

የትራንስፖርት እና ሎጂስቲክስ ሚኒስቴር
MINISTRY OF TRANSPORT AND LOGISTICS

**FEDERAL DEMOCRATIC
REPUBLIC OF ETHIOPIA**

NATIONAL ROAD SAFETY STRATEGY

SECOND DECADE OF ACTION

**2022
Addis Ababa**



WORLD
RESOURCES
INSTITUTE

WRI helped to prepare this strategy as part of the Bloomberg Philanthropies Initiative for Global Road Safety

Contents

Abbreviations	i
1. Introduction	2
2. Road safety context review	4
2.1. International Context and Lessons	5
2.1.1. Legal Instruments	5
2.1.2. Road safety facts, trends and challenges	7
2.1.3. Lessons from the 2011-2020 Decade of Action	9
2.1.4. Safe Systems Approach	11
2.1.5. Speed Management	14
2.1.6. Safe Road Infrastructure	16
2.1.7. Vehicle safety	19
2.1.8. Enforcing key safety laws and awareness creation	20
2.1.9. Improving post-crash care service	21
2.2. National Context	22
2.2.1. Road Traffic Crash	22
2.2.2. Institutional capacity and road safety management	24
2.2.3. Speed management	26
2.2.4. Safe Road Infrastructure	27
2.2.5. Safe vehicles	31
2.2.6. Safer Road Users	32
2.2.7. Post-crash	37
3. National Road Safety Strategy Objectives	42
3.1. Mission	43
3.2. Vision	43
3.3. Goal	43
3.4. Pillars	43
3.5. Basic moral principles	43
4. Strategic targets and action areas	46
4.1. Road Safety management system	47
Global Targets	47
4.1.1. Strengthening institutional capacity	48
4.1.2. Legislation	49
4.1.3. Strengthening road safety data management	50

4.2. Safer speed	52
Global Targets	52
National speed Management Targets and Action Areas	52
4.3. Safer Road Infrastructure	54
Global Targets	54
National road infrastructure safety goals and areas of action	54
4.4. Safer vehicles	57
Global Targets	57
National Vehicle safety target and action areas	57
4.5. Safer Road Users	59
Global Targets	59
National Targets and action areas for safe road users	60
4.5.1. Road Safety Communication and Education	60
4.5.2. Enforcement	61
4.6. Post-crash response	64
Global targets	64
The Post-Crash Care Systems Targets and Action Areas	64
5. Monitoring and Evaluation	66
Progress Monitoring and Evaluation Mechanisms	67
Structure of the National Road Safety Strategy Management System	69

ABBREVIATIONS

AACRA: Addis Ababa Roads Authority

AACAHB: Addis Ababa City administration health bureau

AEG: Academic Expert Group

AETR: Accord Européen sur les Transports Routiers (French: European Agreement on Road Transport; EU)

AUC: African Union Charter

BAC: Blood alcohol concentration

BIGRS: Bloomberg Philanthropies Initiative for Global Road Safety

CP: City Police

EDHS: Ethiopian demographic health survey

EICCD: Emergency, Injury and Critical Care Directorate

ERA: Ethiopian Roads Authority

FMOH : Federal Ministry of Health

FPC: Federal Police commission

FTA: Federal Transport Authority

GDP: Gross Domestic Product

GRSF: Global Road Safety Facility

HMIS: Health Management Information System

HSTP-II: Health Sector Transformation Plan

ICU: Intensive Care Unit

ITF : International Transport forum

LMC: Low- and middle-income countries

MoT: Ministry of Transport

NAP: National Automotive Policy

NCAP: New Car Assessment Program

NRSC: National Road Safety Council

PSA: public service announcement

RP: Regional Police

RSIFS: Road Safety and Insurance Fund service

RTA: Road Traffic Crash

RTI: Road traffic injuries

SDG: Sustainable development goals

STEP: Selective traffic enforcement program

SWOT: Strength, Weakness, Opportunity and Treats

TRANSIP: Transport System Improvement Program

UNECE: United Nations Economic Commission for Europe

UHC: Universal health care

UN: United Nations

UNESCAP: United Nations Economic and Social Commission for Asia and the Pacific

FORWARD

Road safety is a matter of national importance, affecting vulnerable road users such as pedestrians and cyclists and those who drive. Fatalities and injuries resulting from traffic crashes are a tragedy for all those affected. In addition to the devastating human consequences of road casualties, they also impose a heavy economic burden. The casualty reductions we have seen in recent years is encouraging, but we cannot afford to be complacent. Our work is not complete until we have zero fatalities on our roads. The government is committed to prioritize and invest in road safety. One of the key milestones for the Ministry of Transport and Logistics is developing a long-term road safety strategy that aligns with global requirements and best practices and provides clear strategic directions to local authorities, road safety professionals and other stakeholders. By mirroring our pillars to that of global commitments and standards, road safety management, safer roads, safer vehicles, safer road users and post-crash, we hope to contribute to the international efforts for the decade of action.



An important shift that we would like to introduce with this strategy is moving away from traditional approaches to a safe systems approach that focuses on systemic change. Recognizing the role of the Federal Government as a key player in the system, we would like to enhance the knowledge and skills within the Ministry and its implementing bodies to be able to co-develop policies and strategies that reduce the bureaucracy and make it easy for the implementing agencies to realize the wide range of measures we have identified underneath the pillars.

Finally, I want to emphasize that none of us is free from road traffic crash risk until our systems and infrastructure are designed in a way that protects us. We want to build system where residents can travel to meet their social and economic needs without fearing for their lives. Therefore, I call upon all the responsible government institutions and stakeholders to join their effort to implement this strategy and meet our national road safety targets. I hope collectively we will be able to deliver on our road safety commitments, and that a decade from now we will not only have achieved but exceeded our targets, saving thousands of lives because we have acted.

Dagmawit Moges

Minister of Transport and Logistics of the Federal Democratic Republic of Ethiopia

An aerial photograph of a winding asphalt road on a hillside. The road curves through a landscape of dry, scrubby vegetation. In the background, a city is visible through a hazy atmosphere. A white rectangular box with a yellow vertical bar on its left side is overlaid on the top left of the image, containing the text '1.0 Introduction'.

1.0

Introduction

Ethiopia is the second most populous country in Africa with about 118 million population second only to Nigeria¹. Ethiopia is also among the fast-growing countries. It's economy experienced strong, broad-based growth averaging 9.4% a year from 2010/11 to 2019/202. A land-locked country, Ethiopia relies on land transport for most of its logistic services. Even though the new Addis Ababa – Djibouti railway that opened in 2018 serves to move goods from the port, the country still primarily depends on road transport for both freight and passenger transport.

In the second growth and transformation plan, Ethiopia's road network length increased by 32%². The road network expansion is expected to continue at a similar rate as the road network coverage in Ethiopia is still very low (132km/1000km²)³. Over the next 10 years, the government plans to increase the overall road length 63%- from the current 137,777 km to 225,237 km.

While Ethiopia is still among the countries with the lowest vehicle population, it is witnessing a high motorization rate. Currently, there are more than 1.3 million registered vehicles in the country. According to data from the Federal Transport Authority (FTA), vehicle registration has shown a 14% average annual increase for the past 17 years (2003/2004 to 2020/2021).

Even though all the hard-won positive developments such as economic growth are necessary and should continue to pull Ethiopian citizens out of poverty, it is equally important to ensure sustainable development by minimizing the negative effect of growth such as road traffic crashes, congestion, and environmental pollution. Working to minimize the negative consequences while simultaneously working for economic development helps to ensure social well-being with economic growth.

In Ethiopia, more than 4,000 citizens lose their lives each year due to road traffic crash. Even though road traffic fatalities have decreased since 2018/2019 (2011 E.C), they have increased by an average of 6% for the past 17 years- an average increase of 125 fatal crashes every year. The Health and social burden of this loss of citizens is also immense.

Solid evidence indicates that road traffic crashes, particularly those that result in fatal and serious injuries, are predictable and preventable. Experiences of many successful countries around the globe have shown that concerted efforts led by an informed strategy can reduce road traffic crash fatalities and disabilities.

Global best practices such as the safe system approach to road safety have been proven to be effective and endorsed by the United Nations (UN).

The FDRE Ministry of Transport and logistics (MoTL) with other stakeholders and partners has prepared this strategy based on the understanding of local context and international best practices. The strategy aims to reduce fatal road traffic injuries due to road traffic crashes by 50% in the next ten years (2021-2030). The international targets such as the 12 targets identified by the ministerial meetings in Stockholm and requirements of African Road Safety Charter are included in the strategy. It also reinforces the country's commitment to meeting the global goals such as the UN road safety plan for the next decade by setting similar targets within the same time horizon.

¹<https://worldpopulationreview.com/countries/ethiopia-population>

²<https://www.worldbank.org/en/country/ethiopia/overview>

³ MoT 10 years master plan document

2.0

Road safety context review



2.1. International Context and Lessons

2.1.1. Legal Instruments

Road safety has been included as an important global sustainable development issue in the 2030 sustainable development goal (SDG). SDG Target 3.6, under the Health Goal, specifically encouraged countries to halve the number of deaths and injuries from road traffic accidents by 2020. Through the adoption of the Stockholm Declaration, this target has been extended to 2030. SDG Target 11.2, under the Cities & Settlements Goal, mentions “improving road safety” particularly through the expansion of public transport. As a result of the inclusion of these two targets, road safety has received more global and national attention as countries are obliged to report on how they are progressing towards the attainment of these goals.

WHO developed a road safety technical package known as Save LIVES. Save LIVES is an evidence-based inventory of priority interventions. The Save LIVES technical package recommends that countries assess their situation and then implement the most appropriate interventions that will save the greatest number of lives. The package describes the 22 road safety interventions which are known to save lives. The interventions are packaged into six different components: S = Speed management, L = Leadership, I = Infrastructure, V = Vehicle safety, E = Enforcement of laws and S = Survival after a crash.

UN conventions are important legal instruments for improving road safety. The main international conventions and other instruments related to road safety, negotiated and adopted by governments, include those aiming to facilitate international road traffic through: adapting uniform road traffic rules, signs and signals; harmonizing of construction standards and technical inspection of vehicles; safe transportation of dangerous goods and hazardous materials; setting driving times and rest periods for professional drivers; and improving road infrastructure. A number of these global instruments are open for accession. The main international legal instruments related to road safety and open to worldwide membership are:

1. Convention on Road Traffic, of 19 September 1949
2. Convention on Road Traffic, of 8 November 1968
3. Protocol on Road Signs and Signals, of 19 September 1949
4. Convention on Road Signs and Signals, of 8 November 1968
5. Agreement concerning the Adoption of Harmonized Technical United Nations Regulations for Wheeled Vehicles, Equipment and Parts which can be Fitted and/ or be Used on Wheeled Vehicles and the Conditions for Reciprocal Recognition of Approvals Granted on the Basis of these United Nations Regulations, of 1958
6. Agreement concerning the Adoption of Uniform Conditions for Periodical Technical Inspections of Wheeled Vehicles and the Reciprocal Recognition of Such Inspections, of 13 November 1997

7. Agreement concerning the Establishing of Global Technical Regulations for Wheeled Vehicles
8. Equipment and Parts which can be Fitted and/or be Used on Wheeled Vehicles, of 1998 European Agreement Concerning the International Carriage of Dangerous Goods by Road (ADR)

The Convention on Road Traffic, commonly known as the Vienna Convention, was developed to facilitate international road traffic and to increase road safety by establishing standard traffic rules among contracting parties.

The convention was agreed upon in Vienna on November 8, 1968. Eighty-three countries are contracting parties. Ethiopia has recently ratified the Vienna Convention and the Africa Road Safety Charter. The main objective of the Africa Road Safety Charter is to serve as a policy framework for road safety in Africa and to serve as an advocacy tool and instrument for road safety improvement on the continent aimed at facilitating the creation of an enabling environment to drastically reduce road traffic crashes.

