, the GPS coordinates for each black spot were collected.

#### **2.1.2 Planned meetings and workshops**

The Kick-off Meeting was held on 2<sup>nd</sup> September 2021 and thereafter progress meeting 1 was held on 15<sup>th</sup> September, just before the commencement of the questionnaire survey and key informant interviews. During the meeting, the JICA Tanzania Office pointed out that they had informed the key stakeholders, including the Traffic Police, about the Survey.

### 2.1.3 Data Entry and Analysis of Available Road Accident Data in the City (Including Black spot Mapping)

The road safety data that was collected was systematically organized for analysis and the GIS software was used for black spot mapping, while Microsoft excel was used for statistical data analysis. The figure below is a graphical description of how GIS tools were used for analysis.



Source: JICA Study Team

**Figure 2-1: Structure of Black spot Mapping**

## 2.2 Major Challenges of the Study

### (1) Road Traffic Accident Data for Dar-es-Salaam.

Since the road traffic accident data is consolidated at the central data base with the Traffic Police, the data collected was for the entire country and not just Dar es Salaam. Therefore, the Consultant followed-up with the District Traffic Officer for traffic accidents at district levels.

### (2) Close coordination with Ministry of Works and Transport

The Ministry of Works and Transport (MOWT) is a key stakeholder and yet it was difficult to coordinate with them since their headquarters are in Dodoma and there is no branch office in Dar es Salaam. The Consultant organized an online virtual meeting with MOWT.

## **Chapter 3: Current Status of Road Safety in Tanzania**

### **3.1 Legal and Policy Frameworks for Road Safety in Tanzania**

The legal and policy frameworks that direct, guide and govern road safety in Tanzania are as follows.

#### **3.1.1 The Road Traffic Act, 1973**

This Act came into effect in 1973 and it is still the anchor for the legal and policy framework for road safety in Tanzania. The law elaborates on registration of a motor vehicle or trailer; inspection of vehicles; and guides on requirements for one to drive motor vehicle on the roads. It also elaborates on the condition of the vehicle; and also the punitive measures for those who breach the sub-sections of this law. The law states, "Any person who, on any road-recklessly drives a motor vehicle or trailer; or drives a motor vehicle or trailer at a speed which, having regard to all the circumstances of the case, is or might be dangerous to the public or to any person; or drives a motor vehicle or trailer in a manner which, having regard to all the circumstances of the case, is or might be dangerous to the public or to any person, will be guilty of an offence."

#### **3.1.2 Road Traffic (Amendment) Act, 1996**

Road Traffic (Amendment) Act 1996 is basically an amendment of the Road Traffic Act 1973 and it amended some sections. Whereby subsections in Section 39 were amended as follows:

- (i) "Every driver of a vehicle will drive a vehicle in such a way as to avoid undue noise, unnecessary emission of smoke, steam or gas from the vehicle when leaving or refuelling that vehicle.
- (ii) "Every driver of a vehicle will, when driving through a residential area, ensure that the driver causes no disturbance to another person near that residential area and that driver will adjust the route, speed and the manner of driving in order to avoid unnecessary disturbance to residents in that area "
- (iii) Any person who contravenes the provisions of this section is guilty of an offence
- (iv) "Also the principal Act is amended by renumbering section 50, as section 50 (1) and adding immediately after subsection 1 as renumbered, and adds new subsections-



ones that deals with drivers and instructions on how to use carriageways, pavements and footpaths; and the separation of lanes in a carriageway. It also instructs the driver on how to overtake.

### **3.1.3 The Road Act, 2007**

This act makes provision for road financing, development and management. Part V, of this act speaks of Road Safety.

In Part V, section 31 states that, the road authority will ensure that the necessary road furniture is erected on the public roads under its jurisdiction as may be prescribed in the regulations or any other written law. Any person who damages, removes or obscures road furniture commits an offence and will be liable on conviction to a fine not less than two hundred thousand shillings or to imprisonment for a term not exceeding one year or both.

The Part V further states that the road authority will prescribe speed limits in respect to all roads or sections. The Law further provides that road authority will ensure the safety of road users during the design, construction, maintenance and operation of a public road by providing sidewalks, overhead bridges, zebra crossings and other matters related thereto.

The law further elaborates that the road users and pedestrians in particular will use public roads in a manner that will not pose hazards to themselves, vehicles or any other road users. Any person who fails to comply with the provisions of this section commits an offence.

The law further states that any person, who while on public roads, plays any game to the annoyance or danger of person using the road; pitches any tent, booth or stall without the permission of the road authority; places any animal in such a manner as to cause danger or inconvenience to traffic; makes any fire without the permission of the road authority; walks or causes another person to walk along the road while under the influence of alcohol or places himself on the road in such a manner as to cause danger or inconvenience to traffic commits an offence and will on conviction, be liable to a fine of not less than three hundred thousand shillings or to imprisonment for a term not exceeding one year or both.

### **3.1.4 Land Transport Regulatory Authority (LATRA) Act 2019**

This Act made the provisions for the establishment of Land Transport Regulatory Authority, to regulate the land transport sector, and it replaced the Surface and Marine Transport Authority. Hence, LATRA is an authority that is tasked with regulating the road transport sector and it is

also tasked with certifying the worthiness of rail track, public service and goods vehicles.

LATRA performs the following:

- (i) To perform the functions conferred on the authority by sector legislation;
- (ii) To issue, renew and cancel permits or licences
- (iii) Subject to sector legislation to: -
  - Establish standards for regulated goods and regulated services;
  - Establish standards for the terms and conditions of supply of the regulated goods and services and
  - Regulate rates and charges;
- (iv) To coordinate land transport safety activities;
- (v) To register crew and certify drivers

### **3.1.5 Environmental and Social Management Policy (2018)**

Environmental, social, health and safety code of conduct: This ESHS code of conduct identifies risks associated with road projects so it stipulates that the Contractor will prepare specific Health and Safety Management Plan, Specific Environmental and Social Management Plan, HIV/AIDS awareness programme, Road Safety Awareness Programme, Traffic Management Plan, Occupational Health and Safety Awareness Programme of the proposed road project prior to the actual execution of the construction works based on the Design and Environmental and Social Impact Assessment Reports. The Contractor will comply with applicable health and safety requirements, preventing avoidable accidents by providing temporary speed calming measures, temporary speed limit signs to the highly populated areas and ensure that drivers observe speed limits for safety of other road users. After completion of construction activities, the contractor is required to landscape and reinstate all the damaged areas as stipulated in the "Environmental Code of Practice for Road Works, 2009" Environmental Management Act 2004, EIA and Audit Regulations of 2005; Road Act, No.13 of 2007 and Road Management Regulation of 2009. Among other regulations, the undertaking of the road project activities shall comply with the following requirements:

- (i) Environmental Management Act 2004, EIA and Audit Regulations of 2005;
- (ii) Environmental Code of Practice for Road works, 2009;

- (iii) Environmental and Social Impact Assessment Report (ESIA) for the project;
- (iv) Road Sector Compensation and Resettlement Guidelines, 2009;
- (v) Road Act, No.13 of 2007 and Road Management Regulation of 2009;
- (vi) Land Act, No.4&5 of 1999, Land Compensation Regulation of 2001;
- (vii) Occupational Health and Safety Act (OSHA, 2003); and
- (viii) Traffic Act, 1996.

### **3.1.6 National Road Safety Policy 2009**

This policy provides the basis for the processes of accountability on day to day operation, evaluation and research that can dictate the need for resetting objectives for the enhancement of road safety programmes which can have effective impact to the public in general. It also creates the framework for the undertaking of corrective programme interventions and facilitates steps to access funding. The purpose of this national road safety policy is to provide an overall sense of direction to guide the efforts of all those involved in the provision of road safety policy and services on behalf of the Government.

The policy points out some issues and proposes the following:

**Vehicle weight control:** While all legally loaded heavy vehicles cause damage to the bridges and roads, notable extent of damage is exacerbated by overloading. To ensure that roads do not suffer unnecessary distress due to gross vehicle weight, the policy provides new driver training and testing programmes which will inter alia include defensive driving, ill-effects of over speeding, alcohol and drugs, on-road crashes, re-construction etc. In addition, the policy also provides for the Road Safety Board in collaboration with the Driver and Vehicle Examination and Licensing Agency to ensure that extensive education is provided on the effect of overloading on roads among stakeholders to help prolong the life span of roads and bridges. The policy also provides for government to encourage companies to have a 'safety culture' in place which ensures that drivers understand weight legislation and immediately report any concerns that a vehicle is illegally overloaded to their managers, who will initiate investigation to prevent overloading. The policy also provides for government to carry out a regular survey to monitor performance of pavements and bridges such that road user costs and investment costs are simultaneously brought to minimum possible level. The policy also provides for government to encourage private sector to install fixed weighbridges on designated areas to

control over loaded vehicles. The policy further provides for the government to facilitate and encourage private sector participation and investment in facilities that will increase transportation of goods by rail where applicable and where possible.

**Vehicle safety, inspection and roadworthiness:** The policy provides for Government to put in place a legal framework to regulate and control the importation of used and second-hand vehicles into Tanzania. Furthermore, it provides for Government to enact regulations that set appropriate and affordable standards of vehicle roadworthiness that are in line with SADC protocols and best practices. In addition, the Government will make legal provisions for the mandatory and periodic inspection of vehicles under the supervision of the Ministry of Works and Transport. The policy also provides for the government to seek private sector involvement in the operation of the vehicle inspection system and further provides for the Government to digitalize all vehicle registration and develop a vehicle registration database that enables the government to have a good data on the fleet size and vehicle types for comparison with crash involvement rates, evasion of taxes, routine inspections and insurance compensation matters. Moreover, the policy provides the Government an avenue of establishing a "one-stop" centre where Driver and Vehicle Examination and Licensing Agency can have vehicles registered, licensed and inspected.

**Public awareness about road safety issues:** The Policy acknowledges education as a key input to enhancing road safety and notes that the majority of Tanzanians are poorly informed about road safety and related end-use practices and options. It further points out that it is the ill-information on road safety that exacerbates poor road use behaviour leading to high crash, fatality and injury rates. It therefore proposes road safety education for school children. It further provides for the Road Safety Board to come up with new initiatives on developing of new informational materials that promote road safety. The policy further provides for the Road Safety Board to develop road safety knowledge and awareness amongst the vulnerable road users' population through education, training and publicity campaigns.

**Crash data:** The Policy provides for the government to develop and maintain an accurate and comprehensive crash data system and that the data should be properly analyzed and the results shared with key stakeholders. The policy therefore states the following:

- The Road Safety Board shall collaborate with the Police and other key stakeholders in **developing a functional and sustainable crash data reporting and analysis system** that can provide the necessary information;

- The Road Safety Board shall create a data system that will have geographic information system capabilities, so that road authorities can search for **black spots and analyze route safety**; and
- The Government shall **support the development of trauma registries in hospitals** and clinics in order to obtain additional information on road crash victims and their injuries, including those not reported to the Police.

### **3.1.7 A Guide to Road Safety Auditing 2009**

There is a Guide to Road Safety Auditing that was developed in 2009 by the Ministry of Infrastructure Development that aims at explaining the steps for road safety auditing process as follows:

**Step 1:** Initiating the Audit.

**Step 2:** Providing the Background Information.

**Step 3:** Studying the Plans and Inspecting the Site

**Step 4:** Holding a Commencement Meeting with the Designer and Client

**Step 5:** Undertake the Audit

**Step 6:** Writing the Audit Report

Notably, the audit report must set out clearly what the road safety problems are and make outline recommendations on corrective action. The report should point out the general problems and thereafter elaborate on specific problems at specific points along the road. For each problem, the report should specify its findings and make the corrective recommendations.

## **3.2 Institutional Framework for Road Safety in Tanzania**

The following institutions are responsible for the promotion of road safety:

<b>Organisation</b>	<b>Organisation's Mandate</b>
1. Ministry of Transport, Works and Communication	a) Develop policies for road safety, b) Oversee and monitor all safety issues that are related to road transport. c) Implementing agency (LATRA – Land Transport Regulatory Authority) which is mandated to regulate land transport activities
2. National Institute of Transport	a) To initiate syllabus for road transport safety training programs b) to provide effective training to Motor Vehicle Drivers c) to assess the competency of the trained driver for certification, licensing, and employment proceedings d) To conduct research and consultancy concerning road safety

Organisation	Organisation's Mandate
3. Land Transport Regulatory Authority	The mandate is vested under the Land Transport Regulatory act, 2019 Functions as outlined hereunder: - <ol style="list-style-type: none"> <li>1. Section 5(1)(d) – To Coordinate transport safety activities;</li> <li>2. Section 5 (1) (e)- To register crews and certify drivers of the regulated sector;</li> <li>3. Section 5(1)(f)- To certify the roadworthiness of public service vehicles and goods vehicles.</li> </ol>
4. National Road Safety Council (consists of the chairman, a vice-chairman and not less than ten other members appointed by the Prime Minister)	The functions include: <ol style="list-style-type: none"> <li>(a) to provide an effective central organization to intensify road safety activities and to exploit fully and continuously available knowledge and experience in all matters connected with road safety;</li> <li>(b) to promote research into causes of road accidents;</li> <li>(c) to promote statistical research as to the number, types and cost of traffic accidents;</li> <li>(d) to diagnose, from research sources, causes of road accidents and to suggest counter measures to combat accident problems;</li> <li>(e) to identify local accident hazards, devise and suggest remedies and advise authorities concerned to promote action;</li> <li>(f) to make proposals for amending traffic and road safety legislation with a view to reducing road traffic accidents,</li> <li>(g) to encourage and provide training and education for road users;</li> <li>(h) to encourage and users knowledge of particular hazards how they arise and how to cope with them;</li> </ol>
5. Tanzania Rural and Urban Roads Agency	Mandate of TARURA that are relevant to road safety includes: <ol style="list-style-type: none"> <li>(a) Developing and maintaining a network of rural and urban roads;</li> <li>(b) Conducting engineering traffic and economic studies for maintenance and improvement of the road network;</li> <li>(c) Establishing, maintaining and improving road management systems;</li> <li>(d) Improve road safety and manage environmental impacts on road network;</li> <li>(e) Establishing and maintaining the correct rural and urban roads;</li> <li>(f) Establishing and using vehicle balances and implementing freight controls on rural and urban roads;</li> <li>(g) To negotiate agreements with private sector entities to facilitate the financing and development of selected roads in accordance with the guidelines set out by the Ministry;</li> <li>(h) Advise the Ministry responsible for Regional Administration and Local Government on the issue of rural and urban roads.</li> </ol>
6. Tanzania Police Force	Enforce Laws of the country of which Traffic laws are among. However, in the context of protecting the lives of people and their property when using the road, TPF accredited such duty to one of its units, which is the Traffic Division. The traffic division also does the following <ul style="list-style-type: none"> <li>• Collects and compile RTA Data</li> <li>• Custodian of RTA data</li> </ul>

### 3.3 Road Traffic Accident Recording and Analysis

Currently the Traffic Police are the custodians of the RTA data. The Traffic Police collect the RTA data and store it. There is an RTA form that is completed at the scene of accident. This is done at district level. The key issues that are noted at the RTA scene is the time of RTA occurrence, the number of people involved, the number of injured persons and fatalities and this is evaluated based on gender. The type of road users involved in the accident is also noted

and the person (road user) responsible for the accident is also noted. Moreover, the police also collect and note the RTA characteristics from the condition of the road, the weather, the visibility and the road characteristics. The Traffic Police can make follow-ups of up to five days regarding the RTA to confirm if the number of fatalities increased. It is evident that since after five days there are no more follow-ups, then the RTA data at the hospital will slightly differ with that of the police, in case more people are admitted with RTA related injuries or the admitted injured persons die at the hospital.

The RTA data that is collected at district level is compiled and forwarded to the respective region; for example Dar es Salaam Region, and the regional data is compiled and forwarded to the national office which compiles the data and a summary. The national RTA data is compiled as shown in the figure below:

**DEATHS**

YEAR	PEDESTRIANS		DRIVERS		STUDENTS		PASSENGERS		PEDAL CYCLIST		MOTOR CYCLIST		RICKSHAWERS		SUB-TOTAL		TOTAL
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	
2016	715	277	237	5	50	30	691	318	223	27	654	11	10	8	2,580	676	3,256
2017	529	209	201	4	44	49	536	240	162	35	541	21	10	0	2,023	558	2,581
2018	324	140	156	0	37	21	480	212	92	9	295	18	3	1	1,387	401	1,788
2019	281	107	141	1	23	19	347	122	87	11	282	13	6	0	1,169	271	1,440
2020	199	88	130	16	27	17	345	168	48	6	213	9	4	0	962	308	1,270

**INJURIES**

YEAR	PEDESTRIANS		DRIVERS		STUDENTS		PASSENGERS		PEDAL CYCLIST		MOTOR CYCLIST		RICKSHAWERS		SUB-TOTAL		TOTAL
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	
2016	1,093	547	550	57	60	52	2,967	1,683	208	66	1,579	82	13	1	6,470	2,488	8,958
2017	538	284	333	43	35	77	2,007	1,123	131	33	807	70	8	0	3,859	1,630	5,489
2018	423	217	279	42	45	26	1,265	766	57	23	536	59	6	2	2,611	1,135	3,746
2019	319	146	225	35	29	36	1,026	561	49	18	323	62	3	2	1,974	860	2,834
2020	160	77	149	15	14	35	893	441	35	2	265	38	2	0	1,518	608	2,126

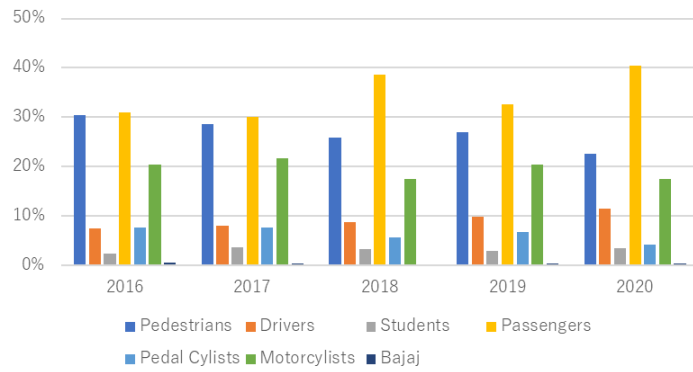
**SOURCE OF ROAD TRAFFIC ACCIDENTS STATISTICS FROM 2016 - 2019 IN TANZANIA MAINLAND**

Year	Reckless Driving	Vehicles Defects	Speed	Other Factors	Alcohol/ Intoxication	Careless Motor Cyclist	Careless Cyclist	Careless Pedestrians	TOTAL
2016	3,624	755	730	1,766	97	1,808	447	629	<b>9,856</b>
2017	2,191	381	509	564	93	1,142	205	493	<b>5,578</b>
2018	1,542	197	364	481	61	725	103	259	<b>3,732</b>
2019	1,160	105	288	46	492	72	162	379	<b>2,704</b>
2020	762	83	276	132	15	307	34	105	<b>1,714</b>

Source: Traffic Police

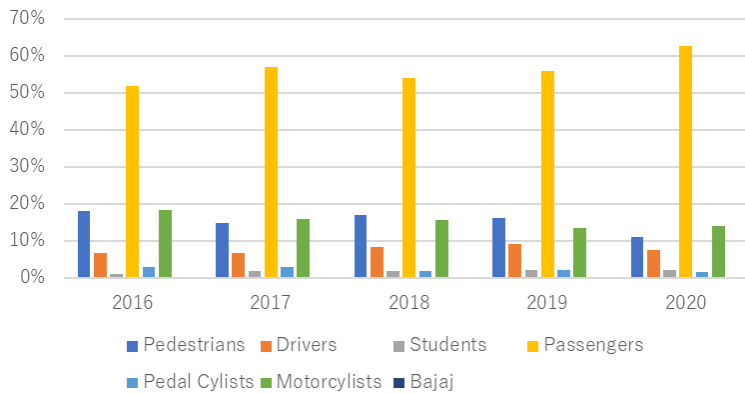
**Figure 3-1: Example of the summarized RTA data**

The summarized data received from the Traffic Police was not analysed but this data can be analysed and presented in figures as shown below:



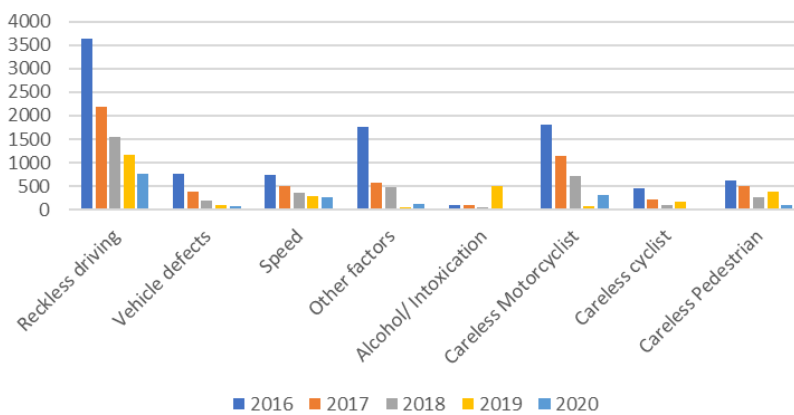
Source: JICA Study Team

Figure 3-2: Trends of fatalities 2016-2020



Source: JICA Study Team

Figure 3-3: Trends of Injuries 2016-2020



Source: JICA Study Team

Figure 3-4: Trends of causes of RTA 2016-2020

**Dar es Salaam Region RTA:** Data was collected from the Traffic Police Dar es Salaam Region. Notably the data was requested in November 2021 and it was received in mid-January 2022 (For more details refer to Annex 5).



### **3.4 Current Data Management System**

The current data management is disintegrated with different stakeholders being custodians of different road safety data sets. This study found out that even though the Traffic Police were the custodians of the RTA data, the data in their custody could be different from the data that the hospitals hold. This is because the follow-up of RTA by Traffic Police was not carried out more than five days after the crash, yet some injured persons succumb to their injuries even more than 5 days later.

TARURA also have their own system: District Road Management Integration System (DROMAIS).

The Road Accident Information System (RAIS) was developed by the Ministry of Works and Transport and is currently in Phase 1 of implementation. RAIS has been discussed further in the section below. It is important to note that LATRA provides an information sharing platform through the regular monthly meetings that entails all the key stakeholders.

### **3.5 Road Accident Information System (RAIS)**

The RAIS was established in 2018 with a clear intent of managing RTA data from the data collection, analysis and storage. The system aimed at digitalizing RTA data collection and Traffic Police were provided with tablets for recording RTA, take pictures of the accident scenes and uploading them in the real time. Currently the RAIS system is in phase 1 and it is also on the hold and the stakeholders identified the following challenges:

- The key stakeholders could access the system, but it was locked such that there was no interactive interface that allowed the key stakeholders to contribute to key issues of road safety. For example, the Ministry of Health could not update the RTA data at hospital level.
- The key stakeholders pointed out that RTA information collection was not standardized and that all type of accidents (minor and major damages RTAs, RTAs with or without casualty), were reported and reflected in the RAIS system which indicated that there was an upsurge of road traffic accidents that leads to major concerns amongst policy makers.

- Another issue raised was the limited logistical support; for example, in order for the system to work effectively there was need for reliable transport for police in all the stations in the country.
- The RAIS system was established without stakeholder consultation and engagement and therefore different stakeholders were unable to contribute ideas of making the system better.
- It was also noted that different stakeholders gave different names of the custodian of RAIS system, with key stakeholders either stating that TANROADS or Traffic Police as the custodian of the system.

Currently there are plans to improve the RAIS system and the Ministry of Works and Transport intend to engage the stakeholders in improving the RAIS system. The MOWT has requested funds from Ministry of Finance for improvement of RAIS, though the funds are yet to be released. In addition, MOWT would like to engage the ICT department of Dar es Salaam University to assist in developing RAIS since the University had developed a similar system for another project.

### **3.6 Development Partners Projects in Road Safety**

The following projects are currently ongoing:

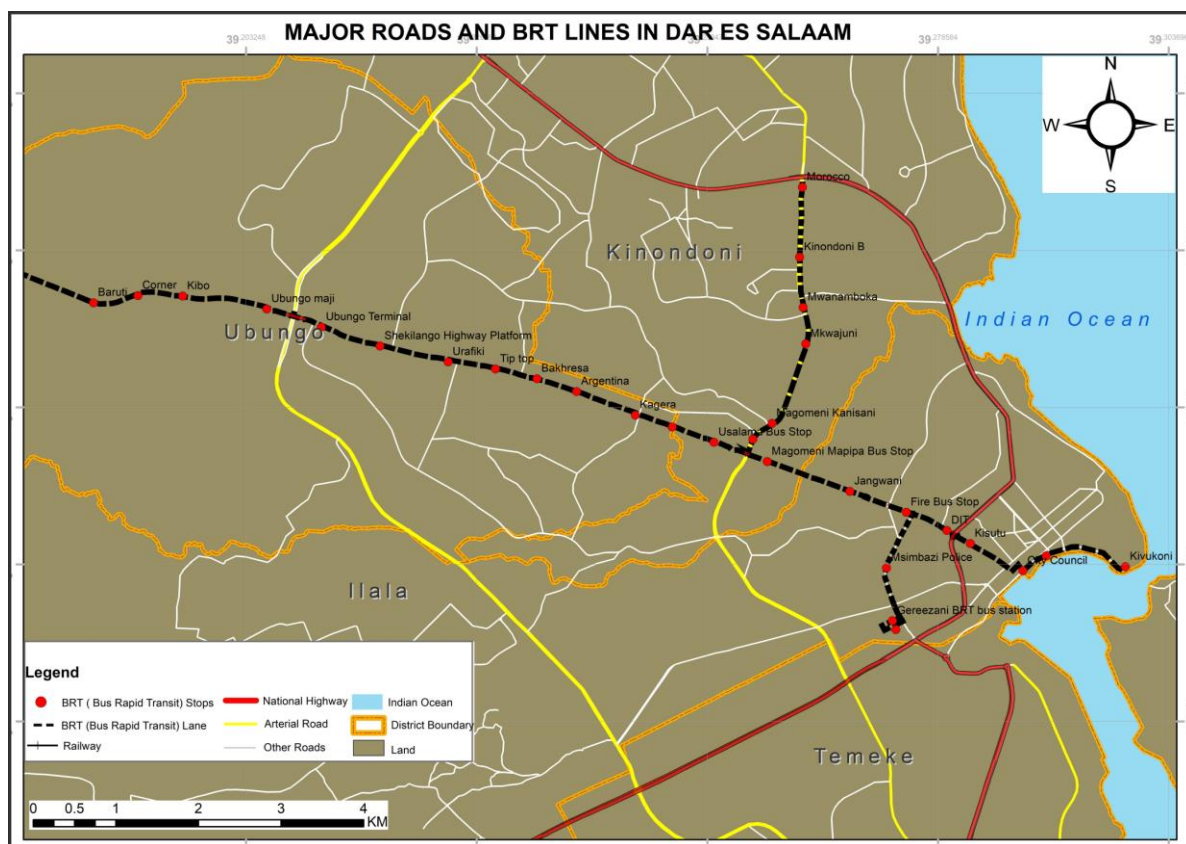
- Ten Step Pilot Project (A capacity building project aimed at addressing skill gaps and develop participants skills to deliver road safety projects that prioritize the safety of all road users and eliminate high – risk roads in the country, to reduce high traffic death(2020-2022) funded by United Road Safety Fund (UNRSF) Global Road Safety Facility (GRSF) of The World Bank United Nations Economic Commission for Africa (UNECA) International Road Federation (IRF) at the cost of US \$ 480,000;
- DMDP (Dar es Salaam Metropolitan Development Project) for Temeke, Kinondoni and Ilala funded by World Bank at the cost of US\$ 330.30 million. This project includes Dar es Salaam Road Integrated System (DROIS) that is under TARURA;
- Tanzania Road to Inclusion and Socio-Economic opportunities (RISE) project to improve rural roads and building capacity in the sustainable management of rural roads incorporating community engagement funded by World Bank at the cost of US\$ 350.00 million;

- Bagamoyo road construction funded by JICA;
- TZS. 2.5 Billion Project of maintaining parking spaces by TARURA;
- Kimara-Kibaha Road by Government of Tanzania;
- Morocco-Mwenge Road funded by JICA;
- Gerezani-Rangi Tatu (BRT lane 2) funded by Africa Development Bank; and
- Salender Bridge funded by Republic of South Korea at a cost of US\$ 126.26 million.
- RAIS System which is entering phase 2 and two Development Partners have shown interest of funding it i.e. JICA and World Bank but currently the RAIS system is yet to obtain assistance from any of the development partners.

## Chapter 4: Assessment of Current Status of Road Safety

### 4.1 Questionnaire Survey Findings

The questionnaire survey took place from 15<sup>th</sup> to 25<sup>th</sup> September 2021. The map of Dar es Salaam that shows the five districts and major road network including BRT is presented in the figure below. The following road users in the five districts of Dar es Salaam Region were targeted: public transport drivers; passengers, commercial motorcyclist and Bajaj drivers and pedestrian.



Source: JICA Survey Team

**Figure 4-1: Five districts of Dar es Salaam vis-à-vis the road transport network**

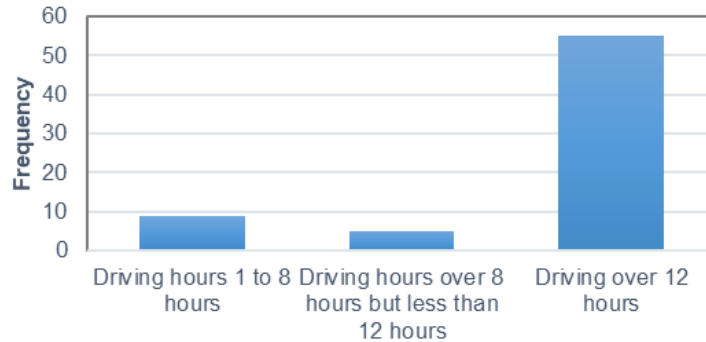
The findings of the questionnaire survey are summarised as follows:

#### 1) Public Transport Drivers

The questionnaire for public drivers sought to find out how many hours that the drivers drove in a day, the use of mobile phone while driving, how they renew their driving licences, and more questions centred on driving behaviour. There were questions on signage and condition

of roads, areas on their route that were accident prone, the first responders to the scene and in case the drivers had basic first aid skill but also general questions like the leading causes of RTA in Dar es Salaam, and the vehicular mode that is likely to cause accident. The findings were as follows:

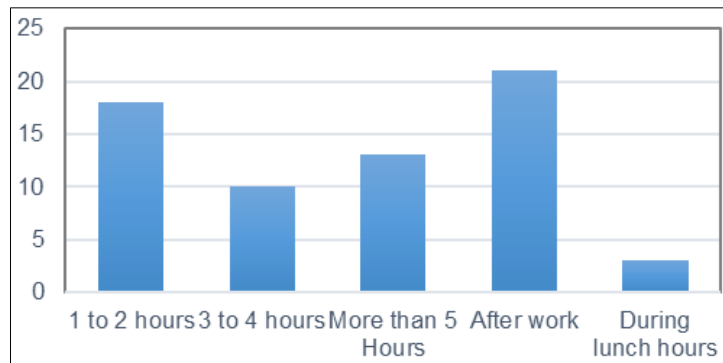
- a) On driving hours most drivers pointed out that they drove more than twelve hours in a day. This is excessive input per day and can contribute to driver fatigue.



Source: JICA Survey Team

**Figure 4-2: Hours of driving per day by public transport drivers**

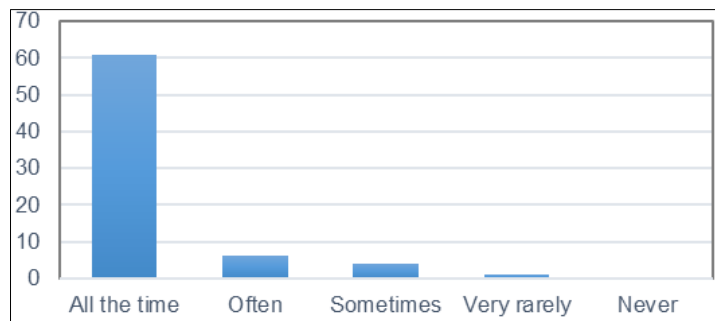
- b) On hours that most drivers drove before taking a break some pointed out that they took a break after driving for more than 5 hours while the majority pointed out that they took a break to rest only after completing the day’s work. Interestingly others took a break after 2 hours of driving. This is limited driving breaks can contribute to driver fatigue and this is a road safety hazard.



