



The Ministry of Works
and Transport, Tanzania

FINAL REPORT

A Road Infrastructure Safety Strategy for Tanzania

MARCH 2023



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This work is the result of the WG1 efforts. Special thanks to John Milton (PIARC) for his guidance and contribution.

Other resources about the Ten Step Project in Tanzania can be accessed on:

<https://www.gtkp.com/themepage/road-safety/ten-step-plan-for-safer-road-infrastructure/ten-step-project-tanzania/>

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1 Introduction and Background

1.1. Introduction

The ‘Ten Step Plan for Safer Road Infrastructure’ framework was developed in 2019 by the United Nations Road Safety Collaboration (UNRSC) ‘Safer Roads and Mobility’ group. It is designed to provide countries with a proven step by step process to build national capacity for safer road infrastructure, and to help them achieve Targets 3 and 4 of the World Health Organisation’s (WHO) road safety performance targets.

Tanzania is the very first country in the world implementing the Ten Step Plan via a project jointly funded by the United Nations Road Safety Fund (UNRSF) and the Global Road Safety Facility (GRSF) of the World Bank.

The specific objectives of the Ten Steps project in Tanzania are:

1. Provide support to review and update road design standards and infrastructure safety strategy and action plan.
2. Provide training on road safety audits, road safety engineering and on road assessments via iRAP methodology,
3. Support the establishment of a Tanzania Road Assessment Program (TanRAP).
4. Support the establishment of a national training, accreditation and certification scheme.
5. Support iRAP assessments of existing roads, designs and upgraded roads.
6. Support Road Safety Audits on new or existing roads, or proposed road designs.
7. Perform evaluations of the effectiveness of project activities.

Three technical working groups were established to deliver on these objectives. Working Group 1 (WG1) was established to develop and support the review and/or development of the national Road Infrastructure Safety Strategy and Action Plan.

Core membership of the Working Group included representation from the following stakeholders:

- Ministry of Works & Transport
- Tanzania Road Fund Board
- Tanzania National Roads Agency (TANROADS)
- Tanzania Rural and Urban Roads Agency (TARURA)
- Academic Institutions
- Other relevant national bodies competent and with expertise on infrastructure management
- Representative of the Project Core Group (IRF, TARA, iRAP, PIARC, UNECA)

This document “A Road Infrastructure Safety Strategy for Tanzania” is the result of WG1s efforts. The document presents recommendations for a Tanzanian national road infrastructure safety strategy for the period of 2021-2030. The suggested action plan seeks to provide for the development, implementation, monitoring and evaluation of safety interventions. It is intended to be a component of a comprehensive national road safety strategy and action plan.

1.2. The Human Impact of Road Trauma in Tanzania

More than 40 people are killed in road crashes every day in Tanzania¹. Road crashes are the leading cause of death for young people. But this is just the tip of the iceberg. It is estimated that more than 1,000 people suffer injuries every day, including severe brain injury, quadriplegia, fractures, internal injuries and burns. Road crashes often result in life-long suffering and disability and place a huge toll on families and communities.

Apart from the emotional impact of serious injury crashes, the cost of emergency response, trauma wards and long-term health care is immense. International insurance claim data shows that more than half of all costs occur more than two years after a crash, buried deep within health and social welfare systems.

We also know that the cost of road crashes is borne by victims and society differently around the world. For example, a road crash victim with a treatable injury in a country with advanced health and welfare systems is likely to receive the adequate treatment to achieve a fast and full recovery. In a country with a less developed health and welfare systems, the same victim is less likely to achieve a fast, or even full, recovery. In the first case, the costs of the crash are experienced in a short period and borne mostly by health and welfare systems. While in the second case, the costs are often extended over a long period of time and are often borne by the victim and their family, impacting both quality of life and economic opportunity for multiple generations.

To support debate about the right scale of response to this enormous level of trauma and cost, iRAP has drawn on data from the World Health Organization, Transport Accident Commission (TAC), Institute for Health Metrics and Evaluation, and the International Monetary Fund (IMF) to make simple, high-level estimates of the types of injuries that may be occurring in Tanzania, and their costs. The estimates show, for example, that every year more than 5,000 people are likely to suffer severe acquired brain injuries, more than 67,000 people suffer limb fractures and more than 30,000 people suffer internal injuries. Without intervention, fatalities and injuries will likely increase with growing population and motorization. The costs of injuries significantly exceed the costs of road deaths.

¹ Global Status Report on Road Safety 2018. World Health Organization

Figure 1: Estimated annual deaths and injuries in Tanzania, and their costs (Tanzanian Shillings)

NEW VICTIMS EVERY YEAR	HUMAN IMPACT	NEW COST PER YEAR
16,252	Lives Lost	2672.9 billion
5,142	Sever Acquire Brain Injury	1902.2 billion
36,072	Brain Injury (Mild)/Head Injury	1528.6 billion
67,279	Fractures – Limb	982.1 billion
30,970	Internal injuries	714.8 billion
396	Quadriplegia	225.2 billion
25,134	Fractures – Other	216.3 billion
89,259	Contusion/Abrasion Laceration	199.1 billion
514	Paraplegia	195.3 billion
69,085	Soft Tissue (Neck/Back/Whiplash)	190.3 billion
3,466	Other Spinal	139.8 billion
8,446	Dislocation	110.5 billion
31,394	Other Injuries	93 billion
4,111	Degloving	65.6 billion
21,889	Sprains/Strains	40.3 billion
753	Amputations	30.2 billion
11,266	Concussion	29.3 billion
823	Burns (Severe/Moderate)	15.4 billion
187	Nerve Damage	2.3 billion
114	Loss of Sight/Eyes	2.1 billion
422,552	TOTAL	9355.3 billion

Details on the methodology used to create these estimations are available at: <https://irap.org/global-toll/>.

1.3. Current Status

1.3.1. Road Users

In 2016, Tanzania reported 3,256 fatalities² making it one of the leading countries in East Africa with high levels of road crashes. The cause of road crashes and deaths are unsafe road infrastructure and human errors, vehicle defects, high vehicle speeds and inadequate responses to road crash victims. It is noted that there are significant differences between Tanzania reported and WHO estimates of fatalities and serious injuries.