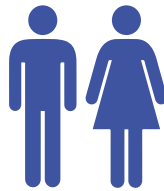


2.1.2. Road safety facts, trends and challenges

A 2017 report by the WHO outlined these key facts on road traffic injuries:



~1.35
million people
die each year as a result
of road traffic crashes.



From a young age, males are more likely to be involved in road traffic crashes than females.

~3/4 (73%)

of all road traffic deaths occur among **young males under the age of 25 years who are almost three times** as likely to be killed in a road traffic crash as young females.



20 - 50
million more people suffer
non-fatal injuries, with many
incurring a **disability** as a
result of their injury.

90%

of the world's fatalities on the roads occur in **low- and middle-income countries**, even though these countries have

~54%

of the world's vehicles.



Road traffic injuries are the leading cause of death among people aged

15 - 29 years.



People aged

15 - 44

years account for

48 %

of global road traffic deaths.



The **African region** had the highest road traffic fatality rate, at

26.6 per **100,000** people



The **European region** had the lowest rate, at

9.3

Nearly half of those dying on the world's roads are "vulnerable road users": pedestrians, cyclists, and motorcyclists.



On roads, the **fatality risk** for motorcyclists is

20x

higher than for car occupants, followed by cycling and walking, with

7 - 9x

higher risk than car travel, respectively. Bus occupants are

10x

safer than car occupants.



Road traffic crashes cost most countries

3%

of their **gross domestic product (GDP)**.



Globally,

40 - 50%

of traffic fatalities occur in **urban areas**.

- Without sustained action, road traffic crashes are predicted to become the seventh leading cause of death by 2030.
- The newly adopted 2030 Agenda for Sustainable Development has set an ambitious target of halving the global number of deaths and injuries from road traffic crashes.
- Unsafe mobility in any of the transport modes can pose significant public health risks and can lead to social and economic losses.

In low- and middle-income countries (LMC), the equivalent economic losses due to road crashes are estimated to be 5% of GDP (WHO, 2015b). While many high-income countries are making progress stemming increasing death rates, the situation is worsening in other countries, LMC in particular. Unfortunately, activities undertaken, and investments made so far, have proved inadequate to stop or reverse the rise in road traffic deaths, and the target of halving the number of global deaths and injuries from road traffic accidents was not achieved by 2020.

2.1.3. Lessons from the 2011-2020 Decade of Action

The decade of 2011-2020 has provided a wealth of evidence on what works and what does not. The Academic Expert Group (AEG) convened to document key learning from the previous decade as part of the preparations for the 3rd Ministerial Conference on Road Safety (Sweden, February 2020). The main insights are discussed below.

- **Political commitment:** Road safety is a result of deliberate efforts on the part of the government and other sectors of society. The government needs to acknowledge road safety as an important and valuable public good. In the absence of strong political will, road safety will not become a reality.
- **Good governance:** Shared responsibility is the essence of the safe system approach and sharing responsibilities requires adherence to principles of good governance such as transparency and accountability.
- **Opportunities to leverage inter-dependencies and co-benefits of road safety:** Road safety should not be approached as a stand-alone issue but as an integrated component of many different policy agendas. Road safety cannot be compromised or traded off in order to achieve other social needs.

- **Accession and effective implementation of UN road safety conventions:** United Nations road safety legal instruments provide a strong foundation for countries to build domestic legal frameworks contributing to road safety and facilitating international road traffic.
- **The importance of enhanced support to LMICs:** More than 90% of road traffic deaths occur in low- and middle-income countries, which have less than 60% of the world's registered vehicles. While the total number of deaths is clearly related to both the population and motorization levels within a country and does not give an assessment of risk, it nonetheless gives an indication of where intervention could help significantly reduce the total number of road traffic deaths at a global level. On top of the enormous human suffering caused, the economic costs of poor road safety keep hundreds of millions in poverty, with the drain in their productive human resources and the economic losses estimated at 2 to 5 percent of GDP in these countries.

• **Decentralized decision-making:**

Improving road safety through a safe systems approach implies actions and changes at many levels. At the global level, international regulations and standards are critical for increasing road safety through the adoption of uniform traffic rules and also for motivating national-level changes. Within a country, whereas the responsibility of setting priorities, developing strategies, enacting legislation, and allocating resources typically rests with national governments, implementation often occurs at regional or local orders of government. National policies however, cannot always anticipate the diversity of community needs, preferences and practices, and for this reason, many decisions and policies related to transport planning, including urban design and land use, are handled by local authorities. Allocating appropriate responsibilities and resources to decision-makers and actors within national and local governments, as well as international bodies, is a key element of ensuring effective implementation.

• **Managing the evolving nature of transport and mobility:**

A key lesson learned during the last decade is that road safety solutions cannot be designed and implemented in a static manner but should be adjusted as change happens. These changes – with both the opportunities and the threats presented – should be integrated by countries as they evaluate and redesign their road safety strategies. As transport evolves, so too must the solutions that are put in place to ensure safety.

2.1.4. Safe System Approach

Road safety depends on human/driver behaviour, vehicle safety, infrastructure quality, and the regulatory framework. It is worth noting that to accommodate human error, the Safe System approach to road safety has been embraced by the WHO and other bodies active in the field, including as part of the Global Plan. The concept of Safe System, in the context of road safety, originated in Sweden and the Netherlands in the 1980s and 1990s, when scientists and policy makers began to question the prevailing view that the safety of road users was, in the last instance, their own responsibility and that the task of road safety policy was thus primarily to influence road users' behaviour so they would act safely at all times. Yet as the decades-long decreases in the number of road fatalities and severe injuries were levelling out, it became clear a predominant focus shall be on education, information and regulation.

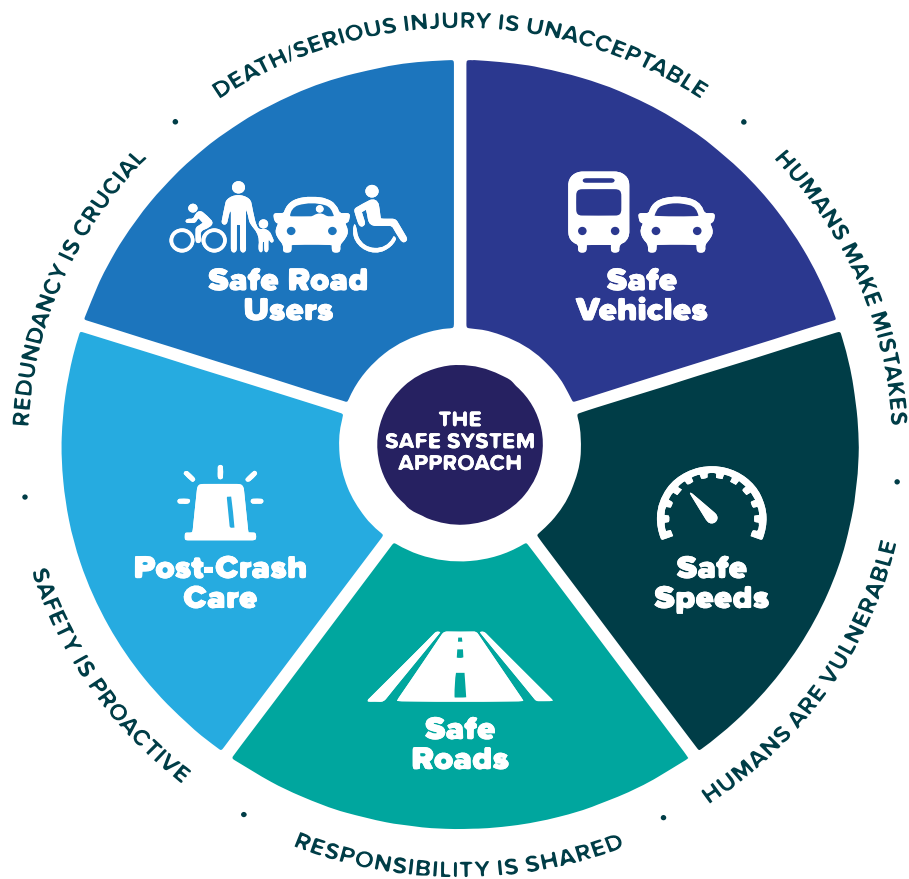
The Safe System approach aims to ensure a safe transport system for all road users, and “takes into account people’s vulnerability to serious injuries in road traffic crashes and recognizes that the system should be designed to be forgiving of human error” (WHO, 2017a). The main elements of this approach are safe roads and roadsides, safe speeds, safe vehicles, and safe road users, all of which must be addressed in order to eliminate fatal crashes and reduce serious injuries. Main risk factors include: speeding; driving under the influence of alcohol and other psychoactive substances; non-use of motorcycle helmets, seat-belts, and child restraints; distracted driving; unsafe road infrastructure; unsafe vehicles; inadequate post-crash care; and inadequate enforcement of traffic laws.

According to the WHO (2017a), UNECE (2015b) and ITF (2017b):

- Inappropriate or excessive speed is reported in around 30% of fatal road crashes. An increase of 1 km/h in mean vehicle speed results in an increase of 3% in the incidence of crashes resulting in injury and an increase of 4–5% in the incidence of fatal crashes. An adult pedestrian’s risk of dying is more than 80% if struck by a car at 50 km/h. In the UNECE region, many countries have now reduced the speed limits within towns to 50 km/h, and in some urban areas to 30 km/h. On motorways, it varies between 100 km/h and 130 km/h.
- Nearly all countries indicate that drink-driving is a major contributor in fatal crashes, which in many of them is about one-third of all fatal crashes. The risk of a road traffic crash starts at low levels of blood alcohol concentration (BAC) and increases significantly when the driver's BAC is ≥ 0.04 gram/Decilitre. The majority of UNECE countries apply a maximum BAC of 0.05 gram/Decilitre. In the case of drug-driving, the risk of incurring a road traffic crash is increased to differing degrees depending on the psychoactive drug used. For example, the risk of a fatal crash occurring among those who have used amphetamines is about five times the risk of someone who hasn't.
- Wearing a motorcycle helmet correctly can reduce the risk of death by almost 40% and the risk of severe injury by over 70%. Wearing helmets for all cyclists is compulsory only in a few countries (e.g. Australia, Finland and New Zealand) and few countries require helmet use for children.

- Wearing a seatbelt reduces the risk of a fatality among front-seat passengers by 40–50% and of rear seat passengers by between 25–75%. A majority of countries have mandatory seatbelt laws for the front seats, and many have them also for rear car seats. However, in UNECE countries for instance, despite high levels of compliance, there is still a difference in seat belt usage between the front and the rear car seats, with values typically ranging between 80% and 100% for front seats and between 60% and 90% for rear seats.
- If correctly installed and used, child restraints reduce deaths among infants by approximately 70% and deaths among small children by between 54% and 80%.

- Among many types of distractions that can lead to impaired driving, the one caused by mobile phones is a growing concern for road safety. Drivers using mobile phones are approximately four times more likely to be involved in a crash than drivers not using a mobile phone. Hands-free phones are not much safer than handheld phone sets, and texting considerably increases the risk of a crash. Many countries have laws prohibiting the use of hand-held mobile phones while driving; however, there are many drivers that still use handheld and handsfree mobile phones in these countries.



- Regarding road infrastructure, ideally, roads should be designed keeping in mind the safety of all road users. This means making sure that adequate facilities for pedestrians, cyclists, and motorcyclists. Measures such as footpaths, cycling lanes, safe crossing points, and other traffic calming measures can be critical to reducing the risk of injury among these road users. According to data from the Asian Highway Database of UNESCAP, primary class Asian Highway roads have the best safety record, while those below class III have the worst record. The upgrading of roads to access-controlled primary class had significant benefits in reducing fatality rates.

- Safe vehicles play a critical role in averting crashes and reducing the likelihood of serious injury. There are a number of UN regulations on vehicle safety that, if applied to countries' manufacturing and production standards, would potentially save many lives. These include requiring vehicle manufacturers to meet front and side impact regulations, to include electronic stability control (to prevent over-steering) and to ensure airbags and seat-belts are fitted in all vehicles. Without these basic standards, the risk of traffic injuries – both to those in the vehicle and those out of it – is considerably increased.