Source: JICA Survey Team

**Figure 4-3: Hours of driving before taking break**

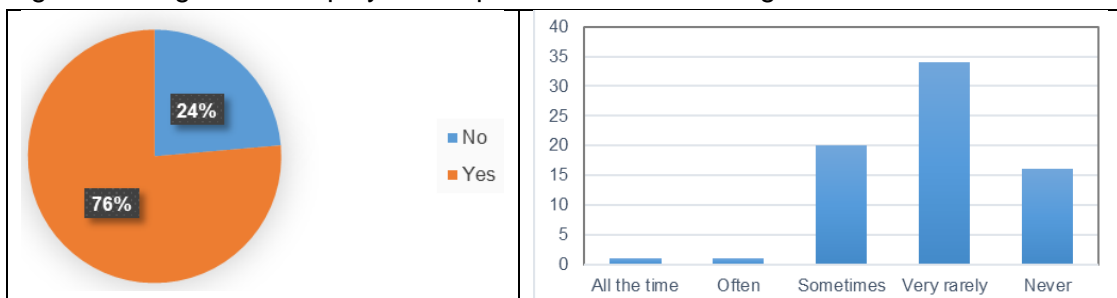
- c) On use of safety belts while driving, the majority of the drivers pointed out that they always wear safety belt while driving and this is a good driving habit that can minimize fatalities in case of RTA.



Source: JICA Survey Team

**Figure 4-4: Use of Safety Belt while driving**

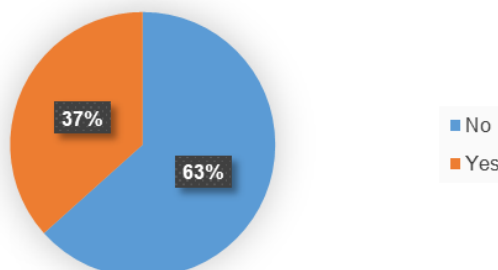
- d) Most drivers pointed out that there was a tacit law that limited them from the use of mobile phone while driving as shown in the figure below. In addition, this study found out that most drivers do not use hands on mobile phone while driving. This is noted as a good driving habit that plays an important role in reducing RTA.



Source: JICA Survey Team

**Figure 4-5: Law on the use of mobile phone and frequency drivers uses mobile while driving**

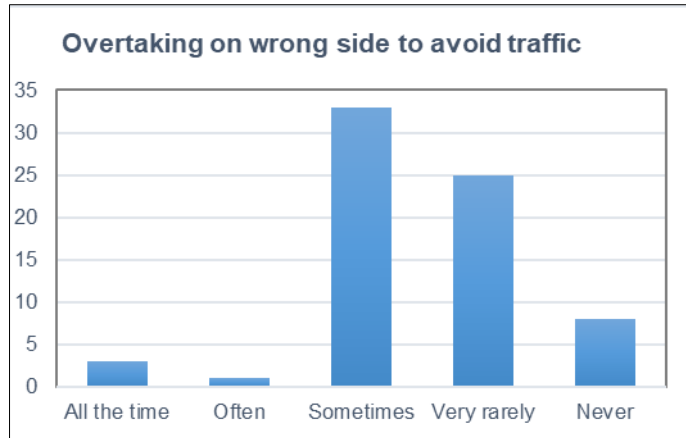
- e) When asked whether the drivers took a driving test before renewing their driving licence most responded that they did not go through a driving test before renewal while 37% of respondent pointed out that they had to take a driving test before their licence was renewed. Notably it is required that a driver who had been involved in accident be tested before their licence is renewed. This is a good indicator that there is enforcement of the law in regards to renewal of driving licence.



Source: JICA Survey Team

**Figure 4-6: Driving test before renewal of driving licence**

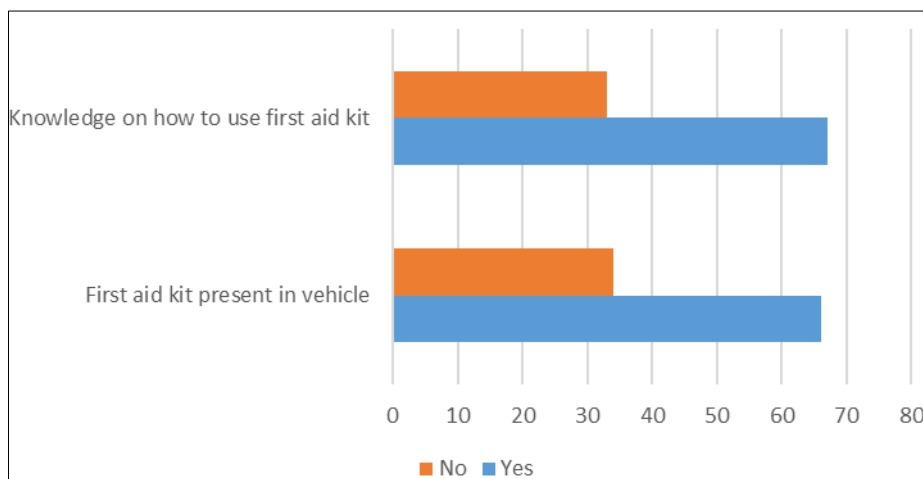
- f) When asked whether the drivers had used the wrong side to overtake to avoid traffic, most drivers pointed out that they sometimes use the wrong side of the road to overtake even though a big number also pointed out that they rarely overtake using the wrong side. But this is a road safety hazard.



Source: JICA Survey Team

**Figure 4-7: Overtaking on wrong side to avoid traffic**

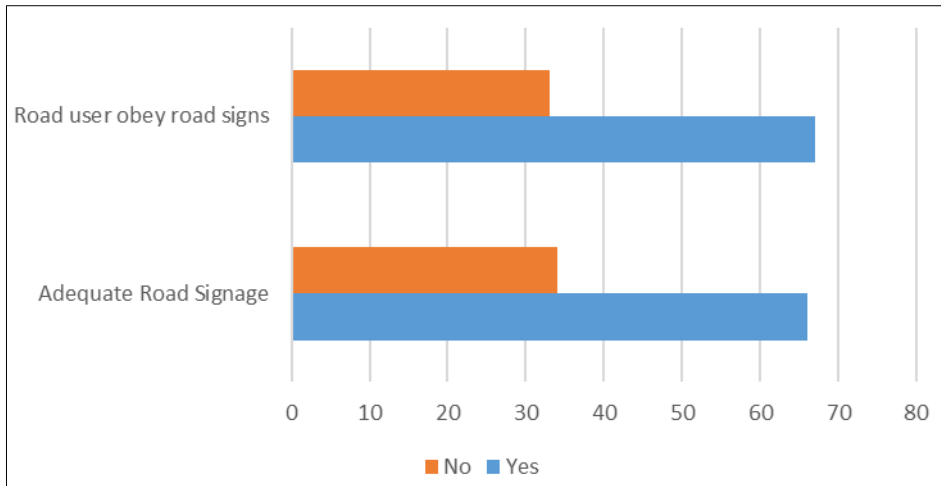
- g) When asked whether there were first aid kits in their vehicle and in case the drivers knew how to use the kit, it emerged that most public transport vehicles had first aid kits and moreover, most drivers also have knowledge on how to use the first aid kits. This basic first aid skill can be vital in case of RTA where basic first aid skills could have saved lives.



Source: JICA Survey Team

**Figure 4-8: Availability of first aid kit and knowledge to use the kits**

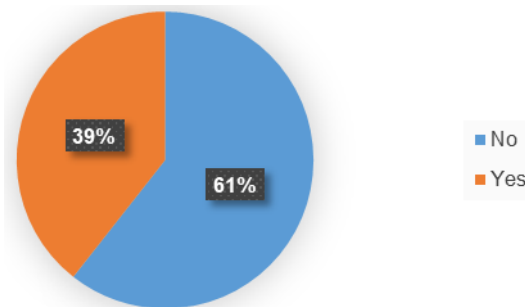
h) When asked whether there was adequate road signage in Dar es Salaam and whether the road users obeyed the signs or not and who enforced the traffic laws. It emerged clearly that the Traffic Police were the enforcers of the traffic rules. It was also evident there were adequate road signage and that most road users make effort to obey the road signs. This enforcement of traffic rules, adequate signage and road users making effort to obey road signs is a good road user’s behaviour that enhances road safety.



Source: JICA Survey Team

**Figure 4-9: Adequate road signage and road user obedience of road signs**

i) When the drivers were asked if they had been involved in an accident, most of them (61%) pointed that they had not been involved in an accident and this is almost the same number with that who did not have to undertake driver test before licence renewal.

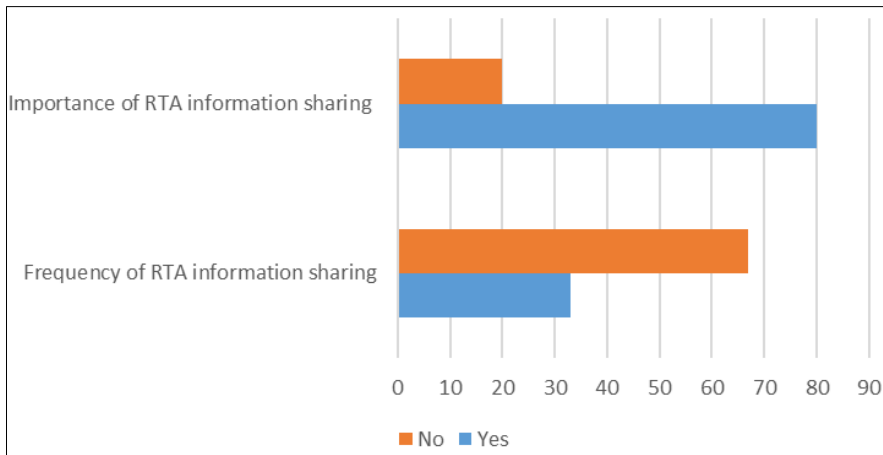


Source: JICA Survey Team

**Figure 4-10: Involvement in a RTA by drivers**

j) When the drivers were asked the frequency at which RTA information was shared was adequate and whether it was important to share the RTA information data to all stakeholders. It was clear that RTA information was not adequately shared and that sharing of the RTA information to stakeholders was an important activity.





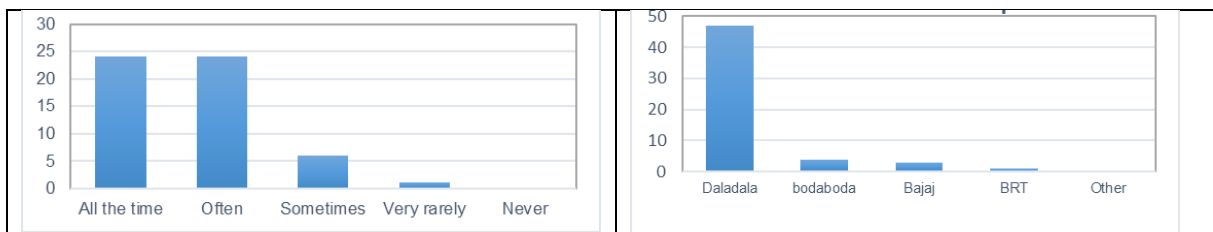
Source: JICA Survey Team

**Figure 4-11: RTA Information Sharing**

## 2) Passengers

The questionnaire for passengers aimed to find out how frequently they used public transport, their preferred vehicular mode of transport, the driving behaviour of the vehicle that they use for transport, the time of day or night that they have witnessed most of the accidents, if they had ever been involved in a RTA, the first responders to RTA, the frequency of RTA in the route and the accident prone place on the road, the road hazards along the roads that they use, whether they use safety belts in the trips, the speed the public transport use, and in case the passengers had basic first aid skills, but also general questions on road safety legal enforcement. The findings were as follows:

- a) On frequency of using public transport, wherein most respondents pointed out that they frequently used public transport and their preferred mode being daladala.

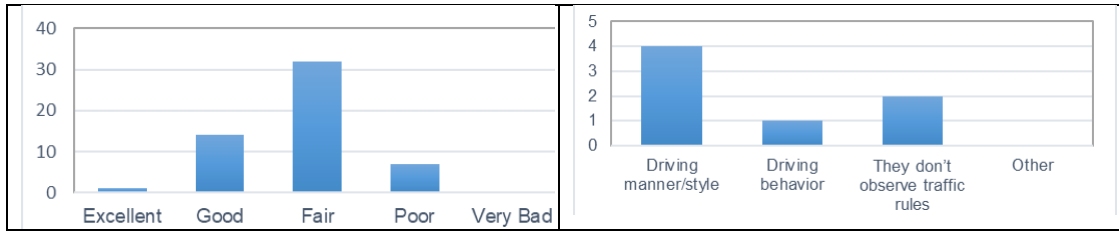


Source: JICA Survey Team

**Figure 4-12: Frequency of using public transport and preferred mode**

- b) On driving behaviour of the daladala drivers the passengers rated their driving behaviour as fair. And those who rated them as poor were asked why they rated them

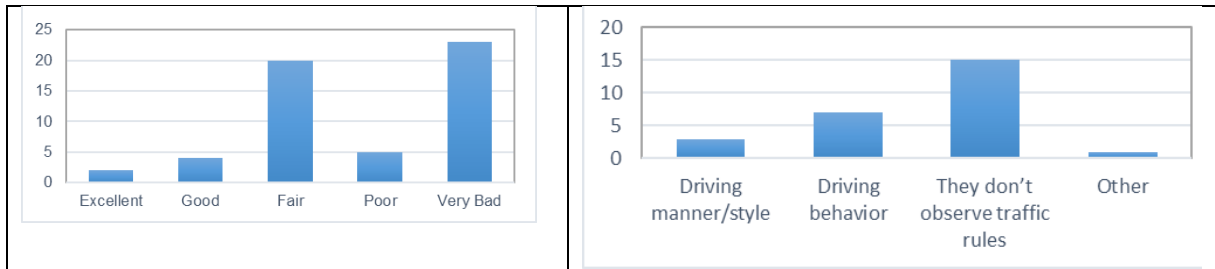
as so and most pointed out that the reason for poor rating was their driving style and also not following traffic rules.



Source: JICA Survey Team

**Figure 4-13: Rating of Daladala drivers and reason for rating them poorly**

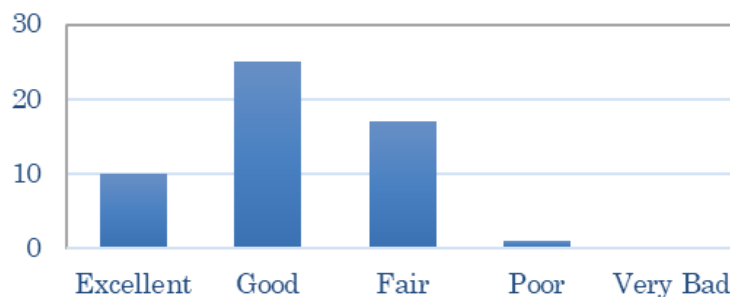
- c) On riding behaviour of the commercial motorcyclist, the passengers rated their riding behaviour as very bad, followed by fair. And those who rated them as poor and very bad were asked why they rated them as so and most pointed out that the reason for poor rating was their driving style and also not following traffic rules.



Source: JICA Survey Team

**Figure 4-14: Rating of Commercial Motorcyclist and reason for rating them poorly**

- d) On driving behaviour of the BRT drivers, the passengers rated their driving behaviour as good, fair and excellent.

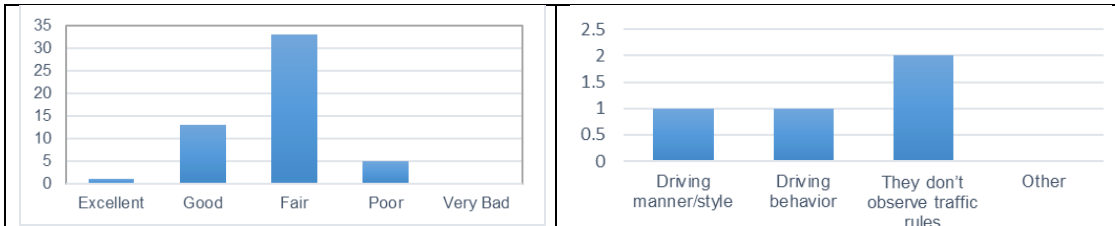


Source: JICA Survey Team

**Figure 4-15: Rating of BRT drivers**

- e) On riding behaviour of the Bajaj drivers, the passengers rated their riding behaviour as fair, followed by good while others rated them as poor. And those who rated them as poor were asked why they rated them as so and most pointed out that the reason for

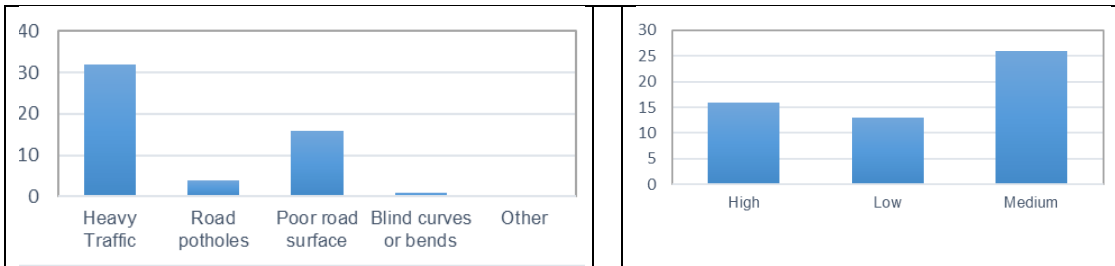
poor rating was that they do not follow traffic rules, followed by driving style and behaviour too.



Source: JICA Survey Team

**Figure 4-16: Rating of Bajaj drivers and reason for rating them poorly**

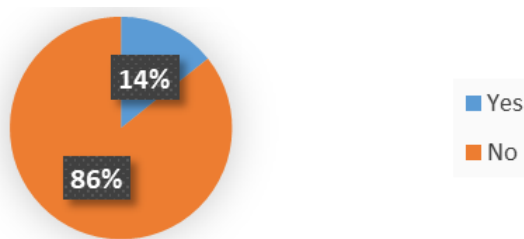
- f) When asked the major road hazards they witness on the routes they travel on most, respondents pointed out that heavy traffic was the major hazard, followed by poor road surface. But on the risk level on the roads they use, most respondents rate as medium level.



Source: JICA Survey Team

**Figure 4-17: Major road hazard and rating of risk on the routes**

- g) When asked on the use of seat safety belt while on the road trip most respondents (80%) pointed out that they do not use seat belts. This is a road safety hazard.

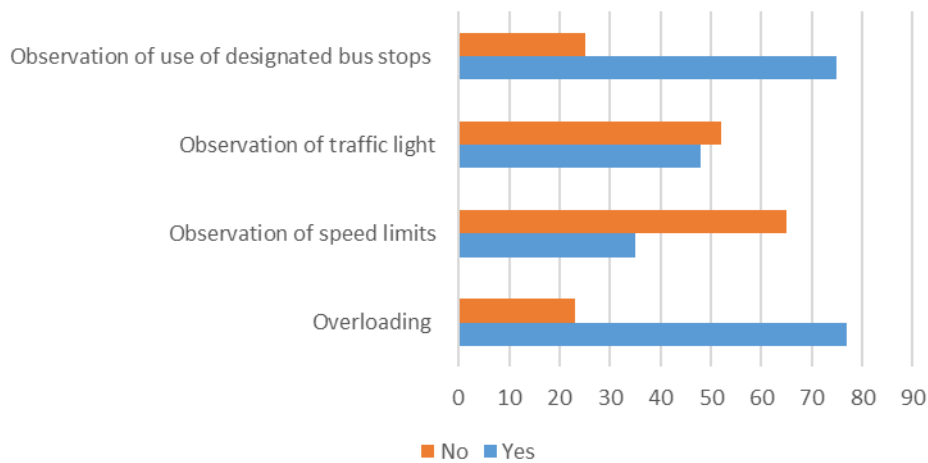


Source: JICA Survey Team

**Figure 4-18: Use of seat safety belt when on road trip**

- h) When asked whether the drivers observed and used the legally designated bus stops most respondents pointed out that the drivers observed this and used legally designated bus stops in picking and dropping passengers; while in observation of traffic lights, observing speed limits and observing the carrying capacity of passengers the

majority of respondents pointed out that drivers breached these rules as per the figure below. This minimal observation of traffic rules is hazardous.



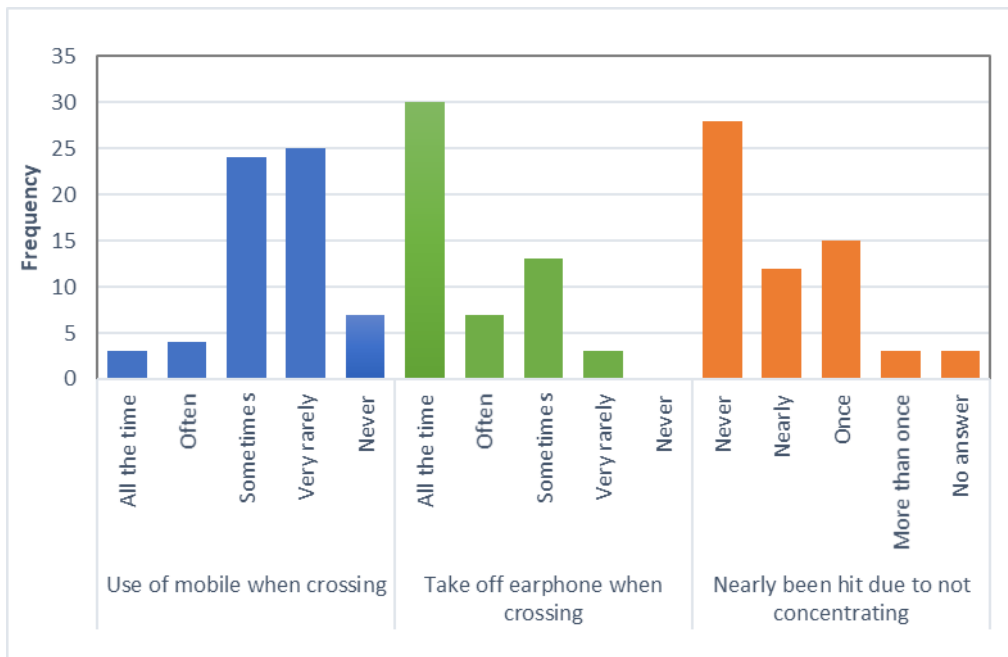
Source: JICA Survey Team

**Figure 4-19: Observation of traffic rules by drivers of public transport**

### 3) Pedestrians

The questionnaire for pedestrians aimed to find out their level of concentration while using the roads, their behaviour in observing traffic rules while using the roads, their use of the pedestrian infrastructure provided on the roads like the footbridge etc. The questionnaire also sought to find out the level of responsibility while using the roads, who was the first responders at RTA scene and also whether the pedestrian had any basic first aid skills. The findings were as follows:

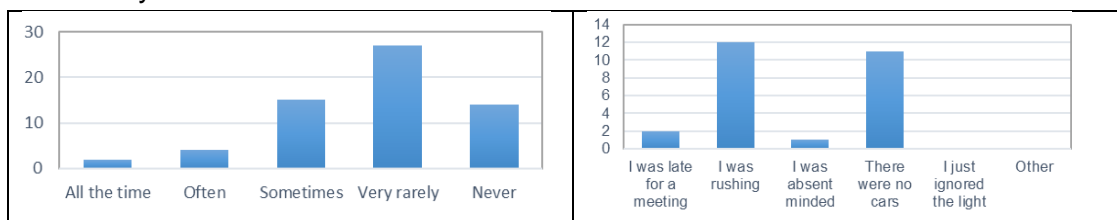
- a) On the level of concentration while using the road, the survey found out that most pedestrian pointed out that they sometimes cross the roads while talking on mobile phone with majority stating that they have crossed the road while talking on the phone but on rare occasions. Most pedestrian pointed out that they always take-off earphones and stop listening to music when crossing the roads. While most of the respondents pointed out they had never been nearly hit by a vehicle because of lack concentration, some stated that they were almost hit once as per the figure below. The ability to be conscious of road safety is a boon to road safety.



Source: JICA Survey Team

**Figure 4-20: Concentration levels of pedestrians while walking on the road**

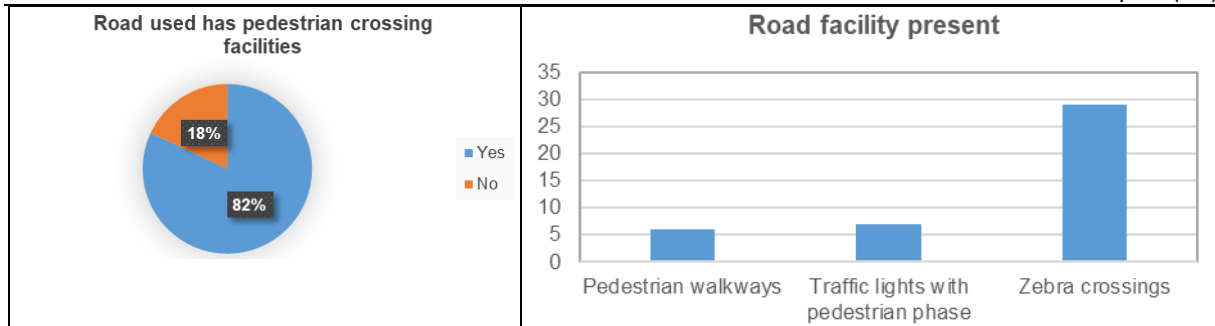
b) In responding to the question whether the pedestrian had ever crossed the road when traffic lights were red, the respondents pointed out that on very rare occasions, others pointed out that they do cross sometimes when the traffic lights are red while a big number of pedestrian pointed out that they had never done so as per the figure below. The reason for breaching the traffic rules was mainly that at the time the light turned red there was no car on the road and another major reason being that the pedestrian was in a hurry. The habit of not breaching traffic lights is a good habit that enforces road safety.



Source: JICA Survey Team

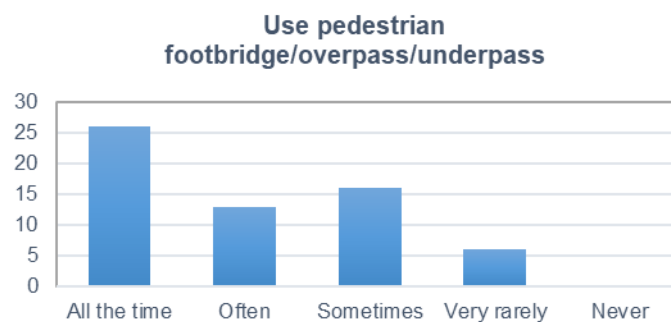
**Figure 4-21: Pedestrian crossing roads when the red traffic lights were on**

c) On use of pedestrian facilities provided on the road the, majority of the respondents pointed out that on most of the roads they use the non-motorized transport infrastructure provided as shown in the figure below.



Source: JICA Survey Team

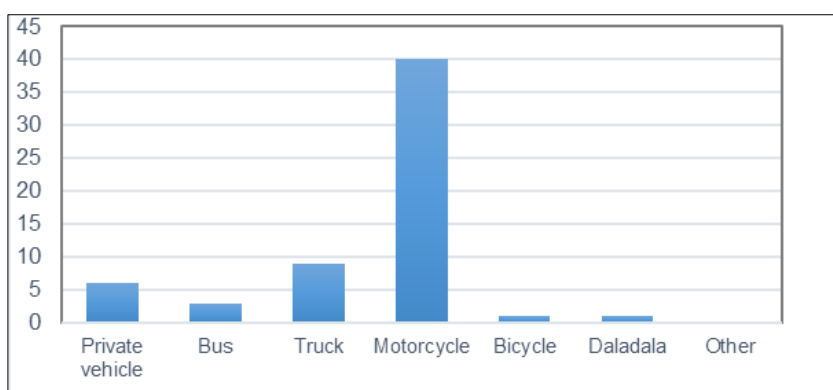
Figure 4-22: NMT Facilities available on the roads



Source: JICA Survey Team

Figure 4-23: Frequency at which pedestrians use the NMT Facilities

- d) On which vehicular type was likely to knock the pedestrian while using the roads, majority of the respondents pointed out that it was the motorcycle that was likely to knock them.

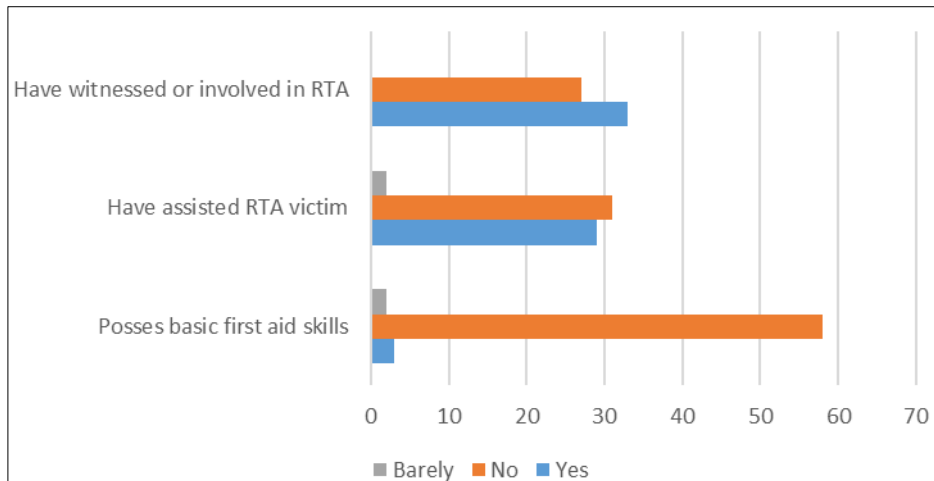


Source: JICA Survey Team

Figure 4-24: The most likely vehicular type to knock pedestrian

- e) On whether the pedestrians had ever witnessed or been involved in a RTA and in responding to whether they had assisted RTA victims in an RTA scene the majority of

respondents stated that they had not, but a significant number stated that they had assisted RTA victims. Noteworthy that when responding to the question whether the pedestrian had any basic first aid skills, a big number stated that they did not have such skills. This limited first aid skills among pedestrians yet they join in assisting the RTA victims. This can be counterproductive and endanger the lives of the injured.



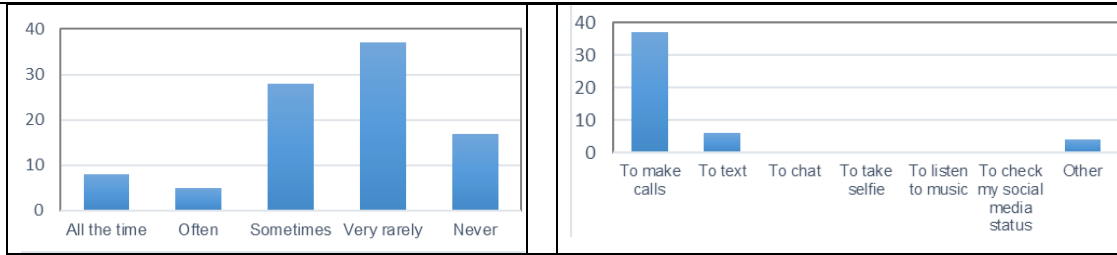
Source: JICA Survey Team

**Figure 4-25: Possessing First Aid Skills and intervening at RTA Scene**

#### 4) Commercial Motorcyclists

The questionnaire for commercial motorcyclists aimed to find out their level of concentration while using the roads, such as whether they used mobile phones while riding the motorcycles. The questionnaire also sought to find out the number of passengers the rider carries per trip; whether the riders had attended driving school; whether the riders were keen on their own safety; their behaviour in observing traffic rules; the vehicular type that was likely to cause an accident and the reason for such accidents; how often the motorcyclists witness RTA and also their awareness of medical wing specifically for motorcycle accident victims; and whether the pedestrian had any basic first aid skills. The findings were as follows:

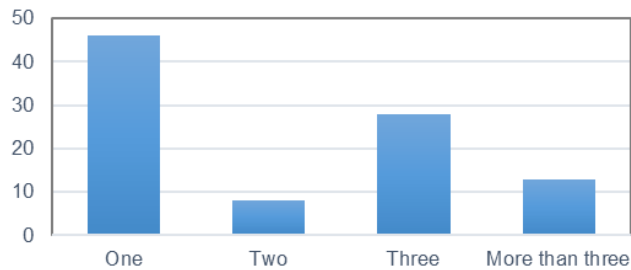
- a) When asked whether the riders used mobile phone while riding the motorcycle, most respondents pointed out that they very rarely use mobile phone while a significant number stated that they do use on an occasional basis (sometimes) but it was still noted that they do use mobile phone in the figure below. The use of mobile phone while riding motorcycle is road safety hazard.