1.3.2. Policy and Laws

The Ministry of Home Affairs is the custodian of legislation associated with Road Traffic management.

The policy framework related to road safety in Tanzania comprises the following:

1. Tanzania Development Vision 2025 was launched in 1999.
2. Five-Year Development Plans. First 2011/12 to 2015/16; Second 2016/17 to 2020/21; Third 2021/22 to 2025/26.
3. United Nations Sustainable Development Goals (SDGs).

² <https://www.roadsafetyfacility.org/country/tanzania>

4. National Strategy for Growth and Reduction of Poverty II (MKUKUTA II).
5. Kilimo Kwanza (Agriculture First).
6. National Transport Policy (2003).
7. National Road Safety Policy (2009)

The legal framework related to road safety in Tanzania comprises the following:

1. Roads Act No. 13 of 2007.
2. Road Management Regulations 2013.
3. Road Traffic Act Cap 168 of 1974.

1.3.3. Funding

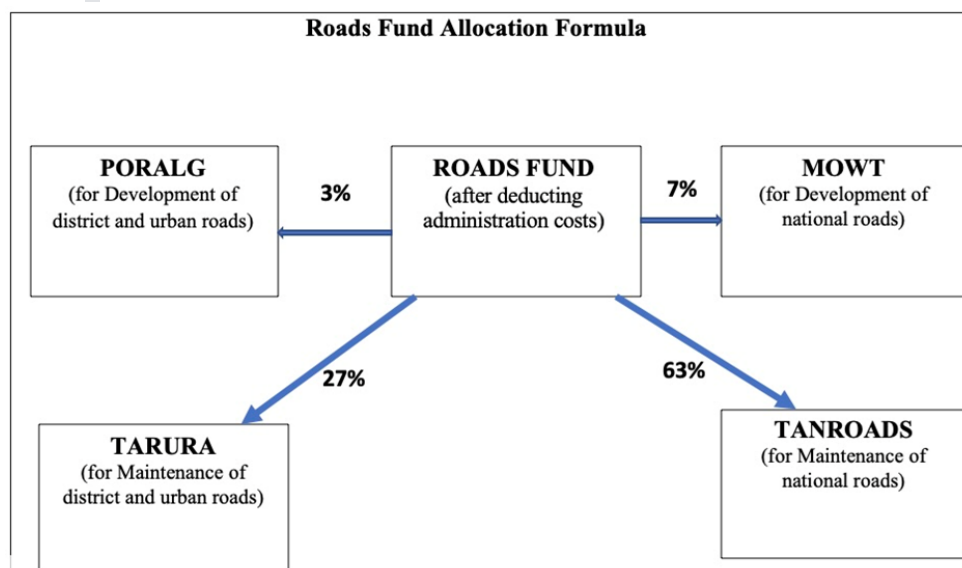
The Roads Fund Board mainly finances road maintenance of Tanzania’s road network established through the Roads Tolls Amendment No 2 Act of 1998. This has improved the road condition of the road network, but the financing only meets 50% of the total maintenance needs. Efforts to improve the funding are ongoing and must be approved by the Ministry of Finance and Planning. A Roads Fund Board comprises members from both the public and private sectors that manage the Roads Fund. The functions of the Roads Fund Board can be summarised into three main tasks ensuring sustainable availability of funds from approved sources, disbursement of funds to implementing agencies and ensuring sound utilisation of the funds.

The Roads Tolls Amendment No 2 Act of 1998 has ring-fenced sources for the Roads Fund, which are:

1. Fuel levy (contributes more than 95% of the Roads Fund’s income)
2. Transit fees
3. Vehicle overloading fees
4. Heavy Goods Vehicle (HGV) license fees (this was abolished in July 2005)

The Roads Fund Board allocates funds to the various agencies for the maintenance of roads as shown:

Figure 2: Roads Funds Allocation to Institutions



Road Safety activities under the Ministry of Works and Transport (Works) are financed by:

- Government for the approved budget for the respective financial year through the Ministry of Finance and Planning. Despite the approved budget, the allocated funds are not fully released at 100% when the availability of funds in the government for the respective fiscal year is less than the allocation. Also, the approved budget for road safety activities does not meet the actual needs due to the budgetary constraints.
- Development partners such as the World Bank, European Union, African Development Bank, JICA, DANIDA, and others provide funding for road development through loans and grants.

1.3.4. Infrastructure Key Performance Indicators

Road safety Key Performance Indicators (KPIs) are used to measure progress and effectiveness of road safety initiatives. By regularly monitoring KPIs, an understanding of issues affecting different safety performance can be developed and initiatives can be adjusted accordingly. Such KPIs are especially valuable when accurate road crash data is not available at a network level, as is the case in Tanzania.

Global road safety infrastructure KPIs can support Tanzania in planning and monitoring progress towards the achievement of Global Road Safety Performance Targets 3 and 4, and the goal of halving road deaths and injuries by 2030. These KPIs have been applied to existing data collected using the iRAP methodology in Tanzania to produce a working baseline for this strategy.

At time of writing, iRAP methodology had been used to assess more than 11,000 km of national, rural and city roads and designs in Tanzania.

The following table includes KPIs for the most recent data available for existing roads and, as a comparison, data from the assessments globally. This data provides a basis for short-, medium- and long-term target setting, and for routine monitoring.