- Care of injuries after a crash has occurred is extremely time-sensitive: delays of minutes can make the difference between life and death.

- If traffic laws are not enforced or are perceived as not being enforced it is likely they will not be complied with and therefore will have very little chance of influencing behaviour. Effective enforcement includes establishing, regularly updating, and enforcing laws at the national, municipal, and local levels that address the abovementioned risk factors. It also includes the definition of appropriate penalties.



Safe Vehicles



Safe Speeds



Safe Roads



Post-Crash Care



Safe Road Users

2.1.5. Speed Management

Speed is a key risk factor for road safety improvement. Road traffic injury is a result of energy interchange between colliding bodies. As kinetic energy is a function of mass and square of velocity, change in speed results in a much bigger energy impact. If a vehicle traveling at high speed is involved in a crash, there is a high probability it will result in fatal or serious injury. Studies show that pedestrians have 90% probability of survival if hit by a vehicle traveling at 30km/hr. However, their probability of survival is only 20% if hit by a vehicle travelling at 50 km/hr⁴.

The stopping distance of a driver increases with speed. Stopping distance is a sum of reaction distance and braking distance⁵. Stopping distance of a driver moving at 30km/ hr is 13m, whereas that of a driver traveling at 50km/ hr is about 28m. This shows if a child run out into a road at 13m in front of a car, it will be hit by a driver travelling at 50km/hr and its probability of survival is minimal. The speed of the driver also affects the judgment of road users about how fast a vehicle is traveling. Furthermore, at high speed there is high chance that drivers lose control vehicle and do not get enough time to understand the available risk as part of making the right decision. Speed is an aggravating factor in all crashes.

Therefore, speeding affects both the risk of crash and its outcome. Studies have shown that a 5% increase in an average speed results in a 20% increase in crashes involving fatality and a 10% increase in those involving injury⁶.

Speed limit on different road types and road environment should be set based on the requirements of different road users. Vulnerable road users such as pedestrians have lower tolerance to impacts as they are unprotected and have less mass. Therefore, at locations where there is high pedestrian activity, the speed of vehicle should be reduced to tolerable speed. For a pedestrian tolerable speed is less than 30km/hr.

Studies show that car occupants wearing the appropriate seat belt and using well-designed cars will probably survive a side impact at speed less than 50km/hr. Hence, at intersections and junctions where vehicle to vehicle conflict is expected and roads used primarily by vehicles, speeds should not be set more than 50km/hr. The tolerable speed for car occupants appropriately wearing seat belts traveling on a road where head-on collision is possible is less than 70km/hr.

Based on the above findings, the following speeds are suggested for different expected conflict types between road traffic.

Table 1: speed limit setting guidelines

No	Expected conflict	Maximum safe Speed (km/hr)
1.	Vehicles with pedestrians	30
2.	Vehicles with vehicles, angular collision	50
3.	Vehicle with vehicle, head on collision	70

⁴ OECD/ECMT Transport Research Centre: Speed Management report, Paris, 2006

⁵ Evans L. Traffic Safety and the Driver, USA, Van Nostrand Reinhold, 1991

⁶ Speed management: A road safety manual for decision-makers and practitioners, World Health Organization, Geneva, Switzerland, 2008

Speed on roads where no vehicle-to-vehicle conflict is expected depends on road and vehicular traffic conditions. Most of roads in the urban environment do not satisfy the above 2nd and 3rd requirements. In cities, pedestrians compete for available road space with motorized vehicles.

Speed control could be achieved through different mechanisms. On the local and collector roads and road passing through high pedestrian activity areas, such as markets, residential areas, schools, mosques and churches, infrastructure-based interventions are recommended. Some of the traffic calming measures may include chicanes, chokers, corners, extensions/bulb-outs, median islands, roundabouts, raised intersections, road diets, speed humps, and speed tables.

Besides the traffic calming measures, speed limits should be installed on roads based on road type, road condition, road user volume and type, and the environment. Several options exist for speed enforcement. Speed control devices could be installed on selected vehicle types such as commercial vehicles. Traffic police could also control speed using mobile speed radars. Fixed speed cameras could also be installed on the selected streets for controlling drivers driving beyond the posted speed limits without the presence of traffic police.



2.1.6. Safe Road Infrastructure

Roads are the basic element of the land transport system. The safe system approach to road safety, which is adapted by many countries and endorsed by the UN, identifies safe roads as one of the pillars of road safety interventions. This approach changed the long-standing practice of road safety intervention, which primarily put effort into behavioural change of road users through awareness creation, towards a comprehensive approach that addresses the safety of all road users through the involvement of wider responsible bodies. While working for road user behavioural change is still important, it is equally necessary to focus on improving the safety provisions of other elements of the road transport system. A safe system approach requires a holistic approach and shared responsibility to road safety. It recognizes that humans are fallible and can make mistakes that cannot be mitigated by education, training, or enforcement. When one element of a safety measure fails, the other elements of the system must assume the safety role to prevent the impact energy to the human body from exceeding the maximum energy that the limit for fatality or serious injury.

The role of roads in preventing physical injury and loss of life due to traffic accidents is significant. Roads that are planned, designed, and constructed by taking into consideration the characteristics, needs and limitations of all road users can save lives. Roads should be intuitive to use (minimize the occurrence of human error) and forgiving (compensate for human error)³. Such roads have appropriate signs and markings and are designed, constructed, and operated to meet the primary function of the road and the road context.

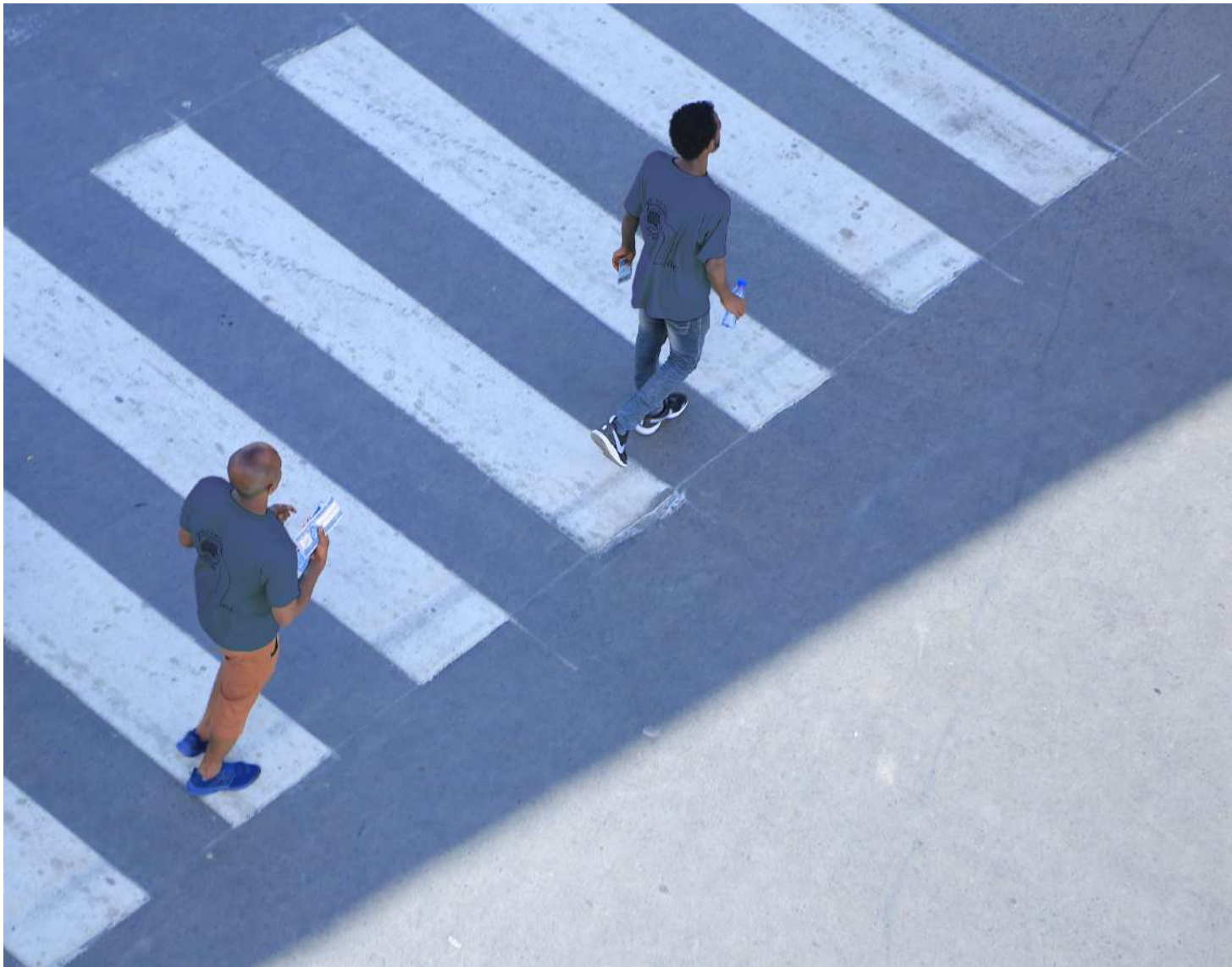
In cities and populated areas where interactions of vehicles and people are expected, speed control, segregated facilities, and conflict control or removal (such as signals and grade separation) are all the options that should be considered. Additionally, in cities, roads have benefits beyond moving people and goods. They also have a place function where people meet, talk, walk, bike, and conduct various social and economic activities. These functions of roads should be carefully considered during the planning of the roads. Vibrant cities are cities that are comfortable for walking and travel with non-motorized modes of transport.

On the higher hierarchy roads such as highways, expressways (motorways) and arterials, the crash risk that accompanies high speed and traffic volume must be addressed through design and construction. Standards for the design of roads for a variety of situations and road users should be developed based on the best practices and knowledge. Two-lane carriageway roads that serve bi-directional high-volume traffic without proper speed management are not safe as they result in frequent head-on and rollover collision types. Conflict points should be properly managed. Difference in mass, speed and direction are common causes of crashes, and these effects should be minimized by design.

The needs of different vehicle types should be taken into consideration in road design. Heavy vehicles have different operational characteristics from light vehicles. Important operational and design parameters such as deceleration or acceleration rate, turning radius, speed, and sight distance related to size and weight should be taken into account.

Special features such as climbing lanes, special routes, dedicated lanes, bypass roads, widening at curves, and rest locations for drivers can improve safety of heavy vehicles.

An important principle in road safety is keeping the balance between speed and accessibility. There are two ways it could be played with the two variables without compromising safety. If high speed is required, access should be controlled. If more access is required, in the case of local streets and high activity urban areas, speed should be controlled.



Some of the means to achieve this balance include: removing conflicts by grade separation, providing enough recovery areas for anticipated errors by removing in-the-road and roadside hazards, separating directional traffic with a median, providing safety features at dangerous terrains and side slopes by utilizing flexible safety barriers, and providing enough site distance, safe curve radius and super elevation at the turning points. In cities, towns and villages where there are high pedestrian, cyclists and animal activities, speed should not exceed the acceptable limit to vulnerable road users- preferably 30 km/hr. Otherwise, the road should be rerouted to avoid such locations.

A road safety assessment conducted by iRAP on 358,000km of road throughout 54 countries covering over 700 billion vehicle kilometres of travel every year, found a big difference in safety of roads in low- and high-income countries for different road users⁷.

In low-income countries, 94% of pedestrians and 92% of bicyclists travel along 1- and 2-star roads. While the percentage is 55% and 58%, respectively, in high income countries. The same assessment shows that 95% of roads do not have formal footpaths or sidewalks in the low-income countries, in contrast to 50% in high-income countries.

More than 90% of intersections on high-speed roads in low- and lower-middle-income countries have poor turning space compared to 64% in high-income countries. Furthermore, 96% of roadsides on high-speed roads are dangerous in low-income countries compared to 73% in high-income countries.