Source: JICA Survey Team

**Figure 4-26: Use of mobile phone while riding motorcycle and the reason why**

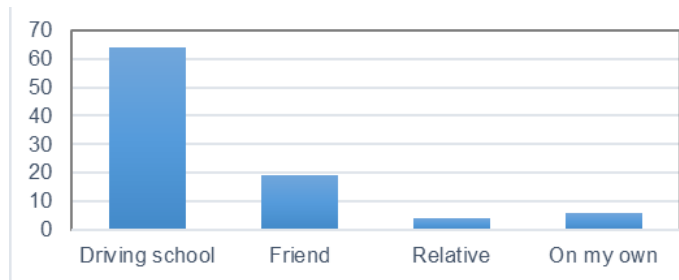
b) When asked how many passengers they carried per trip their answers were varied with the majority stating that they carry only one passenger per trip, while a significant number stated more than two with some stating that they carry more than three per trip. This kind of overloading is a road safety hazard with calamitous consequences in case of RTA.



Source: JICA Survey Team

**Figure 4-27: Number of passengers that a motorcyclist carries per trip**

c) When asked whether they had undergone any training before they started riding motorcycles, most respondents pointed out that they had gone to driving school while a significant number pointed out that they had been trained by a friend, others learnt to ride from a relative, while others went through self-training(learnt how to ride by themselves) . There is therefore need to standardize the motorcyclist training in order to improve motorcyclist road use behaviour. Their responses were as per the figure below:

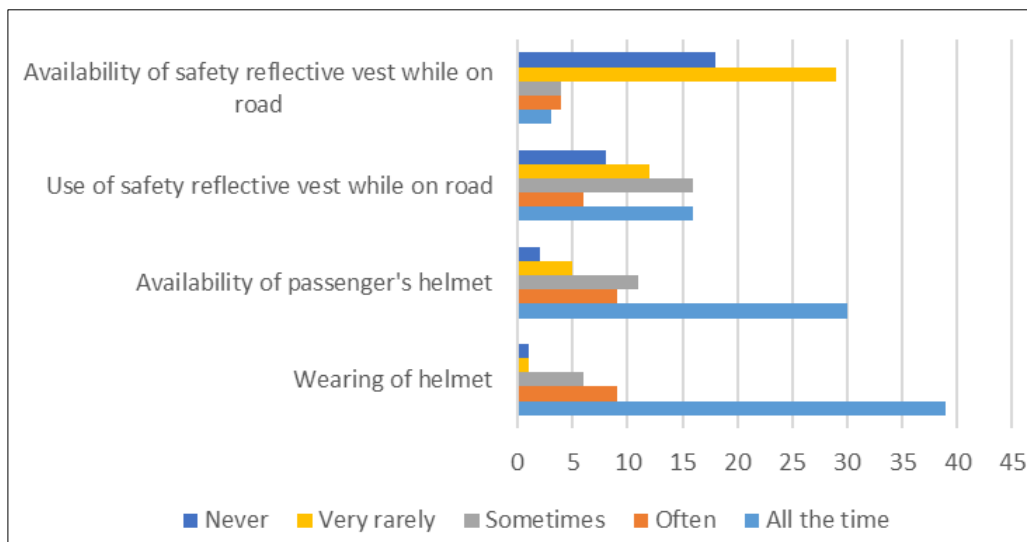


Source: JICA Survey Team

**Figure 4-28: Places where motorcyclists received their training for riding**



d) When asked whether they have safety measures in place like wearing helmet while riding, the majority stated that they did all the time and that the passenger’s helmet was available and was used most of the time. On the use of safety reflective jackets, some of the respondents pointed out that they do use them all the time while a significant number pointed out that they use them on rare occasions, while other stated they never use the jacket at all. Notably, most of the respondents pointed out that the safety reflective jacket was available only on rare occasions while others stated it was never available. Motorcyclists are one of the vulnerable road users and the safety measures like helmet, reflective jackets for the rider and the passenger is a mandatory bylaw in the effort of enhancing road safety. Their responses are captured in the figure below:



Source: JICA Survey Team

**Figure 4-29: Safety measures that motorcyclists have put in place**

e) On whether the motorcyclist rides on the pedestrian pathway and how often, the study found out that on some occasions the riders rode on pedestrian pathways, but some also pointed out that they do ride but only on rare occasion. But also when asked whether the motorcyclist had ever rode on the lane of the oncoming traffic and how often the response was, the majority stated on some occasions they rode on the lane of oncoming traffic while others stated only on rare occasion as captured in the figure below. Nevertheless, it is a road safety hazard that endangers not only the rider but also other road users when they choose to ride on pedestrian walkway or on the lane of oncoming traffic.



Source: JICA Survey Team

**Figure 4-30: Motorcyclist proclivities of riding on pedestrian pathways and lane of oncoming traffic**

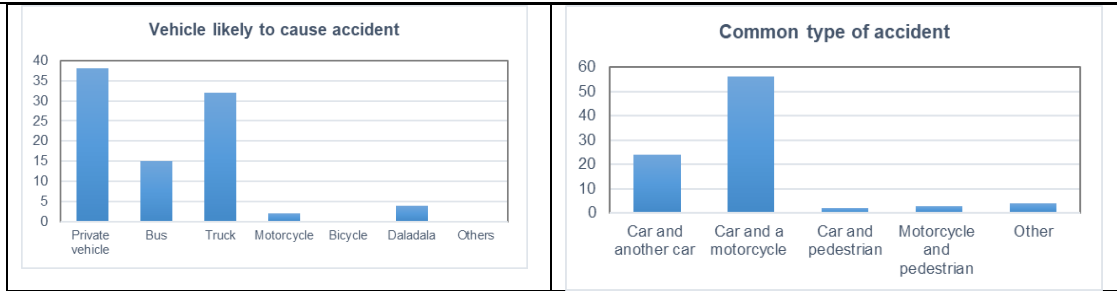
When asked the reason for why they ride on the pedestrian pathways or on the lane of oncoming traffic, their response was that they were either trying to avoid traffic jams, or that they were in a hurry or that they noticed that the Traffic Police were not in that location. Their responses are captured in the figure below:



Source: JICA Survey Team

**Figure 4-31: Reasons for riding on pedestrian pathways and lane of oncoming traffic**

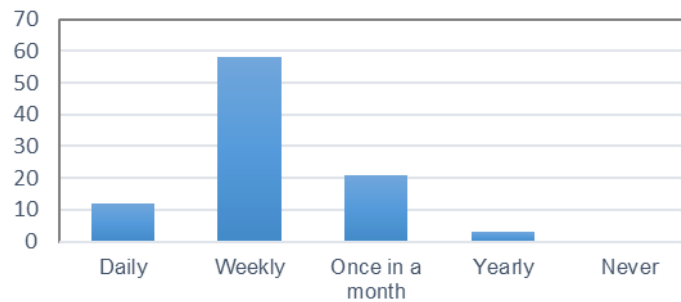
- f) On vehicular type that was likely to cause RTA, the respondents pointed out that the private car was more likely to cause RTA than any other vehicular type, followed by the truck. They also pointed out that the most likely accident to occur was between car and motorcycle as captured in the figures below:



Source: JICA Survey Team

**Figure 4-32: Vehicle likely to cause RTA and the common type of RTA**

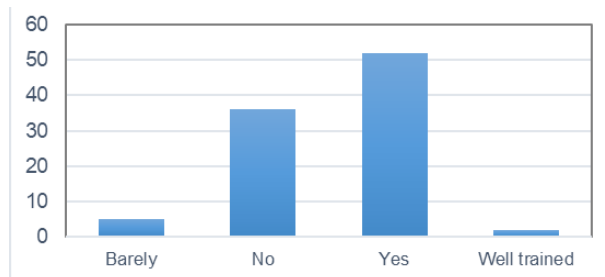
g) In recognizing the mobility of the motorcycle riders, the questionnaire survey sought to find out from the respondents the frequency they witnessed RTA in Dar es Salaam, and majority of the respondents pointed out that at least on a weekly basis, while others stated once in a month, while some stated that they witness RTA on a daily basis as shown in the figure below:



Source: JICA Survey Team

**Figure 4-33: Frequency at which Commercial Motorcyclist witness RTA**

h) On whether the motorcyclists possessed any first aid skills, most pointed out that they had some basic first aid skills. This is a boon to road safety since motorcyclists are vulnerable road users, such skill can save lives in case of RTA.

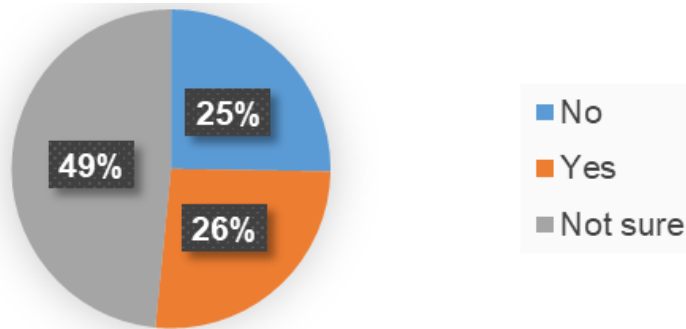


Source: JICA Survey Team

**Figure 4-34: Whether the Commercial Motorcyclist possesses basic first aid skills**

i) When asked whether the respondent was aware that there was in-patient medical wing that is reserved for motorcyclist involved RTA, majority of the respondents were not

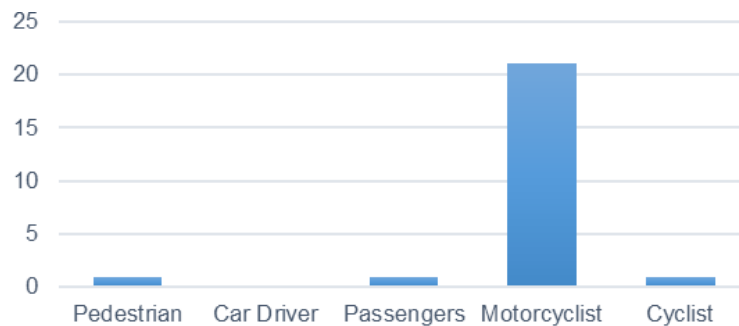
sure of existence of such a facility, while others (26%) stated that they were aware. 25% stated that they were not aware as shown in the figure below:



Source: JICA Survey Team

**Figure 4-35: Awareness of medical inpatient wing for motorcycle RTA**

It was evident from the respondents that the motorcyclists, amongst other road users were the main casualty culprits that were admitted in the hospital with RTA injuries as shown in the figure below:



Source: JICA Survey Team

**Figure 4-36: The road users mostly admitted in hospital as a result of RTA**

## 4.2 Key Informant Interviews findings

The key informant interviews were undertaken from 15<sup>th</sup> September to 31<sup>st</sup> October 2021. The table below shows the key stakeholder and the key issues discussed during the interviews.

**Table 4-1: Key Informant Interview Findings**

Key Stakeholder	Date	Key Issues Discussed
1. Meeting With TANROADS	20 <sup>th</sup> Sept	<p>It emerged that the Traffic Police are the custodians of all the RTA data and in case TANROADS required RTA data including black spots, they had to request from Traffic Police. At district level the RTA data is collected from DTO (Traffic officers for districts) and based on that data TANROADS can go ahead and implement corrective measure for identified black spots or undertake a road safety audit.</p> <p>The areas that are major black spots in Dar es Salaam include: Uhasibu, Kibamba area that has since be remedied, while Kimara –Kibaha road is</p>

Key Stakeholder	Date	Key Issues Discussed
		<p>a black spot because the road is still under construction. Many accident-prone areas are junctions whereby the motorcyclists ignore the traffic lights. Also, the pedestrian crosswalks (Zebra crossings) whereby people pass.</p> <p><b>The road safety challenges in Dar es Salaam include the following;</b></p> <ul style="list-style-type: none"> <li>✓ Pedestrians do not use the overhead pedestrian crosswalks for example in Kimara and Manzese.</li> <li>✓ Vandalism of traffic lights by cars that hit them time and again; though TANROADS fixes the lights to be vandalized by errant cars</li> <li>✓ Street vendors encroachment of pedestrian walkways for example in Buguruni, Manzese etc</li> <li>✓ Wrong parking that hinder road visibility especially in Mandela road</li> <li>✓ There are no truck parking places leading the trucks to park on the roadside</li> <li>✓ There are not enough streetlights</li> <li>✓ There are very few walkways; that makes NMT difficult</li> <li>✓ Most of Daladala pick and drop on the carriageways</li> <li>✓ Poor vehicle conditions especially those that are involved in garbage collection, most of which are in a bad condition with failing brakes and often they knock down traffic lights</li> <li>✓ Flooding problem due to siltation especially in Jangwani</li> </ul> <p><b>The corrective measures include:</b></p> <ul style="list-style-type: none"> <li>✓ Setting up CCTV cameras,</li> <li>✓ Separating carriage ways with the pedestrian ways,</li> <li>✓ Improvement of parking and walkways</li> </ul> <p><b>The good lessons to be learnt include:</b></p> <p>The regular monthly meetings for road safety stakeholders (LATRA, TANROADS, EWURA and DART) that identifies the road safety challenges and the countermeasures to resolve them</p> <p><b>The projects conducted by TANROADS with the support from development organisations are:</b></p> <p>Kimara- Kibaha funded by the Government of Tanzania Morocco- Mwenge (Bagamoyo road) funded by JICA Gerezani-Rangi tatu (BRT) funded by Africa Development Bank</p>
<p><b>2. Meeting with Traffic Police</b></p>	<p>20<sup>th</sup> Sept</p>	<p>Key issues discussed:</p> <ul style="list-style-type: none"> <li>• The discrepancies of RTA data between the Traffic Police and health facilities. It was explained that the discrepancies were occasioned by the fact that health centres/hospitals had more data on accidents because the Traffic Police only collect data at the RTA scene while the hospital will continue collection of the data because the RTA victims will be admitted in the hospital and in case of fatality, the number of RTA fatality will rise at hospital level while the Traffic Police will only have deaths recorded at RTA scene.</li> <li>• TANROADS introduced the system called RAIS (Road Accident Information System) and that they provided laptops and tablets to record the accidents but the system has not been sustained because the system recorded RTA that were minor without casualties and was prone to cause alarm of increased accidents incidences which makes other department seem not to be efficient or effective leading to unnecessary blame games.</li> <li>• The RAIS system was in its phase 1 and it entailed that all accident occurred in all regions be recorded, and feed all the details including pictures, and both the Police and TANROADS could see this data. The accidents were recorded in terms of the region, district, street, road/junction that the particular accident occurred. The only challenge</li> </ul>

Key Stakeholder	Date	Key Issues Discussed
		<p>was that no coordinates were recorded.</p> <ul style="list-style-type: none"> <li>• The main challenge of RAIS was when it was established, there was no stakeholder consultation for example, the Traffic Police were not consulted but to operationalize RAIS, young Traffic Police were given training and it was expected that they will be part of RAIS and training will trickle down. The stakeholder consultation is important to institutionalize a game changer like RAIS</li> <li>• There were no feasibility studies to foresee short term and long-term impacts of RAIS</li> <li>• Currently, LATRA holds monthly road safety meetings that should be used for road stakeholders' engagement including TANROADS, LATRA, Road Safety Board, Ministry of Works and transport.</li> <li>• It is important for Commander, Traffic Commander and even WHO and the Ministry of Health to find a way of collaboration on RTA data management</li> <li>• The major countermeasure for RTA is public education that will teach the road users on road safety.</li> <li>• Currently the Traffic Police are the custodians of RTA data and that all institutions obtain data from the Traffic Police. The process of acquiring data entails writing a request letter requesting for RTA data.</li> </ul>
<p><b>3. Meeting with LATRA</b></p>	<p>21<sup>st</sup> Sept</p>	<p>Key issues discussed:</p> <ul style="list-style-type: none"> <li>• LATRA investigates the accidents to see what happened in order to avoid the occurrence of more accidents, by advising the owners of the vehicles to maintain their vehicles <ul style="list-style-type: none"> <li>✓ There is The Road safety act of 1973 for regulating road transport</li> <li>✓ The Traffic Police are the custodians of road accident data</li> <li>✓ There was a database called RAIS used to record every accident Injuries and death</li> <li>✓ LATRA cannot access RAIS, when LATRA need data on accident in order to regulate the behaviour of the drivers they request from the police on monthly basis.</li> <li>✓ LATRA have the rules that provide power to cancel the license and order the vehicles to be re-inspected. There is a vehicle tracking system (outsourced from Malaysia) to monitor the speed</li> <li>✓ Ubungu and Kinondoni municipalities have the major black spot areas</li> <li>✓ There should be meetings among the road safety stakeholders</li> </ul> </li> </ul>
<p><b>4. Meeting with Ilala Municipality</b></p>	<p>23<sup>rd</sup> Sept</p>	<p>Key issues discussed:</p> <ul style="list-style-type: none"> <li>• The municipality does not have any RTA data for Ilala district</li> <li>• In Ilala municipality during the day does not experience many accidents because the Traffic Police are usually positioned at accident-prone areas.</li> <li>• But in Dar es Salaam most of the accidents are caused because of poor parking, for example at the bus stands the way the daladala park can cause accidents.</li> <li>• Also, the encroachment of the BRT lanes by the motorcycles also leads to accidents. In addition, the motorcyclists also encroach and use the pedestrian crossings leading to motorcycle-human conflict leading to RTA.</li> <li>• Key solutions to RTA in Dar es Salaam is to come up with the solution that enhances non-motorized transport and secure these lanes from encroachment from other road users and also traders.</li> <li>• The Dar es Salaam Metropolitan Development project (DMDP) are involved in road construction and safety should be initiated at the construction stage. The DMDP is funded by World Bank and many</li> </ul>

Key Stakeholder	Date	Key Issues Discussed
		roads are constructed under it.
<b>5. Meeting with Ubungo Municipality</b>	23 <sup>rd</sup> Sept	<p>Key issues discussed:</p> <ul style="list-style-type: none"> <li>• To avoid road accidents there should be provision of education to the children/students on road safety and how to use the roads safely,</li> <li>• Also, there is need to increase enforcement by having Traffic Police in the areas where people violate traffic rules,</li> <li>• Once the roads authorities have completed constructing the overhead pedestrian walkways, they should transfer these facilities to municipalities to ensure that they are secure and clean for pedestrian to use rather than in the current setup where pedestrians prefer to cross the roads rather than use these facilities.</li> </ul>
<b>6. Meeting with Tanzania Rural and Urban Roads Agency (TARURA)</b>	25 <sup>th</sup> Oct.	<p>Key issues discussed:</p> <ul style="list-style-type: none"> <li>• All road reserves are categorized as parking spaces, but they are not maintained</li> <li>• TARURA signed the contract to maintain the parking spaces</li> <li>• TARURA have set aside 2.5 billion for this task, all this money was raised from parking fees, though this is not enough, they are going to start with Ilala district, which is the busiest municipality in Dar es salaam.</li> <li>• TARURA cannot currently access RAIS, but it has its own system DROMAIS (District Road Management Integration System)</li> <li>• TARURA has no separate coordination arrangement with Traffic Police, but they collaborate with Traffic Police through L ATRA where issues of safety are discussed.</li> <li>• Most of the black spot areas are located on the roads that are administered by TANROADS</li> <li>• Kajenge road Kinondoni (Mabatini and Usalama Junction) are the black spots because the road is so narrow and there is poor visibility.</li> <li>• The TARURA district managers could be more aware of the black spots within their jurisdiction.</li> <li>• The project that TARURA has with the development organization is only DMDP (Dar es salaam Metropolitan Development Project) for Temeke, Kinondoni and Ilala, funded by World Bank</li> <li>• JICA is funding the expansion of Bagamoyo road.</li> </ul>
<b>7. Meeting with Ministry of Works and Transport (MOWT)</b>	14 <sup>th</sup> Dec.	<p>The Study Team presented the proposed road safety data and management countermeasures to the MOWT staffs and the key issues discussed thereafter were as follows:</p> <ul style="list-style-type: none"> <li>• RAIS needs to be improved to collect and harmonize RTA data collection system in order to improve accident data management and that the government was keen to undertake this improvement and that it will take involve all the road safety stakeholders, not only from Tanzania mainland but also Island (Zanzibar). The other key stakeholders that need to be involved both at planning and implementation of RAIS system are the Post-mortem, mortuary and Trauma department of major government hospitals.</li> <li>• On planning for improvement of RAIS, MOWT clarified that there was a plan to involve the University of Dar es salaam the college of ICT, which had successful implemented a project similar to RAIS in principle this in order to enhance RAIS sustainability.</li> <li>• Legal framework for RAIS should be clear since it was not the legal responsibility of the Traffic Police to feed data into RAIS, and</li> </ul>

Key Stakeholder	Date	Key Issues Discussed
		<p>Traffic Police are responsible of completing their own accident forms and this will be duplication of efforts, and therefore legal framework for RAIS is required that will allow police to feed data into the RAIS system.</p> <ul style="list-style-type: none"> <li>• On Road Safety Sensitization and awareness countermeasures MOWT pointed out that this was an important countermeasure and should not be confined to mainstream media and social media but it should also include physical awareness campaigns and public forum meetings (barazas) and also Ministry of Education and Science and Technology should be included as responsible organization since the countermeasure proposes to incorporate Road safety lessons in schools' curriculum.</li> <li>• Inclusion of road safety NGOs and private sector should be considered and MOWT proposed that the Road Safety Ambassadors be included since they were actively involved in promotion of road safety in the country.</li> <li>• On installation of CCTV at the intersections to enhance enforcement of traffic rules, MOWT pointed out that this was an important countermeasure but it should be handled with care and the CCTV should be purposefully at intersections for road safety purposes and its purpose should not be divided into monitoring and solving other crimes as was the case in previous pilot study at Bwawani Morogoro and Ubenezumuzi Coastal region.</li> <li>• All countermeasures were deemed important and should be considered for implementation but since data management of RTA was the most important and therefore improvement of RAIS system was the most important.</li> </ul>

Source: JICA Study Team

### 4.3 Blackspot Survey:

The primary data that was used to determine the black spots in Dar es Salaam was from the findings of the questionnaire survey. The following areas were identified as being locations with high accident numbers in the five districts of Dar es Salaam:

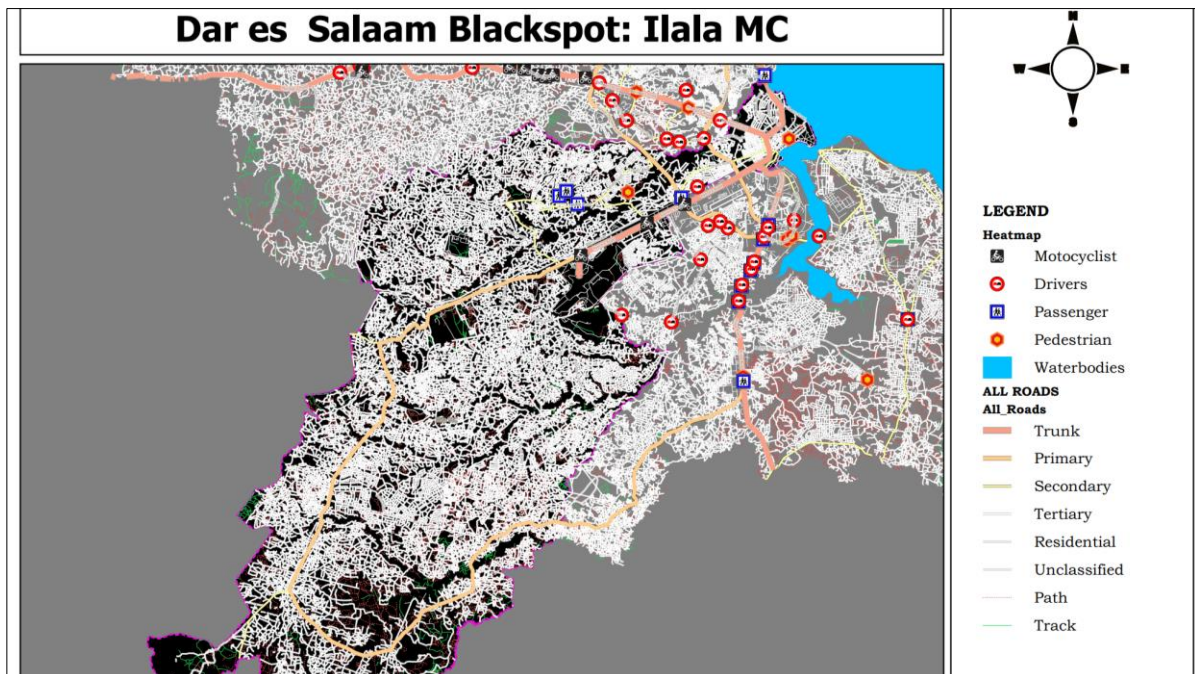
1. Kilwa Road Towards Kariakoo	17. Buzi Road
2. Morogoro Road (Mbezi Luis)	18. Crossroads
3. Kibada	19. Along Busy Roads where People Do Business along the Roads eg Kimara Mwisho, Ubungo And Riverside
4. Nyerere Road	20. On Junctions
5. Kwa Bibi (Segerea Road)	21. In Junction Eg Mbezi Bus Station
6. Kwa Waziri Mkuu Road	22. Junction From Morogoro Road
7. Ally Hassan Mwinyi Road	23. In Juncton (Kwa Yusufu Mbezi Hai)
8. Tandika Street To Buza Road	24. Junctions Around Brt Routes
9. Bagamoyo Road	25. Kinondoni & Ubungo Centres
10. Kijenge/Mabatini	26. Kisiwani Round About



11. Kimara Suka, Kwa Msuguri And Bucha	27. Kwa Yusuph Round About
12. Majumba Sita	28. Mji Mwema In Junction/Traffic Lights
13. Mwenge Round About	29. Morogoro Road (Kimara)
14. Road Junctions Eg. Toangoma Sheli Sanene Junction	30. Road Junctions (Tazara, Karume, Morocco)
15. Segerea-Magereza	31. Sayansi Junction
16. Airport Road	32. Uhasibu

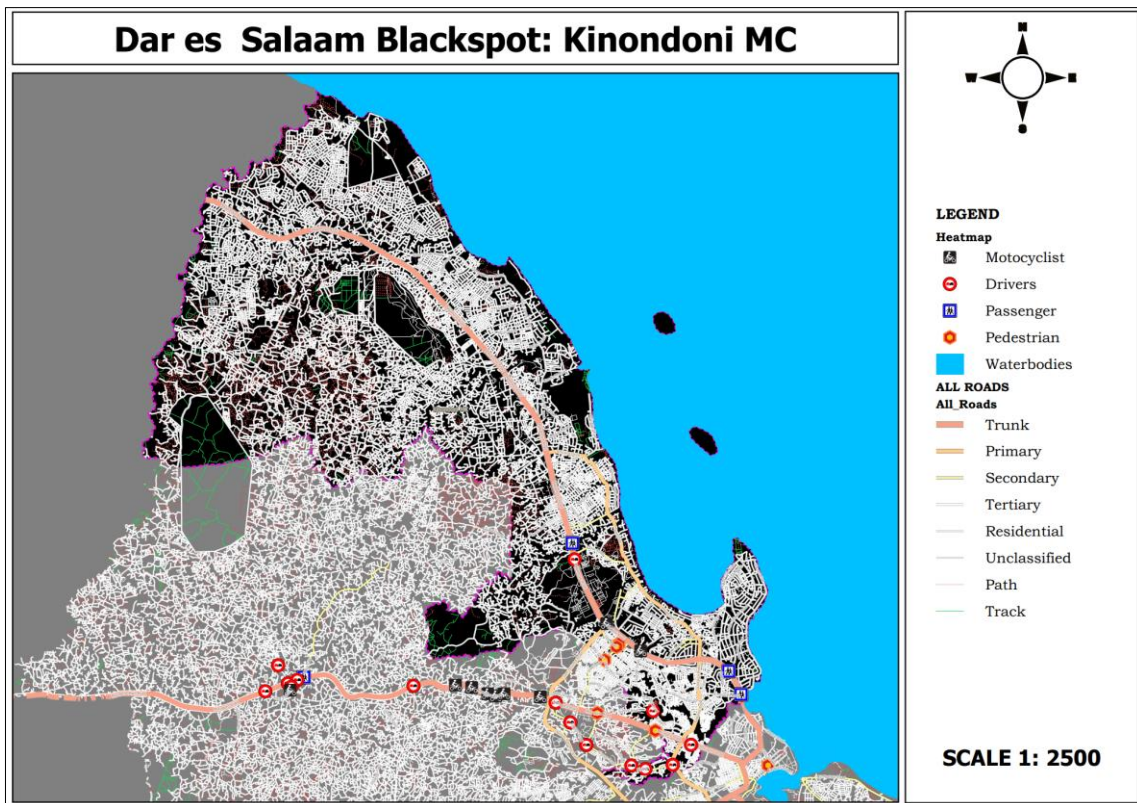
Source: JICA Study Team

The identified black spots were thereafter mapped in the five districts of Dar es Salaam as presented in the figures below:



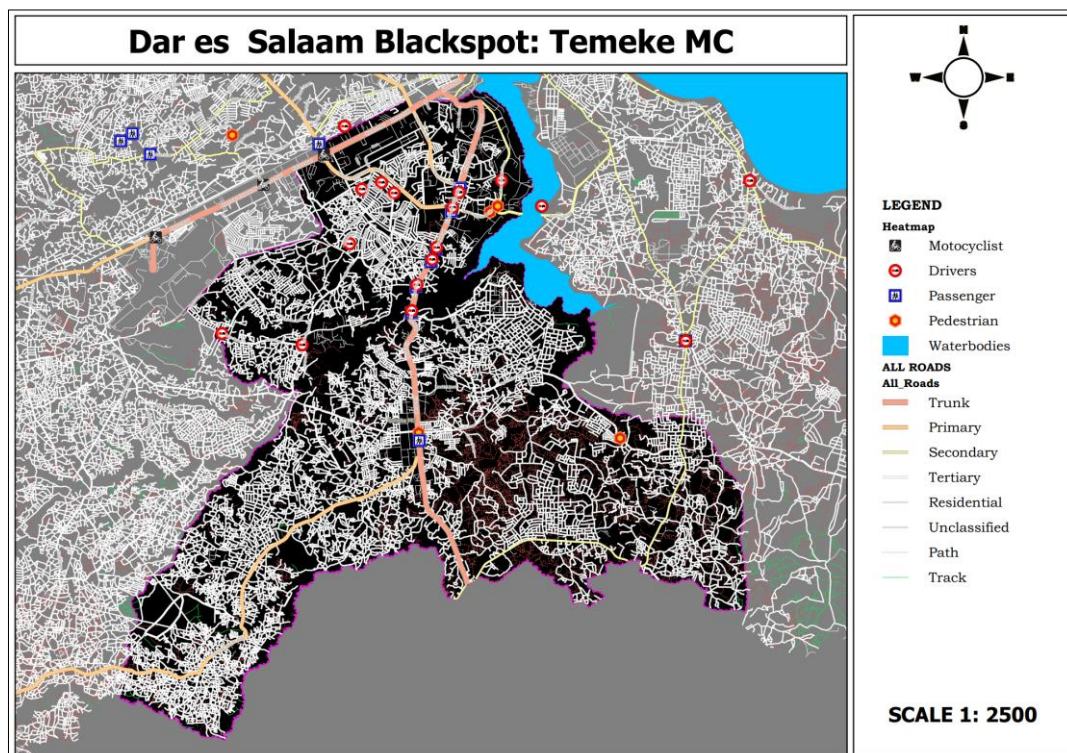
Source: JICA Study Team

**Figure 4-37: Ilala Municipality potential Black spot map**



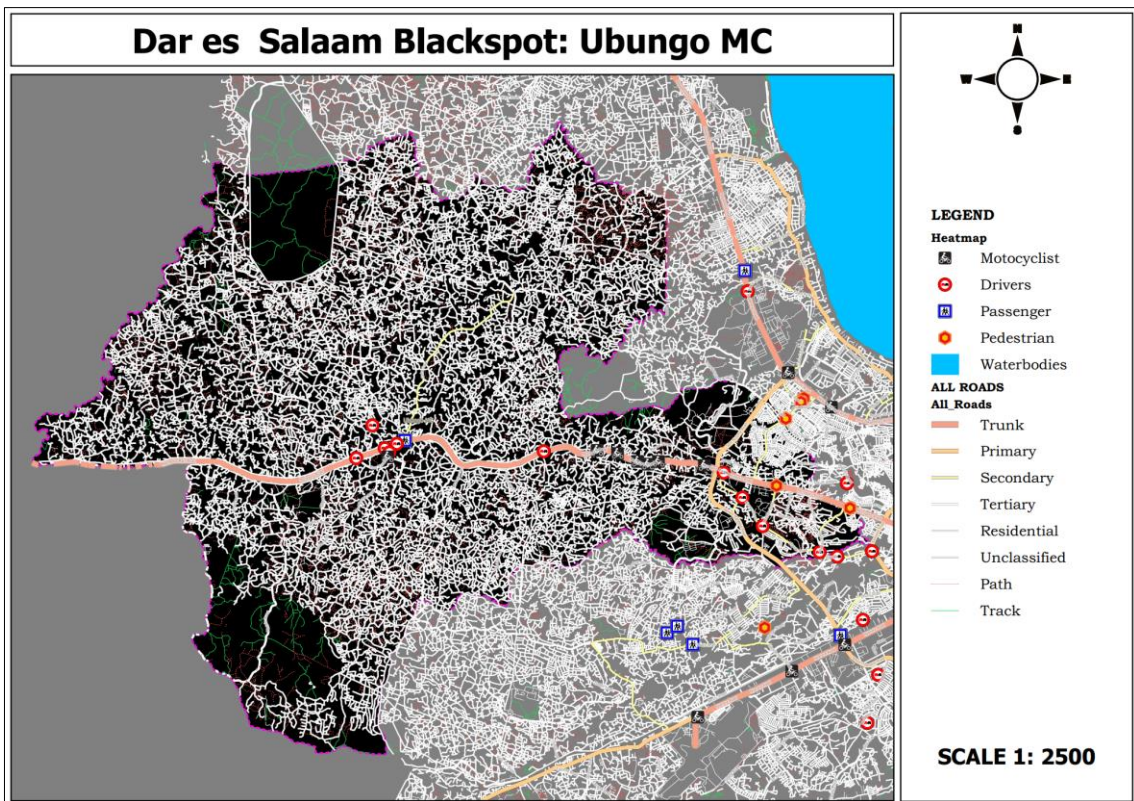
Source: JICA Study Team

Figure 4-38: Kinondoni Municipality potential Black spot map



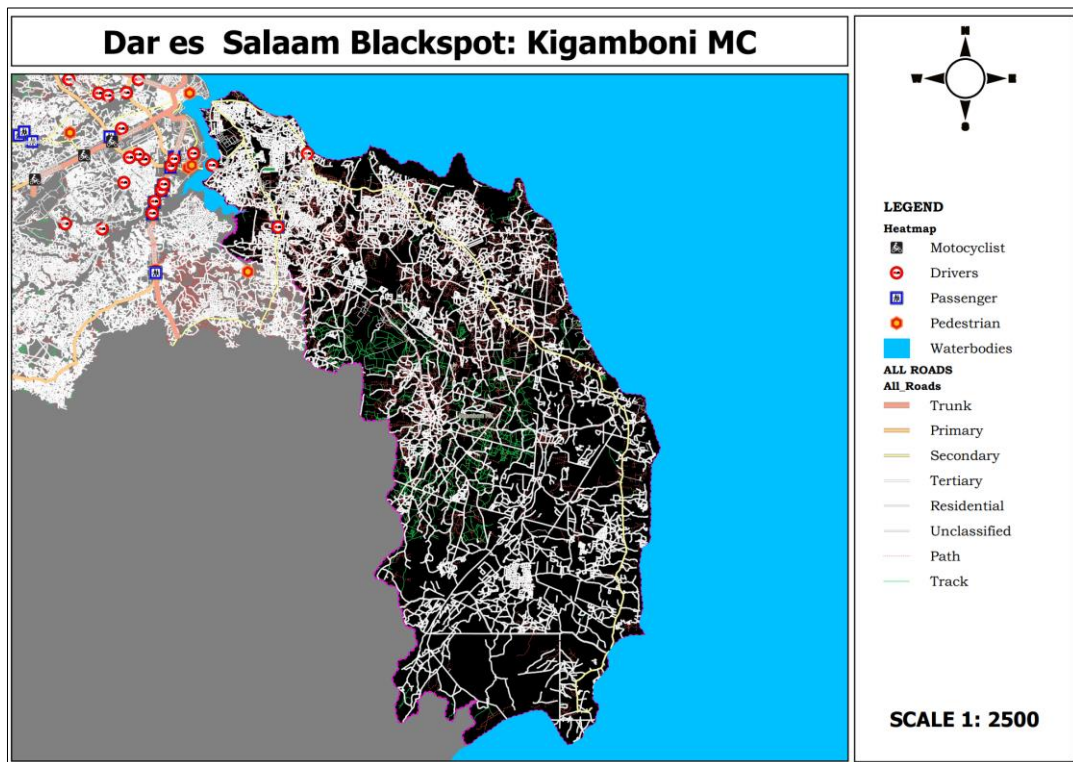
Source: JICA Study Team

Figure 4-39: Temeke Municipality potential Black spot map



Source: JICA Study Team

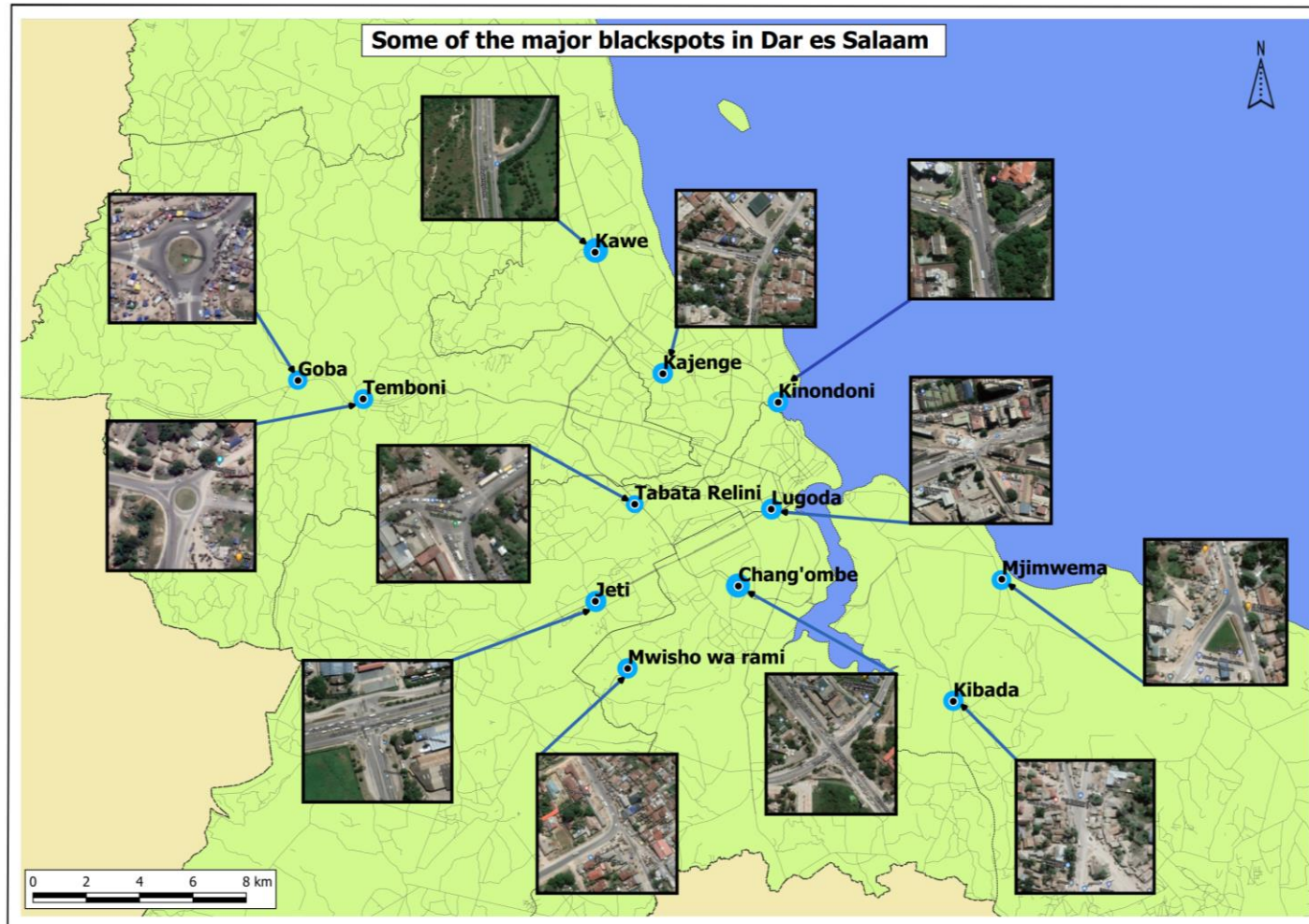
Figure 4-40: Ubungo Municipality potential Black spot map



Source: JICA Study Team

Figure 4-41: Kigamboni Municipality potential Black spot map

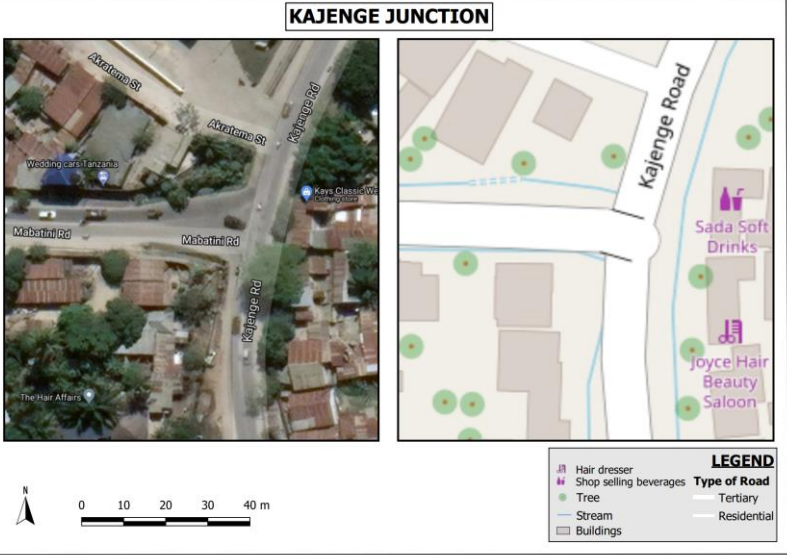



Based on the discussions with key stakeholders the following 12 sites on the map below were selected for assessment



Source: JICA Study Team




Figure 4-42: Map of some of the major blackspots in Dar es Salaam

The findings of the blackspot assessment and analysis are as presented below:

Sheet 1	<b>KAJENGE ROAD (NEAR JUNCTION WITH MABATINI RD)</b>		
<b>District</b>	<b>Kinondoni</b>		<b>Coordinates</b> 526474.284E; 9250730.738N
<b>Map</b>			<p><b>General Description</b></p> <p>The road section is between Mabatini road and Salma Kikwete Street. It is narrow with a carriageway width of 6m. The road does not have shoulders, footpath or any signage to control motor vehicles and pedestrians. Mabatini road slopes towards Kajenge Rd and the junction is on a curve. Salma Kikwete Road which is located south of this junction has a significant volume of traffic including some heavy goods vehicles. Adjacent to the road, there is a car wash which is frequented by both vehicles and motorcycles. The road section has a high volume of motorcycles and 3-wheelers.</p>
<b>Photo Description</b>			
	Aerial view of the junction	View of the road section facing Salma Kikwete Rd Junction – note car wash on the right	Mabatini Road Junction Salma Kikwete Road Junction

Collision Patterns	Most accidents involve pedestrians and cyclists		
	Description of issue/ Audit findings	Mitigating measures Short term 1 to 2 Years	Mitigating measures Long- term - 3 to 5 Years
1	Carriageway lacks shoulders and there is no provision for pedestrians. This forces pedestrians to walk on the carriageway	Widen the carriageway to include footpaths on at least one side of the road	Widening the carriage way to include both pedestrian and cycle lanes on both sides of the carriageway.
2	The junction with Mabatini Road is very wide and unmarked, which leads to drivers speeding around it, and encroachment into the opposing traffic. Pedestrians also have to contend with various vehicle movements to cross the junction	Road marking on the junction to separate the different traffic directions, including ghost islands to narrow the junctions and provide a refuge for pedestrians	Provide raised median to tighten the junctions and provide a refuge for pedestrians across the junction.
3	The junction with Salma Kikwete Road is tight and heavy. Vehicles turning are forced to occupy all the lanes on Kajenge Road, risking collision with oncoming vehicles.	Widen the junction to increase turning radii.	

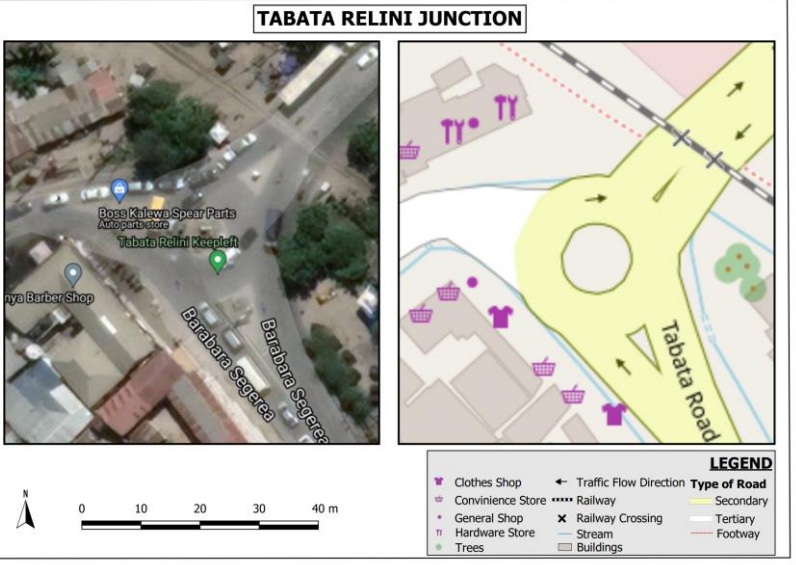

Sheet 2	<b>KIBADA ROAD JUNCTION WITH MASONGA AND TUNGI ROADS (UNGINDONI)</b>		
District	<b>Kigamboni</b>	Coordinates	537455.80E; 9238204.35N
Map			<p><b>General Description</b></p> <p>This is a signalized junction that is very wide. Adjacent to the junction are many small businesses along the road. The road has no road markings, and the provided pedestrian crossing is not marked.</p>

Photo Description	  		
	<i>Aerial View</i>	<i>Facing Tungi Road</i>	<i>From Kibada Rd North</i>
	<b>Description of issue/ Audit findings</b>	<b>Mitigating measures Short term 1 to 2 Years</b>	<b>Mitigating measures Long- term - 3 to 5 Years</b>
1	The junction is very wide, with no road markings. The vehicles therefore cross at very high speeds, posing a risk to the pedestrians	Provide raised median to channel the traffic and provide a refuge for pedestrians crossing. Provide road markings.	
2	There is a sign indicating a pedestrian crossing but the road markings are faded. The crossing location is also very wide.	Provide a pedestrian phase to the signs and Re-mark the pedestrian crossing locations	
3	Visibility for traffic from Tungi Road is poor due to the angle the road approaches as well as due to the structures at the corner of Tungi and Kibanda Roads	Remove the structures at the junction	Re-align Tungi Road to join Kibanda Road at a right angle.

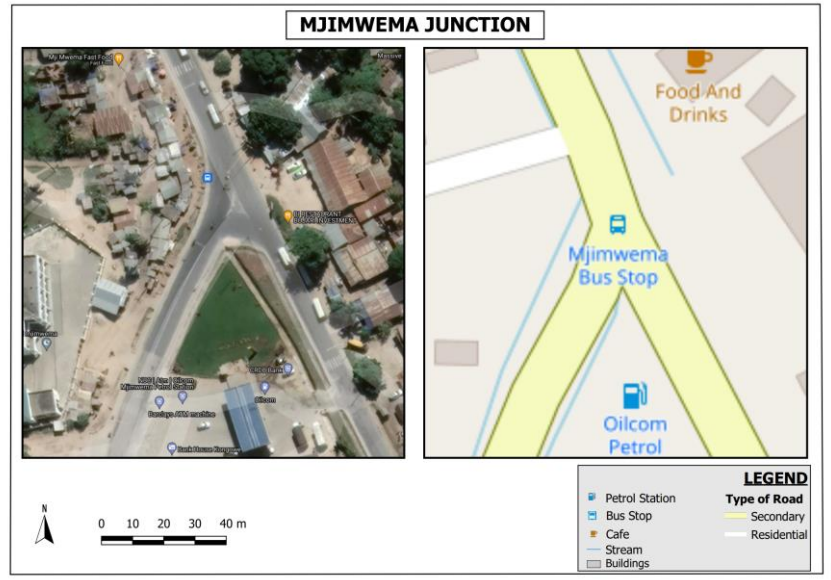



Sheet 3	<b>LUGODA / NKURUMAH ST JUNCTION</b>			
District	Ilala		Coordinates 530542.043E; 9245677.146N	
Map			<p><b>General Description</b></p> <p>There is currently an on-going construction of the SGR adjacent to this junction, which is currently affecting the junction's functionality. The old railway line crosses at this junction. Nkurumah road section is slightly skewed as it crosses the railway line. The pavement is dilapidated and there are no road markings.</p>	
Photo Description	<p>Aerial View</p>	<p>Nkurumah St facing NE</p>	<p>Old Railway line crossing</p>	<p>Lugoda Street</p>



	<b>Description of issue/ Audit findings</b>	<b>Mitigating measures Short term 1 to 2 Years</b>	<b>Mitigating measures Long- term - 3 to 5 Years</b>
1	The whole junction is unmarked and depending on the direction that has high traffic, several traffic streams moving in the same direction were observed, blocking the opposing side.	Provide markings at the junction to direct traffic.	Provide traffic islands to channel traffic.
2	The dilapidated pavement causes the traffic to slow down and there is risk of collision as drivers avoid the potholes.	Repair potholes as a short term measure as the SGR works are still ongoing	Undertake a pavement rehabilitation over the whole section.
3	There are many pedestrians but no provision has been made for them, both, footpaths or crossing facilities. In addition, boulders and debris is found in the existing roadsides, impeding pedestrian movements.	Clear the roadsides of all boulders and debris	Provide footpaths and crossing facilities for pedestrians




Sheet 4	<b>TABATA /SEGEREA ROAD JUNCTION</b>		
<b>District</b>	<b>Ilala</b>		<b>Coordinates</b> 525418.160E; 9245866.410N
<b>Map</b>			<b>General Description</b> Accidents occurring here involve all vehicle types. The major causes of traffic accidents are road users' behaviour but also the junction is narrow with heavy traffic and there is traffic signage for pedestrians and motor vehicles.
<b>Photo Description</b>			
	<i>Aerial View</i>	<i>On Tabata Road (SE) facing roundabout</i>	<i>On Tabata Road (E) facing roundabout</i>
<b>Collision Patterns</b>	Accidents occurring here involve all vehicle types. The major causes of traffic accident is the road users behaviour but also the junction is narrow with heavy traffic and also there no traffic signage for pedestrians and motor vehicles.		

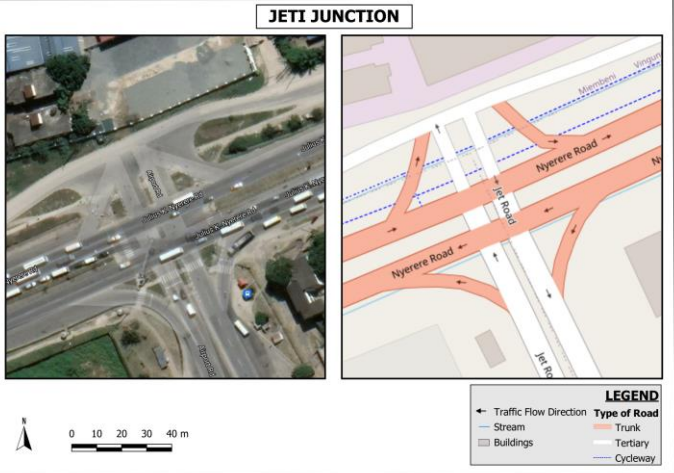
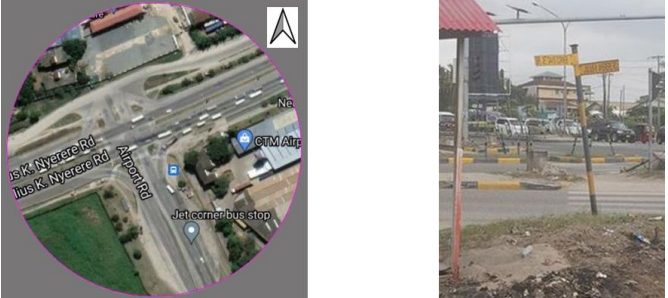
	<b>Description of issue/ Audit findings</b>	<b>Mitigating measures Short term 1 to 2 Years</b>	<b>Mitigating measures Long- term - 3 to 5 Years</b>
1	Visibility from Segera Road to Tabata Rd (SE arm) is poor due to vegetation and structures located at the corner. There is also a bus-stop located close to the bend, which causes a snarl up of traffic.	<ul style="list-style-type: none"> <li>• Relocate the bus stop away from the junction</li> <li>• Clear the vegetation at the bend and remove structures on the road reserve.</li> </ul>	
2	Drivers were observed driving on the wrong side of the roundabout from Tabata Rd (SE) to Segerea Road. This could be due to the small size of the roundabout which easily clogs up.	<ul style="list-style-type: none"> <li>• Extend the medians and tighten junction by adding medians.</li> <li>• Enforcement of traffic rules.</li> </ul>	Reconfigure the junction to remove the roundabout and introduce a signalized junction with medians to channel the traffic.
3	The roads have no footpaths on either side forcing pedestrians to walk on the carriageway		Re-design both Tabata and Segerea Roads to include footpaths and crossing facilities at the junction area.

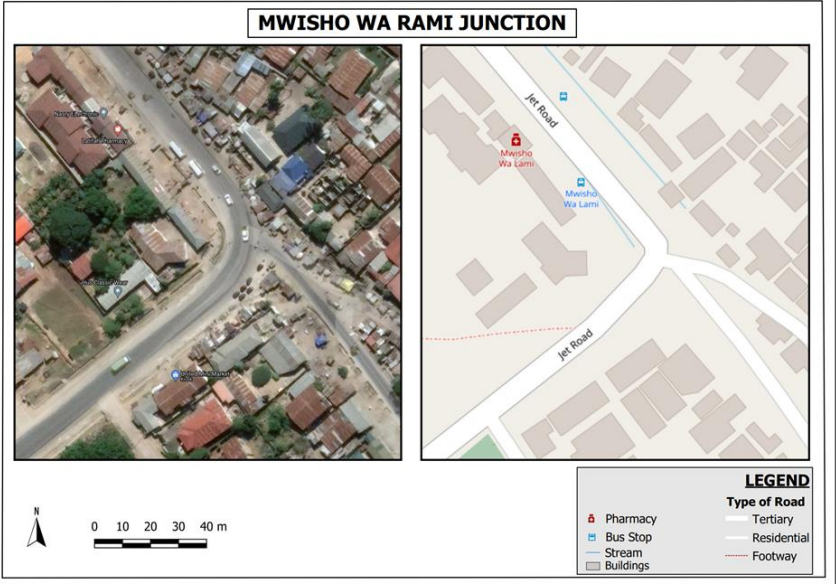

Sheet 5	<b>KIBANDA RD / KIVUKONI RD JUNCTION (MJI MWEMA)</b>		
District	<b>Kigamboni</b>		Coordinates 539183.139E; 9243058.011N
Map			<p><b>General Description</b></p> <p>The junction is signal controlled. The Kibanda Road arm is very wide with no road markings. The Kivukoni road is narrow and does not have any footpaths. There are some commercial activities adjacent to the junction, which attract a lot of pedestrians. On the southern arm of Kivukoni Road, there is a bus stop, and there is also a pedestrian crossing that is located approximately 55m from the junction.</p>
Photo Description	 <p>Aerial View</p>	 <p>On Kivukoni Rd facing north</p>	 <p>On Kivukoni Rd Facing South</p>

	Description of issue/ Audit findings	Mitigating measures Short term 1 to 2 Years	Mitigating measures Long- term - 3 to 5 Years
1	The Kibanda arm is wide with no road markings or channelling of vehicles. Turning vehicles were therefore observed using the lane for opposing traffic.	<ul style="list-style-type: none"> <li>Provide raised medians to channelize the traffic and provide a refuge for pedestrians crossing this arm.</li> </ul>	
2	There are many pedestrians and no provisions have been made for crossing at the junction. The provided zebra crossing is not utilized as it falls outside of their desired lines.	<ul style="list-style-type: none"> <li>Provide pedestrian footpaths and relocate the crossing closer to the junction, where the desire line is.</li> </ul>	
3	The bus stop is located close to the junction, which causes a snarl up of the traffic particularly during the peak hours.	Relocate the bus stop further from the junction and enforce proper stoppage of the public vehicles to avoid blocking the road.	

Sheet 6	CHANGOMBE ROAD / NELSON MANDELA ROAD JUNCTION		
District	Temeke	Coordinates	529302.112E; 9242809.588N
Map			<p><b>General Description</b></p> <p>This is a four-arm junction of two dual carriageway roads. Each arm has at least 3 lanes. This makes it a very large junction. There are many heavy goods vehicles at this junction. The junction is signalized, and the signals were operational at the time of visiting the site. There are wide pedestrian and cycle paths adjacent to the carriageways, which are separated by a verge.</p>

<p><b>Photo Description</b></p>			
	<p><i>Aerial View</i></p>	<p><i>Crossing showing boulders at the median</i></p>	<p><i>Pedestrian footpath along Changombe Road</i></p>
<p><b>Collision Patterns</b></p>	<p>From the interviews with local residents and Traffic Police that were stationed at the junction, it was evident that most of the accidents occurring at this junction involved motorcycles and that the major reason for the accidents was road users' behaviour.</p>		
	<p><b>Description of issue/ Audit findings</b></p>	<p><b>Mitigating measures Short term 1 to 2 Years</b></p>	<p><b>Mitigating measures Long- term - 3 to 5 Years</b></p>
<p>1</p>	<p>Motorcycles and three-wheelers were observed to ignore the traffic signals, and making illegal movements, putting themselves and others at risk</p>	<p>Enforce correct behaviour by motorcycles and the three wheelers.</p>	
<p>2</p>	<p>The junction has pedestrian crossings provided on each arm. However, the crossing facilities are not provided across the medians, forcing pedestrians to either jump over barriers or walk on the carriageway</p>	<p>Extend pedestrian crossing across all the medians to make them accessible to pedestrians of all capabilities and to provide continuity.</p>	
<p>3</p>	<p>There are no pedestrian signals provided which means that pedestrians have to guess when it is safe for them to cross, which puts them at risk</p>	<p>Add a pedestrian phase to the signals.</p>	

Sheet 7	<b>JET DAVIS CORNER / JULIUS NYERERE ROAD JUNCTION</b>		
<b>District</b>	Ilala		<b>Coordinates</b> 523939.411E; 9242248.126N
<b>Map</b>			<b>General Description</b> The junction is signal controlled. It is also channelized by use of raised medians, and provision for pedestrians
<b>Photo Description</b>	 <p style="text-align: center;"> <span data-bbox="920 1134 1061 1161"><i>Aerial View</i></span> <span data-bbox="1335 1134 1742 1161"><i>View of the junction from Jet Road</i></span> </p>		
<b>Collision Patterns</b>	From the interviews with local residents and Traffic Police that were stationed at the junction it was evident that motor vehicle accidents happen in the peak hours (in the morning and evening). This is due to the traffic jam at the junction leading to drivers ignoring the traffic signals, creating conflict with other traffic movements.		
	<b>Description of issue/ Audit findings</b>	<b>Mitigating measures Short term 1 to 2 Years</b>	<b>Mitigating measures Long- term - 3 to 5 Years</b>
1	Vehicles ignore the traffic signals during peak hours, which leads to conflict with opposing traffic	Enforcement of traffic laws with regards to traffic signals.	

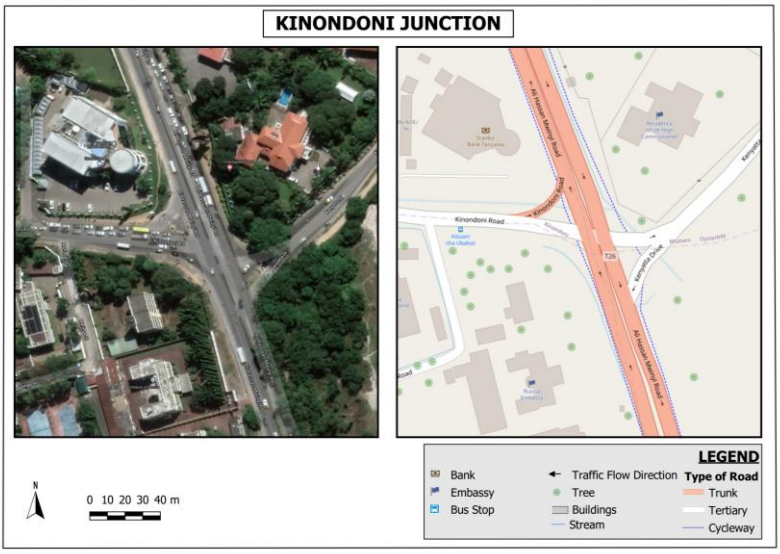



Sheet 8	<b>MWISHO WA RAMI ROAD JUNCTION</b>		
District	Ilala		Coordinates 525149.653E; 9239743.378N
			<b>General Description</b> Mwisho wa Rami Rd junction is connected by two roads Jeti Road and Buza Road. There is bus-stop at the sharp corner and there are no traffic lights and road signage at this junction.
<b>Photo Description</b>			
	<i>Aerial View</i>	<i>Sharp corner at the junction</i>	<i>The highlighted section is bus-stop</i> <i>The junction does not have road signage.</i>
<b>Collision Patterns</b>	Mainly motorcycle and daladala accidents.		