Figure 3: Key Performance Indicators: Comparison of Tanzania to Global

Indicator	Tanzania	Global
Sample length (km)	5,885	502,000
3 stars or better		
Pedestrians (km)	8%	17%
Bicyclists (km)	13%	23%
Motorcyclists (km)	11%	28%
Vehicle occupants (km)	14%	49%
Road attributes		
Roads where pedestrians are present and traffic flows at 40km/h or more have formal footpaths or sidewalks	1%	7%
Roads where pedestrians cross and traffic flows at 40km/h or more have pedestrian crossing facilities	2%	8%
Pedestrian crossings in good condition	48%	63%
Roads where bicyclists are present and traffic flows at 40km/h or more have bicycle lanes	0%	8%
Roads where motorcyclists are present and traffic flows at 60km/h or more have motorcycle facilities	0%	0%
Roads where traffic flows at 80km/h or more are divided	0%	24%
Roads where traffic flows at 80km/h or more have no roadsides hazards	1%	23%
Roads where traffic flows at 80km/h or more have no sharp curves	96%	97%
Intersections where traffic flows at 60km/h or more have safe turning provision	4%	29%
Roads where traffic flows at 80km/h or more have dedicated overtaking provision	0%	41%
Railway crossings where traffic flows at 60km/h or more have no active protection	0%	53%

Source: iRAP. (2023). iRAP Safety Insights Explorer. <https://irap.org/safety-insights-explorer>.

Since availability of recent and comprehensive data is important, further data is currently being collected through a grant from the Foreign Commonwealth and Development Office (UKAid), through the Global Road Safety Facility of the World Bank. However, the intended date for delivery is in April 2023 so after completion of this Road Infrastructure Safety Strategy document.

1.4. Moving Forward

Using the UN Decade of Action for Road Safety 2021-2030 as a guide, Tanzania is developing its safety program around the Safe System Approach. As a result, the Safe System approach must be integrated into the practice and procedures for road safety. The Safe System Approach is recognized to lead to significant crash reductions in fatal and serious crashes for countries that follow its elements and principles in developing actions that improve the design and operation of roads. The Global Plan for the Decade of Action for Road Safety focuses on the following Safe System five pillars for road safety: 1) multimodal transport and land-use planning, 2) safe road infrastructure, 3) vehicle safety, 4) safe road use, and 5) post-crash response.

Significant opportunities exist in each of these subject areas to reduce death and serious injury, and this infrastructure strategy is developed with a focus on safe road infrastructure, outlining a plan of action towards safety improvements related to road infrastructure.

The Safe System principles recognize that humans, vehicles, and road infrastructure must interact with a high level of safety to reduce fatal and serious crashes. A safe system: 1) anticipates and accommodates human errors, develops and incorporates designs; 2) operates the system within human tolerance for injury because of excess crash forces; 3) recognizes that road safety is a shared responsibility, and seeks solutions to address road safety problem rather than on blaming the driver; 4) seeks to proactively address and continuously improve roads rather than solely focusing on locations where crashes have just occurred; 5) recognizes that safety should not be compromised because of cost or the desire for faster mobility.

Road safety is the shared responsibility of all safety stakeholders, partners, and road users. To ensure road infrastructure is safe to its users, transport organizations who are responsible for planning, funding, designing, and operating the road infrastructure are called upon to develop roads consistent with the principles and elements of the Safe System approach to road safety.

The Tanzanian Road Infrastructure Safety Strategy envisions proactive approaches to road safety through a comprehensive analysis of Tanzania current road system using iRAP to assess which roads would most benefit from changes to its design and operation through the appropriate application of National Road Safety Standards and consistent with the Safe System Approach.

1.5. Tanzanian Safety Strategy Targets

Ambitious, achievable, and evidence-based road safety targets are an essential part of a strategy to reduce road deaths and injuries.

Following a request of the World Health Assembly (WHA) in 2016, the World Health Organization (WHO) collaborated with other United Nations agencies and regional commissions and the UNRSC to develop 12 voluntary [Global Road Safety Performance Targets](#). Consensus on the targets among United Nations Member States was achieved in 2017. [Towards the 12 voluntary global targets for road safety](#) provides guidance to countries on how to operationalize and utilize these targets.

There are two targets that relate specifically to road infrastructure:

- Target 3: all new roads are built to a 3-star or better standard for all road users.
- Target 4: more than 75% of travel is on the equivalent of 3-star or better roads for all road users by 2030.³

This Tanzanian Safety Strategy for Road Infrastructure is developed with the intent of addressing the Targets set in the Decade of Action of halving deaths by 2030.

³ See: <https://www.aprso.org/sites/default/files/document/2020-08/towards-the-12-voluntary-global-targets-for-road-safety.pdf>.

1.6. Investing for Impact

There are few better investments than in safer roads and safe speeds. Yet investment does not yet match the scale of this preventable public health crisis.

The Global Plan for the Decade of Action aims to halve road deaths and injuries and ensure that all road designs and 75% travel on existing roads are rated 3-stars or better for everyone.

Government, development banks, donors and the [private sector](#) each have a role to play in mobilizing the sustainable investment needed to eradicate serious road trauma in Tanzania, unlocking far-reaching economic, financial, and social benefits.

Early Results: Saving Lives and Reducing Injuries

Results of a TanRAP assessment of the latest designs for the Bus Rapid Transit Corridors 3 and 4 in Dar es salaam show that the corridors are largely 3-stars or better for all road users, with a very high compliance with the Global Road Safety Performance Target 3.

The anticipated reduction in fatalities and serious injuries, compared to the existing situation, are very large, at more than 60%.

Studies on investments in safe speeds and safe road infrastructure indicate that:

- If Tanzania achieved the Global Plan targets for safer road infrastructure, more than 7,100 lives would be saved every year – almost 20 lives saved a day. This equates to a 43% reduction in deaths.
- Investments of about 0.15% of GDP per year through to 2030 will unlock this incredible outcome with \$26 of benefits for every \$1 invested

Figure 4: Economic Benefits from 3-Star or Better Roads

Tanzania	
Annual number of fatalities (WHO 2015)	16,252
Population	55,572,200
Fatalities per 100,000 population	29
Annual number of fatalities and serious injuries	178,772
Annual cost of fatalities and serious injuries	\$4,071,488,420
Annual cost of fatalities and serious injuries (% of GDP)	8.2%
What can be achieved with >75% of travel on 3-star or better roads for all road users by 2030	
Infrastructure and Speed Management Investment required	\$1,124,136,000
Annual investment as a % of GDP (2020-2030)	0.16%
Reduction in fatalities per year	7,175
Reduction in fatalities and serious injuries (FSI) over 20 years	1,578,519
Economic Benefit	\$29,189,503,106
Benefit Cost Ratio	26

Full assumptions and national snapshots are available at www.vaccinesforroads.org. All cost figures are expressed as US dollars. Global data that is available and consistent has been used for the business case for safer roads. Where more accurate national or local data is available that should replace this data.