Based on the GRSF country profiles, a \$1.44 billion investment in Infrastructure and Speed Management, would result in a reduction of 10,524 fatalities and serious injuries annually, as well as 2,320,000 fewer fatalities and serious injuries (FSI) over 20 years, and a \$32.50 billion economic benefit.

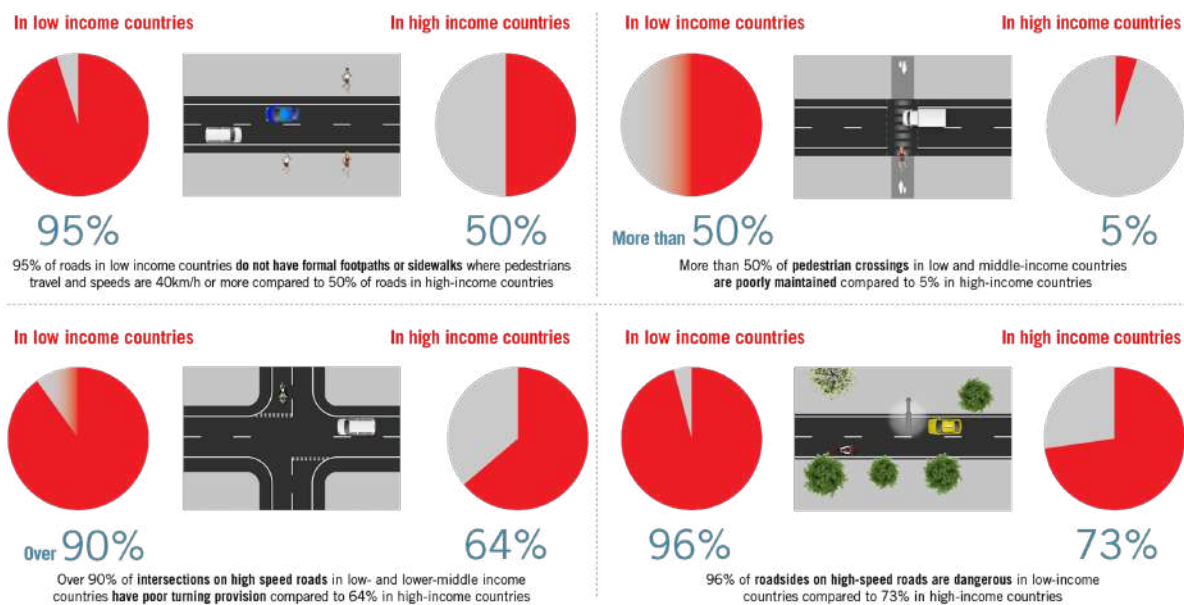


Figure 1: Country income level insights based on a 358,000km sample of roads across 54 countries

⁷ <https://irap.org/2018/05/new-vaccines-for-roads-big-data-tool-set-to-save-lives/>

2.1.7. Vehicle safety

Most of the road traffic deaths occur in low- and middle-income countries, and unsafe vehicles are a key risk factor for road deaths and injuries. At the same time, LMICs are also rapidly motorizing and account for about half of the global new car production and sales. A new vehicle has a lifespan of about 20 years; this can be even longer in some regions. Thus, every unsafe vehicle that is sold is an opportunity lost.

Vehicle safety can be achieved by two mechanisms which are "regulatory push" and "demand pull". Regulatory push is when government regulations require all vehicles to meet safety standards. Consumer pull involves demand from consumers for safer cars.

The main features that contributing to vehicle safety are crash protection and crash prevention. Crash protection refers to how well a vehicle protects its occupants from death and serious injury in the event of a crash. Crash prevention refers to technologies that can prevent a car from crashing and/or mitigate the crash itself. The main examples of crash protection include crumple zones, front- and side-impact protection, rollover protection, airbags (front, side, head) and three-point seatbelts. Similarly, examples of crash prevention include electronic stability control (ESC), autonomous emergency braking (AEB), motorcycle automatic braking System, lane keep assist and blind spot detection.

The UN has recommended eight key priority standards for vehicle safety. The NCAP plays an important role in increasing demand for safer cars. In some LMICs, the majority of vehicles are used imports and need a system that only allows the import of safer vehicles.



2.1.8. Enforcing key safety laws and awareness creation

The key behavioural risk factors for road traffic injuries are drinking and driving, not wearing a helmet, not using a seat belt or child restraint, and speeding. Speeding and drinking-driving significantly increase the risk of involvement in a crash, while the non-use of protective equipment such as seat belts, helmets and child restraints has a great impact on the severity of the consequences of a crash. Establishing and enforcing laws to address these risk factors is effective in reducing road traffic fatalities and their associated injuries⁸.

Although many countries have laws that address drinking-driving, speeding, seat belts, child restraints, helmet wearing and mobile phone use, these laws do not always meet best-practice requirements and are not consistently enforced.

Although more than half of countries have satisfactory laws that address the use of seat belts, only about a quarter have satisfactory laws that address the use of child restraints, speeding in urban areas and the wearing of standard motorcycle helmets; and only a fifth of countries have satisfactory laws that address drink-driving. Another problem identified is inadequate or nonexistence enforcement of traffic laws due to factors such as lack of political will, limited financial and human resources, competing priorities at national level and corruption⁹.

The establishment of traffic laws is a vital step, but laws alone are not sufficient to bring about the expected reduction in road traffic fatalities. It is necessary to ensure that laws are enforced and appropriate penalties administered to deter drivers and other road users from committing road traffic violations or repeating such offences, and to increase the potential of laws to save lives¹⁰.



⁸ Elvik R et al and Bingley

⁹ WHO report, 2015, Anbarci N, Escaleras M, 2006 and Hua LT, Noland RB, Evance AW, Accident Analysis & prevention, 2010

¹⁰ Peden Metal., eds. World report on road traffic injury prevention. Geneva, World Health Organization, 2004

2.1.9. Improving post-crash care service

As described in the WHO post-crash response booklet, the key components of post-crash care include emergency care and rehabilitation for injury, mental health care, legal support and data collection and use.

Injury care is extremely time-sensitive: delays of minutes can make the difference between life and death. Fatality rates from crashes are dramatically higher in low- and middle-income countries than in high-income countries with well-developed emergency care systems. Existing evidence shows that key solutions, including the development of organized and integrated pre-hospital and facility-based emergency care systems, the training of all frontline providers in basic emergency care and the promotion of lay first responder training, could improve the outcome of the patients.

Timely and proper care provided at accident scenes could be lifesaving and prevent permanent disability. First aid training to key population and bystanders is one important intervention to ensure this. More than half of European countries require first-aid training for drivers, and many countries require that drivers carry first aid supplies in their vehicles. The WHO booklet states that universal emergency care access numbers (UAN) are important to facilitate scene care. Currently, only 50-60% of countries have a UAN.

While there is limited literature on which components of emergency care contribute most to such differences in outcome, modelling studies suggest that more than a third of global injury deaths could be prevented if outcomes in low- and middle-income countries approached those in high-income countries.

The proportion of patients who die before reaching hospital in low- and middle-income countries is more than double that of in high income countries. If fatality rates from severe injury were the same in low- and middle-income countries as they are in high-income countries, up to 500,000 road traffic fatalities could be averted every year.

A review on the impact of pre-hospital care undertaken over six low- and middle-income countries (Afghanistan, Brazil, Iran, Iraq, Mexico and Trinidad and Tobago) shows that timely pre-hospital care can reduce risk of death in injured patients by 25%. In more than 40% of the countries in the world, less than half of injured people are transported by ambulance.

Emergency care for injury is at the core of the post-crash response. Effective care of the injured requires a series of time-sensitive actions, beginning with activation of the emergency care system, and continuing with care at the scene, transport, and facility-based emergency care. In addition, early and long-term rehabilitation are essential to limit the physical and psychological impact of injuries and to maximize the impact of emergency and surgical care. Data collection and research is another key area to optimize post-crash care. Standardized registries such as the trauma registry are underdeveloped in low- and middle-income countries.



2.2. National Context

2.2.1. Road Traffic Crash

The traffic crash history obtained from the Federal Police indicates that road traffic fatalities have shown sign of reduction in the past three years. In the 2017/18 (2010 E.C.), 5,118 people lost their lives. But in the following two consecutive years, 4,597 and 4,131 died. This downward trend needs to be sustained. Unless it is tested in a longer period of time (at least 5 years), it is not possible to conclude that road traffic fatalities are decreasing.

For the past 17 years, road traffic fatal crashes have shown an average annual increase of 6% (125 average fatal crashes). Figure 2 shows the road traffic fatal crash trend.

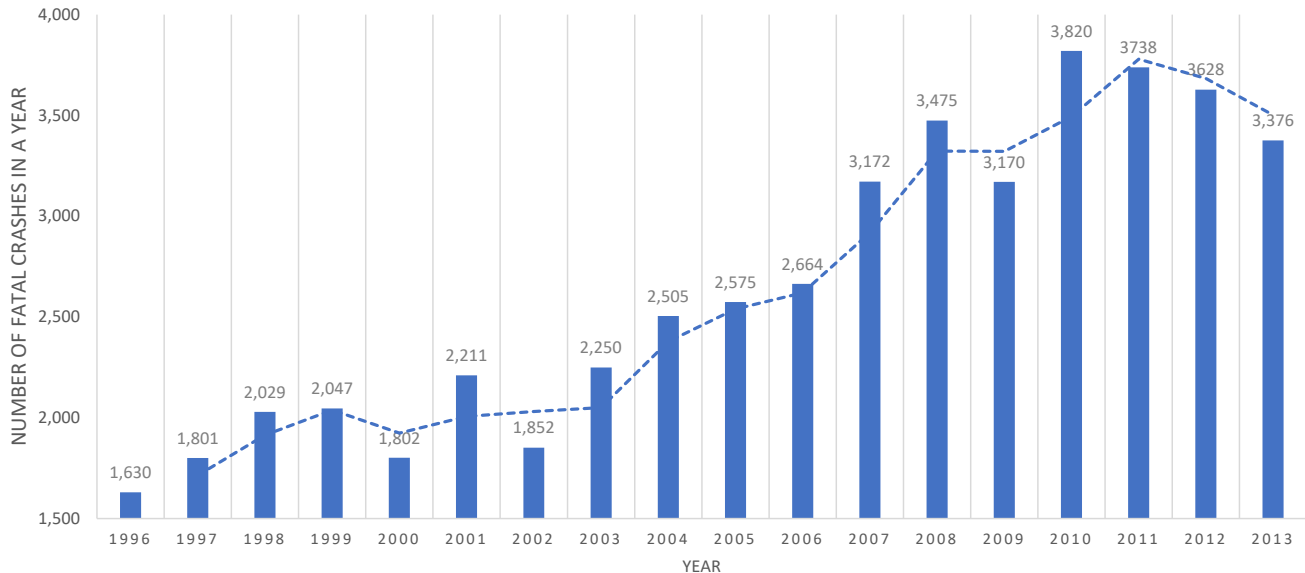


Figure 2: 17 years fatal crashes trend

A total of 16,622 fatal and serious injury crashes occurred in two years, from 2018/2019 to 2019/2020 (2010 to 2011 E.C). 73% of the crashes involved commercial vehicles (pick ups, minibuses, mid- buses, buses, trucks, machinery, and taxis).

Public transport (mini-buses, mid-buses, and buses) involved in 28% of the fatal and serious injury crashes. Minibuses ranked 1st with 14% contribution to the crash total. Freight vehicles, including pickups, are responsible for 32% of the crashes. Pickups, which are mostly used for commercial purposes, ranked 4th, causing 9% of the crashes. Motorcycles and automobiles contributed 8% each.

To ensure roads play their role in curbing the crash involvement of different vehicle types, it is necessary to identify and address the road-related problems that contributed to the prevalence of crashes by taking into consideration different vehicle categories.