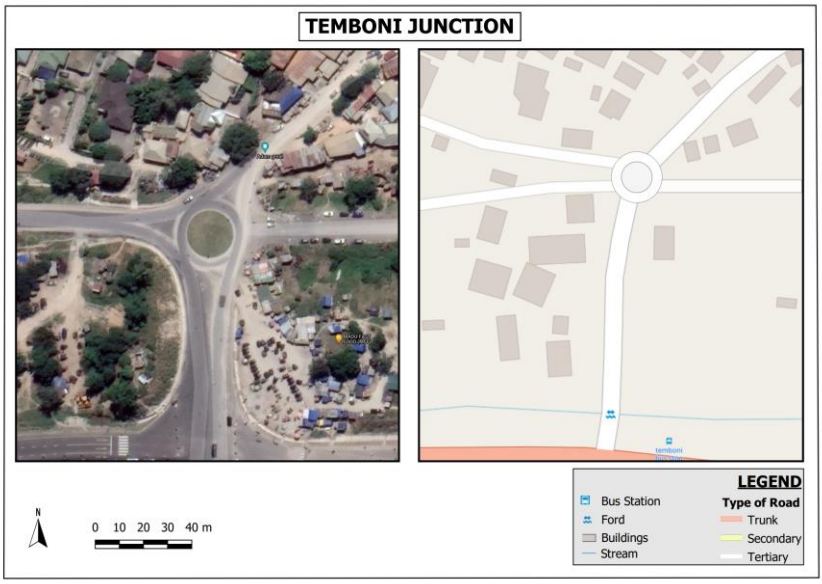




	Description of issue/ Audit findings	Mitigating measures Short term 1 to 2 Years	Mitigating measures Long- term - 3 to 5 Years
1	There is no road signage.		
2	Sharp corner	Enforcement of the traffic signals	

Sheet 9	KAWE / BAGAMOYO ROAD JUNCTION				
District	Kinondoni			Coordinates	530812.077E; 9249657.805N
Map				General Description	This is a 3 arm junction. Bagamoyo Road is a dual carriageway with 4 lanes in each direction, while Kawe Road is a single carriageway road with one lane each way. The junction is signalized and it has pedestrian crossing on all arms. There are footpaths along Bagamoyo Road in both directions.
Photo Description					
	<i>Aerial View</i>	<i>Pedestrian Crossing</i>	<i>Pedestrian crossing leading to ditch</i>	<i>Footpath along Bagamoyo Road</i>	
Collision	Motorcycle accidents are significant at this junction.				

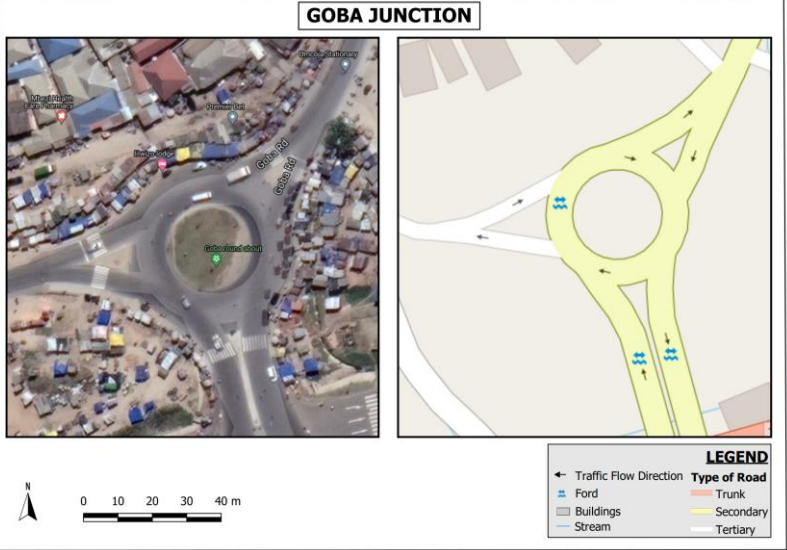

Patterns	Description of issue/ Audit findings	Mitigating measures Short-term 1 to 2 Years
1	Pedestrian crossings have been provided on all arms but they are discontinuous across the central medians, which forces pedestrians to proceed on the carriageway	Provide drop kerbs and paving of footpath across the median.
2	Kawe Road approach is very wide, which causes traffic to speed as they turn, and creates conflicts as vehicle drives on the lane of opposing traffic	Provide raised medians to channelize traffic at this junction.
3	The Pedestrian crossing on the northbound arm of Bagamoyo Road leads to a ditch. This forces pedestrians to walk along the carriageway and ignore the footpath that has been provided beyond the ditch	Provide connectivity between the pedestrian crossing and the footpath (which will need rehabilitation). This connectivity must be accessible for all users including those with disabilities.
4	The whole junction is very wide, which causes intimidation of smaller vehicles, and also presents a lack of clarity in the positioning of vehicles, causing conflict	Tighten the junction by pulling in the medians, and additional islands as necessary to channelize the traffic.
5	Motorcyclists and three-wheelers do not obey the traffic signals risking collision with the fast moving traffic	Education to motorcycle and three wheeler drivers and enforcement of the traffic laws

Sheet 10	<b>ALI HASSAN MWINYI / KINONDONI / JOMO KENYATTA ROAD JUNCTION</b>		
District	<b>Kinondoni</b>		Coordinates 530897.09E; 9249361.53N
Map			<b>General Description</b> This is a four armed staggered junction with the main Road, Ali Hassan Mwinyi Rd, being a dual carriageway road with multiple lanes in each direction. The junction has signals but they were not functional at the time of the audit. The vehicles were being controlled by the police. Kinondoni Rd has islands for channelling traffic, while Kenyatta Rd has ghost islands. The junction is however very wide. It was observed that pedestrians took at least 15 minutes to cross Ali Hassan Mwinyi Road and even then, they had to run across the road.
Photo Description	 <p><i>Aerial View</i></p>	 <p><i>View of the junction from Kinondoni Rd</i></p>	 <p><i>View from Kenyatta Rd</i></p>
Collision Patterns	All types of accidents occur at this junction and the major reason for traffic accidents at this place is road users' behaviour. But the junction is not pedestrian friendly with pedestrian traffic lights not available and once the pedestrian crosses the road, they have to jump a drainage to access pedestrian pathway		

	<b>Description of issue/ Audit findings</b>	<b>Mitigating measures Short-term 1 to 2 Years</b>
1	The central medians on the main road are pulled back and the pedestrian crossings provided do not have any protection. Pedestrians have to cross all the lanes in one go, or wait unprotected between the two traffic movements	Pull the central medians on the main road in so that they provide refuge to the pedestrians crossing
2	The traffic controls did not take into account the needs for pedestrians and the signals did not have a pedestrian phase, leading to pedestrians making dangerous crossing manoeuvres.	Repair the traffic signals and add a pedestrian phase to the signals.
3	The junction is very wide leading to lack of clarity for drivers on their positioning in the junction. This leads to conflict between opposing traffic movements.	Introduce islands and medians on the junction to channelize traffic.

Sheet 11	<b>MOROGORO RD JUNCTION AT TEMBONI</b>			<b>Coordinates</b>	515227.805E; 9249798.170N
<b>District</b>	<b>Ubungo</b>			<b>General Description</b>	
<b>Map</b>	 <p><b>TEMBONI JUNCTION</b></p> <p><b>LEGEND</b></p> <ul style="list-style-type: none"> <li>Bus Station</li> <li>Ford</li> <li>Buildings</li> <li>Stream</li> <li>Type of Road <ul style="list-style-type: none"> <li>Trunk</li> <li>Secondary</li> <li>Tertiary</li> </ul> </li> </ul> <p>0 10 20 30 40 m</p>				<p>Morogoro Rd is a multilane dual carriageway with 2 lanes in each direction and there are BRT lanes being constructed, which will make it 3 lanes. The north-south arms of the cross-junction lead to roundabouts and right turning traffic at the junction is required to make their movement at the roundabouts. Right turn movements are banned at the junction.</p> <p>The junction has pedestrian crossings on all arms, with refuges on Morogoro road.</p>
<b>Photo Description</b>					
	<i>Aerial View</i>	<i>Signs showing permitted movements</i>	<i>Pedestrian crossing on southern arm</i>	<i>Pedestrians walking towards parked three-wheelers.</i>	

<b>Collision Patterns</b>	From the interviews with local residents and Traffic Police that was stationed at the junction it was evident that most accidents occurring at this junction are motorcycle accidents and road users' behaviour was mentioned as the main cause of accidents. Notably the junction is wide with minimal channelling of vehicle and pedestrians.	
	<b>Description of issue/ Audit findings</b>	<b>Mitigating measures Short-term 1 to 2 Years</b>
1	Vehicles disregard the signs and turn right at the junction. The junction is very wide, which allows for this movement comfortably for all traffic.	Allow right turn movements at the junction and provide islands to channelize the traffic.
2	Vehicles disregard traffic signals when they think there is no on-coming traffic, creating conflict with opposite incoming traffic.	Enforcement of the traffic signals
3	Traffic congestion at the Temboni roundabout causes erratic behaviour; particularly with motorcycles.	Allowing right turns at the main junction, will decongest the roundabouts, improving driver behaviour.
4	There are no pedestrian refuges on the N and S arms. The crossings are also not provided to follow the pedestrian desire lines.	Provide islands separating the opposing traffic movements to channelize traffic as well as provide refuge for pedestrians.
5	Public service vehicles stop on the carriageway, interfering with the traffic flow on Morogoro road.	Enforcement to ensure that PSVs only stop at the provided bus stops.
6	There are no pedestrian footpaths provided along Morogoro road even though the number of people walking to and from the bus stops is large. Pedestrians are forced to use the shoulder.	Provide footpaths that lead to the bus stops.

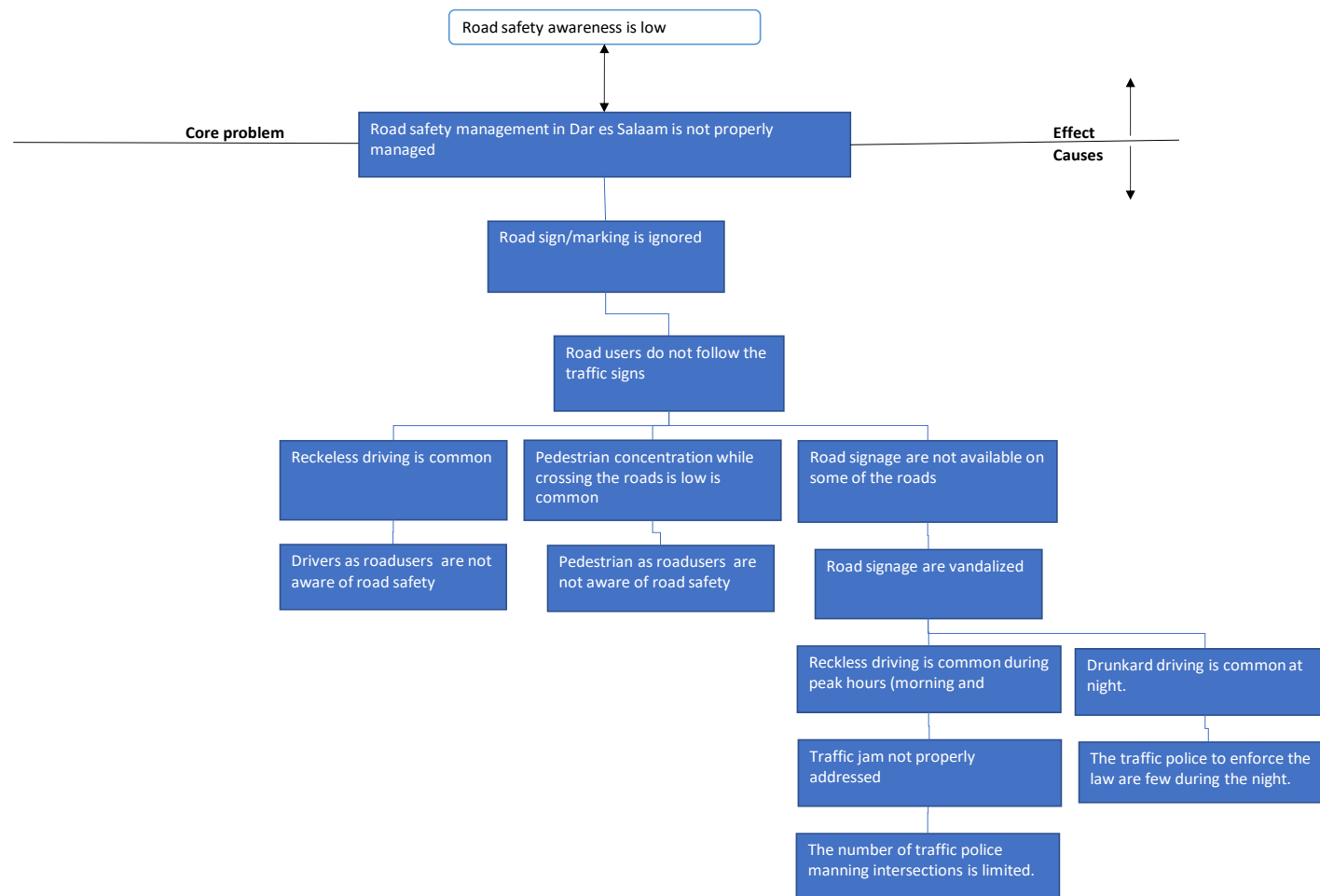
Sheet 12	<b>MOROGORO RD / GOBA ROAD JUNCTION</b>			
District	<b>Ubungo</b>		Coordinates	512789.529E; 9250489.737N
			General Description	<p>Morogoro Rd is a multilane dual carriageway with 2 lanes in each direction and there are BRT lanes being constructed, which will make it 3 lanes. The north-south arms of the cross-junction lead to roundabouts and right turning traffic at the junction is required to make their movement at the roundabouts. Right turn movements are banned at the junction. The junction has pedestrian crossings on all arms, with refuges on Morogoro road.</p>
Photo Description				
	Aerial View	Signs showing permitted movements	View from Goba Road – note PSVs parks at junction	Commuters forced to wait on carriageway.

<b>Collision Patterns</b>	From the interviews with local residents and Traffic Police that was stationed at the junction it was evident that most accidents occurring at this junction were motorcycle accidents and road users' behaviour was mentioned as the main cause of accidents. Notably the junction is wide with minimal channelling of vehicle and pedestrians.	
	<b>Description of issue/Audit findings</b>	<b>Mitigating measures Short-term 1 to 2 Years</b>
1	Vehicles disregard the signs and turn right at the junction. The junction is very wide, which allows for this movement comfortably for all traffic.	Allow right turn movements at the junction, and provide islands to channelize the traffic.
2	Vehicles disregard traffic signals when they think there is no on-coming traffic, creating conflict with	Enforcement of the traffic signals
3	There are no pedestrian refuges on the N and S arms. The medians are too far back to be used.	Extend the medians on Goba and Mbezi Roads to provide refuge for pedestrians.
4	Public service vehicles stop on the carriageway, interfering with the traffic flow on Morogoro road.	Enforcement to ensure that the PSVs only stop at the provided bus stops.
5	There are no pedestrian footpaths provided along Morogoro road even though the number of people walking to and from the bus stops is large. Pedestrians are forced to use the shoulder.	Provide footpaths that lead to the bus stops.



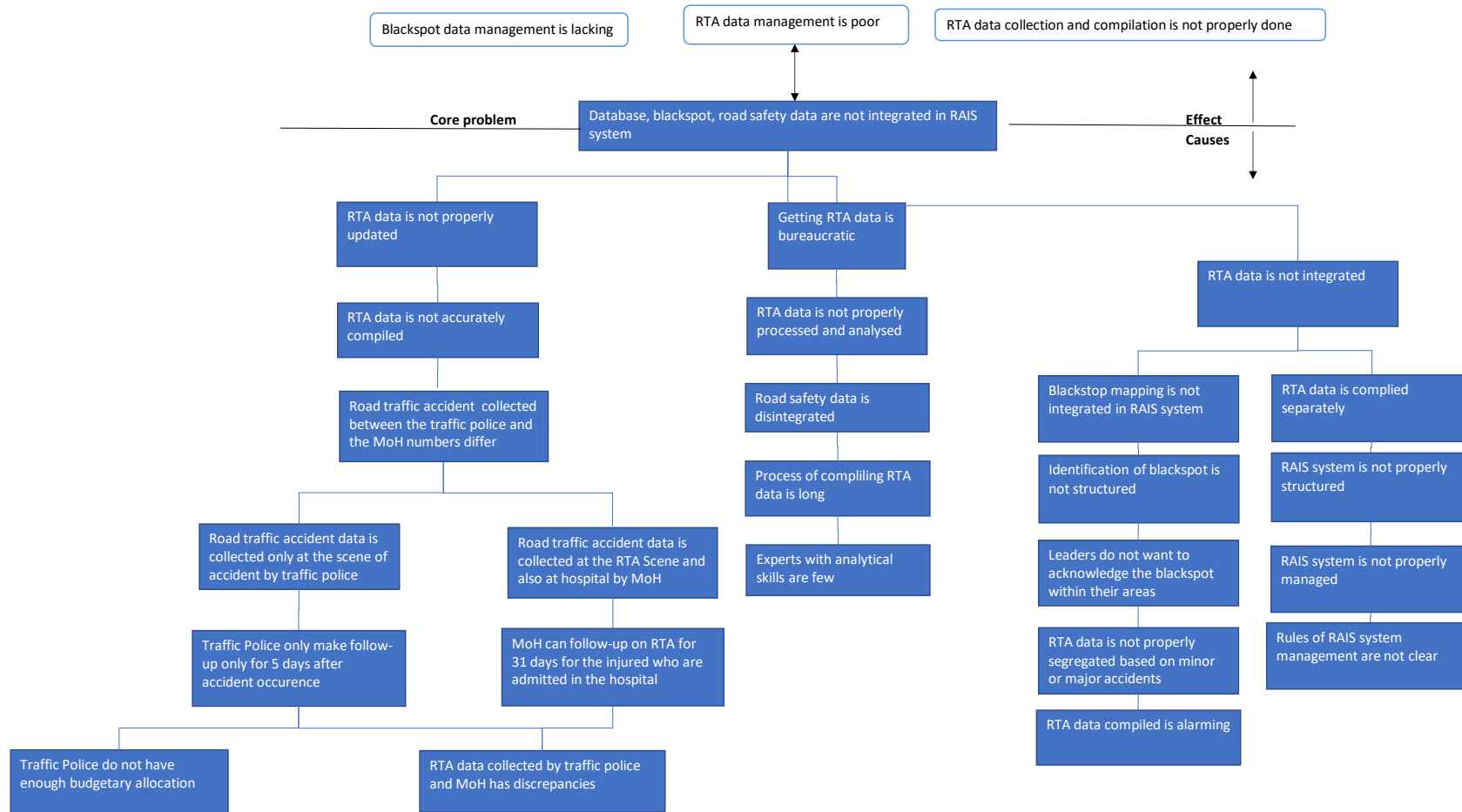
## **Chapter 5: Gaps Assessment of Road Safety in Dar es Salaam**

The problem tree approach was used to undertake gaps assessment of the road safety in Dar es Salaam. In order to identify the key areas of assessment, the Consultant used the analysed data wherein road users' behaviour, road traffic accident management, stakeholder engagement in road safety, black spot and data management were noted as areas of concern. Therefore, the Consultant grouped the themes for gaps assessment: Road Safety Awareness; RTA Data Collection and Compilation; RTA Data Management; Black spot Data Management; Road Accident Information System (RAIS); and Road Safety Stakeholder Coordination. The problem tree is as shown below:



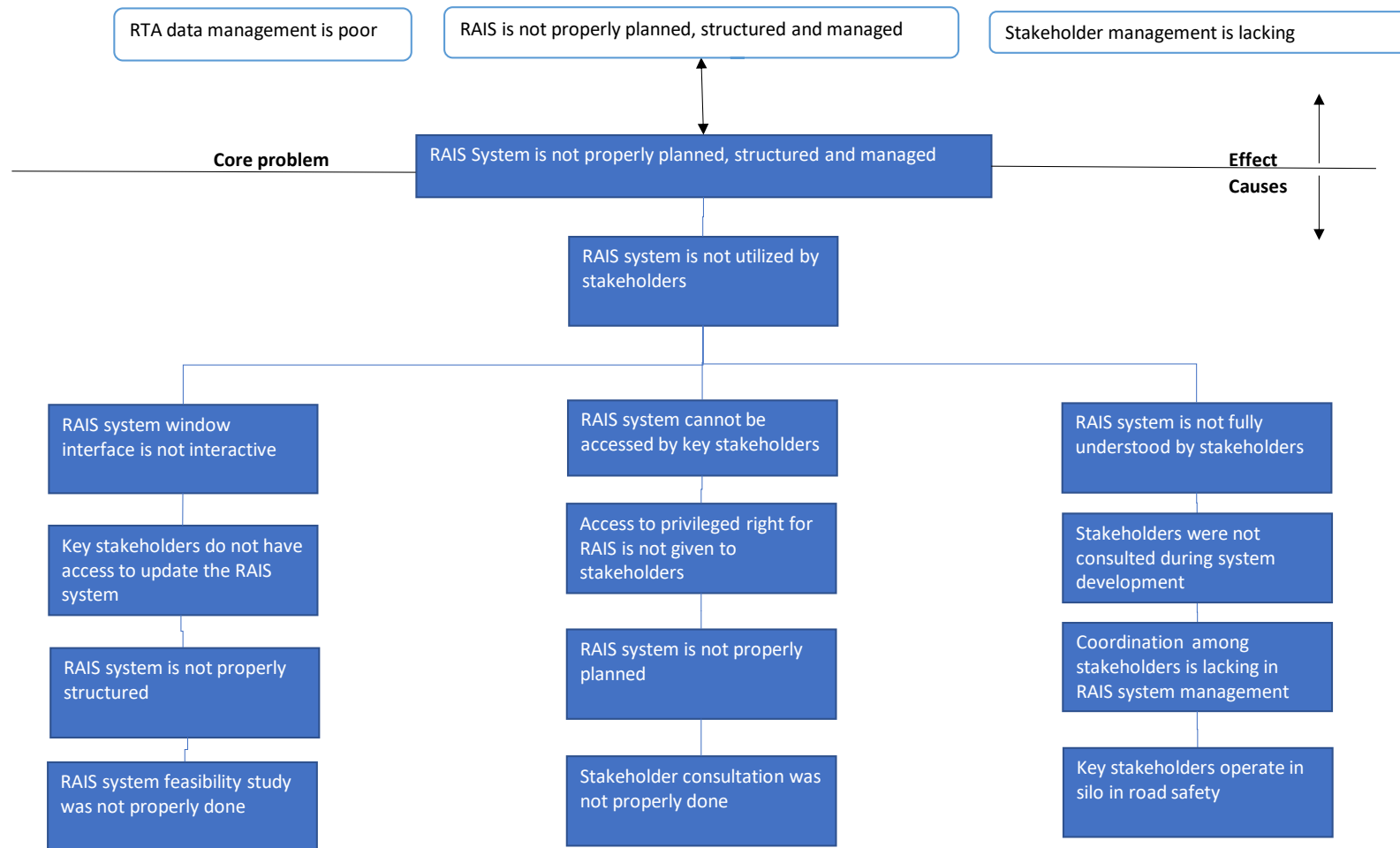
Source JICA Study Team

Figure 5-1: Problem Tree for Road Safety Management in Dar es Salaam



Source JICA Study Team

Figure 5-2: Problem Tree for Road Safety Data Management in Dar es Salaam



Source JICA Study Team

Figure 5-3: Problem Tree for Road Accident Information System

## **5.1 Road Safety Awareness**

There are gaps in Road Safety Awareness relating to the road users' behaviour. The study also noted that even though there are road signs on most of the roads, the road users, in particular drivers and motorcycle riders tend to ignore the road signs, leading to reckless driving/riding. The study also notes that most of the drivers/riders ignore road signs in order to avoid traffic jams. In some cases, the road signages are vandalized, especially at night and because of drunkard driving thus knocking down the road signage. Notably there are not enough Traffic Police to manage the intersections or enough Traffic Police during night to enforce traffic rules.

## **5.2 Road Traffic Accident Data Collection and Compilation**

The study notes gaps in RTA data collection. It was noted that the Traffic Police only collect data at the RTA scene and they can only make follow-ups on a particular RTA for only five days while the Ministry of Health through the hospital are able to collect the RTA data for 31 days. This brings about discrepancies in terms of the RTA data that the Traffic Police have and the data that the hospitals records.

## **5.3 RTA Data Management**

The study notes that the Traffic Police are the custodians of the RTA data and the data collected at district level is compiled and then dispatched to the regional level, where the data is compiled and thereafter dispatched to the headquarters. It is at the headquarters that the data is compiled and categorized accordingly. The study notes that the data is not analysed and obtaining RTA data is not easy, with a lot of bureaucratic procedures in place.

## **5.4 Black spot Management**

Due to the lack of proper RTA data management, identification of black spots, and hence their management is lacking. Mapping of black spots has therefore not been undertaken in Dar es Salaam.

## **5.5 Road Accident Information System (RAIS)**

The study notes that the RAIS system is an innovative digitalized system for road accident data management and when properly implemented, it will revolutionize how RTA data is collected, compiled, managed and even shared in Dar es Salaam. But the study notes that there are gaps in implementation of the RAIS system. It was noted that most key stakeholders

could not access RAIS and those who could access it could not update it since the RAIS system interface was not interactive. It was noted that some stakeholders were not fully involved with the RAIS system as they were not consulted during its development. Black spot data had also not been integrated into RAIS system.

## **5.6 Road Safety Stakeholder Coordination**

The study notes that there is the monthly Road Safety Stakeholders meeting organized by LATRA but the road safety stakeholders' coordination for Dar es Salaam has gaps. The study noted that stakeholder's consultation and engagement during the RAIS system establishment was not inclusive; for example, the Traffic Police were not consulted but yet are key stakeholders.

## **5.7 Summary of Gaps Assessment for Road Safety in Dar es Salaam**

In summary, the study notes that the core problem is that the road safety data management in Dar es Salaam is not properly managed and therefore the data is disintegrated. This major gap has effects on road safety notably: RTA data management is not properly done, road safety awareness amongst road users is low, RTA data collection and compilation is not properly done, black spot data management including mapping and assessment is lacking, stakeholder management is not properly done and RAIS system is not properly planned, structured and managed. The table below is summary of the identified gaps and suggested areas of improvement.

**Table 5-1: Gaps and Suggested Areas of Improvement**

Key Issue	Gaps	Suggested Areas of Improvement
<b>(1) Road Safety Awareness</b>	There are gaps in Road Safety Awareness relating to the road users' behaviour. Most road users notably drivers and motorcycle riders ignore road signage in addition to that there are not enough Traffic Police at intersections to enforce laws.	Raising road safety awareness among road users is important and can either be done through media, integrating road safety in school curriculums pedestrian traffic rules sensitization. In addition, all roads should be properly marked as well as increasing the number of Traffic Police and CCTV installation at intersections
<b>(2) Road Accident Data Collection and Compilation</b>	The study notes inconsistency in RTA data collection where Traffic Police who collect RTA data at the scene can only pursue the data for only a limited time unlike hospitals who can collect RTA for a month or so.	The study proposes increase police RTA and RTI capacity follow up as well as improved coordinating with the Ministry of Health in data compilation. The study also proposes training of officer in analysis of the raw RTA data so that the data can be easily available and accessible at district level.
<b>(3) RTA Data Management</b>	Although Traffic Police are the custodian of RTA data it is compiled at district level then submitted to regional level and to headquarters where data is compiled and categorised in addition it is difficult to access the data due to bureaucratic procedure.	The study proposes blackspot data management through blackspot mapping identification of major and minor accidents as well as involvement of all stakeholders involved in various areas of jurisdictions to reduce conflicts
<b>(4) Black spot Management</b>	Due to the lack of proper RTA data management, identification of black spots, and hence their management is lacking. Mapping of black spots has therefore not been undertaken in Dar es Salaam.	Blackspot mapping should be regular and information updated in the RAIS system
<b>(5) Road Accident Information System (RAIS)</b>	The study notes that RAIS system is an innovative digitalized system for RTA data but there are some gaps in terms of stakeholders not able to access or update data and some key stakeholders like Traffic Police were not consulted during development.	RAIS system should involve all stakeholders in the planning, design and production stages as well as enabling interactive user interface that allows key collaborators to update the system
<b>(6) Road Safety Stakeholder Coordination</b>	The study notes that there is the monthly Road Safety Stakeholders meeting organized by LATRA but the road safety stakeholders' coordination for Dar es Salaam has gaps.	Even though there are monthly meetings for road safety stakeholder, their coordination should be enhanced by increased online platforms and social media groups. In addition, imperative that a stakeholder matrix be developed through stakeholder mapping and the role of each stakeholder defined. This study's black spot assessment and audit revealed the following; need of improving and maximization Non-Motorised Transport facilities; rehabilitation of some roads with potholes; construction of motorist and cyclist lanes and removal of redundant roundabouts and bus stops

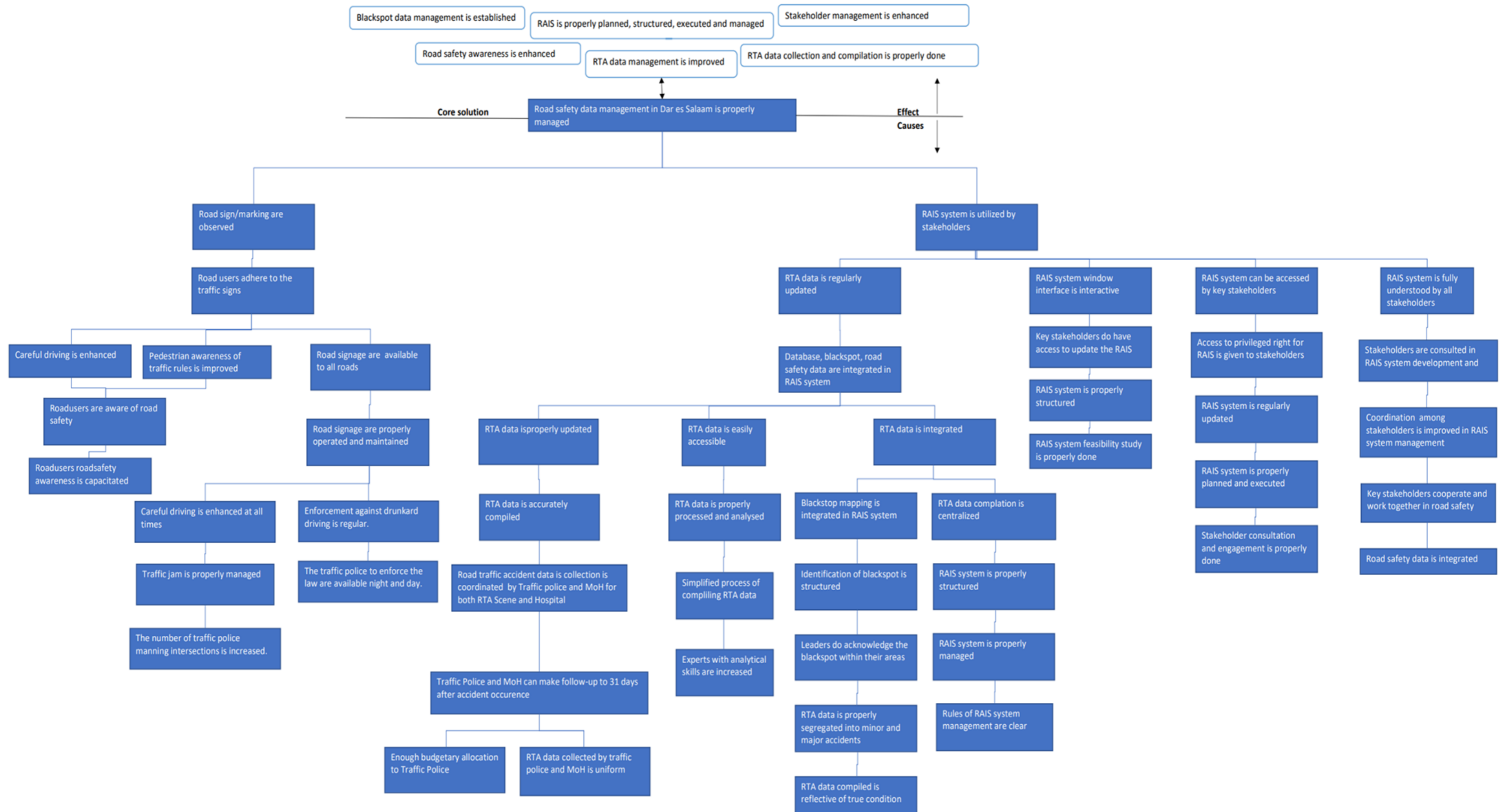
Source JICA Study Team

## **Chapter 6: Countermeasures for Road Safety in Dar es Salaam**

This study developed the objective tree in order to come up with appropriate countermeasures for the gaps identified. Also, this study extracts from the black spot assessment and analyzes the countermeasures proposed for black spot.