Note: Details on the methodology used to create these estimations are available at: <https://irap.org/investing-for-impact/>.

2 Infrastructure Action Plan

The following section sets for the strategic short- and long-term actions necessary to reduce fatal and serious crashes in Tanzania.

2.1. Mission

A road system for Tanzania that results in fewer deaths and serious injuries through proactive standards-based infrastructure investment considering the Safe System approach to road safety.

2.2. Vision

To ensure that by 2030, all new roads are built to 3-star or better standard and that at least 75% of travel on existing roads made by all road users is on the equivalent of 3-star or better roads.

2.3. Objectives

The objectives and goals of this plan are to align with the recommendations for safer roads outlined in the global plan for the decade of action, namely:

1. To set forth a leadership and governance structure that will support decision making necessary for reaching UN Targets for fatal and serious crashes
2. To increase capacity of road agencies to develop a Safe System Approach to roadway infrastructure construction and maintenance that reduce deaths and serious injuries.
3. To create a mechanism for funding of road safety infrastructure necessary to achieve the Safe System Approach.
4. To create an infrastructure-based plan of action that provides for continuous progress towards the 2030 United Nations Targets for fatal and serious crashes.
5. To identify and improve upon the roles and responsibilities of Tanzanian safety partners who have a shared responsibility of reducing fatal and serious crashes on Tanzanian roadways.

3 Specific Action and Performance Measures for the Short Term 2023-2030

3.1. Infrastructure Solutions/Strategies

This section outlines solutions and strategies toward achieving the objectives set forth in this strategy between 2023 - 2030. These action strategies recognize that changes to the road system will occur over time based on the resources made available for implementation. The strategies draw upon the Safe System Approach to road safety.

3.1.1. Leadership and Governance

Leadership and Governance is critical in accomplishing actions towards reducing the fatal and serious crashes in any country. It takes leadership to communicate that beyond the lives lost, and permanent trauma one suffers, there is also a huge economic loss to society through lost productivity, human resources, and the ability to sustain and grow into the future. Leadership provides for working partnerships and coalitions that can communicate public, legislative officials and those responsible for funding critically needed projects. Governance provides for the proper review and oversight of road safety in order to ensure consistency across and improvement in road safety activities. During the Ten Step Plan project, the Steering Committee and associated technical Working Groups provided a critically important role in national leadership and governance and this model can be built on to further promote and sustain infrastructure safety through the decade.

Recommended actions:

1. Appoint a lead institution for road safety (Such as, the National Road Safety Council) in Tanzania and continue with necessary actions, including maintaining cabinet approval of the amendment of The Road Traffic Act Cap. 168 (The Road Traffic Act Cap. 168 R.E 2002) and providing necessary support and information for an amendment to the respective Road Traffic Act by the Parliament. Ensure that membership includes representatives from engineering, enforcement, education, and emergency services professionals are part of this leadership.
2. Through TanRAP steering committee and working groups, sustain the progress made by the Ten Step Plan Steering Committee and Working Groups, provide leadership, coordination, and monitoring for the implementation of this plan. Where needed, utilize the structure of TanRAP to strengthen the coordination of road safety in Tanzania.
3. Using the structure created under the Ten Steps Program, create policy committees for planning, design and operations with appropriate decision-making authority and reporting requirements as necessary to maintain up to date policies, procedures, guidelines, and manuals. These committees should also consider the following:
 - a. Assess the National Infrastructure Strategy and action plan, identify resources, and set specific timelines for accomplishment.

- b. Regularly review and update the National Infrastructure Strategy, performance targets, and actions plans.
 - c. Regularly review National Infrastructure Strategy, action plan to ensure consistency with SDG and Decade of Action.
 - d. Identify potential research needs or consultancy to address gaps in knowledge and capacity.
 - e. Develop communication and outreach strategies to engage all relevant stakeholders in the planning, design, and implementation of projects.
4. Drawing on analyses performed during the Ten Step Plan, clarify roles, responsibilities and decision-making processes in the planning, development, construction, and operation of road safety infrastructure. Identify how their actions in combination are necessary to achieve stated safety goals.
 5. Develop a national, regional, and local safety impact and needs communication strategy as necessary to highlight business case for improved road safety at all levels of government, and within civil society.

3.1.2. Capacity

Road safety requires an understanding and ability to assess the current state of safety and from that assessment to identify needs and priorities for the upgrading of roads. It is essential to use evidence-based practices in the selection road interventions. Safety practitioners should have the knowledge, skills and abilities necessary in using safety assessment tools, performing safety management activities, and in having up to date design and operational standards and practices to implement the Safe System Approach. The Ten Step Plan has made a significant contribution to road infrastructure safety capacity, which this strategy and recommendations for an action plan builds onto. To achieve improved capacity of Tanzanian road safety professionals, these are the;

Recommended actions:

1. Map and support organizational needs for road infrastructure related to safety management amongst responsible transport agencies.
2. Develop and implement a framework to address institutional strengthening and capacity building related safe road infrastructure ([GRSF evaluation report.docx](#)).
3. Continue to develop capacity and knowledge of road safety professionals to enable sound safety infrastructure decision making and growth in expertise by establishing a sustainable training program.
4. Collect, assess, and provide case studies of best practices on key topics for use in knowledge and capacity building.
5. Provide a community of practice, peer exchanges or similar functions to increase the network and interactions of safety professionals, including transportation forums within the African region to disseminate and gather best practices.
6. Develop a matrix of core competencies for safety professionals, as well as those in design and operations to enhance safety understanding.