The data shows that 48% of the crashes happened in urban areas. The remaining 52% happened on roads connecting regions or zones, or on rural roads. 21% of crashes occurred on the roads connecting regions. These indicate the need to work on the safety of the highways, urban roads, and rural roads to improve road safety at the national level. Using the 2018 ERA road network data, the number of fatal and serious injury crashes per 1,000km paved roads was 767. On unpaved roads, the total was 29. This shows that the fatal and serious injury crash risk on paved roads is about 27 times the risk on the unpaved roads. This could be related to speed, the land use through which they pass, and the volume of vehicles they serve, assuming other factors common to both road types. Paved roads comprise a smaller portion of the total road network length – about 13.8%. Working on them will help to gain a better impact for the effort.

Figure 3 shows the percentages of road traffic fatality and injury crash types. Pedestrian fatal and injury crashes dominant type, constituting 46% of all fatal and serious injury crashes. Other common crash types are rollover and head-on collisions which, combined, make up 24% of all serious injury and fatal crashes. These types of crashes can be linked to the nature of our road system. Most of our highways are single carriageways with limited allowances beyond the carriageway. Errors in keeping within a lane and unsuccessful overtaking attempts lead to crashes, whether alone or with other vehicles. Other contributing factors are insufficient line of sight, lack of enough clear zones and safe roadsides, lack of proper safety barriers, and speeding. Lack of warning signs, road markings and delineators also contribute to the crashes.

Side-impact and rear-end collisions are most crash types in urban, town and villages with dense settlements where a relatively dense road network combines with high differences in speed. Uncontrolled intersections and poor traffic management result in these problems. Unregulated speeding that allows driving at an uncontrollable speed is dangerous. Distracted driving also causes rear-end collisions because of surprise braking. Frictions in the carriageway as a result of on-street parking, bus stops, people and animals sharing the same space also cause these problems.

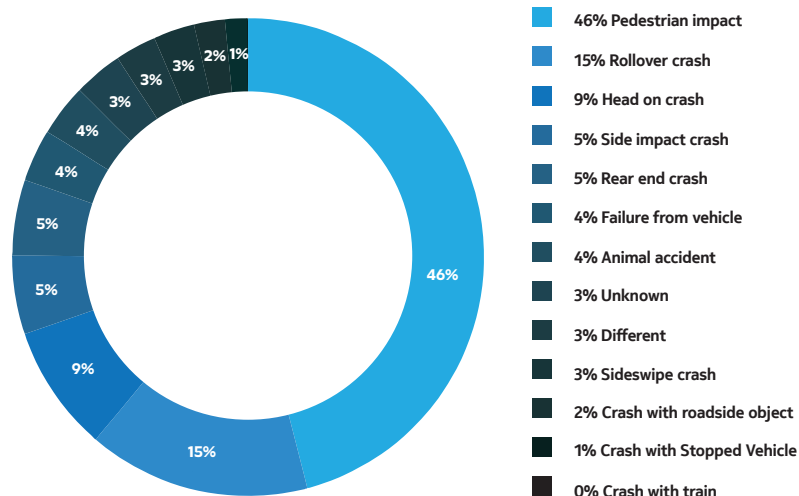


Figure 34: percentage of crash types causing injuries and deaths in Ethiopia (from 2010-2011EC).

2.2.2. Institutional capacity and road safety management

Road traffic crashes continue to be a major social and health problem. However, the political commitment provided to road safety has improved from time to time.

Road safety improvement requires unlimited effort of a number of stakeholders and cannot be ensured without a collaboration. The existence of a lead agency with a legal mandate for coordination across sectors and leadership of the implementation of road safety strategies is critical. With this in mind, the National Road Safety Council Office has been acting as lead agency and coordinating road safety improvement activities. Establishment of the Road Safety Project Office has also contributed to improving the execution capacity of NRSC, while the ongoing process of establishing a Road Safety and Insurance Fund Service is expected to bring the required institutional capacity.

Regional transport offices have begun efforts to establish an independent team working on road safety, and coordination with the national road safety council is improving from time to time. Despite recent efforts and improvements,

Institutional setups are fragmented at national as well as regional levels, which are never carried out the current workload demanded. At regional level, road safety is under the transport Bureau merged with other transportation activities or road construction. This shows institutional set up and reform for road safety needs critical attention.

Shortage of human resource, specialized manpower with exposure to proven road safety interventions, has brought its own impact on successful road safety improvement. On the other hand, establishment of engagement with international development partner has improved and resulted in technical capacity building and financial support.

Although, Road Fund Agency allocates part of its budget to road safety improvement activities, the dedicated amount which is less than 1% of the total budget is not sufficient for required interventions.

On the other hand, crash and injury data collection, storage, analysis and interpretation are essential for road safety improvement. Reliable data are needed to raise awareness about the magnitude of road traffic injuries, to implement effective, evidence-based interventions and to convince leaders at all levels of the need for action.

Ethiopia initiated a number of measures to improve national and city road safety data management and use for intervention purposes.

- Federal Transport authority engaged on the TRANSIP project, funded by World Bank, which aims to create a national central database for crashes, driver licensing, penalty and vehicle registration.
- Regional police and transport sectors developed their own crash and penalty registration systems for analysis and reporting (e.g. Addis Ababa, south region).
- The federal police commission provides annual crash statistics every year at the national level by compiling crash data from all regions.
- Addis Ababa's BIGRS initiative estimates fatal crashes by combining police and health sector crash data every three years in collaboration with transport sectors.

Opportunities were also identified to improve the quality of crash data and use it for intervention to reduce deaths and injuries. Most of the regions' crash data recording mechanisms are paper based, without specific georeferenced crash location or clear definition identification of crash severity (i.e., fatal crash, minor or severe injury).

With respect to the reliability of crash data, except in research level, no crash data linkage mechanisms exist within organizations, and there is no lead agency responsible for crash data collection, analysis, interpretation and distribution. In addition, data access, sharing and reporting roles expected from stakeholders is not clearly specified. This will be addressed in the strategy.

Generally, the efforts implemented so far have considerable limitations: difficulties in creating a strong coordination among stakeholders, shortage of specialized human resource, limited participation of the private sector, limited mandate of NRSC as lead agency, weak monitoring and evaluation system, unavailability of reliable crash data, and financial constraints.



2.2.3. Speed management

Even though the importance of controlling speed for road safety improvement seems clear, speed regulation and speed enforcement are weak in Ethiopia. The country is still using speed regulation enacted five decades ago. The speed limit is based on vehicle types, and no national laws or guidelines exist for deciding and enforcing speed limits for different road types and environments. The penalty for violating speed limits is about 5.46 USD (200 birr), very low even when compared to other MLIC. There is no progressive increase in penalties for different levels of speed violation- a driver exceeding the speed limit by 5km/hr gets equal punishment to a driver that exceeded it by 30km/hr. Furthermore, there is no clear legislation for using technologies for speed enforcement.

The Ministry of Transport and Logistics has made effort to procure and distribute speed radar equipment to all regions and intensive trainings are also provided to traffic police departments to improve speed enforcement. On the other side cities like Addis Ababa, has had good practices in speed enforcement since 2016. The city administration with the support from Bloomberg Initiative for Global Road Safety trained police in effective policing and equipped them with speed

controlling devices. However the number of speed enforcement devices and other facilities for effective enforcement are still far below what is required.

Most of the country's paved roads are two-lane two-way carriageways for two directional traffic. Speeding on such roads without control is the reason for most crashes including head-on collision, vehicle rollover and collision with roadside object. In cities, towns and densely populated villages, the proportion of pedestrian fatalities is very high. In Addis Ababa, pedestrian fatalities make up about 80% of road traffic fatalities- a result of allowing pedestrians to encounter vehicles without managing vehicle speed and controlling conflicts. The speed limit in these areas should be less than 50km/hr. At locations where pedestrian activities are very high, such as schools, markets, residential areas, religious sites and parks, the speed limit should be less than 30km/hr. On local roads, collector roads and roads where pedestrians and other vulnerable road users share space with vehicular traffic, speed should be set less than 30km/hr. Effective speed management requires a combined effort of implementing traffic-calming measures and consistent speed enforcement.



2.2.4. Safe Road Infrastructure

Transport is crucial for the well-being and prosperity of nations. It provides access to opportunities, health facilities, education, and markets. It is a means through which goods and peoples move from one place to another for economic and social purposes. Road infrastructure is the foundation of the economic development of a country. In land-locked countries like Ethiopia, land transport is a dominant means of transport. The Ethiopian government has given special emphasis to road construction as a major enabler for achieving its plan to pull its citizens out of poverty and to realize its aspiration make the country among the middle-income countries by 2030.

Road and traffic

The road length in Ethiopia has shown an average increase of 7.8% since 1997¹¹. The road network data disclosed by Ethiopian Roads Authority (ERA) in 2019 indicate that the country has 17,579 km paved and 109,194 km unpaved road lengths as of 2018. The expressway length reached 301 km with the opening of Mojo-Meki- Batu in 2021.

Except for the expressways and some city areas, the country's roads are unseparated two-lane roads for bidirectional traffic movement. While some major cities provide medians and walkways, the roads have uniform cross-sections throughout their length without provisions for different road users such as pedestrians, cyclists, and animals or animal-pulled carts. Critical safety features including clear zones, sight distances, super elevation and safety barriers are mostly nonexistent or inconsistent. The road and road environment are not forgiving to the driver error. Minor errors in driving may lead to a catastrophe from rollover, collision with other vehicles or fixed objects. Streetlights are missing even in most of the cities.

Most of the roads are missing proper signs and markings. Signs and markings are rules of the roads that show the road user how to act safely on the roads. Their absence indicates the lack of minimum operational standard. Regulatory signs, warning signs and information signs are key operational and safety elements of a road. Speed limit signs show drivers safe operating speeds for a given road and road context. But these signs are missing on most of the roads. As a result, drivers drive without a limit on the narrow two-lane two-way roads with elevated crash risks. Roads that lack appropriate lane, direction indicators and crossing markings on the road segment and intersections are unreadable and prone to frequent errors. Similarly Nighttime visibility on the roads depends on markings.

The total number of vehicles registered in Ethiopia exceeds 1.3 million. Motorcycles, dry cargo, and public transport dominate vehicular traffic at the national level. But in the capital, automobiles are dominant, constituting more than three-quarters of vehicular traffic. In other cities, three-wheelers and two-wheelers provide most motorized passenger transport. Walking, cycling and animal-based transport are still the major modes of transport, although they are not considered in the planning, design, and construction of roads, particularly national highways.



¹¹ Ethiopian roads authority road sector development program, 21 years performance assessment, 2019

Design Guide

ERA and Addis Ababa Roads Authority (AACRA) have road design manuals for the roads they build in their jurisdictions. ERA's road design manuals were prepared in 2013. The contents of the manuals are mostly based on highway design requirements. The criteria and standards are given to meet certain speed levels for a specific functional class of road. The functional classification of the roads is based on the average annual daily traffic (AADT). Even though the roads cross through different land-use and environments (rural and urban), and despite the manual being applied nationwide, it mainly focuses on vehicular traffic safety and design requirements. The needs of other road users such as pedestrians, cyclists and animals are not well considered. The manual recommends accommodating these needs in the shoulders of the roadway, which is insufficient in cities, towns and densely settled villages. The manuals are outdated and lacking in the latest knowledge, best practices, safety findings and transport objectives. Currently, the focus is towards sustainable transport that can solve the transport problem while minimizing negatives such as air pollution and traffic crashes.

AACRA launched its manual in 2004 that is applicable for the design of roads in Addis Ababa. Even though it is more detailed and accommodating to a variety of situations than the ERA manual, the manual nevertheless focuses predominantly on highway design requirements. Pedestrian right-of-way requirements are provided, but other road users such as cyclists are not addressed.

AACRA builds roads based on recommendations of the city's structural plan. These recommendations include good provisions for sustainable modes of transport such as mass transit and NMT. The manual provides guidelines for speed limits for different functional classes of roads. Since it was developed almost two decades ago, it is nevertheless necessary to update the manual to accommodate the current needs and best practices.

Generally, the available design manuals need revision to address major safety issues. Additionally, road safety audits during design stage should be made mandatory to close any gaps on new road designs.

Institutional framework

ERA is responsible for most of the roads constructed in the country except in some city administrations and the lowest hierarchy roads under the regions. Except in Addis Ababa and some bigger cities, all paved roads are constructed and managed by ERA.