The objective tree is shown below.





Source JICA Study Team

Figure 6-1: Objective Tree for Road Safety in Dar es Salaam

The Objective Tree above shows that the core solution is to ensure that the Road Safety Management and Data Management is improved. The following is the descriptive flow on how this can be achieved:

### **6.1 Road Safety Awareness is Enhanced**

In order to improve road safety in Dar es Salaam, the improvement of road safety awareness of road users is paramount and therefore, capacity building of road users is a prerequisite for road safety management. This can be achieved through public sensitization through media (mainstream and social media) and also incorporating road safety programmes into the school curriculum with an aim of enhancing careful driving and also improvement of pedestrian's traffic rules awareness. In addition, it is imperative that all roads should have road signs/markings and that there is proper enforcement for the road users to adhere to these traffic signs. This can be achieved by installing CCTV cameras with night vision capabilities at all the junctions and intersections, and also increasing the number of Traffic Police who will ensure enforcement of the traffic rules during the day and night. Management of traffic jam will also enhance road safety.

### **6.2 Road Traffic Accident Data Management is improved**

In order to improve the RTA data management, this study proposes improvement of RTA data collection and compilation by enhancing the capacity of the Traffic Police to follow-up on road accident injuries and fatalities for more than 5 to 31 days. This can be achieved by increasing the budget allocation to the Traffic Police to enhance RTA follow-up. In addition, there is a need to enhance collaboration between the Traffic Police and the Ministry of Health in RTA data compilation. The study observes that current RTA data is raw and that there are few officers with data analysis skills and therefore, there is need to increase the capacity of Traffic Police with analytical skills by training more officers and enhancing the capacity of the current data analysis officers such that analysed data can be available at the district level which will enhance accessibility of the RTA data.

### **6.3 Black spot Data Management is Established**

Establishing black spot data management in Dar es Salaam is proposed to improve road safety management in Dar es Salaam. This study thus proposes the identification of black spots through mapping, and this should be an all-inclusive exercise that involves leaders to enhance acceptability of the black spots within the area of their jurisdiction without prejudice or passing of blame amongst stakeholders. This study proposes that the RTA cases be segregated into major and minor accident cases and compiled accordingly. This study also proposes that the black spot data be integrated into the RAIS system.

## **6.4 RAIS is Properly Planned, Structured, Managed and Executed**

In order for the RAIS system to be effective and well utilized then all the stakeholders should be key participants in its planning, structuring and execution. This can be achieved through co-production governance processes where the stakeholders co-plan the system, co-design the website and coproduce the RAIS system. The RAIS system can be improved by developing an interactive interface which will enable the stakeholders to update the RAIS system. The structure of the RAIS system should be clear to all the stakeholders and this can be achieved by capacity building of the stakeholders in the use of RAIS.

## **6.5 Road Safety Stakeholder Coordination**

The study findings included that there are monthly meetings for Road Safety Stakeholders that are organized by LATRA. It is therefore imperative that a stakeholder matrix be developed through stakeholder mapping and the role of each stakeholder defined. Stakeholder coordination should be enhanced by increased interaction of stakeholders through online platforms and social media groups to enhance seamless connectivity and discussions on road safety issues.

## **6.6 Road Condition Improvement**

This study's black spot assessment and audit revealed that some of the roads need to be improved. Notably, there is need to reduce pedestrians and vehicle conflict and this can be achieved by improving Non-Motorized Transport (NMT) in Dar es Salaam. This study notes that there is need for a feasibility study that aims at improving NMT in Dar es Salaam to be undertaken. The study identified some NMT facilities that were not being maximized but there was also encroachment of some of the facilities by small scale traders. It is imperative that the pedestrian walkways and other NMT facilities take into consideration all users including people living with disabilities (i.e. social inclusion) in designing and implementing NMT facilities. This study noted that some roads were characterized by potholes which were noted as road hazards. The study findings show that motorcyclists were the most vulnerable road users and therefore there is need for motorcyclist and cyclist lanes in some of the busy roads in Dar es Salaam. The black spot assessment also proposed that some of the redundant roundabouts and bus-stops that pose as road hazards should be removed.

## **6.7 Proposed Countermeasures**

The following countermeasures are therefore proposed:

**Table 6-1: Proposed Countermeasures**

Thematic Area and gap	Countermeasure	Implementation Category
1. Road Safety Awareness is low among the road users	a) Public sensitization through mainstream media, billboards, posters and social media.	Short-term
	b) Incorporate Road Safety lessons into school curriculum both in primary and secondary education	Long-term
	c) Regular updates on RTA bulletin on mainstream media and social media	Short-term
2. Enforcement of Road Safety rules	a) Install CCTV cameras at all cross-sections and junctions	Long-term
	b) Test drivers during driving licence renewal	Short-term
	c) Government should regulate the commercial motorcycle business	Short-term
3. RTA Data Management is poor	a) Digitalize RTA data collection.	Short-term
	b) Simplify RTA data collection form	Short-term
	c) Categorize RTA into Casualty (major) and non-Casualty(minor)	Short-term
4. RTA data collection and compilation are not properly done	a) Establish a system of Coordination between Traffic Police and Ministry of Health RTA data collection;	Short-term
	b) Capacity development of Traffic Police to analyse RTA data at district level;	Short-term
	c) Integrate the RTA Data into the RAIS	Short-term
5. Black spot Data Management is not established	a) Integrate black spot identification assessment and mapping into RAIS system	Short-term
	b) Correlate RTA data with black spot	Short-term
6. Road Safety Stakeholder coordination is weak	a) Road Safety Stakeholder Mapping	Short-term
	b) Integrated stakeholders into the RAIS system	Short-term
	c) Sensitize stakeholders on RAIS system and how to use	Short-term
	d) Improve communication amongst stakeholders by establishing road safety oriented social media groups	Short-term
7. RAIS System is not properly planned, structured and managed	a) Capacity development of the administrators based on global best practices	Short-term
	b) Monitoring and evaluation of the performance of RAIS system and extracting lesson learnt	Short-term
	c) Developing interactive interface for RAIS to enhance stakeholder engagement	Short-term
	d) Co-plan, Co-design and Co-produce RAIS as a service delivery tool	Short-term
8. Road Condition improvement as per Black spots Assessment	a) Channelization of traffic and tightening of all the wide intersections.	Short-term
	b) Feasibility study on improvement of non-motorized transport in Dar es Salaam	Short-term

Thematic Area and gap	Countermeasure	Implementation Category
	c) Provide walkways for pedestrian and the walkways should be friendly to people living with disabilities	Long-term
	d) Regular scheduled operation and maintenance of roads	Long-term
	e) Provide for motorcycle and cyclist lanes on some of the roads	Long-term
	f) Remove redundant roundabouts to enhance traffic flow	Short-term
	g) Relocate some of the bus-stops identified that interfere with the traffic (obstruction)	Short-term

Source JICA Study Team

## 6.8 Selection of project to be proposed for formulation of Technical Cooperation Project by JICA

In order to select the project to be proposed for formulation of technical cooperation project the Consultant engaged the stakeholders by first developing possible project matrices. The key stakeholders include: MOWT (online meeting was held on 14<sup>th</sup> December 2021); TANROADS, TARURA and LATRA (the possible projects document was shared to them via email on 10<sup>th</sup> January 2022). The possible project matrices are captured below:

### 6.8.1 Road Safety Management proposed projects

#### (1) Improved road safety awareness among different road users

Items	Explanation
1) Proposed Project	Road Safety Awareness and sensitization
2) Background	Improved road safety awareness is an important factor in reducing the number of RTA and deaths experienced on roads
3) Overall Description	Road users who are sensitized and are aware of the road safety measures through enhanced road safety awareness programmes through mainstream media and social media and integrating road safety into school programmes.
4) Components	<ol style="list-style-type: none"> <li>1) Public sensitization through mainstream media, billboards, posters and social media.</li> <li>2) Sensitization through public forum meetings</li> <li>3) Incorporate Road Safety lessons into school curriculum both in primary and secondary education</li> <li>4) Regular updates on RTA bulletin on mainstream media and social media</li> </ol>
5) Responsible organization	Ministry of Education Science and Technology
6) Beneficiaries	Road Users: Pedestrians, Passengers, Motorcyclists riders, Bajaj drivers, Daladala drivers, private car drivers and transport vehicle owners, road safety ambassadors
7) Implementation period	Short term
8) Other Organizations	Ministry of Works/ Transport / Land Transport Regulatory Authority (LATRA)/ Road Safety Committee/ Tanzania National Roads Agency (TANROADS)

## **(2) Enforcing road safety rules and regulations**

Items	Explanation
1) Proposed Project	Programme for enhancement of road safety rules enforcement.
2) Background	Some road users ignore traffic rules and road signage. Therefore, there is need for traffic laws need to be implemented to ensure road users follow the laid down rules.
3) Overall Description	A road safe society that are conscious of road safety as result of enhanced enforcement of traffic rules to reduce RTA from carelessness or lack of observation of road traffic rules.
4) Components	1) Install CCTV cameras at every cross-sections and junctions 2) Test drivers during driving licence renewal 3) Government should regulate the commercial motorcycle business
5) Responsible organization	Traffic Police
6) Beneficiaries	Traffic Police, Road Users: Pedestrians, Passengers, Motorcyclists riders, Bajaj drivers, Daladala drivers, private car drivers and transport vehicle owners
7) Implementation period	Short term
8) Other Organizations	Ministry of home affairs and LATRA

## **(3) Road improvement as per Blackspot analysis**

Items	Explanation
1) Proposed Project	Improvement of roads to improve road safety.
2) Background	There are areas identified as blackspot because of the nature of the road conditions.
3) Overall Description	Improved roads within Dar es Salaam City that improves a road safety society by taking in consideration of all the road users.
4) Components	1) Feasibility study on improvement of non-motorized transport in Dar es Salaam 2) Provide walkways for pedestrian and the walkways should be friendly to people living with disabilities 3) Regular scheduled operation and maintenance of roads 4) Provide for motorcycle and cyclist lanes on some of the roads 5) Remove redundant roundabouts to enhance traffic flow 6) Relocate some of the bus-stops identified that interfere with the traffic (obstruction)
5) Responsible organization	Tanzania National Roads Agency (TANROADS)
6) Beneficiaries	Ministry of Works and Transport, Traffic Police and other Key road safety stakeholders
7) Implementation period	Long term
Other organisations	Ministry of Transport and communication

## **6.8.2 RTA Data Management proposed projects**

### **(1) Enhanced RTA information management**

Items	Explanation
1) Proposed Project	Improved RTA data Management
2) Background	Road safety data management is disintegrated with some stakeholders do not have access to RTA data further there are discrepancies in the RTA data for those who have it.
3) Overall Description	Improved RTA data management by improving RTA data collection, compilation, analysis and storage of RTA data.

Items	Explanation
4) Components	1) Digitalize RTA data collection. 2) Simplify RTA data collection form 3) Capacity building of staff in RTA data analysis 4) Categorize RTA into Casualty (major) and non-Casualty(minor)
5) Responsible organization	Ministry of Works and Transport
6) Beneficiaries	Key road safety stakeholders
7) Implementation period	Short term
8) Other organisations	Ministry of health through hospital, trauma registry, mortuary registry and Traffic Police

## **(2) Accurate RTA data collection and compilation**

Items	Explanation
1) Proposed Project	Proper RTA data collection and compilation.
2) Background	RTA data is collected by various individuals for example the Traffic Police at the RTA scene and the Ministry of Health through hospital. The compilation is done at various levels.
3) Overall Description	Improved coordination in the data management through properly coordinated RTA compilation and sharing of RTA data amongst stakeholders.
4) Components	1) Establish a system of Coordination between Traffic Police and Ministry of Health RTA data collection; 2) Enhanced Traffic Police follow-ups on RTA
5) Responsible organization	Traffic Police, Trauma Registry, Mortuary Registry
6) Beneficiaries	Traffic Police and Ministry of Health, and other Key road safety stakeholders
7) Implementation period	Short term
8) Other organisations	Ministry of Works/ Transport and Communications

## **(3) Improvement of RAIS system structuring and management**

Items	Explanation
1) Proposed Project	Restructuring of RAIS System through stakeholders involvement in the planning, structuring and management of RAIS system.
2) Background	RAIS system was developed to collect process, analyse and store road accident information system and in its Phase 1 of operation key stakeholders were not aware who the administrator of RAIS was and they could not update RAIS system.
3) Overall Description	Efficient and effective RAIS system that is operationalized and key stakeholders and access it and update it with RTA and Road Safety and the data in RAIS is analysed and processed.
4) Components	1) Capacity building of the all the key stakeholders on management of a digitalized data management system based on global best practices 2) Monitoring and evaluation of the performance of RAIS system and extracting lesson learnt. 3) Developing interactive interface for RAIS to enhance stakeholder engagement. 4) Effective engagement of stakeholders in development of RAIS system through Co-plan, Co-design and Co-produce RAIS as a service delivery tool.
5) Responsible organization	Ministry of Works Transport
6) Beneficiaries	Ministry of Works and Transport, Traffic Police, TANROADS and other Key road safety stakeholders

Items	Explanation
7) Implementation period	Short term
8) Other organisations	Land Transport Regulatory Authority (LATRA)/ Road Safety Committee/ Tanzania National Roads Agency (TANROADS) Ministry of Health (Trauma Registry), Mortuary Registry

#### **(4) Establish Blackspot Data Management System**

Items	Explanation
1) Proposed Project	Development of Blackspot Data Management System
2) Background	Blackspot data management is not properly done and there is no clarity on blackspots in Dar es Salaam.
3) Overall Description	Blackspot data management system is imperative and should involve various stakeholders its development and management.
4) Components	1) Regular Blackspot mapping and updating of road audits report 2) Integrate mapped blackspot into RAIS system 3) Prioritizing road safety countermeasure by correlating RTA data with blackspot
5) Responsible organization	Ministry of works through Tanzania National Roads Agency (TANROADS)
6) Beneficiaries	Ministry of Works and Transport, Traffic Police and other Key road safety stakeholders
7) Implementation period	Short term
8)	Ministry of Works/ Transport and Communications/ Land Transport Regulatory Authority (LATRA)/ Road Safety Committee/

### **6.8.3 Road Safety Stakeholder Coordination and Management proposed projects**

#### **(1) Improved Road Safety Stakeholder coordination**

Items	Explanation
1) Proposed Project	Programme for improving Road Safety Stakeholders Coordination.
2) Background	Road safety stakeholder coordination is weak with no structures for sharing information and coordinating road safety in Dar es Salaam.
3) Overall Description	Improved stakeholder coordination that enhances road safety management in Dar es Salaam.
4) Components	1) Road Safety Stakeholder Mapping <ul style="list-style-type: none"> <li>• Identify the role of each stakeholder</li> </ul> 2) Sensitize stakeholders on RAIS system and how to use 3) Improve communication amongst stakeholders by establishing road safety oriented social media groups
5) Responsible organization	Ministry of Works/ Transport and Communications
6) Beneficiaries	Key road safety stakeholders
7) Implementation period	Short term
8) Other organisations	Land Transport Regulatory Authority (LATRA)/ Road Safety Committee/ Tanzania National Roads Agency (TANROADS)

Notably in the online meeting was held on 14<sup>th</sup> December 2021 with MOWT, MOWT prioritized the improvement of the RAIS System while TANROADS, after subsequent follow-up prioritized Road improvement as per Blackspot analysis.



## **6.9 Project Design Matrices (PDM) for the selected projects**

The draft PDM of the selected projects are as presented below:

## Project Design Matrix (1)

Project Title: The Project for Improvement of Road Accident Integrated System (RAIS) in Dar es Salaam

Target Group: Ministry of Works and Transport, Traffic Police, TANROADS, TARURA and LATRA

Period of Project: Twenty Four (24) months

Project Site: Dar es Salaam Region

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption
Overall Goal Improved RTA data collection, compilation, analysis and sharing with key stakeholders through the RAIS system	RTA data management in Dar es Salaam region is easily accessible by key stakeholders in real time	<input type="checkbox"/> RTA Data survey	The ICT including internet connectivity will be seamless and efficient
Project Purpose Efficient and effective RAIS system that is operationalized and key stakeholders and access it and update it with RTA and Road Safety and the data in RAIS is analysed and processed.	RTA data management in Dar es Salaam region is improved with having real time data that is analysed and easily accessible within minimum of one week	<input type="checkbox"/> Official endorsement	Improvement of RTA data collection, compilation and sharing through RAIS system will be institutionalized through legal frameworks
Outputs			
1. Operationalized effective and efficient RAIS system	1-1 Data and information related to the RAIS System are obtained 1-2 Current problems and issues on the RAIS system are analyzed 1-3 RAIS system is operationalized in Dar es Salaam	<input type="checkbox"/> RTA Data Management Survey Report <input type="checkbox"/> Result of the analysis <input type="checkbox"/> Planning documents	<ul style="list-style-type: none"> <li>• Key stakeholders will be willing participants in improving of RAIS System.</li> <li>• Most of the counterparts assigned will be continuously responsible for the assigned work</li> </ul>
2. RAIS system operational manual is prepared	2-1 Stakeholders are engaged in formulating RAIS System operational manual 2-2 RAIS system operational manual is formulated.	<input type="checkbox"/> Stakeholders Minutes of meetings <input type="checkbox"/> Available soft and hard copies of the manual	
3. RAIS Coordination structure is established	3-1 Stakeholder Mapping for RAIS system is undertaken 3-2 RAIS Stakeholder matrix is developed 3-3 Coordination structure for RAIS is established	<input type="checkbox"/> Stakeholders Minutes of meetings <input type="checkbox"/> Available soft and hard copies of the RAIS stakeholders matrix <input type="checkbox"/> Available Organo-chart for coordination structure	
4. Administrative capacity for RAIS System management is strengthened	4-1 A responsible agency to manage RAIS system is identified. 4-2 Trainings of stakeholders on RAIS System Management is undertaken	<input type="checkbox"/> Mandate of Responsible Agency <input type="checkbox"/> Training Report	

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption
	4-3 Trainings on the effective and efficient use of RTA in managing road safety in Dar es Salaam	<input type="checkbox"/> Training Report	
Activities	Input		Important Assumption
	Japanese Side	Tanzania Side	
1-1 To collect RTA data 1-2 To analyze and evaluate current RAIS system - To formulate and organize stakeholder forum for Co-designing RAIS system 1-3 To share existing gaps and challenges of RAIS system and issues among the relevant organizations 2-1 To prepare RAIS Operation Manual 3-1 To develop capacity of stakeholders in the use of RAIS System 3-2 To establish a stakeholder coordination structure for RAIS 4-1 To update RAIS system to have an interactive interface 4-2 To provide training course on the use of RAIS system and administrative privileges	<input type="checkbox"/> Experts - Chief Advisor - RAIS System Planning - ICT Knowledge Sharing platforms - RTA Data collection Survey and Analysis - Web engineering and design - PR/Mobility Management - Project Coordination	<input type="checkbox"/> Assign sufficient number of counterparts <input type="checkbox"/> Provision of office space <input type="checkbox"/> Cooperation of relevant organizations (MOTW, TANROADS, LATRA, TARURA and Traffic Police) <input type="checkbox"/> ICT works for the installation of equipment introduced in the pilot projects <input type="checkbox"/> Coordination with all key stakeholders	Knowledge transfer will be seamless Cooperation between the two teams will be cordial and good
	<input type="checkbox"/> Training in Japan - one time, 5 persons per each stakeholders for 21 days	<input type="checkbox"/> Training Report	
	<input type="checkbox"/> Seminars/Workshops	<input type="checkbox"/> Minutes of meetings	
	<input type="checkbox"/> Implementation of RAIS		

Source JICA Study Team

## Project Design Matrix (2)

Project Title: Road Improvement as per Blackspot analysis

Target Group: Ministry of Works and Transport, TANROADS, TARURA

Period of Project: Twenty-Four (24) months

Project Site: Dar es Salaam Region

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption
<b>Overall Goal</b> Elimination of identified blackspots in the road network	Reduced or totally eliminated RTAs on identified blackspots	<input type="checkbox"/> RTA Data records	The collection of RTS data both before and after implementation of measures will be undertaken
<b>Project Purpose</b> Elimination or mitigation of all identified contributory factors to RTAs at the identified blackspots	All identified blackspots are systematically improved within provided timelines.	<input type="checkbox"/> Physical improvements at identified blackspot locations.	
<b>Outputs</b>			
Designs for all mitigation measures		Completed Designs	
Implementation		Tracked implementation schedule	
Monitoring		RTA records of treated blackspots	
Activities	<b>Input</b>		Important Assumption
	Japanese Side	Tanzania Side	
1-4 Collect Design data 1-5 Undertake Designs of the mitigation measures 1-6 Tendering 1-7 Implementation 1-8 Monitoring	<input type="checkbox"/> Road Safety Experts <input type="checkbox"/> Financing <input type="checkbox"/> Project Coordination	<input type="checkbox"/> Design Engineers <input type="checkbox"/> Tendering <input type="checkbox"/> Implementation <input type="checkbox"/> Coordination with all key stakeholders	Knowledge transfer will be seamless  Cooperation between the two teams will be cordial and good

Source JICA Study Team

## **Chapter 7: Recommendation and Conclusion**

### **7.1 Recommendation**

This study therefore recommends that an agreement be reached between JICA Tanzania office and the responsible Tanzanian stakeholders on the project to progress. Once this has been agreed, then an all-inclusive PDM should be developed for the selected projects. The PDM should be comprehensive and cover the requisite issues raised and the roles that each entity will undertake should be outlined.

### **7.2 Conclusion**

In conclusion, this study notes that there are currently many ongoing infrastructural developments in Dar es Salaam that lead to traffic jams, leading to road users' impatience and ignoring of traffic rules and thus traffic accidents. Nevertheless, this study also noted that most crashes occur at the junctions and cross-sections and the motorcycle riders are the main culprit in causing traffic accident or being in traffic accidents.

The study notes that even though some of the roads have road signage, the road users tend to ignore them and therefore necessitating the Traffic Police to be assigned to intersections. This study notes that the Traffic Police in Dar es Salaam are few, compared to the demands of traffic control and management and there is need for integrated CCTV installation to enhance monitoring of the junctions and enforcing the traffic rules and regulations.

This study also notes that the RAIS system is a disruptive innovation that is able to improve road accident management in Dar es Salaam and therefore this system needs to be improved and enhanced by ensuring the key stakeholders buy-in its implementation and the capacity of different stakeholders developed to enhance the implementation of RAIS. It is also imperative that the RAIS system be co-planned, co-designed and co-produced by the key stakeholders. This study further notes that the road safety data management is disintegrated, leading to a low rate of sharing of information and data, longer processes of compiling and analysing data that lead to inefficient data to make key road safety decisions.

Finally, this study notes that the approach towards safe roads in Dar es Salaam requires that road safety data and management should be multi-sectorial with proper coordination structures that will enable the implementation of all the proposed road safety countermeasures.

## ANNEXES

## Annex 1 Minutes of Meetings (MoM)

### Data Collection Survey on Road Safety Data and Management in Dar es Salaam

2<sup>nd</sup> Sept 2021

Type: Online Meeting

Minutes of the Meeting

<b>Meeting Called by</b>	JICA Tanzania Office
<b>Type of Meeting</b>	Kick-off Meeting
<b>Agenda</b>	<ol style="list-style-type: none"><li>1. Opening of the meeting<ul style="list-style-type: none"><li>• Introduction of participants</li><li>• Opening remarks</li></ul></li><li>2. Presentation of the Inception Report</li><li>3. Question and Answer and Discussion Session</li><li>4. Next Steps</li><li>5. Closing Remarks</li></ol>

#### SUMMARY OF DISCUSSION

##### **Opening of the meeting and introduction of participants**

1. The meeting started at 10:00 a.m.
2. Mr. Okuyama welcomed all the participants and moderated the session of introductions.

##### **Opening Remarks**

3. Mr. Matsuyama Satoru the Senior Representative, JICA Tanzania, made his opening remark wherein he explained the importance of the survey and stated that JICA Tanzania Office was going to provide the requisite assistance to the survey team to ensure smooth implementation of the Study.

## **Presentation of the Inception Report**

4. The presentation of the Inception Report Session was led by Mr. Clement Ngida the Team Leader. In the presentation the background, objectives and the target countries for the Study were elaborated. The methodology of the Study, Technical Approaches to the Study, outputs and major challenges of the Study were also presented.

## **Question & Answer and Comments**

5. **Comments on the background and objectives:** Mr. Matsuyama pointed out that the presentation showed that the trend of number of traffic accident revealed a decline of RTA was a bit questionable and that the team should verify this trend. The JST pointed out that the trend was based on the data that was collected during the Data Collection Study on Road Safety in the East Africa Community (2020). The JST further stated that:

- ✓ They will confirm the data with all custodians since data is not integrated;
- ✓ They will verify the data through interview.

6. **Comments on the Draft Inception Report:** Mr Okuyama pointed out that the draft inception report or the PPT presentation does not explain the projects that other Development Partners like the World Bank while the ToR clearly state that the Survey will also survey the Projects being undertaken by Developmental Partners. He further stated that some secondary data should also be collected from Development Partners (e.g. World Bank).

Mr. Okuyama further pointed out that there are three stakeholders meeting envisaged by the Consultant and therefore there is a need to add more detail on what these consultative stakeholder meetings will entail, the key discussion topics of the meeting and the target participants.

Mr. Okuyama further stated that the timings and schedule provided in the ToR should be adjusted to fit into the current realities like the Survey commenced on 18<sup>th</sup> August and therefore the scheduling should be based on this commencement date.

Mr. Henry of JICA Tanzania Office noted that the presentation was good but requested the consultant to make the following changes:

- ✓ Ministry of Works Transport Communication has since been divided to Ministry of Works and Transport and Ministry of Communication and therefore the Counterpart Organization should be Ministry of Works and



Transport.

- ✓ He further stated that the National Police fall under the Ministry of Internal Affairs and therefore the Ministry of Internal Affairs should also be considered as Counterpart Organization.
- ✓ He further added that TANROADS should also be considered as Counterpart Organization.

Mr. Henry thereafter pointed out his expectation was for Koei Africa to produce fruitful outcome.

7. **Comments on the Request to JICA Tanzania Office:** Mr. Okuyama pointed out that JICA Tanzania Office had already held discussions with some of the stakeholders like the National Police who were happy about the survey and were willing to participate in the Survey.

He further stated that the Ministry of Works and Transport and National Police were important counterpart and asked the Consultant how they intended to engage these two organizations.

The Consultants explained that an official introduction to these two Counterpart organizations was required and that it will be of great assistance to the Survey Team if the two organizations can be requested to assign a person (staff) from each organization Focal Person to the Survey which will lead to extensive interaction and collaboration.

Incorporate the information of today' s meeting material to the Draft Inception Report and send to JICA Tanzania Office.

Mr. Matusyama stated that it is important to note that JICA Tanzania office is not challenging stakeholders on the issues of road safety, but rather supporting stakeholders to reduce traffic accident and ensure the safety of motorist and other road users.

8. **Next steps:** The Consultant outline the next steps as follows:

- ✓ Finalize inception report
- ✓ Finalize questionnaire and send for approval by JICA Tanzania Office
- ✓ Work together with stakeholders.
- ✓ Keep close contact with JICA Tanzania Office

### **Closing Remarks**

9. Mr. Matsuyama reiterated that this was an important Survey and pointed out that he was looking forward towards good results from the Survey.

**Data Collection Survey on Road Safety Data and Management in Dar es Salaam**

**20<sup>th</sup> September 2021**

**Type: Face to face Meeting**

**Minutes of the Meeting**

<b>Meeting Called by</b>	JICA Study Team
<b>Type of Meeting</b>	Interview Survey
<b>Place</b>	TANROADS headquarter (Road Safety Department)
<b>Agenda</b>	<ol style="list-style-type: none"><li>1. Discussion on road safety data and management in Dar es Salaam</li><li>2. Key blackspots in Dar es Salaam</li><li>3. Development Partners projects planned and ongoing</li><li>4. Countermeasures for road safety challenges</li></ol>

<b>SUMMARY OF DISCUSSION</b>
<p><b><u>Discussion on Road Safety Data and Management in Dar es Salaam</u></b></p> <ol style="list-style-type: none"><li>1. Eng. Daffa acknowledged having received the inception report and the team discussed in brief the objectives and expected outcome of the Study. Mr. Daffa pointed out that the Study was timely and he hoped that some of the road safety challenges would be addressed. He added that traffic police were the custodian of traffic accident data. He also explained the process to which they acquire traffic accident data for road safety auditing TANROADS have to write a letter to be signed by the Chief Executive Director then the letter will be sent to the Inspector General of Police (IGP) then to Regional Traffic Officer (RTO) then to District Traffic Officer (DTO) to give them data and that the process of acquiring data could take a minimum of two to four weeks. He added that the RTA data from police lacked coordinates of the crush points</li></ol>

and therefore making it difficult to identify the exact location of an accident  
He also explained the RAIS system which was a Ministry of Works and Transport initiative but involved the traffic police feeding data into the RAIS system and he also explained that initially he could access it but not able to update it since only RAIS administrator could update RAIS and that the current status was that he could not access

He pointed out the following as key challenges:

- ✓ People do not use the overhead pedestrian crosswalks for example in Kimara and Manzese
- ✓ The traffic lights are destroyed every now and then, TANROADS fix them but they hit them with the cars
- ✓ Street vendors encroach pedestrian walkways for example in Buguruni, Manzese etc
- ✓ Wrong parking that hinder road visibility especially in Mandela road
- ✓ No truck parking
- ✓ No streetlight
- ✓ Few walkways
- ✓ Most of Daladala stop/do parking in carriage ways
- ✓ Car conditions for example those for carrying waste are in a bad condition to the extent that the brake may fail and hit the light
- ✓ Silting especially in Jangwani due to floods
- ✓ The government and the military cars pass through the Bus Rapid Transit (BRT) and they are allowed

Eng Daffa also explained that road safety stakeholders organized under LATRA holds regular monthly meetings purposefully to identify the road safety challenges and the way to resolve them.

### **Major blackspots in Dar es Salaam**

2. Eng Daffa pointed out that blackspot mapping is yet to be properly done in Dar es Salaam but identified the following as major blackspot sites:

- ✓ Uhasibu
- ✓ Kibamba area with the vertical slope which is now fixed
- ✓ Kimara –Kibaha road because is under construction
- ✓ To the junctions where by motorcycles pass when the red light is on
- ✓ In the pedestrian crosswalks (Zebra crossings) where by people pass their carts

### **Countermeasures for road safety in Dar es Salaam**

3. He also proposed the solutions to the above identified challenges as follows:

- ✓ Putting CCTV cameras to monitor those who pass while the red light is on
- ✓ To separate carriage ways with the pedestrian ways
- ✓ To improve parking
- ✓ To improve walkways
- ✓ And all these need funds but the fund is insufficient, they may allocate 1.8 billions per year but the regions are 26.
- ✓ Non- motorized transport is under-funded because development partners mainly fund the construction of the carriage ways.