7. Maintain and update resources to increase capacity and knowledge developed as part of the Ten Step Project. Continue to focus on critical gaps where knowledge or resources are limited. Provide certification and accreditation as appropriate, including:
 - a. Road Safety Engineering
 - b. iRAP assessments
 - c. Road Safety Audits
8. Continue with the National Workshop on Road Safety on a regular basis.
9. Ensure equal access to underrepresented groups and encourage participation of women in knowledge and skills development in road safety.

3.1.3. Policy

Policies and procedures are necessary for road safety programs. These policies set forth the principles and strategies an organization uses to guide its decision making. Policies are intended to provide clear guidance on the priorities, decision making process and to provide the necessary guidance on how roads are going to be planned, designed, and operated.

Recommended actions:

1. MOWT, in collaboration with critical stakeholders, update the Road Safety Policy and subsequent legislation.
2. Implement policies that requires that Road Safety Audits and Star Ratings for Design linked to each road user type is performed for all road rehabilitation and upgrade projects with a goal of achieving 3-stars or better roads.
3. Adopt the recommendations made in the Ten Step Plan and develop a policy and process to regularly maintain, modify, and update the Tanzania design guides, manuals, and standards to ensure that it is aligned with the safe roads infrastructure standards, the Safe System Approach, and current international best practices.
4. Develop policy to ensure that road safety is considered in all road projects, the methods for assessment, prioritization, project selection, evaluation, and decision-making authority.

3.1.4. Data, Analysis, Evaluation and Programming

Evidence based decisions are critical to successful safety programs and are informed by data related to crashes and roadway risks. Strategies developed often are a combination of reactive (crash have occurred) and proactive (informed by crash and injury risk factors) strategies. Data serves to inform the public, stakeholders, and elected leaders on the framework for road safety in Tanzania.

Recommended actions:

1. Review the status of collecting data on road crashes and road safety risk in Tanzania including how: data is collected, the information it provides suffices for analysis and evaluation, the process for blackspot and system wide analysis and evaluation is managed, the data is stored and maintained, and the data is made available for use by safety professionals for decision-making.

2. Assess gaps and established needs in the crash data, and the resources necessary to improve data collection.
3. Make necessary updates and upgrades to hardware and software to achieve data assessments consistently across organizations.
4. Undertake crash-risk mapping (where crash data are reliable), and proactive safety assessments and inspections on the target network with a focus on relevant road user needs as appropriate.
5. Set a performance target for each road user based on the inspection results with clear, measurable metrics at the road-attribute level (e.g. sidewalk provision)
6. Assess status of road safety infrastructure in Tanzania on an ongoing basis by:
 - a) Supporting the Tanzanian RAP program (TanRAP)
 - b) Developing and resourcing a program of data collection to support TanRAP and Blackspot analysis to allow for the assessment the current status of Tanzanian roads.
 - c) Identify, resource and procure the necessary equipment, systems and software to carry out TanRap star rating assessments.
 - d) Ensure that there is a good coordination between road asset and road safety data collection.
7. Analyze and evaluate safety outcomes. Modify program approaches as necessary to maximize crash reduction benefits.

3.1.5. Programming and Funding

Having set forth a strategic evidenced based approach to the selection of road safety projects, combined with the assurance that projects will be designed and operated consistent with the Safe System Approach provides funding entities with the expectation that there will be a return on the safety investment being made.

Recommended actions:

1. Develop a program for funding of infrastructure projects that result in a reduction of death and serious injuries for all road users including goals for new designs and upgraded roads. Use economic evaluation (such as: benefit/cost analysis) to prioritise projects within the funding available.
2. Prioritize the program to maximize safety benefits from investments using Blackspot (reactive) and TanRAP (proactive) safety projects consistent with the Safe System approach to road safety.
3. Identify a smaller set of specific priority projects that can be used to mobilize road safety investment by having project ready plans. These plans are intended to be ready for investment and financing of critical safety infrastructure needs and priorities. Develop communication strategies that highlight the potential societal benefits for the investments made for each location identified.

4. Road Agencies should mobilize funds from the Road Fund (for Existing Roads) and other appropriate sources recognizing the cost to upgrade to 3-star or better designs for new/upgraded roads.
5. Identify and secure funds for data collection and road safety assessments necessary to develop a prioritised program of Safety Infrastructure Projects.

3.1.6. Infrastructure and Traffic Organization

Road needs will vary based on the context, classification and road users expected on a facility. Manuals that include the planning, design, and operational criteria necessary should be maintained to current best practices. Road Safety Investigations and Audits enhance road safety by ensuring plans and operational approaches consider safety needs as a priority. The Safe System approach is the guiding principle for planning, design, and operations. Manuals, guidelines, assessments are developed accordingly for all road users.

Ensuring safe design:

1. Develop functional classifications and desired safety performance standards for each road user group at the geographic land-use and road corridor level. Update manuals to incorporate the needs of all road users and specific zones.
2. Implement infrastructure treatments that ensure logical and intuitive compliance with the desired speed environment (e.g., 30km/hr, <80km/h undivided rural roads <100km/h expressways).
3. Ensure that newly built projects for TANROADS AND TARURA, and newly built national highways, regional roads and urban roads implement the Tanzania National Standards and will be designed to 3-star standards or better for all road users.

Ensuring safe designs for vulnerable road uses:

4. Newly built, improved, or renovated roads will consider the inclusion of dedicated lanes or separated facilities for motorcycles, bicycles, and walking and speeds will be set appropriate for the road user mix.
5. Transport facilities will be assessed and developed to provide for people with disabilities, the elderly, and the young.
6. Develop speed management approaches near schools, hospitals, and areas with high concentrations of vulnerable road users. Address any necessary law changes as appropriate.

Identifying opportunities to reduce future crash risks:

7. Establish and implement a program of road safety audits, assessments, and investigations to ensure safety design and operations for projects, and that this safety program is maintained and updated on a regular basis.
8. Ensure that road designs will undergo a mandatory road safety audit before they are let for construction and will receive review at the end of construction/road opening to ensure necessary elements are in place.