ERA is accountable to the ERA board. ERA has four key departments: planning and ICT, engineering operations, road asset management, and human resource and finance. It also has districts all over the country that are responsible for the management of ERA's roads in their jurisdictions.

Under the engineering operations department, there is a quality assurance, inspection and road safety management directorate responsible for ensuring the safety and quality of the road infrastructure.

Road Safety Assessment

Global Road Safety Facility (GRSF), partnering with the international Road Assessment Program (iRAP) assessed 525 km roads in the city of Addis Ababa during BIGRS 2015-2019. iRAP ranks road segments from 1 star to 5 stars based on their safety provisions from the perspectives of different road users. An acceptable safety level for a certain type of road user is 3 stars.

For Addis Ababa city, the percentage of the roads that are rated below 3 stars for pedestrians, motorcyclists, bicyclists, and car occupants is 86%, 80%, 76%, and 61%, respectively. This is an indicator that the vulnerable road users are not well accommodated on the roads. It is worth noting that pedestrians constitute about 80% of the road traffic fatalities in Addis Ababa. Studies and data show that other cities and towns in Ethiopia have similar statistics.

Table 2: iRAP findings

Star Ratings	Vehicle Occupant		Motorcyclist		Pedestrian		Bicyclist	
	Length (kms)	Percentage	Length (kms)	Percentage	Length (kms)	Percentage	Length (kms)	Percentage
5 Star	0.00	0%	0.00	0%	0.00	0%	0.00	0%
4 Star	0.80	1%	0.00	0%	3.79	3%	0.00	0%
3 Star	43.18	38%	23.10	20%	12.64	11%	27.80	24%
2 Star	50.92	45%	50.44	44%	41.07	36%	47.12	41%
1 Star	19.14	17%	40.50	36%	55.88	49%	39.12	34%
Not applicable	0.00	0%	0.00	0%	0.66	1%	0.00	0%
Total	114.04	100%	114.04	100%	114.04	100%	114.04	100%

At the national level, a total of 2,000km of trunk roads were inspected for safety by a consultant hired by the Ministry of Transport and Logistics. Even though the consultant only identified the safety issues related to the selected corridors, most of the findings are common to other roads in the country.

The road safety inspection found out that crash risk is high in towns, villages, and cities where there are relatively dense settlements, higher activities of people, and where different road users and animals share space with vehicular traffic. Uncontrolled vehicle speed, lack of parking and bus-stop bays, unavailability of facilities for non-motorized road users, and lack of streetlights have increased conflicts and crash risks. Addressing these issues will solve the problems.

Identified road-related issues include unsafe bridge parapets, lack of sufficient sight distances, lack of super elevation and road marking at the horizontal curves, and lack of climbing lanes for heavy vehicles on steep gradients. Intersection points of major roads and minor roads are locations that are exhibiting high crash frequency. This is a result of the unregulated approach of road users to the intersections without signs, intersection treatments and speed control mechanisms. Fixed objects within and next to the road and its environment are also identified as a major issue. Complete and functional mandatory signs and markings are not available on the roads. During road construction, necessary work zone safety measures are not being taken. Deteriorated roads due to the lack of timely maintenance is another problem that the consultant identified.



2.2.5. Safe vehicles

Though finding accurate vehicle data is challenging, the total number of vehicles registered in Ethiopia is estimated to be more than 1.3 million. Automobiles make up the largest share with 20.16%; motors and dry cargo vehicles follow with 19.25% and 12.28% respectively. Many of the vehicles in Ethiopia are old- a major road safety concern. Ethiopia has recently introduced a new excise tax regulation that significantly discourages the import of old vehicles. However, the vehicle import technical checklist doesn't include the minimum safety requirements as stated in WHO Save LIVES package.

The Ethiopian Standards Agency is the institution mandated to regulate various goods and standards.

Vehicle inspection centres and driver training centres are also open for private use under a control from the Federal Transport Authority. Vehicle inspection centres undertake annual vehicle inspection, but the centres lack the required inspection instruments and the process is not well supported with technologies. The possibility of fraud also makes it difficult to ensure roadworthiness of vehicles. Though it is not sufficient to close the whole loophole, there is a practice of undertaking surprise spot inspections on training centres and maintenance garages.

Because most of the vehicles driven in Ethiopia are old, a high demand exists for spare parts. Poor periodic vehicle service practice is common. The market system for Para transit and mass transport is tariff-based, whereas the spare parts are sold on a free-market system, making it difficult for proper and timely vehicle maintenance. The variety of vehicle brands and models increases the demand for specific spare parts. As a result, available spare parts are seldom genuine.

No minimum standard exists for import and local assembly of vehicles. Even vehicles with steering on the left side are not restricted, and vehicles prohibited in their country of origin are imported to Ethiopia. Steering on the opposite side is associated with issues of braking, steering, instability at high speeds, and poor alignment, among other things.

Addis Ababa city has developed a directive on the use of motorcycles within the city. The directive created a better control and management mechanism on motorcycles. However, there is no national regulation for motorcycle operation and safety.

On the other hand, a new directive is also set nationally for the use of speed limiters. However, the approach on priority and the controlling mechanism needs to be strategic. Priority should be given to commercial vehicles, which account for most road traffic injuries and fatalities.



2.2.6. Safer Road Users

Drivers training and licencing

Ethiopia's driver training system is limited to using training manuals and carricula that enable drivers to cover basic safety issues. Drivers are not well aware of safety requirements and the benefits of defensive driving. Aggressive driving and frequent law violations are commonly observed and attributable to insufficient driver awareness of road safety. Driver training centres lack the capacity to provide sufficient standardized vehicles, instruments and space for training.

The driver licence classification approach in practice is not in accordance with the international best practice, allowing drivers to skip training on higher classifications of vehicles, which creates problems due to inexperience and exposure to different vehicle types. The lack of a centralized data system increases the possibility of forged driving licences.

Road safety communication

Road safety communication plays a significant role in improving road users' behaviours to reduce the risk of road crashes. These activities are designed to prevent road traffic crashes, injuries and deaths. People's knowledge and attitudes about road safety are critical in combating vehicle crashes. Change in these views can be achieved through the implementation of strategic road safety communication, which should be an element of a comprehensive road safety approach.

Strategic communication focuses on risk factors – particularly speeding as it is the priority at national level. Speeding is the core of the road traffic injury problem: speed influences both the risk of a crash and the severity of the consequences should a crash occur. Tackling drivers' attitudes and inappropriate speeding, particularly in the context of vulnerable road users, takes time and resources.

Engaging civil and professional associations in road safety communication activities has its limitation. Road safety key stakeholders lack coordination. Some road safety clubs, associations, forums, religious institutions and other road safety stakeholders participate in road safety communication activities, but these efforts need to be strengthened.



Strategic road safety communication should be evidence-based and aligned with enforcement. Using earned media and social media will bring significant improvement without much cost implication.

However, current road safety messages are ineffective as a means to change driver behaviour. Some road safety communication activities are event oriented; they are not strategic and don't give considerable priority for risk factors. Events, however, can be effective when they are coordinated with campaigns.

Generally, there is lack of attention for road safety mass media campaigns and budget allocation. In addition, capacity building training given for road safety professionals, community associations, forums and drivers are misdirected, insufficient, and lacking in continuity.

Road safety education

Ethiopia has recently launched a new educational curriculum which incorporates road safety starting from primary schools up to senior high school. When this curriculum is fully operational, it will create opportunity to provide basic road safety knowledge to the more than 34 million students currently in school.

To ensure effective implementation, this initiative should be supported with massive teacher trainings and strengthening of school traffic clubs.

Enforcement and Penalties

Regulation No 208/2011, Regulation No 395/2017 and Legal Notice No 361/1969 are currently available legal instruments which can help enforcement in the road transport system.

The implementation of these regulations is not uniform across regions, and the accountability system for failing to implement the regulations properly is very weak. The road transport system also lacks sustainable implementation of regulations in terms of enforcement.



not up to the international best practice and does not sufficiently address major risk factors. In addition, it is not supported by strong and sustained enforcement and public awareness. For these reasons, current enforcement is not producing significant behavioural change. Practices in many countries show that enforcement can change behaviours which in turn changes attitudes and level of moral acceptance of road users.

Ethiopia has road policing agencies at both the national and regional level. The existing road policing entities have limited understanding of the key causes of road crashes, death, and injury and how to apply appropriate countermeasures to reduce harm. In addition, current road policing lacks techniques such as intercepting vehicles and operating safe checkpoints with a strong focus on occupational health and safety principles for police and road users.

International practices show that intelligence-led policing based on crash data and other intelligence can bring a change. In Ethiopia, deploying traffic police officers to enforce a few selected critical laws on key offences such as speeding, drink driving, distracted driving etc. has limitations.

The blood alcohol limit set in current legislation is above the international best practice, while drink driving enforcement is not widely undertaken due to the limited number of alcohol testing devices.

Recent study on major cities show compliance to usage of seat belts varies from 98% to 19.2% for drivers in Addis Ababa and SNNP respectively. Passenger seat belt usage ranges from 36.6% to 5.34% in Addis Ababa and Oromiya, respectively. Despite the low compliance to driver and passenger seat belt regulations, child restraint usage is not mentioned in the current regulation, and the issue of quality and standards for these protective devices is not currently addressed.

The proportion of motorcycles is increasing at an alarming rate, especially in regional cities. Despite this, helmet use is not a normal practice. The current legislation makes use mandatory, standards and fastening are not included.



Generally, the existing enforcement and penalty system needs improvement in legislation as well as enforcement capacity. Major risk factors should be well addressed through a legislative review to meet international best practices. The capacity of both human resources and enforcement technology need to be improved significantly to ensure strong enforcement on our roads. Intelligent enforcements should be implemented to ensure that enforcement of speeding, drink-driving and distracted driving is supported with relevant technologies.

Road safety communication and enforcement coordination

The most positive changes to road user behaviour occur when road safety legislation is supported by strong and sustained enforcement and public awareness. Enforcement must be backed up by efficient communication strategies. When enforcement is supported by strategic communication interventions, the impact of both activities are maximized and amplified. Mass media campaigns on different risk factors should also be complemented by law enforcement; each campaign addresses one risk factor, and enforcement focuses on the same risk factor.

Establishing strong coordination of road safety awareness activities with enforcement is a major intervention area which needs improvement.

Capacity building

Strategic communication capacity building is one means of ensuring that the agencies responsible for road safety communication activities are well equipped to create and distribute effective messages to help reduce crashes and save lives. Training, as part of the driver testing and licensing programs, plays a substantial role in enhancing behaviour, improving skills and reducing error-making. Such trainings must be continually assessed.

The contents may include defensive driving, road signs and markings, legislation and other road traffic rules. Training should focus on evidence-based provisions to prevent risky behaviours such as speeding, impaired driving, fatigue driving, mobile phone use, distracted driving or non-use of protective equipment. Enforceable legislation around all of these behaviours needs to be easier to implement.

Similarly, providing basic first-aid training for lay responders (non-medical professionals) such as taxi and public transport providers, police, fire brigade etc. to improve post-crash response is vital. This provides for timely access to simple life-saving interventions—especially in areas where pre-hospital services are limited or response times are long. A specific focus should be on training lay providers whose occupations frequently put them at the scene of crashes. Road safety experts, clubs, forums, community volunteers and other stakeholders should also have the training.

Community based interventions

Road safety communication and education will seek to 'enrol' the public at individual level to take personal responsibility and ownership of road safety within their communities. This can be used as a guarantee for public support and the involvement of local stakeholders.

Community members such as traditional and cultural structures, government structure, schools and youth programs, forums, churches and faith-based organizations, influential individuals, coordination committees and others should be mobilized and participate in road safety awareness creation activities. Developing and implementing various school based road safety awareness programs is a case in point. Similarly, road safety community engagement events such as meetings, workshops, etc. on different road safety issues should be conducted.