He added the activities performed by TANROADS

- ✓ Safety audit
- ✓ Safety measures along blackspot
- ✓ Inspecting existing roads to check marks and signals
- ✓ Creating awareness to the community on safety issues
- ✓ Safety monitoring on ongoing projects if the contractors adhere according to the contract

Project	Funder
Kimara –Kibaha	The Government of Tanzania
Morocco-Mwenge	JICA
Gerezani –Rangi tatu (BRT 2)	AfDB
Salender bridge	

### **Development Partners Projects**

4. He mentioned that the following projects were ongoing:

#### **AOB**

1. He added that TANROADS has the following literature that guides their work

- ✓ Road safety Manual
- ✓ Road safety Policy by the Ministry but it is outdated
- ✓ A guide to road safety Auditing
- ✓ Road safety guide 2009 by the Ministry

### Participants' List

	<b>Name</b>	<b>Designation</b>	<b>Organization/Country</b>
1.	Eng. George Daffa	Road Safety Officer	TANROADs
2.	Mr. Clement Ngida	Team leader	KOEI Africa
3.	Ms. Irene Musa	Support Staff	KOEI Africa

## Data Collection Survey on Road Safety Data and Management in Dar es Salaam

21<sup>st</sup> September 2021

Type: Face to face Meeting

### Minutes of the Meeting

<b>Meeting Called by</b>	JICA Study Team
<b>Type of Meeting</b>	Interview Survey
<b>Place</b>	Traffic Police headquarter
<b>Agenda</b>	<ol style="list-style-type: none"><li>1. Discussion on road safety data and management in Dar es Salaam</li><li>2. RAIS System</li><li>3. RTA Data</li><li>4. Countermeasures</li></ol>

### SUMMARY OF DISCUSSION

#### Discussion on Road Safety Data and Management in Dar es Salaam

1. Wilbrod Mutafungwa acknowledged the support provided by JICA and stated that JST visit was timely since they were preparing for the Road Safety week scheduled for 15th November 2021. He clarified that the provision of road safety education to road users was pivotal to reducing the road accidents and therefore, there was a need to prepare flyers to enable the dissemination of knowledge.
2. Mr. Mkadam pointed out that road safety was multi-sectorial and requires all the stakeholders to be on board towards addressing its challenges. The JST discussed in brief the background, objectives and expected outcome of the Study. Traffic Police are the custodian of RTA but that there are notable discrepancies with the health centers/hospitals data due to the fact that health centre/hospitals have more data on accident because when the accident occur, after the police have recorded the accident then the casualties are taken to the health

center/hospital and the numbers of deaths may increase and even more people could go to hospital later on due internal injuries but the information with traffic police will remain as per the information collected at the accident scene.

### **RAIS System**

3. The meeting was informed that TANROADS introduced the system called RAIS (Road Accident Information System) wherein laptops and tablets were provided to record the accidents but the system was not sustainable because it created tension and fear because even the minor accidents (no casualties but may be just creases on the vehicles) were recorded and therefore a big number of accidents were being reported and this created an artificial scenario that the number of road accidents were on increase and that the traffic police were not responsible in their task.
4. In addition, RAIS system was open and anyone could access it and with such alarming number of accidents, and this could lead to public panic. RAIS needed to be structured such that only major RTA are recorded but with all accidents reported leaders started asking why is it only our areas that seems to be having road traffic accidents.
5. RAIS system was not for Dar es Salaam but the entire country and it entailed taking pictures of RTA scene, elaborations on the causes of accidents among other.
6. RAIS system was developed by TANROADS and stakeholders were not involved for example during the initial stages few young police officers were trained in the use of RAIS system but there were no consultations.
7. During its operations only police and TANROADS could access and use RAIS (feed information into the system)

### **Road Traffic Accident Data**

8. Despite the discrepancies between police and health RTA data official RTA data is the one that is issued by police.
9. World Health Organization first obtains data from police then other sources but official data is from the police.
10. Police have official RTA data compilation format that is used in the entire country and that the police will share with JST the template form.

### **Countermeasures for road safety in Dar es Salaam**

11. A coordination structure between the traffic police and health department to

ensure uniformity of RTA data.

12. Traffic police cannot be at all intersections at all times to enforce traffic rules and therefore CCTV installations could assist police to make follow-ups with road users that breach traffic rules just because traffic police were not in a particular place.

#### Participants' List

	<b>Name</b>	<b>Designation</b>	<b>Organization/Country</b>
1.	SACP Wilbroad Mutafungwa	Traffic Commandant	Traffic Police
2.	ACP Mkadam KH	Deputy Traffic Commandant	Traffic Police
3.	ASP Mossi Ndozero	Sergeant	Traffic Police
4.	Mr. Clement Ngida	Team leader	Koei Africa
5.	Eng. Catherine Karuiki	Data Policy Analyst Expert	Koei Africa
6.	Ms. Irene Musa	Support Staff	Koei Africa



**Data Collection Survey on Road Safety Data and Management in Dar es Salaam**

**22<sup>nd</sup> September 2021**

**Type: Face to face Meeting**

**Minutes of the Meeting**

<b>Meeting Called by</b>	JICA Study Team
<b>Type of Meeting</b>	Interview Survey
<b>Place</b>	LATRA headquarter (Road Safety Department)
<b>Agenda</b>	1. Discussion on road safety data and management in Dar es Salaam 2. Key blackspots in Dar es Salaam

<b>SUMMARY OF DISCUSSION</b>
<p><b><u>Discussion on Road Safety Data and Management in Dar es Salaam</u></b></p> <p>1. Mr. Silanda explained the background of LATRA. He explained that there were legal and policy framework that road safety is anchored upon the Road safety Act of 1973 (amended in 2002). On the other hand the team discussed in brief the objectives and expected outcome of the Study. Mr. Silanda explained that currently the traffic police were the custodian of traffic accident data.</p> <p>2. He explained that LATRA holds a monthly meeting with Road Safety Stakeholders to discuss road safety challenges and the following organizations attend the meeting:</p> <ul style="list-style-type: none"><li>✓ Tanzania National Roads Agency (TANROADS)</li><li>✓ Tanzania Rural and Urban Roads Agency (TARURA)</li><li>✓ Tanzania Railways Corporation (TRC)</li><li>✓ Tanzania Zambia Railway Authority (TAZARA)</li><li>✓ Tanzania Insurance Regulatory Authority (TIRA)</li><li>✓ Dar Rapid Transit (DART) and</li></ul>

- ✓ Tanzania Electrical, Mechanical and Electronics Services Agency (TEMESA)

3. He also explained the LATRA cannot access RAIS system but in case they required data they requested officially from the police and such data is made available during the monthly meeting.
4. He further explained that based on accident data the LATRA can cancel drivers licence and also they use the data to monitor the behaviour of drivers.

**Major blackspots in Dar es Salaam**

5. Mr. Silanda pointed out that blackspot mapping was the responsibility of the traffic police and National Road Safety Council who should facilitate the monitoring of blackspot.
6. He thus, identified the following municipalities as areas with major blackspot sites:
  - ✓ Ubungo
  - ✓ Kinondoni

**Participants' List**

	<b>Name</b>	<b>Designation</b>	<b>Organization/Country</b>
1.	Mr. Silanda Geoffrey	Senior Officer	LATRA
2.	Mr. Clement Ngida	Team leader	Koei Africa
3.	Eng. Catherine Karuiki	Data Policy Analysis Expert	Koei Africa
3.	Ms. Irene Musa	Support Staff	Koei Africa

## Data Collection Survey on Road Safety Data and Management in Dar es Salaam

23<sup>rd</sup> September, 2021

Type: Face to face Meeting

### Minutes of the Meeting

<b>Meeting Called by</b>	JICA Study Team
<b>Type of Meeting</b>	Interview Survey
<b>Place</b>	Ilala Municipality Office
<b>Agenda</b>	<ol style="list-style-type: none"><li>1. Discussion on road safety data and management in Dar es Salaam</li><li>2. Development Partners projects planned and ongoing</li><li>3. Countermeasures for road safety</li></ol>

### SUMMARY OF DISCUSSION

#### **Discussion on Road Safety Data and Management in Dar es Salaam**

The background, objective and outcome of the Study was explained and thereafter a discussion ensued as follows:

- ✓ The Officer explained the roles played by the Municipality, she explained that the municipality is the platform to knowledge, through municipality the students get education on road safety. She added that most of the projects implemented in the municipality must consult the municipality, for example Standard Gauge Railway (SGR) which is on progress.
- ✓ The Officer further explained that Ilala Municipality does not experience many accidents because the traffic police are always available at the areas that are prone to accidents. She clarified that most accidents in Dar es salaam were as a result of the nature of infrastructures like intersections or bus stands that obstruct the flow of traffic. The Officer also observed that motorcycle riders were notorious in causing accident and pointed out that they encroach on the BRT lane and pedestrian crossings.

- ✓ On the countermeasures she pointed out that there was need to improve non-motorized transport and on some of the road should have motorcyclist and cyclist lanes.
- ✓ On development partners, she pointed out that currently World Bank project on the Dar es salaam Metropolitan Development project (DMDP) which has contributed to road construction in Dar es Salaam.

### Participants' List

	<b>Name</b>	<b>Designation</b>	<b>Organization/Country</b>
1.	Ms. Tabu Shaibu	District Administrative Secretary	Ilala District
2.	Mr. Clement Ngida	Team leader	Koei Africa
3.	Ms. Irene Musa	Support Staff	Koei Africa

**Data Collection Survey on Road Safety Data and Management in Dar es Salaam**

**23<sup>rd</sup> September, 2021**

**Type: Face to face Meeting**

**Minutes of the Meeting**

<b>Meeting Called by</b>	JICA Study Team
<b>Type of Meeting</b>	Interview Survey
<b>Place</b>	Ubungo Municipality
<b>Agenda</b>	<ol style="list-style-type: none"><li>1. Discussion on road safety data and management in Dar es Salaam</li><li>2. Key blackspots in Dar es Salaam</li><li>3. Development Partners projects planned and ongoing</li><li>4. Countermeasures for road safety challenges</li></ol>

<b>SUMMARY OF DISCUSSION</b>
<p><b><u>Discussion on Road Safety Data and Management in Dar es Salaam</u></b></p> <p>The background, objective and outcome of the Study was explained and thereafter a discussion ensued as follows:</p> <p>The officer pointed out that the Ubungo Municipality was not involved in road safety apart from receiving information from LATRA and the concern of the municipalities is when accidents involves students crossing roads going to school or home.</p> <p>The Officer proposed the way to avoid road accidents like educating the children/students on road uses, as well as to have the Traffic police in the areas where people violate traffic rules,</p> <p>The Officer is also said that the overhead pedestrian walkways is not preferred by most of the road users because of security concerns</p> <p>The Officer pointed out that the municipal council aimed at providing bus stands,</p> <p>The Officer also pointed out that blackspot mapping was important and its information could be used to determine new routes and Municipality could initiate and start new routes.</p>

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**Participants' List**

	<b>Name</b>	<b>Designation</b>	<b>Organization/Country</b>
1.	Ms. Rose Mpeleta	District Administrative Secretary	Ubungo District
2.	Mr. Clement Ngida	Team leader	Koei Africa
3.	Ms. Irene Musa	Support Staff	Koei Africa

## Data Collection Survey on Road Safety Data and Management in Dar es Salaam

25<sup>th</sup> October 2021

Type: Face to face Meeting

### Minutes of the Meeting

<b>Meeting Called by</b>	JICA Study Team
<b>Type of Meeting</b>	Interview Survey
<b>Place</b>	TARURA headquarter
<b>Agenda</b>	<ol style="list-style-type: none"><li>1. Discussion on road safety data and management in Dar es Salaam</li><li>2. Key blackspots in Dar es Salaam</li><li>3. Development Partners projects planned and ongoing</li><li>4. Countermeasures for road safety challenges</li></ol>

### SUMMARY OF DISCUSSION

#### Discussion on Road Safety Data and Management in Dar es Salaam

1. Eng. Mkinga acknowledged having received the inception report and pointed out that he was looking forward the findings of the Study. The team discussed in brief the objectives and expected outcome of the Study.

Eng. Mkinga explained the mandate of TARURA and pointed out that all road reserves are categorized as parking space and therefore the road safety concerns in the parking spaces including road reserves was important.

He added that TARURA does not coordinate directly with traffic police for accident data and their coordination is through LATRA that organizes monthly meetings for road safety.

He further explained that TARURA could not access the RAIS System.

He also clarified that there was encroachment of road reserves, walkways by traders that also adds to road safety concerns as this encroachment leads to vehicle-pedestrian conflicts.

### **Major blackspots in Dar es Salaam**

2. Eng Mkinga pointed out that blackspot identification had not been done but pointed out that most of the accident occur on the roads that fall under TANROADS. He further pointed out that information on blackspot areas for TARURA roads in Dar es Salaam can be obtained at TARURA district levels because the District Managers of TARURA handle such matters.

He further explained that even though TARURA cannot access RAIS system, TARURA had their own system DROMAIS (District Road Management Integration System).

Eng. Mkinga pointed out that from his observation the major blackspot in Dar es Salaam were: Kajenge road Kinondoni (Mabatini and Usalama Junction) because the road is so narrow and there is poor visibility.

### **Countermeasures for road safety in Dar es Salaam**

3. Eng. Mkinga further pointed out that the major causes of accident was road users recklessness and therefore sensitization of road users on road safety was an important element in reducing road accidents.

### **Development Partners Projects**

4. He mentioned that the following projects were ongoing:

- ✓ TARURA had already secured Tanzania Shillings 2.5 Billion that aims at parking space improvement
- ✓ The project that TARURA has with the development organization is only DMDP (Dar es salaam Metropolitan Development Project) for Temeke, Kinondoni and Ilala, funded by World Bank
- ✓ JICA is funding the expansion of bagamoyo road.

### **Participants' List**

	<b>Name</b>	<b>Designation</b>	<b>Organization/Country</b>
1.	Eng. Geoffrey Mkinga	Road Safety Officer	Regional Director TARURA
2.	Mr. Clement Ngida	Team leader	Koei Africa
3.	Eng. Catherine Karuiki	Data Policy Analyst Expert	Koei Africa
3.	Ms. Irene Musa	Support Staff	Koei Africa



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## Chapter 8: Data Collection Survey on Road Safety Data and Management in Dar es

**Salaam**

**25<sup>th</sup> Nov 2021**

**Type: Online Meeting**

**Minutes of the Meeting**

<b>Meeting Called by</b>	JICA Tanzania Office
<b>Type of Meeting</b>	Mid-term Report review Meeting
<b>Agenda</b>	<ol style="list-style-type: none"><li>1. Opening of the meeting<ul style="list-style-type: none"><li>• Introduction of participants</li><li>• Opening remarks</li></ul></li><li>2. Presentation of the Mid-term Report</li><li>3. Question and Answer and Discussion Session</li><li>4. Next Steps</li><li>5. Closing Remarks</li></ol>

### **SUMMARY OF DISCUSSION**

#### **Opening of the meeting and introduction of participants**

1. The meeting started at 10:00 a.m.
2. Ms. Flavia welcomed all the participants and moderated the session of introductions.

#### **Opening Remarks**

3. Mr. Matsuyama Satoru the Senior Representative, JICA Tanzania, made his opening remark Road Safety is important issues when discussing infrastructural development. He explained that even EAC the regional bloc considers road safety as an important aspect in development. He explained that as Tanzania aims to be

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middle developed nation and therefore road safety was key and he gave example of the road safety issues and challenges that Japan faced in the 50s and 60s leading to road safety measures that included awareness creation in schools. He therefore stated that he hoped that the Consultants will be able to propose some countermeasures for road safety in Dar es Salaam

#### **Presentation of the Mid-term Report**

4. The presentation of the Mid-term Report Session was led by Mr. Clement Ngida the Team Leader and Eng. Catherine Karuiki. In the presentation the background, objectives and the target countries for the Study were elaborated. The methodology of the Study, data collection and analysis, gaps and proposed countermeasures were also presented.

#### **Question & Answer and Comments**

5. **Comments on the Gaps Assessment:** Mr. Lida pointed out that the problem tree needed to be two wherein one explains the road safety data and the other explains why road safety data is not properly managed.

The objective tree is presented without description and there is need for description in the MDR report.

***The Consultant agreed to revise the MDR to capture these salient issues raised.***

6. **Comments on the MDR Report:** Ms. Yoshida pointed out that the MDR should be clear on the agencies involved in road safety in Dar es Salaam.

Ms. Yoshida further requested that MDR be shared with JICA Headquarters.

***The Consultant explained the current set-up wherein LATRA organizes Road Safety Stakeholder Meeting but that also there is National Road Safety Committee which is mandate by law to manage road safety but the current policy framework has placed road safety on LATRA mandate.***

7. **Next steps:** The Consultant outline the next steps as follows:

- ✓ Finalize MDR report and submit
- ✓ Meet with Ministry of Works and Transport to discuss the countermeasures
- ✓ Work on draft final report.

#### **Closing Remarks**

8. Ms. Flavia made the closing remarks and pointed out the need for close coordination with JICA Tanzania office as the Study progresses towards finalization.

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### Participants' List

	<b>Name</b>	<b>Designation</b>	<b>Organization/Country</b>
1.	Mr. Matsuyama Satoru	Senior Representative	JICA Tanzania office
2.	Mr. IIDA Masashi	Program Advisor	JICA Tanzania office
3.	Ms. Flavia Manyanga	Program Officer	JICA Tanzania office
4.	Mr. Henry Kajange	Program Officer	JICA Tanzania office
5.	Mr. Kazono Tomohiro	Infrastructure Management Department	JICA Headquarters
6.	Ms. Yoshida	Infrastructure Management (Road Safety)	JICA Headquarters
7.	Mr. Akifumi Watanabe	Project Director	KOEI Africa
8.	Mr. Clement Ngida	Team leader	KOEI Africa
9.	Eng. Catherine Kariuki	Data Policy Analysis Expert	KOEI Africa
10.	Ms. Irene Musa	Support Staff	KOEI Africa

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## Data Collection Survey on Road Safety Data and Management in Dar es Salaam

14<sup>th</sup> December 2021

Type: Online Meeting

Minutes of the Meeting

<b>Meeting Called by</b>	JICA Study Team
<b>Type of Meeting</b>	Interview Survey
<b>Place</b>	Online
<b>Agenda</b>	<ol style="list-style-type: none"><li>1. Discussion on road safety data and management in Dar es Salaam</li><li>2. Countermeasures for road safety in Dar es Salaam</li></ol>

### SUMMARY OF DISCUSSION

#### **Discussion on the Study for Data Collection on Road Safety Data and Management in Dar es Salaam**

1. Eng. Kashinde Mussa called the meeting to order. The JST explained the background, objectives and expected outcome of the Study, the progress of work and the possible projects for road safety based on the countermeasures.

#### **Possible Projects in Dar es Salaam**

2. After presentation of possible projects, the following key issues were discussed:
  - ✓ RAIS needs to be improved to collect and harmonize RTA data collection system in order to improve accident data management and that the government was keen to undertake this improvement and that it will take involve all the road safety stakeholders, not only from Tanzania mainland but also Island (Zanzibar). The other key stakeholders that need to be involved both at planning and implementation of RAIS system are the Post-mortem, mortuary and Trauma department of major government hospitals.

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- ✓ On planning for improvement of RAIS, MOWT clarified that there was a plan to involve the University of Dar es salaam the college of ICT, which had successfully implemented a project similar to RAIS in principle this in order to enhance RAIS sustainability.
  - ✓ Legal framework for RAIS should be clear since it was not the legal responsibility of the traffic police to feed data into RAIS, and Traffic Police are responsible of completing their own accident forms and this will be duplication of efforts, and therefore legal framework for RAIS is required that will allow police to feed data into the RAIS system.
  - ✓ On Road Safety Sensitization and awareness countermeasures MOWT pointed out that this was an important countermeasure and should not be confined to mainstream media and social media but it should also include physical awareness campaigns and public forum meetings (barazas) and also Ministry of Education and Science and Technology should be included as responsible organization since the countermeasure proposes to incorporate Road safety lessons in schools' curriculum.
  - ✓ Inclusion of road safety NGOs and private sector should be considered and MOWT proposed that the Road Safety Ambassadors be included since they were actively involved in promotion of road safety in the country.
  - ✓ On installation of CCTV at the intersections to enhance enforcement of traffic rules, MOWT pointed out that this was an important countermeasure but it should be handled with care and the CCTV should be purposefully at intersections for road safety purposes and its purpose should not be divided into monitoring and solving other crimes as was the case in previous pilot study at Bwawani Morogoro and Ubenezumuzi Coastal region.
  - ✓ The most important project to be prioritized should be RTA data collection and compilation and this should have a component on RTA data sharing.
3. All countermeasures were deemed important and should be considered for implementation but since data management of RTA was the most important and therefore improvement of RAIS system was the most important.

#### **Ongoing Projects in Dar es Salaam**

4. Programme for improvement of RAIS System: The programme will be executed with stakeholder engagement especially the Traffic Police; TANROADs, TARURA, LATRA among other key stakeholders. The MOWT has requested

Ministry Finance and Planning for funds, the progress towards obtaining the funds is good but it is yet to be obtained.

5. Road Safety National Policy 2009 is under review and the MOWT is in the process of inviting stakeholders to discuss the review of the policy.
6. CCTV installation wherein pilot has been done in the coastal region but it is yet to be implemented in Dar es Salaam

### **AOB**

- i. Post-mortem and mortuary registry department should be considered as key stakeholders in RTA data management. Traffic Police have only data for RTA scene, while Ministry of Health might have data of the people brought to hospital, but post-mortem and mortuary registry have accurate data.
- ii. The economic cost of RTA should also be calculated to determine the cost of a specific RTA, the economic losses including lost economic opportunities from RTA should be elaborated that will help to sensitize policy makers and the public on the salience of road safety.
- iii. Involvement of road safety NGOs like Road Safety Ambassadors in road safety sensitization and public awareness projects

### **Participants' List**

	<b>Name</b>	<b>Designation</b>	<b>Organization/Country</b>
1.	Eng. Kashinde Mussa	Ag. Director (Road Safety and Environment)	Ministry of Works and Transport
2.	Ms. Leah Mkude	Information and Communication Officer	Ministry of Works and Transport
3.	Eng. Philip Dwese	Road Safety Engineer	Ministry of Works and Transport
4.	Eng. Mrisho Kamakole	Axle Load Engineer	Ministry of Works and Transport
5.	Mr. Clement Ngida	Team leader	Koei Africa
6.	Eng. Catherine Karuiki	Data Policy Analysis Expert	Koei Africa
7.	Ms. Irene Musa	Support Staff	Koei Africa

## Annex 2 List of Stakeholders

Organization	Name of contact person	Email Address	Mobile phone number
1. Ministry of Works, Transport and Communications (Transport Sector)	Eng. Robert Marealle	robert.marealle@uchukuzi.go.tz	+255 754 821 540
2. Ministry of Internal Affairs			
3. Ministry of Health, Community Development, Gender, Elderly and Children (MOHCDGEC) Emergency Preparedness and Response Unit	Dr. Mary M. Kitambi	magretkitambi@gmail.com	
4. Tanzania Traffic Police	SP Deus Wilbroad Sokoni	traffic.hq@tpf.go.tz sokoni@yahoo.com	+255 718 282989 +255 767 282989
5. National Road Safety Council	Henry Bantu	henrybantu@yahoo.co.uk safespeed.foundation@gmail.com	+255 784 828882
6. Tanzania National Roads Agency (TANROADS)	Eng. George Daffa	george.daffa@tanroads.go.tz	+255 754 389 608
7. Tanzania Roads Fund Board			
8. Land Transport Regulatory Authority (LATRA)	Johansen Kahatano Leo Ngowi	johansen.kahatano@latra.go.tz leo.ngowi@latra.go.tz	+255 784 871137 +255 783 223013
9. Tanzania Truck Owners Association: Roadside station	Angelina Ngalula Mohamed Abdullah	info@unifreightea.co.tz	+255 784 783255 +255 784 336611
10. Central Corridor Transit and Transport Facilitation Agency (CCTFA)	Mr. Melchoir Barantandikiye	melchiorb@centralcorridor-ttfa.org	+255684169288
11. Regional Commissioner Office	Amos Makalla		
12. Kinondoni District Commissioners	Godwin Gondwe		
13. Temeke District Commissioner	Jokate Mwegoelo		
14. Kingamboni District Commissioner	Fatuma Nyangasa		
15. Ubungo District Commissioner	Kherry James		
16. Ilala District Commissioner	Ng'wilabuza Ludigija		

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**Annex 3: Questionnaires**  
**QUESTIONNAIRE**

**DATA COLLECTION SURVEY ON ROAD SAFETY DATA AND MANAGEMENT  
IN DAR ES SALAAM.**

***Background of the Survey***

Japan International Cooperation Agency (JICA) Tanzania has commissioned a survey “Data Collection Survey on Road Safety Data and Management in Dar es Salaam City.” This technical assistance support of JICA, supports road safety in Dar es Salaam and it aims at collecting necessary information for formulating a technical cooperation project in the area of road safety based on the findings of the EAC study for Tanzania.

To obtain this relevant information concerning the road safety in Dar es Salaam, a questionnaire has been prepared and is presented below. It will be appreciated if you could facilitate the process by filling the questionnaire.

1. **Date**.....
2. **Location**.....
3. **Name of Respondent:** .....
4. **Gender:** a) Male  b) Female  (Tick appropriately)
5. **Contacts: Mobile phone number**.....



- 
6. How many hours do you drive in a day?  
\_\_\_\_\_
7. After how long of driving do you **take a break** in a day?  
\_\_\_\_\_
8. Do you wear **seat belts** while driving?  
a) **All the time**  b) **Often**  c) **Sometimes**  d) **Very rarely**  e) **Never**
9. If the answer of 3. is not a) all the time, what is the reason of your answer? (Seat belt is mandatory under the law) (**Multiple answer is allowed**)  
a) **Lazy to wear it**  b) **I forget most of the time**  c) **Safety belt is not working or available in car**  d) **I normally take short distance/ drive**  e) **No traffic police on my route**  f) **Low enforcement of wearing safety**  g) **Seatbelt does not help**  f) **Other**  (please specify \_\_\_\_\_)
10. Is there a law that restricts the use of mobile phone while driving?  
a) **No**  b) **Yes**
11. Do you use your mobile phones while driving?  
a) **All the time**  b) **Often**  c) **Sometimes**  d) **Very rarely**  e) **Never**
12. A) In your own opinion is the use of mobile phone while driving a road safety hazard?  
a) **Yes it is**  b) **No it is not**  c) **Yes but not always**  d) **No but sometimes it can be**  e) **I do not know**
- 12B) Explain your answer in 12A  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
13. Before renewing your driving licence, are you required to go for driving test?  
a) **No**  b) **Yes**
14. What is the major causes of Road Traffic Accidents in Dar es Salaam? (**Multiple answer is allowed**)  
a) **Careless driving**  b) **Reckless behaviour of other road users**  c) **Poor visibility of road traffic signage on the road**  d) **poor road conditions**  e) **poor vehicles conditions**  f) **Unregulated motorcycle riders** g) **Others**  
please specify \_\_\_\_\_

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15. A) In case of traffic jam do you overtake from the wrong side of the road?

a) **All the time**  b) **Often**  c) **Sometimes**  d) **Very rarely**  e) **Never**

B) What is the reason for overtaking from the wrong side of the road?

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16. In your own opinion, which vehicular mode is most likely to cause road traffic accidents? (Ranked 1-10 with 1 being the most likely)

	<b>Facility</b>	<b>Ranking</b>
1.	<b>Buses</b>	
2.	<b>Motorcycles</b>	
3.	<b>Trucks</b>	
4.	<b>Matatu</b>	
5.	<b>Private Cars</b>	
6.	<b>Cart</b>	
7.	<b>Bicycles</b>	
8.	<b>Tuktuk</b>	
9.	<b>Trailer</b>	
10.	<b>School Bus</b>	

Reason?

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17. In case of road traffic accidents who is normally the first responder?

- a) **Pedestrian**
- b) **Drivers from other vehicles**
- c) **Traffic police**
- d) **Ambulance paramedics**
- e) **Red Cross**

18. A) In your vehicle do you have first aid kit or equipment?

a) **No**  b) **Yes**

B) If Yes do you know how to use the kit?

a) **No**  b) **Yes**

19. A) In the road you normally use (route) are there enough road signs on the road?

a) **No**  b) **Yes**

19B If Yes do the road users obey them?

a) **No**  b) **Yes**

19C If No who enforces the law

a) **Community**  b) **Traffic Police**  c) **Other road users**  d) **No one**

20. A) Have you ever been in a Road Traffic Accident

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a) No  b) Yes

20 B) If yes who was the first responder?

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20C) Please describe the activities of the first responder

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21. Where was the Road Traffic Accident you described in 15 above?

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22. Do you think that Road Traffic Accident information is shared frequently with the Public?

a) No  b) Yes

23. A) In your own opinion do you think that sharing of the Road Traffic Accident with the public is important?

a) No  b) Yes

23B) Explain your answer in 18A)

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24. In your own words what can be done to improve road safety of drivers?

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**\*\*\* Thank you for your kind cooperation\*\*\***

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## QUESTIONNAIRE

### DATA COLLECTION SURVEY ON ROAD SAFETY DATA AND MANAGEMENT IN DAR ES SALAAM.

#### ***Background of the Survey***

Japan International Cooperation Agency (JICA) Tanzania has commissioned a survey “Data Collection Survey on Road Safety Data and Management in Dar es Salaam City.” This technical assistance support of JICA, supports road safety in Dar es Salaam and it aims at collecting necessary information for formulating a technical cooperation project in the area of road safety based on the findings of the EAC study for Tanzania.

To obtain this relevant information concerning the road safety in Dar es Salaam, a questionnaire has been prepared and is presented below. It will be appreciated if you could facilitate the process by filling the questionnaire.

1. **Date**.....
2. **Location**.....
3. **Name of Respondent**:... ..
4. **Gender**: a) Male  b) Female  (**Tick appropriately**)
5. **Contacts: Mobile phone number**.....