4 Current Roles and Responsibilities

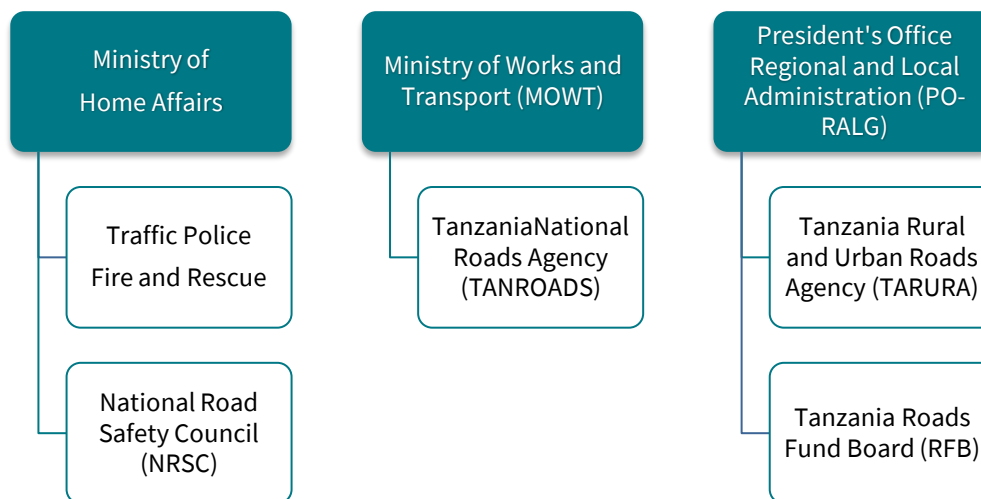
The Safe System Approach recognizes the shared responsibility for road safety among everyone involved in planning, designing, operating and using the road network. It is therefore critically important that all relevant stakeholders play a role in implementing this strategy.

The institutional setup of road management in Tanzania has focused on implementation, regulatory, private sector participation, financing, legal framework, and capacity building. The figure below shows the institutional setup regarding road safety in Tanzania.

Road safety is being addressed by more than one institution or organization with the key stakeholders being:

- Ministry of Home Affairs (MOHA),
- Ministry of Works and Transport (MOWT),
- President’s Office Regional Administration and Local Government (PORALG),
- National Road Safety Council (NRSC),
- Tanzania Police Force,
- Land Transport Regulatory Authority (LATRA),
- Tanzania Roads Fund Board
- Tanzania National Roads Agency (TANROADS) and
- Tanzania Rural and Urban Roads Agency (TARURA).

Figure 5: Organizational Framework



4.1.1. Tanzania Roads Fund Board (RFB)

The Roads Fund Board is operationalized under the Road and Fuel Toll Act CAP 220. The main functions of the Road Funds Board are detailed under Section 5 (4) and the main responsibilities include ensuring full collection of revenue through collecting agencies, disbursement of funds to implementing agencies and monitoring of funds utilization by Road Agencies. In addition, the Board provides operational planning guidelines to the Implementing Agencies and ensures their adherence to the operational plans. In its approval and disbursement for road maintenance programs, the board is also responsible for monitoring the effectiveness of the road infrastructure ensuring that road programs facilitate and enhance safety for all road users.

4.1.2. Ministry of Works and Transport (MOWT)

MOWT is responsible for management and oversight of the execution of national road works, road safety and environment and setting policy and standards related to road safety. The Road Safety and Environment department under the Ministry of Works and Transport is responsible for managing the Road sector at the national level. The Road Safety and Environment Department under the Ministry is led by a director and supported by engineers and auditors.

MOWT has projects related to:

- Road Safety Management - which include safety campaigns, safety education, road safety audit and enforcement and establishment of the Road Safety Agency,
- Environment Management - which provides for training and establishment of the capacity management system and;
- Institutional Capacity Building.

4.1.3. President's Office Regional Administration and Local Government (PORALG)

The Tanzanian Ministry of Regional Administration and Local Government oversees regional development management and administration by coordinating rural and urban development management policy and strategies as well as the activity of Regional Secretariats. It helps to build the administrative capacity of local governments and to strengthen channels of communication between national and sub-national bodies to further devolve power to the local level, ultimately aiming to improve the quality of life for Tanzanians [1]. The Ministry was retransferred to the President's Office in 2015 and has been known as PORALG since that time.

4.1.4. Tanzania National Roads Agency (TANROADS)

TANROADS under the Ministry of Works and Transport is responsible for management of national roads. The Road Safety Section in TANROADS is under the Infrastructure and Planning Directorate. This section is led by a Manager and supported with road safety engineers.

The road safety activities include:

- Conducting regular road safety inspections, to check conditions and availability of the road signs and recommend infrastructure-related improvements, undertake routine repairs and maintenance of existing roads.
- Monitoring implementation of road safety activities in the regions,
- Identification and implementation of road safety countermeasures to the black spots on the trunk and regional roads in all 26 regions.
- Conducting on-job training to TANROADS Engineers on how to conduct road safety audits and implementation of safety countermeasures.
- Procurement of appropriate safety materials, manuals, and software.
- Enhancing safety on major trunk roads to reduce crashes as per national task force/committee recommendation.

4.1.5. Ministry of Home Affairs (MOHA)

The Ministry of Home Affairs has and oversight responsibility for the National Road Safety Council, Police Force Department and the Fire and Rescue Force Department. The Police Force Department has a role of enforcing the rules of the road within Tanzania, and for ensuring safe road behaviors are enforced. The Fire and Rescue Force Department provides for emergency response for crash and road events on the Tanzanian road network.

4.1.6. National Road Safety Council (NRSC)

The National Road Safety Council (NRSC) under the Ministry of Home Affairs is mandated to providing guidance on increasing awareness of road safety and promote the national strategy for road safety in order to improve the road safety situation in the country. The members are all appointed by the Minister of Home Affairs. In September 2022, the Minister of Home Affairs formed a new council with members including management of TANROADS and TARURA, Traffic Police, Road Safety Ambassadors, other representatives from public sector and private sector.