Road safety education in the formal education curriculum

The formal education sector has a vital role to play in the implementation of the Road Safety Strategy. Incorporating road safety education programs in basic education syllabi in all grade levels promotes road safety awareness in schoolchildren by integrating road safety materials into the school's curricula. It provides information that influences road users' decisions and continues to be a critical element to reducing fatalities and serious injuries.

Similarly, it focuses on the review of existing material and approaches, with a view to integrating the road safety message into the routine of school life. It also includes preparing and using extracurricular guidelines, road safety

educational reference materials. Road signs and markings and other road traffic rules and practices are often integrated in primary education. They are also delivered as part of driver training courses which are sometimes required for licensing. This is all because our children are our most valuable societal asset, and we cannot look into the future without special consideration for their welfare.

Road Safety stakeholders' coordination

Road safety is a shared responsibility that has to be based on cooperation and coordination of all the relevant stakeholders to develop effective safety initiatives and interventions. The coordination and collaborative efforts of government and nongovernmental organizations promote road safety awareness and ensure implementations. All stakeholders, partners, local organizations, and concerned bodies should develop road safety strategies, plans and programs.

Successful delivery of the strategy requires a high level of collaboration among the relevant stakeholders and authorities involving a clear delineation of roles and an institutional framework that facilitates a collaborative approach. This strategy sets out the lead department or agency for each action and establishes a process of formal and informal consultation and review with the key stakeholders. Hence, coordination and engagement of diverse sectors and actors have an important role in road safety education.

2.2.7. Post-crash

The Government of Ethiopia recently leapt to the forefront of a global reaction to the injury public health problem of injuries when it, with the government of Eswatini, proposed a resolution calling for increased investment in emergency care systems and emphasized the importance of fully integrating emergency care into ongoing universal health care (UHC) planning processes. This resolution, passed in May of 2019 at the World Health Assembly (WHA72.16), is believed to orient policymakers to create strategies for sustainable funding, effective governance and universal access to safe, high-quality, needs-based emergency care, including road traffic injuries (RTIs).

Based on its international obligations, Ethiopia has adopted policies and laws to mitigate the effect of injuries. Regulation No. 395/2017 allows improved enforcement regulations on road traffic safety. Laws concerning national speed limits, drink-driving, motorcycle helmet use, seat-belt use and driver use of mobile phones have all been adopted in recent years to decrease the burden of RTIs.



The Federal Ministry of Health is leading the efforts to turn these international pledges and policies into concrete actions. Faced with pragmatic challenges, the health sector has taken measures to prevent and respond to trauma care demand in the country. The HSTP-II, the transformation plan that is guiding the country's health sector for the next five years, has set four prioritized strategic objectives.

These objectives focus on accelerating progress towards UHC, protecting people from health emergencies, contributing towards transformation of households and improving health systems responsiveness. The second objective, protect people from health emergencies, includes the trauma care as a key part of addressing health emergencies.

Efficient post-crash care response is an important part of the safe system to ensure that crashes do not result in death and lifelong disability. Injury care is extremely time sensitive and delays of minutes can make the difference between life and death. For this reason appropriate care should be provided in an integrated and coordinated manner as soon as possible after a crash occurs.

Although trauma care services are provided in many facilities in Ethiopia, the timeliness and effectiveness of service delivery is hampered by lack of a systematic and team approach to the initial management of trauma patients. There is considerable evidence from multiple studies that trauma mortality is reduced by verification of trauma services through regular inspections and designated political jurisdictions which improve the organization of trauma care services at fixed facilities, compared to similarly resourced jurisdictions that do not use these measures.

Improvements in the organization of trauma care services are especially effective at reducing medically preventable deaths. The potential benefits of trauma care reorganization in Ethiopia's health services are irrefutably crucial to prevent morbidity and mortality from trauma.

Health Service Response Situational Analysis to post crash care in Ethiopia

The health service response to post-crash care has been analysed and displayed in their respective thematic areas

Governance and Leadership in Trauma Care

The FMOH's focus on trauma care had been limited to an initiative within the emergency, injury and critical care directorate. The multi-sector collaboration platform, mainly focusing on prevention of trauma care, has been faced with many challenges such as mandate and authority concerns to coordinate and administer, as well as lack of designation of accountability between the sectors.

The FMOH has exerted much effort to improve the effectiveness and efficiency of the referral ladder system for emergency cases throughout the nation at each level of care. However, the health network system is not developed on facility readiness and responsiveness to trauma and emergency cases. The model of trauma care at health centres is different from the service at primary, regional and tertiary hospitals.

The coordination system ranging across the FMOH, regional health bureau, zonal and woreda levels are designed to be responsible for cascading the commitments of the health sector to trauma care. There is a lack of analogous structure for EICCD or trauma case team at zonal and woreda health

office levels. Even the emergency-care focus at regional level is limited with lack of manpower at most regions.

Health Finance in Trauma Care System

One of the challenges faced by the trauma care system had been limited resources. The health sector has mobilized resources to address this shortfall in recent years, though it is not yet adequate to execute the trauma service throughout the country.

The majority of trauma care services rendered at facilities are financed by the government; Ethiopia's trauma care system does not guarantee equitable and affordable trauma care. Out-of-pocket expenditures are high especially for laboratory, medical and/ or surgical treatments if the service only exists outside of the public facilities. Mandatory third-party insurance has been enforced for all vehicles in the country and the insurance scheme and coverage had been expanded in recent years to compensate for cost incurred by health facilities providing post-crash care. The compensation procedure, however, is filled with various bureaucratic steps that make it difficult for health facilities to receive reimbursement.

As resource restraints and funding gaps are not yet properly identified, the budget contributions required from multi-sector members and health partners are not stipulated. The design and application of tools, approaches and strategies to accurately determine the cost of RTC care programs are lacking. Ethiopia has a poorly organized system for tracking allocations and expenditures in trauma care centres.

Infrastructure in Trauma Care

The Government of Ethiopia has tried to tackle the problem of trauma care and emergency health care in the past decade by increasing the number of health facilities. Even though Ethiopia has aspirations to become a middle-income country, the ratio of healthcare infrastructure to population is far below the lower-middle-income average counterpart.

A joint endeavour among the FMOH and AACAHB has resolved to build 10 ambulance dispatch centres and is in the process of establishing a national call centre in Addis Ababa. But thus far there is a lack of a single centralized dispatch and call centre in the country.

A trauma patient's need to be admitted to ICU increases with time and severity of injury. The total ICU beds in the country is 347, according to the EICCD report of 2019/20 GC (2012 EFY). This indicates 0.33 beds per 100,000 inhabitants for ICU care in the country.

Equipment and Medical Supplies in Trauma Care

The continuous availability of quality, effective and affordable pharmaceuticals and medical supplies is required to ensure sustainable trauma care provision. One of the challenges faced by professionals working at the casualty is the inconsistent supply of medical supplies of trauma care and the difficult logistics associated with their acquisition.

The lack of defined standard trauma kits, including a standard description of each product, has been a major bottleneck in communications and transactions across the supply chain. The failure to develop national annual planned acquisition of trauma care equipment and medical supplies has also resulted in defective trauma care procurement.

Most facilities do not have a complete set of medical supplies, equipment and materials necessary to tackle trauma cases. This includes emergency medications, surgical equipment, etc. that comprise the management protocol for the injured.



Availability of trauma care kits is essential for appropriate management of trauma cases. Lack of appropriate and timely maintenance of trauma-related equipment is another big concern for the health care service providing facilities throughout the country.

Trauma Care Information System and Research Development in Trauma Care

The RTC related information is not well organized to provide concrete, comprehensive and valuable information. This has limited the use of data management in the trauma care system in Ethiopia for policy development, enhancement of performance, to provide guidance for RTC prevention activities and education of trauma care providers. Recently, pre-hospital and trauma registry pilot projects led by the FMOH have begun in selected tertiary teaching hospitals. A comprehensive, well-functioning trauma care information system is yet to materialize in Ethiopia. Lessons learnt from these pilot projects could help support the creation of such a trauma care information system. These pilot projects may also provide insight into potential digitalization of the trauma care informationsystem.

The system lacks an acceptable operational definition across all data-capturing bodies. The sources of data in trauma care information system include the HMIS, EDHS, Ethiopian National healthcare quality strategy reports, facilities' trauma registry, death certificates, medical examiner's service reports, in-patient morbidity reports, annual hospital reports, police reports, traffic police reports, facility based monthly mortality and morbidity review, incident-after action reports, service availability and readiness assessment reports, service provision surveys and published researches from different scholars.

A comprehensive scheme linking the various sources of RTI related data is lacking.

Documentation completeness quality improvement projects are being advocated by the Ethiopian National Healthcare Quality Strategy. The system lacks information on how often trauma case documentation is complete as well as how often trauma and administrative reports are received on time. This information is crucial for patient care and for medico-legal reasons.

Workforce in Trauma Care

Most of the trauma care centres have medical personnel to clinically respond who the health needs of injury cases. Most territories also have traffic police as well as police and prosecutors who handle the legal issues of the injured. However, most of the trauma care facilities are not adequately staffed with the required expertise to handle the most common type of trauma cases. The staffing challenge lies in both directly delivering services to the community and health managers as well as supporting staff.

The FMOH has taken many initiatives over recent years, including increasing the intake capacity of 11 existing universities and 13 new universities and hospital medical colleges under a new medical education initiative. By 2020/21, 24 medical schools were training 11,291 medical students. The government had practiced a flooding strategy to train many staff and thus fill public health care positions.

Partnership

Comprehensive partner mapping has not been conducted to create partnership to identify actors working on the RTI. Resource mapping should

be conducted to enforce resource mobilization and coordination activities by the health sector regarding the trauma care system.

The role of private-public partnership has thus far been limited to some support in the pre-hospital service and private health facilities. The scheme is not designed to incorporate other aspects of the trauma care system, such as prevention and rehabilitation. Domestic resource mobilization is also poorly coordinated.

Summary of the Major Challenges and Gaps of the post-crash Care System

Five fundamental challenges were identified:

1. In spite of the existence of a constitutional and legal framework, the translation and undertaking of actions to improve the health care services by designing a trauma care system that responds to the increasing RTIs, through **a holistic intra-sector, inter-sector, public-private and global partnership approach was less prioritized.**

2. Lack of standards and understanding of the requisites of a trauma care system that caters to proper postcrash care hampered the development of adequate **call and dispatch centres, ambulance stations, and rehabilitation centres.**

3. Limited **resources** in terms of both human capital and physical resources.

4. Integrating and harmonizing actions centring post crash victims across the health system pillars are weakly bonded and development of the trauma care system with **commitment and coordination at the national, regional, woreda, facility levels and community levels is Limited.**

5. Despite the rising burden of RTIs, comprehensive mechanisms that capture **RTI related data and tools** to monitor service provision are poorly developed.



3.0

National Road Safety Strategy Objectives



The objective of this strategy is to guide actions and mobilize resources to prevent fatal and serious injury crashes in Ethiopia's road transport system. To achieve this, the strategy identifies the necessary laws to be prepared and implemented, indicates the need to establish, capacitate, coordinate, and integrate the required institutions, and provides effective areas of actions.

3.1 Mission

Promote and maintain a culture of safer mobility in road transport services, achieved by initiating and implementing road safety programs.

3.2 Vision

Ensuring nobody is killed or seriously injured due to road traffic crash.