- 
6. Are you a motor taxi driver (Bodaboda)?  
a) Yes  b) No  c) Other  (Please specify \_\_\_\_\_)
7. Do you use your mobile phone while riding your motorcycle?  
a) All the time  b) Often  c) Sometimes  d) Very rarely   
e) Never
8. Why do you use your mobile phone whilst riding the motorcycle? Tick all that apply  
a) To make calls b) To text c) To Chat d) To take selfie e) To listen to music f) To check my social media status g) Other, please specify \_\_\_\_\_
9. On average how many passengers do you carry at a go?  
a) 1  b) 2  c) 3  d) More than 3
10. a) Where did you learn to ride a motorcycle from?  
a) Driving school  b) Friend  c) Relative  d) On my own   
b) If you learnt from a **Driving school** in the above question were you given a driving license?  
Yes  No
11. Do you wear a helmet when riding your motorcycle?  
a) All the time  b) Often  c) Sometimes  d) Very rarely   
e) Never
12. Do you ensure your passenger(s) wears a helmet?  
a) All the time  b) Often  c) Sometimes  d) Very rarely   
e) Never
13. While on the road do you wear a safety reflective vest/jacket for easy visibility by other motorists?  
a) All the time  b) Often  c) Sometimes  d) Very rarely   
e) Never
14. Do you also have a safety reflective vest/jacket for your passenger(s)?  
a) All the time  b) Often  c) Sometimes  d) Very rarely   
e) Never
15. Have you ever used pedestrian pathways while driving motorcycle?  
a) All the time  b) Often  c) Sometimes  d) Very rarely   
e) Never

- 
16. If the answer of above 10 is from a) to c), what was the reason of doing so? (Multiple answer is allowed)
- a) **To avoid traffic jam**  b) **in a hurry** c) **other reason**  d) **Police is not there or they don't care** e) **Other**  (Please specify \_\_\_\_\_)
17. Have you ever ridden on oncoming traffic lane?
- a) **All the time**  b) **Often**  c) **Sometimes**  d) **Very rarely**   
e) **Never**
18. If the answer of above 12 is from a) to c), what is the reason of you doing so? (Multiple answer is allowed)
- a) **To avoid traffic jam**  b) **in a hurry** c) **other reason**  d) **Police is not there or they don't care** e) **Other**  (Please specify \_\_\_\_\_)
19. In sections where the road is dual carriage what do you do to get to the opposite side of the traffic?
- a) **Go to the nearest turn/roundabout**   
b) **Cross the road on the kerb divider**   
c) **Use a pedestrian footbridge/underpass**   
d) **Turn and go against traffic**
20. Since the advent of COVID-19 which of the following measures do you take? (More than one answer is allowed)
- a) **Frequent hand washing**   
b) **Use of hand sanitizer**   
c) **Wearing of masks**   
d) **Maintaining social distance**
21. a) Do you fumigate your motorcycle?  
**Yes**  **No**
- b) if yes how frequent?
- a) **Once a day**  b) **After every trip**  c) **Once in a month**   
d) **Once in a while**
22. In your opinion which vehicular mode is likely to cause a road accident?
- a) **Private vehicle**  b) **Bus**  c) **Truck**  d) **Motorcycle**   
e) **Bicycle**  f) **Daladala**  g) **Others, please specify** \_\_\_\_\_
23. What could be the cause of accident by the vehicular mode selected above?
- a) **The drivers are careless**  b) **The drivers are not properly trained**   
c) **There is weak enforcement of traffic law for this vehicular type**

- 
- d) Other reason, please specify**\_\_\_\_\_
24. Which type of accident do you normally encounter?
- a) Car and another car
  - b) Car and a motorcycle
  - c) Car and pedestrian
  - d) Motorcycle and pedestrian
  - e) Others, please specify\_\_\_\_\_
25. As a key road user how often do you find a case of road traffic accidents?
- a) Daily
  - b) Weekly
  - c) Once in a month
  - d) Yearly
  - e) Never
26. Which is the most dangerous location for motorcyclists in your opinion?
- \_\_\_\_\_
27. A) Is there a dedicated wing for road traffic accident in the local hospital?
- a) No
  - b) Yes
  - c) Not sure
- B) If yes who amongst the road users are the main casualties admitted at the dedicated wing for RTA victims?
- a) Pedestrian
  - b) Car Driver
  - c) Passengers
  - d) Motorcyclist
  - e) Cyclist
28. Do you have any basic first aid skills that you can use to assist traffic accident victim?
- a) Barely
  - b) No
  - c) Yes
  - d) Well trained
29. Have you ever assisted a traffic accident victim before?
- a) No
  - b) Yes
  - c) Not sure
30. From your own experience could who is the first responder at the scene of an accident?
- a) Pedestrians
  - b) Drivers from other vehicles
  - c) Motorcyclists
  - d) Police
  - e) Ambulance paramedics
  - f) Others, please specify\_\_\_\_\_
31. In your own words what can be done to improve road safety of motorcyclists?
- \_\_\_\_\_
- \_\_\_\_\_

**\*\*\*Thank you for your kind cooperation\*\*\***

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## QUESTIONNAIRE

### DATA COLLECTION SURVEY ON ROAD SAFETY DATA AND MANAGEMENT IN DAR ES SALAAM.

#### ***Background of the Survey***

Japan International Cooperation Agency (JICA) Tanzania has commissioned a survey "Data Collection Survey on Road Safety Data and Management in Dar es Salaam City." This technical assistance support of JICA, supports road safety in Dar es Salaam and it aims at collecting necessary information for formulating a technical cooperation project in the area of road safety based on the findings of the EAC study for Tanzania.

To obtain this relevant information concerning road safety in Dar es Salaam, a questionnaire has been prepared and is presented below. It will be appreciated if you could facilitate the process by filling the questionnaire.

1. **Date**.....
2. **Location**.....
3. **Name of Respondent**:... ..
4. **Gender**: a) Male  b) Female  (**Tick appropriately**)
5. **Contacts: Mobile phone number**.....



---

6. How often do you use public transport?

- b) All the time       b) Often       c) Sometimes       c) Very rarely   
d) Never

7. What is your preferred mode of road public transport?

- a) Daladala       b) Commercial Motorcycle (Bodaboda)       c) Three wheeled vehicle (Tuktuk)       d) BRT       e) Other specify

8. Where do you usually start your journey and finish?

Start \_\_\_\_\_ Finish \_\_\_\_\_

9. A) How would you rate the driving behaviour of public transport in Dar es Salaam?

**i. Daladala**

- a) Excellent       b) Good       c) Fair       d) Poor       e) Very Bad

B) If the answer is d) or e), why have you rated them as such?

- a) Driving manner/style       b) Driving behavior       c) They don't observe traffic rules       d) Others  (please specify \_\_\_\_\_)

10. A) How would you rate the driving behaviour of public transport in Dar es Salaam?

**ii. Commercial Motorcycle (Bodaboda)**

- a) Excellent       b) Good       c) Fair       d) Poor       e) Very Bad

B) If the answer is d) or e), why have you rated them as such?

- a) Driving manner/style       b) Driving behavior       c) They don't observe traffic rules       d) Others  (please specify \_\_\_\_\_)

11. A) How would you rate the driving behaviour of public transport in Dar es Salaam?

**iii. BRT**

- a) Excellent       b) Good       c) Fair       d) Poor       e) Very Bad

B) If the answer is d) or e), why have you rated them as such?

- a) Driving manner       b) Driving behavior       c) They don't observe the rules       d) Others  (please specify \_\_\_\_\_)

12. A) How would you rate the driving behaviour of public transport in Dar es Salaam?

---

iv. **Three wheeled vehicle (Tuktuk)**

- a) **Excellent**  b) **Good**  c) **Fair**  d) **Poor**  e) **Very Bad**

**B) If the answer is d) or e), why have you rated them as such?**

- a) **Driving manner**  b) **Driving behavior**  c) **They don't observe the rules**  d) **Others**  (please specify \_\_\_\_\_)

13. What time do you consider most vulnerable to Road Traffic Accident in Dar es Salaam?

- a) **Daytime**  b) **Night-time**

14. A) Have you ever been involved in a road traffic accident?

- a) **Yes**  b) **No**

9B) If yes, which mode of transport were you using?

- a) **Daladala**  b) **Motorcycle**  c) **Three wheeled vehicle (Tuktuk)**  d) **BRT**  e) **Other specify** \_\_\_\_\_

9C) Did you suffer from any injuries when you were in that RTA?

- a) **Yes**  b) **No**

9D) Which road did that particular Accident occur?

---

9E) Who was first responder to this accident?

- a) **Traffic police**   
b) **Ambulance paramedics**   
c) **Goodwill ambassadors**   
d) **Other specify** \_\_\_\_\_

9F) Can you remember the activities of the first responder?

- a) **Yes**  b) **No**

9G) If yes Kindly describe those activities of the first responder?

- a) \_\_\_\_\_  
b) \_\_\_\_\_

15. What do you consider as the main cause of road accidents within and around Dar es Salaam?

- a) \_\_\_\_\_  
b) \_\_\_\_\_

16. Who are the first responders to the scene in case of a road traffic accident?

- e) **Traffic police**

- 
- f) **Ambulance paramedics**  
g) **Pedestrians**  
h) **Passengers using other means**  
i) **Other specify** \_\_\_\_\_
17. A) What are some of the hazards that you can see on the roads you normally use?  
a) **Heavy Traffic**     b) **Road potholes**     c) **Poor road surface**   
    c) **Blind curves or bends**     d) **Other specify** \_\_\_\_\_
- 12B) Rate the risk level associated with the roads you normally use.  
a) **High**     b) **Low**     c) **Medium**
18. How would you rate the driving skills while using public transport?  
a) **Excellent**     b) **Good**     c) **Fair**     c) **Poor**
19. Do you always wear seat belts while using public transport?  
a) **Yes**     b) **No**
- If yes how often?  
a) **All the time**     b) **Often**     c) **Sometimes**     c) **Very rarely**  
        d) **Never**
20. Is the wearing of seatbelt mandatory while using public transport?  
a) **Yes**     b) **No**
21. Do public transport operators usually exceed the normal vehicle carrying capacity?  
a) **Yes**     b) **No**
22. Do the vehicles you use observe the government regulated speed requirement?  
b) **Yes**     b) **No**
23. Where do you usually alight or board when using public transport?  
a) **Legal Bus stop**     b) **Illegal Bus stop**
24. Do the drivers in the vehicle you board observe traffic signs along your journey?  
a) **Yes**     b) **No**
25. A) Are the traffic policy and regulations enforced by the traffic police to ensure road safety?  
a) **Yes**     b) **No**
- If yes, do you think it has contributed to promotion of road safety?  
a) **Yes**     b) **No**

---

26. In your own opinion what should be done to improve road safety in Dar es Salaam?

- a) \_\_\_\_\_
- b) \_\_\_\_\_

**\*\*\*Thank you for your kind cooperation\*\*\***

## Annex 4: RTA Form

TANZANIA Accident Form Sheet - AFS Page 1 (Version: V33 EN)																			
<b>A SCENE OF ACCIDENT &amp; SEVERITY</b>										Accid. Reg.No. . . . /TR/AR/. . . . . /20 . . .		Superv. Check		OCS Check					
1	Police Stat.				Number		Name		Sign. Date		Accident Severity (Numbers)			Hit & Run					
2	District	Police Officer 1									Fatality (n)		Simple Injury (n)						
3	Region	Police Officer 2									Severe Injury (n)		Only Damage						
<b>B TIME AND LOCATION</b>										Latitude (°)		Longitude (°)							
Accident Date: Day [ ] Month [ ] Year [ ] Time: H(24) [ ] M(60) [ ] Area of Accident: Area Name [ ] District [ ] City/Region [ ] Road: Name [ ] No. [ ] KM (mark) [ ] Intersection: [ ]																			
<b>C 1st VEHICLE &amp; DRIVER</b>										Not Injured		Simple Injury		Severe Injury		Fatal			
<b>Driver 1: DETAILS</b>					<b>Vehicle 1: DETAILS</b>					<b>Vehicle 1: INSURANCE</b>									
2	Surname				Vehicle Type (see next page)				Insurance Comp.										
3	Other Names				Vehic. Regist. N°				Insurance Type										
4	Physic. Address				Owner full name				Phone Number										
5	Postal Address				Nationality				Policy Number										
6	National ID				Physical Address				Expire Date										
7	Nationality				Postal Address				Estim. Repair TSH										
8	Gender				Vehic. Brand/Mod.				<b>Damage</b> Vehicle [ ] Vehicle Total [ ] Infrastructure [ ] Rescue cost [ ]										
9	Date of Birth				Year of manufact.														
10	Phone No				Chassis N°														
11	Driving Lic. ID				Drugs														
12	Occupation				Alcohol [%]				Seat Belt/Helmet use										
<b>D 2nd VEHICLE &amp; DRIVER</b>										Not Injured		Simple Injury		Severe Injury		Fatal			
<b>Driver 2: DETAILS</b>					<b>Vehicle 2: DETAILS</b>					<b>Vehicle 2: INSURANCE</b>									
2	Surname				Vehicle Type (see next page)				Insurance Comp.										
3	Other Names				Vehic. Regist. N°				Insurance Type										
4	Physic. Address				Owner full name				Phone Number										
5	Postal Address				Nationality				Policy Number										
6	National ID				Physical Address				Expire Date										
7	Nationality				Postal Address				Estim. Repair TSH										
8	Gender				Vehic. Brand/Mod.				<b>Damage</b> Vehicle [ ] Vehicle Total [ ] Infrastructure [ ] Rescue cost [ ]										
9	Date of Birth				Year of manufact.														
10	Phone No				Chassis N°														
11	Driving Lic. ID				Drugs														
12	Occupation				Alcohol [%]				Seat Belt/Helmet use										
<b>E PASSENGER per VEHICLE / PEDESTRIAN / WITNESS</b>																			
1	Passengers	Vehicle 1: PASSENGER 1			Vehicle 1: PASSENGER 2			Vehicle 1: PASSENGER 3			Vehicle 2: PASSENGER 1			Vehicle 2: PASSENGER 2			Vehicle 2: PASSENGER 3		
2	Name																		
3	Gender																		
4	Date of Birth																		
5	Phys. Address																		
6	Postal Address																		
7	National ID																		
8	Phone N°																		
9	Drugs																		
10	Alcohol [%]																		
11	Seat Belt (Y/N)																		
11	Helmet (Y/N)																		
11	Casualty	Fatal	Severe	Light	Fatal	Severe	Light	Fatal	Severe	Light	Fatal	Severe	Light	Fatal	Severe	Light	Fatal	Severe	Light
12	Other	Pedestrian A			Pedestrian B			Pedestrian C			Witness			Other 1			Other 2		
13	Name																		
14	Gender																		
15	Date of Birth																		
16	Phys. Address																		
17	Postal Address																		
18	National ID																		
19	Phone N°																		
20	Drugs																		
20	Alcohol [%]																		
21	Casualty	Fatal	Severe	Light	Fatal	Severe	Light	Fatal	Severe	Light	Fatal	Severe	Light	Fatal	Severe	Light	Fatal	Severe	Light
<b>F SIGNATURES</b>																			
1	Date	Police			Driver A			Driver B			Witness								
2	Name																		
3	Signature																		

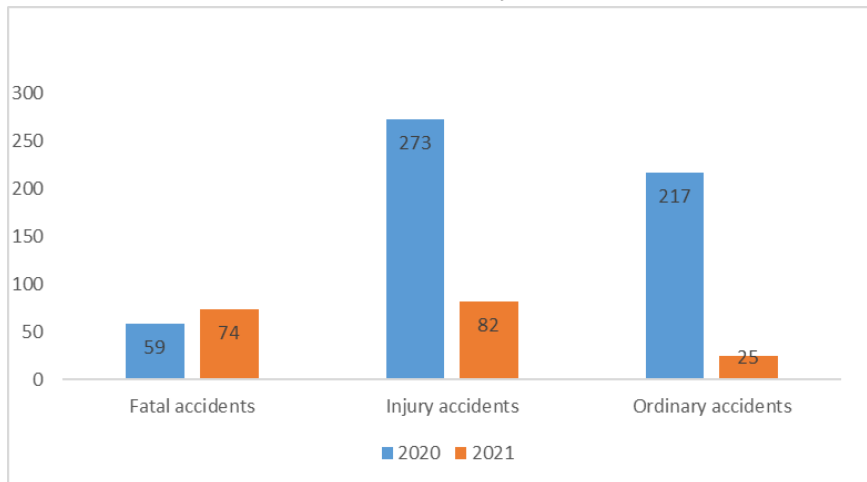
TANZANIA Accident Form Sheet - AFS Page 2 (Version: V33 EN)

G ACCIDENT TYPE CLASSIFICATION IN 7 CATEGORIES "CAT" (tick only one most relevant)																																																																																		
<b>CAT. 1: Single vehicle accidents</b>																																																																																		
101 Leave road to left in left corner 	102 Leave road straight from right corner 	103 Leave straight road to the side 	104 Leave road straight in left corner 	105 Leave road to the right in right corner 	106 Center collision roundabout 	107 Leave road within crossing or diverge 	108 Reverse or return 	109 Falling or injury within vehicle 	110 Coll. with fixed obstacles on road 	111 Tree on car 																																																																								
<b>CAT. 2: Accidents between vehicles driving same travel direction (2 or more vehicles)</b>																																																																																		
112 Car Burning 	201 Collision while passing 	202 Lane change to left 	203 Lane change left 2nd veh. leav. roa. 	204 Lane change to right 	205 Lane change right 2nd veh. leav. roa. 	206 Coll. roundabout incoming vehic. 	207 Rear accid. outside junct. on road 	208 Rear side accident left corner 	209 Rear side accident right corner 	210 Rear accid. junct. 1st veh. stops 																																																																								
<b>CAT. 3: Accidents between vehicles driving opposite travel direction (2 or more vehicles)</b>																																																																																		
211 Collision while entering from left 	212 Coll. other vehicle by reversing 	213 Collision while entering from left 	214 Collision while entering from right 	301 Head coll. while changing lane 	302 Leave / change left due op. veh. 	303 Leave left corner left due op. veh. 	304 Leave right corner left due op. veh. 	305 Leave / change right due op. veh. 	306 Leave left corner right due op. veh. 	307 Grazing collision on straight road 																																																																								
<b>CAT. 4: Accidents at a junction turning in same or oppo. direction (2 or more veh.)</b>																																																																																		
308 Head collision on straight road 	309 Head collision in corner 	310 Head collision while passing 	311 Head on or graze coll. left corner 	312 Head on or graze coll. right corner 	401 Collision left turn with straight drive 	402 Collision 2 left turning vehicles 	403 Rear accident while turning right 	404 Coll. right turn with straight drive 	405 Coll. of 2 right turning vehicles 																																																																									
<b>CAT. 5: Collision at a junction between two or more participants</b>																																																																																		
406 Coll. turn. right with op. stral. veh. 	407 Coll. of 2 oppo. right turn. vehicles 	408 Collision turning to same direction 	409 Turn. left with other (tram/bicy.) 	410 Collision while U-turn within junct. 	411 Coll. U-turn at junction same dir. 	501 Collision in same dir. right turn 	502 Coll. opposing traffic left turn 	503 Coll. opposing traffic right turn 	504 Collision of two left turn. vehicles 	505 Collision of two right turn. veh. 																																																																								
<b>CAT. 6: Accidents w. parked vehicles</b>						<b>CAT. 7: Pedestrian, animals and other accidents</b>																																																																												
506 Coll. of left and right turn. vehicles 	507 Collision 2 vehicles driving straight 	601 Parked vehicle, rear accident 	602 Parked vehicle while pass. right 	603 Parked vehicle while passing left 	701 Ped. crosses after minor road left 	702 Ped. crosses before minor road 	703 Ped. walks parall. vehicle turn left 	704 Ped. walks parall. vehicle turn right 	705 Ped. walks oppo. vehicle turn right 	706 Coll. outside junct. Ped. from left 																																																																								
707 Coll. outs. jun., Ped. from right 	708 Pedestrian walks on road left 	709 Pedestrian walks on road right 	710 Coll. pedestrian on road side 	711 Coll. with ped. while reversing 	712 Coll. ped. enter. an entrance 	713 Collision ped. leav. an entrance 	714 Coll. pedestrian roundabout 	715 Animal on the road 	716 Accident with train 	717 Coll. on Ferry manoeuvring 																																																																								
<b>H VEHICLE TYPE CLASSIFICATION (choose and note in Page 1 under "Vehicle XY: DETAILS")</b>																																																																																		
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## Annex 5: RTA Data for Dar es Salaam

YEAR REGIONAL TRAFFIC RETURN FOR 2020 (source of data Dar es Salaam Traffic Police Regional Office)

- a) Total number of accidents.....549
- 59 Fatal accidents
  - 273 Injure accidents
  - 217 Ordinary accidents

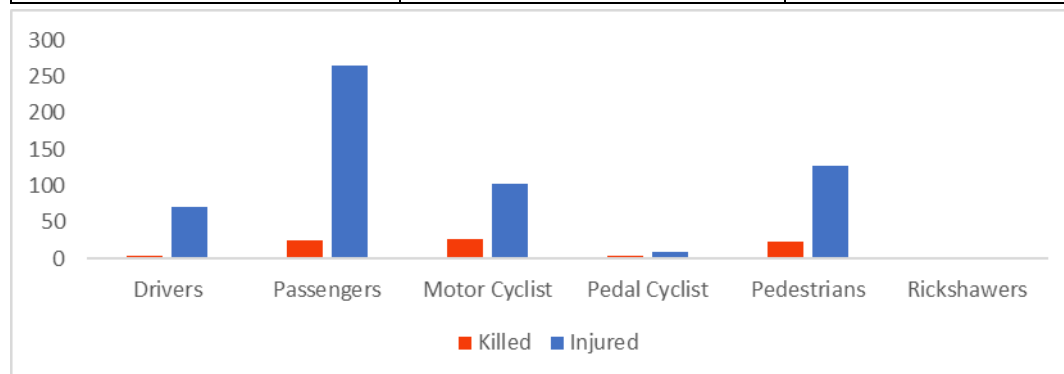


Source: JICA Study Team

**Figure A5-1: Trends of RTA 2020-2021**

- b) RTA Deaths and Injuries
- i. Classes of persons killed and injured

Class of persons	Killed	Injured
Drivers	3	70
Passengers	24	265
Motor Cyclist	26	103
Pedal Cyclist	3	9
Pedestrians	23	128
Rickshawers	-	2
<b>TOTAL</b>	<b>79</b>	<b>577</b>

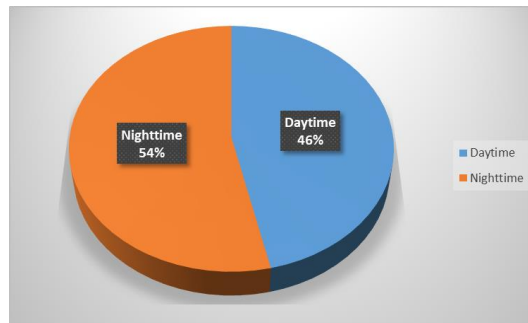


Source: JICA Study Team

**Figure A5-2: Classes of persons killed and injured in RTA 2020**

ii. Time and weather condition during accidents including death and injured persons

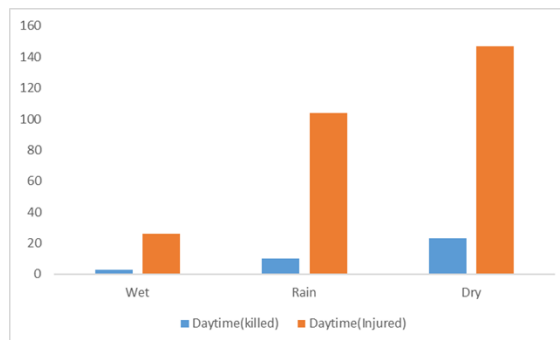
Weather condition	No. of accidents daytime	Killed	Injured	No. of accidents nighttime	Killed	Injured
Wet	16	3	26	69	3	44
Rain	72	10	104	80	12	97
Dry	167	23	147	145	21	161
Fogg	-	-	-	-	-	-
Slippery	-	-	-	-	-	-
<b>Total</b>	<b>255</b>	<b>36</b>	<b>277</b>	<b>294</b>	<b>36</b>	<b>302</b>



Source: JICA Study Team

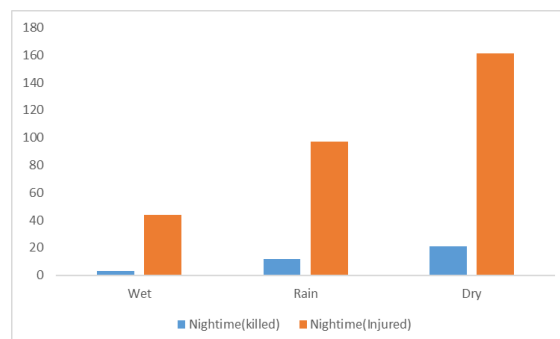
**Figure A5-3: RTA Occurrences during daytime and nighttime in 2020**

Weather conditions vis-à-vis RTA in Dar es Salaam



Source: JICA Study Team

**Figure A5-4: Weather conditions vis-à-vis RTA during daytime in 2020**



Source: JICA Study Team

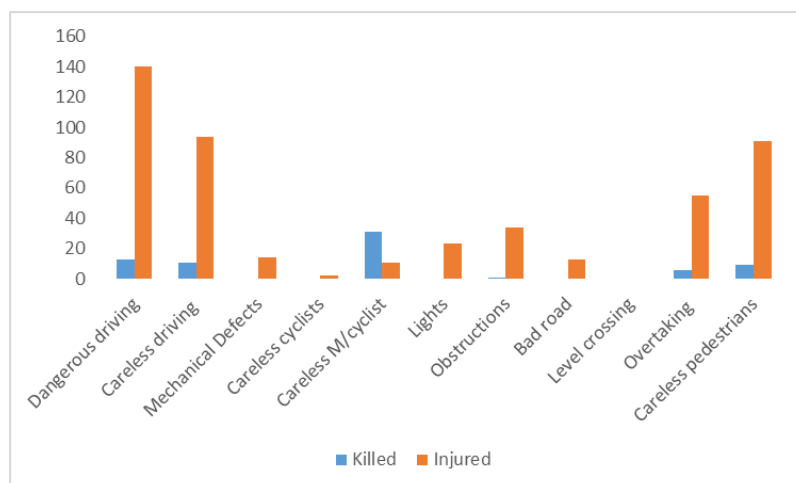
**Figure A5-5: Weather conditions vis-à-vis RTA during nighttime in 2020**

iii. Primary causes



RTA Causes	No of vehicles involved	Accident	Killed	Injured
Dangerous driving	133	83	13	140
Careless driving	238	136	11	94
Mech Defects	39	25	-	14
Fire	2	2	-	-
Careless cyclists	2	2	-	2
Careless M/cyclist	155	121	31	11
Lights	13	9	-	23
Obstructions	41	21	1	34
Bad road	40	24	-	13
Overtaking	75	61	6	55
Careless pedestrians	79	57	9	91
Drivers	7	3	-	-
<b>Total</b>	<b>824</b>	<b>549</b>	<b>71</b>	<b>577</b>

Total number of vehicles involved in accident was 824 in which 559 vehicles were involved in serious accident. The graph below shows analysis of the persons killed and injured.



Source: JICA Study Team

**Figure A5-6: Primary causes of RTA in 2020**

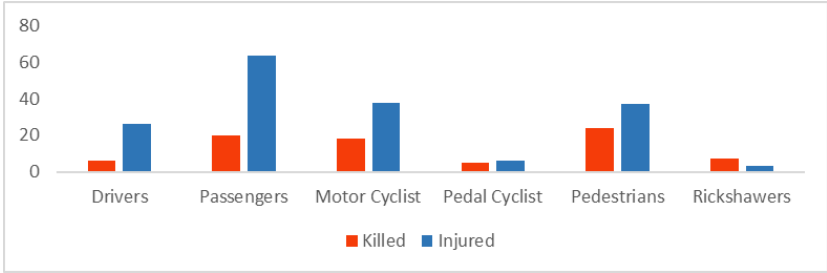
YEAR REGIONAL TRAFFIC RETURN FOR 20212020 (source of data Dar es Salaam Traffic Police Regional Office)

- a) Total number of accidents.....181
  - 74 Fatal accidents
  - 82 Injured in accidents
  - 25 Ordinary accidents

b) RTA Deaths and Injuries

i. Classes of persons killed and injured

Class of persons	Killed	Injured
Drivers	6	26
Passengers	20	64
Motor Cyclist	18	38
Pedal Cyclist	5	6
Pedestrians	24	37
Rickshawers	7	3
<b>Total</b>	<b>80</b>	<b>174</b>

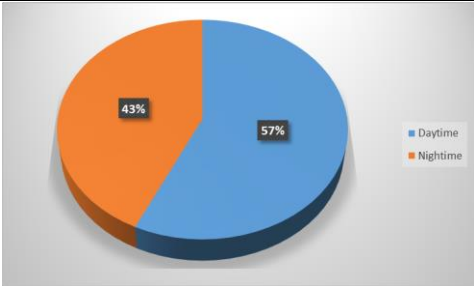


Source: JICA Study Team

Figure A5-7: Classes of persons killed and injured in RTA 2021

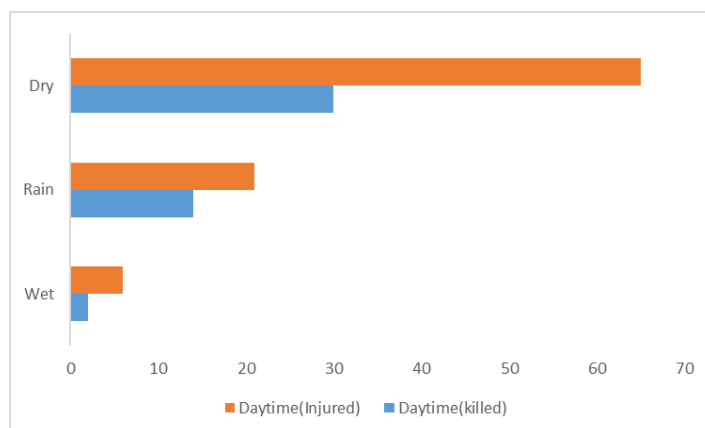
ii. Time and weather condition during accidents including death and injured persons

Weather condition	No. of accidents daytime	Killed	Injured	No. of accidents nighttime	Killed	Injured
Wet	14	2	6	3	-	4
Rain	13	14	21	18	7	22
Dry	71	30	65	53	28	58
Fogg	-	-	-	-	-	-
Slippery	-	-	-	-	-	-
<b>Total</b>	<b>98</b>	<b>56</b>	<b>92</b>	<b>74</b>	<b>35</b>	<b>84</b>



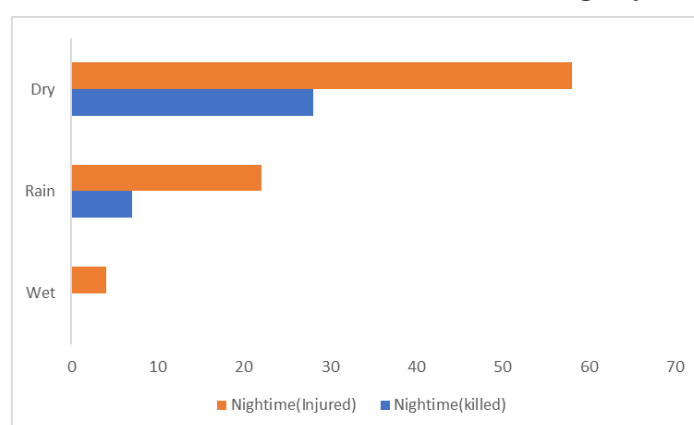
Source: JICA Study Team

Figure A5-8: RTA Occurrences during daytime and nighttime in 2021



Source: JICA Study Team

**Figure A5-9: Weather conditions vis-à-vis RTA during daytime in 2021**



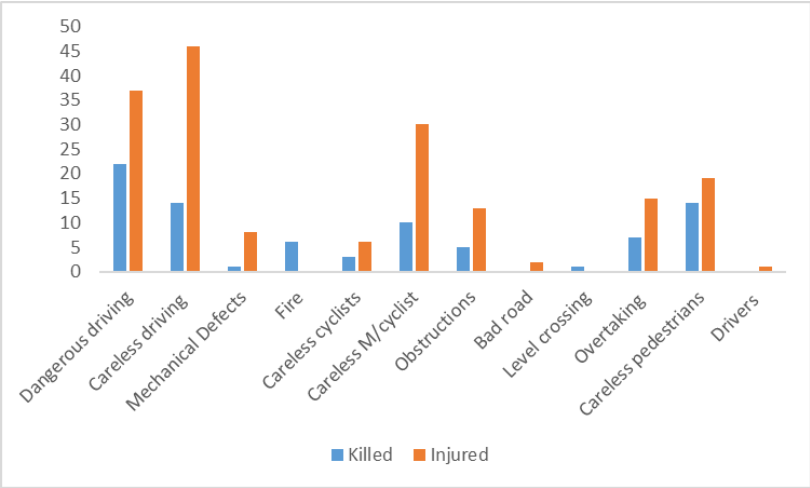
Source: JICA Study Team

**Figure A5-10: Weather conditions vis-à-vis RTA during night-time in 2021**

### iii. Primary causes

RTA Causes	No of vehicles involved	Accident	Killed	Injured
Dangerous driving	64	37	22	37
Careless driving	53	24	14	46
Mech Defects	10	8	1	8
Fire	1	1	6	-
Careless cyclists	8	12	3	6
Careless M/cyclist	38	37	10	30
Excessive speed	3	-	-	-
Animal stray	3	3	-	-
Lights	13	11	-	-
Obstructions	1	9	5	13
Bad road	17	7	-	2
Level crossing	-	2	1	-
Overtaking	19	13	7	15
Careless pedestrians	35	21	14	19
Drivers	1	2	-	1
motorcyclist	1	2	-	-
Pedal cyclist	1	1	-	-
Pedestrians	1	-	-	-
<b>Total</b>	<b>269</b>	<b>190</b>	<b>83</b>	<b>177</b>

Total number of vehicles involved in accident was 269 in which 190 vehicles were involved in serious accident. The graph below shows analysis of the persons killed and injured.



Source: JICA Study Team

**Figure A5-11: Primary causes of RTA in 2021**