4.1.7. Tanzania Rural and Urban Roads Agency

TARURA under the President's Office of Regional Administration and Local Government (PO-RALG) is responsible for management of district and urban roads. Road Safety Section is under the Infrastructure Planning Directorate and is responsible for overseeing road safety issues. The road safety section is lead by a Manager and one road safety engineer.

TARURA ensures that all roads are designed, built and maintained to be as safe as possible. Several policies and guidelines have been issued to the Regional Managers to instruct District Managers to ensure road safety matters are included throughout project cycles.

TARURA implements the following:

- Road Safety Audits and inspections to the projects and interventions recommended.
- Black spots are identified and assessed on the existing road network, and interventions are proposed and are implemented according to available resources.
- With limited, constrained financial resources, bottlenecks are removed in the rural and urban road networks to provide basic access.
- Training is provided to technical staff to improve their capacity to implement road safety activities.
- Road Safety awareness is conducted to road user groups according to available resources.

4.1.8. Land Transport Regulatory Authority (LATRA)

Land Transport Regulatory Authority (LATRA) is a Government Regulatory Authority established by the Act of Parliament No. 3 of 2019. The Authority is set to regulate the land transport sectors particularly, transportation of goods and passengers (commuter buses, intercity buses, goods carrying vehicles, taxis, motorcycles and try cycles), railways and cable transport. The authority is responsible for promoting safety and security and minimize environmental degradation in the Land transport sector.

Other existing transport regulatory authorities and boards in the roads sub-sector include Contractors Registration Board (CRB), Engineers Registration Board (ERB), and Architects and Quantity Surveyors Registration Board (AQSRB).

5 Action Plan Implementation

The following is a high-level implementation road map. Additional details on specific dates for deliverables, assignment of roles and responsibilities is necessary.

IMPLEMENTATION ROAD MAP FOR 2023 - 2030

#	Action	Implementation Road Map			Relative Cost	Owner/ Stakeholder
		2023 to 2024	2025 to 2027	2027 to 2030		
3.1.1 - LEADERSHIP AND GOVERNANCE						
1	Appoint a lead institution for road safety (Such as, the Road Safety Council) in Tanzania and continue with necessary actions, including maintaining cabinet approval of the amendment of The Road Traffic Act Cap. 168 (The Road Traffic Act Cap. 168 R.E 2002) and providing necessary support and information for an amendment to the respective Road Traffic Act by the Parliament in the next Parliamentary Session. Ensure that membership includes representatives from engineering, enforcement, education, and emergency services professionals are part of this leadership.				Low	MoWT & NRSC
2	Through TanRAP steering committee and working groups, sustain the progress made by the Ten Step Plan Steering Committee and Working Groups, provide leadership, coordination, and monitoring for the implementation of this plan.				Low	MoWT & TanRAP Leads
3	Using the structure created under the Ten Steps Program, create policy committees for planning, design and operations with appropriate decision-making authority and reporting requirements as necessary to maintain up to date policies, procedures, guidelines, and manuals.				Low	MoWT & TanRAP Leads
3a	Assess the National Infrastructure Strategy and action plan, identify resources, and set specific timelines for accomplishment.				Low	MoWT with TanRAP Leads
3b	Regularly review and update the National Infrastructure Strategy, performance targets, and actions plans				Low/ medium Ongoing	MoWT

#	Action	Implementation Road Map			Relative Cost	Owner/ Stakeholder
		2023 to 2024	2025 to 2027	2027 to 2030		
3c	Regularly review National Infrastructure Strategy action plan to ensure consistency with SDG and Decade of Action				Low Ongoing	MoWT
3d	Identify potential research needs or consultancy to address gaps in knowledge and capacity				Low/ medium Ongoing	MOWT & TanRAP Technical Lead
3e	Develop communication and outreach strategies to engage all relevant stakeholders in the planning, design, and implementation of projects				medium Ongoing	MOWT & TanRAP Communications Lead
4	Drawing on analyses performed during the Ten Step Plan, clarify roles, responsibilities and decision-making processes in the planning, development, construction, and operation of road safety infrastructure. Identify how their actions in combination are necessary to achieve stated safety goals.				Low	MOWT, Road Agencies & TanRAP Road Management Lead
5	Develop a national, regional, and local safety impact and needs communication strategy as necessary to highlight business case for improved road safety at all levels of government, and within civil society.				Low	MOWT & TanRAP Communications Leads
3.1.2 - CAPACITY						
1	Map and support organizational needs for road infrastructure related to safety management amongst responsible transport agencies.				Low Ongoing	MoWT & NRSC
2	Develop and implement a framework to address institutional strengthening and capacity building related safe road infrastructure (GRSF evaluation report.docx).				Low Ongoing	TanRAP Technical Lead
3	Continue to develop capacity and knowledge of road safety professionals to enable sound safety infrastructure decision making and growth in expertise by establishing a sustainable training program.				Medium Ongoing	TanRAP Technical Lead

#	Action	Implementation Road Map			Relative Cost	Owner/ Stakeholder
		2023 to 2024	2025 to 2027	2027 to 2030		
4	Collect, assess, and provide case studies of best practices on key topics for use in knowledge and capacity building				Low Ongoing	TanRAP Road Mgmt & Technical Leads
5	Provide a community of practice, peer exchanges or similar functions to increase the network and interactions of safety professionals, including transportation forums within the African region to disseminate and gather best practices.				Low Ongoing	MoWT & TanRAP Leads
6	Develop a matrix of core competencies for safety professionals, as well as those in design and operations to enhance safety understanding.				Low Ongoing	TanRAP Technical Lead & NRSC
7	Maintain and update resources to increase capacity and knowledge developed as part of the Ten Step Project. Continue to focus on critical gaps where knowledge or resources are limited. Provide certification and accreditation as appropriate. Including, a) Road Safety Engineering, b) iRAP assessment, c) Road Safety Audits				Low Ongoing	TanRAP Technical Lead
8	Continue with the National Workshop on Road Safety on a regular basis.				Low Ongoing	MoWT & TanRAP
9	Ensure equal access to underrepresented groups and encourage participation of women in knowledge and skills development in road safety.				Low Ongoing	MoWT & TanRAP
3.1.3 - POLICY						
1	MOWT, in collaboration with critical stakeholders, update the Road Safety Policy and subsequent legislation.				Low	MOWT
2	Implement policies that requires that Road Safety Audits and Star Ratings for Design is performed for all road rehabilitation and upgrade projects with a goal of achieving 3-stars or better.				Low	MOWT

#	Action	Implementation Road Map			Relative Cost	Owner/ Stakeholder
		2023 to 2024	2025 to 2027	2027 to 2030		
3	Adopt the recommendations made in the Ten Step Plan and develop a policy and process to regularly maintain, modify, and update the Tanzania design guides, manuals, and standards to ensure that it is aligned with the safe roads infrastructure standards, the Safe System Approach, and current international best practices.				Low	MOWT/ TanRAP
4	Develop policy to ensure that road safety is considered in all road projects, the methods for assessment, prioritization, project selection, evaluation, and decision-making authority.				Low	MOWT & TanRAP Technical Leads
3.1.4 - DATA, ANALYSIS, EVALUATION, AND PROGRAMMING						
1	Review the status of collecting data on road crashes and road safety risk in Tanzania including how: data is collected, the information it provides for analysis and evaluation, the process for blackspot and system wide analysis and evaluation, how the data is stored and maintained, and how data is made available for use by safety professionals for decision-making.				Low	MOWT & TanRAP Technical Leads
2	Assess gaps and needs in the crash data, and the resources necessary to improve data collection.				Low	TanRAP & NRSC
3	Make necessary updates and upgrades to hardware and software to achieve data assessments consistency across organizations.				Medium/ high	TanRAP & NRSC
4	Undertake crash-risk mapping (where crash data are reliable), and proactive safety assessments and inspections on the target network with a focus on relevant road user needs as appropriate.				Medium Ongoing	TanRAP & NRSC
5	Set a performance target for each road user based on the inspection results with clear, measurable metrics at the road-attribute level (e.g. sidewalk provision).				low	TanRAP & NRSC

#	Action	Implementation Road Map			Relative Cost	Owner/ Stakeholder
		2023 to 2024	2025 to 2027	2027 to 2030		
6	Assess status of road safety infrastructure in Tanzania on an ongoing basis: a) Supporting the Tanzanian RAP program (TanRAP) b) Developing and resourcing a program of data collection to support TanRAP and Blackspot analysis to allow for the assessment the current status of Tanzanian roads. c) Identify, resource and procure the necessary equipment, systems and software to carry out TanRap star rating assessments. d) Ensure that there is a good coordination between road asset and road safety data collection.				Medium Ongoing	TanRAP & NRSC
7	Analyze and evaluate safety outcomes. Modify program approaches as necessary to maximize crash reduction benefits.				Medium Ongoing	TanRAP & NRSC
3.1.5 - PROGRAMMING AND FUNDING						
1	Develop a program for funding of infrastructure projects that result in a reduction of death and serious injuries for all road users including goals for new designs and upgraded roads. Use economic evaluation (such as: benefit/cost analysis) to prioritise projects within the funding available.				High	TanRAP Technical Leads
2	Prioritize the program to maximize safety benefits from investments using Blackspot (reactive) and TanRAP (proactive) safety projects consistent with the Safe System approach to road safety.				Low/ Medium Ongoing	TanRAP Technical Leads
3	Identify a smaller set of specific priority projects that can be used to mobilize road safety investment by having project ready plans. These plans are intended to be ready for investment and financing of critical safety infrastructure needs and priorities. Develop communication strategies that highlight the potential societal benefits for the investments made for each location identified.				Medium/ High	TanRAP Technical Leads & Comm. Leads
4	Road Agencies should mobilize funds from the Road Fund (for Existing Roads) and other appropriate sources recognizing the cost to upgrade to 3-star or better designs for new/upgraded roads				High Ongoing	MoWT, Road Agencies, Road Fund
5	Identify and secure funds for data collection and road safety assessments necessary to develop				High Ongoing	MoWT, Road Agencies, Road Fund

#	Action	Implementation Road Map			Relative Cost	Owner/ Stakeholder
		2023 to 2024	2025 to 2027	2027 to 2030		
3.1.6 - INFRASTRUCTURE AND TRAFFIC ORGANIZATION						
1	Develop functional classifications and desired safety performance standards for each road user group at the geographic land-use and road corridor level. Update manuals to incorporate the needs of all road users and specific zones.				Low/ Medium Ongoing	MOWT & TanRAP
2	Implement infrastructure treatments that ensure logical and intuitive compliance with the desired speed environment (e.g., 30km/hr, <80km/h undivided rural roads <100km/h expressways).				Medium/ High Ongoing	MOWT & TanRAP
3	Ensure that newly built projects for TANROADS AND TARURA, and newly built national highways, regional roads and urban roads implement the Tanzania National Standards and will be designed to 3-star standards or better for all road users.				Medium/ High Ongoing	MOWT & Technical Leads
4	Newly built, improved, or renovated roads will consider the inclusion of dedicated lanes or separated facilities for motorcycles, bicycles, and walking and speeds will be set appropriate for the road user mix.				Medium/ High Ongoing	MOWT & Technical Leads
5	Transport facilities will be assessed and developed to provide for people with disabilities, the elderly, and the young.				Medium Ongoing	MOWT & Technical Leads
6	Develop speed management approaches near schools, hospitals, and areas with high concentrations of vulnerable road users. Address any necessary law changes as appropriate.				Low/ Medium /High Ongoing	MOWT & TanRAP
7	Establish and implement a program of road safety audits, assessments, and investigations to ensure safety design and operations for projects, and that this safety audit program is maintained and updated on a regular basis				Medium Ongoing	MOWT & TanRAP
8	Ensure that road designs will undergo a mandatory road safety audit before they are let for construction and will receive review at the end of construction/road opening to ensure necessary elements are in place.				Medium Ongoing	MOWT & TanRAP



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