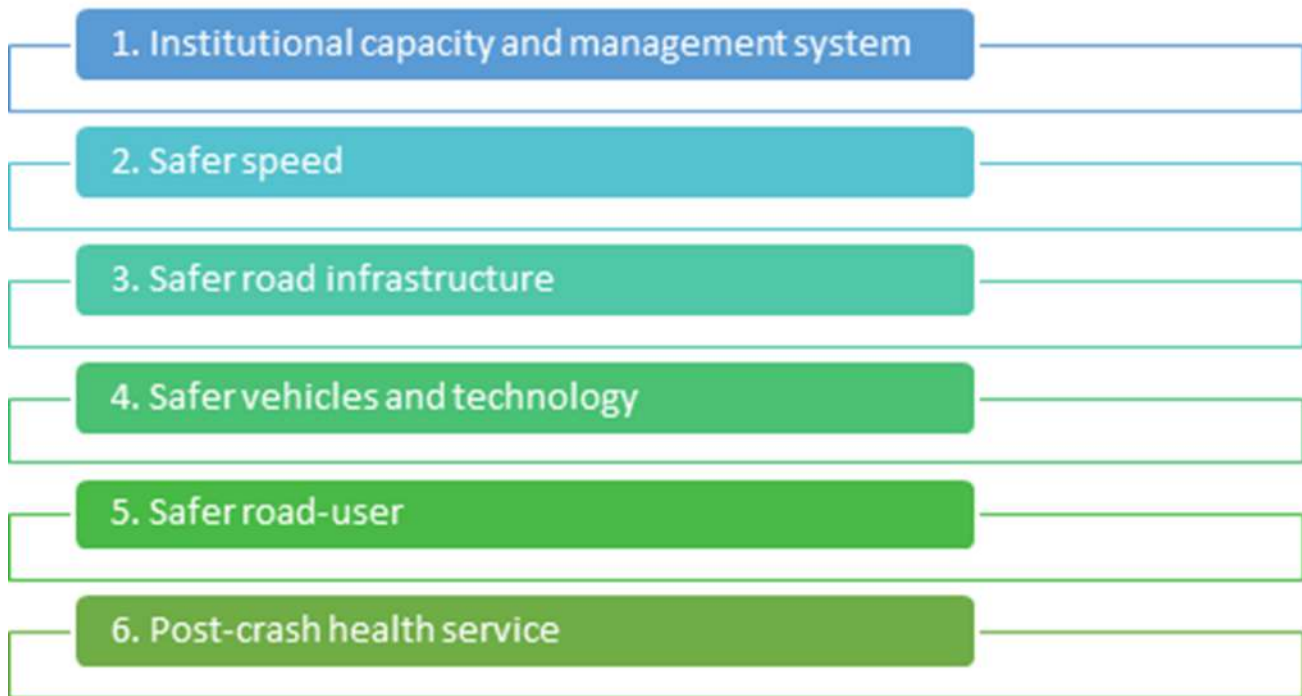
3.3 Goal

To reduce road traffic fatalities by 50% by 2030.

3.4 Pillars

The strategy has six pillars for the realization of the goals.





The strategy provided speed as sixth pillar. This is in alignment with the global plan for the second decade of action. Safe speed is added to the five pillars of the previous decade of action, indicating the critical importance of speed management in road safety improvement¹². As with the ‘Road safety management’ pillar, speed also overarches the other pillars¹³.

¹² https://cdn.who.int/media/docs/default-source/documents/health-topics/road-traffic-injuries/global-plan-for-road-safety.12-oct.pdf?sfvrsn=65cf34c8_13&download=true

¹³ <https://trl.co.uk/Uploads/TRL/Brochures/Safe%20System%20Pillars%20V5.pdf>

3.5 Basic moral principles

- » **Citizens should not die or sustain major injuries while meeting their basic mobility needs.**

It is morally unacceptable for citizens to lose their lives and be injured in their daily activities to meet their basic needs. Citizens may pay money for mobility, but shouldn't pay with their lives and blood for mobility.

- » **All have equal responsibility in saving citizen's lives.**

Road safety issues affect every active human being. They should be, therefore, everyone's concern. No single entity has overall responsibility for saving road users from road traffic fatalities and injuries. Multifaceted actions (inactions) by different individuals or bodies directly or indirectly affect road safety. Road transport system providers, system managers, the media and educators, innovators, researchers, road users, politicians, health service providers, and others have the responsibility to play their part in saving lives.

4.0

Strategic targets and action areas



4.1. Road Safety management system

Global Targets

Strengthening the road safety management system is especially crucial in the developing countries because the fragmented approach to road safety in most of these countries created a structural barrier to the implementation of systematic, sustained, and accountable road safety interventions.

Establishment of a legally mandated national road safety lead agency with cross-sectoral coordination and integration responsibility is a paramount action. The lead agency must be staffed with the necessary road safety professionals and supported with sufficient funding and political commitment to ensure significant road safety improvement.

Lead agencies should be provided with sufficient funds to empower coordination and implementation of road safety activities. The African Road Safety Action Plan recommends allocating 10% of annual expenditure for road construction and 5% of expenditure for road safety maintenance, which should be followed.

One of the major functions of the lead agency should be monitoring and evaluation of the national road safety strategy implementation and road safety improvement activities undertaken by other stakeholders.

Based on the review of local institutional strengths and gaps, the following targets and action areas have been identified for the next decade of action.

National Road Safety management targets and action areas

4.1.1. Strengthening institutional capacity

Target 1: Establish and build strong institutions that have capacity to implement the actions planned to achieve strategic goals

Action areas:

- Establish and build strong and independent lead agency that realizes the objectives of the strategy by ensuring the coordination and integration among the stakeholders
- Establish a lead agency with a clear legal mandate to coordinate and implement road safety activities
- Establish responsible bodies for road safety at the regional and city administration levels, and ensuring strong coordination with the lead agency
- Strengthen partnership with development partners, civic associations and the private sector
- Promote collaborative efforts at the national, regional and continental levels to improve effectiveness of road safety interventions, knowledge sharing and monitoring and evaluation.

Target 2: Ensure sufficient funding for road safety

Action areas:

- Ensure there is political commitment and recognition regarding the socioeconomic impacts of road traffic crash to provide sufficient budget to the lead agency
- Utilize domestic funding sources for road safety improvement efforts, such as revenues from traffic fines, vehicle registration and contributions from road fund and third-party insurance schemes
- Create enabling environment for private sector, civil society, non-governmental organizations, academic and research institutions to participate in road safety
- Ensure that road safety strategy implementation plans become part of the implementing institutions' yearly implementation plans for utilization of yearly government budgets for road safety.

Target 3: Build institutional capacity within implementing institutions for implementation of road safety strategy

Action areas:

- Study the capacity gap of stakeholders involved in road safety improvement and providing improvement schemes and systems.
- Provide on-job and off-job training using either local or foreign support.

- Create partnership with local and international universities and institutions to develop tailored short- and long-term trainings for human resource development
- Strengthen institutional capacity through adequate training and capacity-building with regard to road safety laws and law enforcement, vehicle safety, infrastructure improvements, public transport and post-crash care, and collect, analyze and disseminate disaggregated data for effective and evidence-based policymaking and implementation planning

Target 4: Ensure strong monitoring and evaluation

Action areas:

- Establish a national road safety data management and reporting mechanism. Evaluation process to review progress and draw lesson from implementations shall also be established
 - Establish a baseline data on all components of road safety
 - Prepare annual national road safety report
 - Review the strategy annual with the involvement of lead authorities and agencies. Progress in implementing the strategy will be reported in the context of the Annual Road Safety Strategy Report to the Minister for Transport and Logistics.
 - A mid-term evaluation of the strategy will be implemented in 2025, which will provide an opportunity to recalibrate targets and to implement adjustments
- The lead agency will continue to oversee the implementation of the strategy. On-going monitoring and outcome measurement will be augmented by the midterm review.

4.1.2. Legislation

Target 1: Update national road safety laws based on local lessons and harmonizing with international laws

Action area 1: Update existing legislation to global standards

Activities:

- Benchmark international best practices and formulate comprehensive road traffic and road safety legislation that will replace the existing regulations (Regulation No 208/2011 and Regulation No 395/2017) and legal notices (Legal Notice No 361/1969)
- Review key road safety laws and standards being applied in order to achieve widespread national results. Limitations in road safety laws will be identified and road safety best practices will be incorporated into current legislation to support strategy enforcement.
- Make sure that leaders and enforcement bodies are aware of the development of new regulations and have the capacity to act on them
- Prioritize public awareness and provide training to traffic officers to ensure effectiveness of the regulation

Action area 2. Ratify UN Road Traffic Conventions and Protocols

Activities:

- Become contracting party to and implement at least two of the seven United Nations road safety conventions
- Solicit capacity-building support from both the United Nations and African Union Commission or other agencies to implement the UN road safety conventions and African Road Safety Charter

4.1.3. Strengthen road safety data management

Target 1: Digitize national data management system

With the exception of Addis Ababa, most of the city road safety data recording mechanisms in Ethiopia are paper-based. An advanced electronic crash recording system would work to identify main factors contributing to road crashes and provide timely access to solve road safety problems.

Crash data is useless to organizations that cannot access it. Appropriate methods for distributing data should be developed for each agency that requires it, through the use of statistical reports, newsletters, websites and workshops.

Action areas:

- Establish an improved single centralized national crash data management system, vehicle registration, traffic penalty registration and driver licensing systems
- Integrate and share information among government organizations to assess and use the available crash data platform (e.g. Ministry of Transport, Regional Transport Bureau, Federal and Regional Police commission, transport agencies)

Target 2: Enable utilization of different data sources (linking) for crash reporting

No single crash injury database will provide enough information to give a complete picture of road traffic injuries or a full understanding of the underlying injury mechanism. It's important to strengthen the health sector Electronic Medical Record, Vital Registration records, medicolegal death investigation records, ambulance data, police data and insurance data. In order to develop linkage protocols, standardized variable definitions and data sharing agreements are required.

Action areas:

- Strengthen the health sector Electronic Medical Record, Vital Registration records, medicolegal death investigation records, ambulance data, police data and insurance data

- Establish a binding law to ensure accountability of each party for data sharing
- Standardize variable definitions and establish data sharing agreements

Target 3: Designate responsible organization for crash data report development and data sharing mechanism

Designating a road safety agency to be responsible for the gathering and distribution of crash data and the road safety report is essential to facilitate timely intervention to reduce deaths and injuries.

Action area:

- The road safety lead agency will assign a responsible organization for the development and distribution of the road safety report.

Target 4. Provide standard definitions for road traffic deaths, severe injuries, minor injuries, fatal crashes and injury crashes to be adopted by police.

It's important to define road injury severity to characterize road traffic crash type and severity. On the current Federal Traffic Regulation (2), road deaths and injuries severity were not well defined.

Action areas:

- Identify the gap on definition on federal traffic regulation documents
- Provide standard definition for road traffic deaths, severe injuries, minor injuries, fatal crashes and injury crashes



4.2. Safer speed

Speed control is a key for safety improvement. The allowed speed limit should be decided based on road characteristics, road environment and primary road user type.

In cities, towns and densely populated areas, the speed of vehicles shouldn't exceed 50km/hr. Even in these places the speed limit should be below 30km/hr with large concentrations of vulnerable road users such as pedestrians and bicyclists. These locations include market centres, schools, religious centres, and public service buildings.

Most of Ethiopia's asphalt roads are single carriageway two-lane roads for bidirectional traffic. The environment of the roads is not forgiving to vehicle error. On such roads, limiting speed below 70km/hr will save many lives.

Speed management could be achieved through different ways. Infrastructure-based speed control can be applied at critical or risky locations, and on the lower hierarchy roads. Besides, the well-known speed hump, other mechanisms can also be applied to manage speed.

Speed control technologies can also be applied to limit vehicle speeds. Dynamic speed limiter options that automatically change the maximum speed at which vehicles can be operated in different speed zones. Speed limiters would mainly be effective on commercial vehicles. GPS-based speed limiters provide additional benefits to the owner by allowing them to manage their vehicles from the centre.

Speed management requires strong legal ground. Legislation should be established for setting speed limits for different road, road environment and traffic situations. The penalties for driving above the posted speed limit should have the strength to deter violations. Legislations should also allow law enforcers to use different methods including fixed speed cameras, speed radar and non-paper-based penalty rickets and receipts.

Global Targets

Among the commitments made by ministerial assembly for the second decade of action in Stockholm and endorsed by the UN, target 6 is particularly relevant to the speed management.

Target 6: By 2030, halve the proportion of vehicles travelling over the posted speed limit and achieve a reduction in speed related injuries and fatalities.

Ethiopia reaffirms its commitment with this strategy.

National Speed Management Targets and Action Areas

Target 1: Update the speed legislation

Action areas:

- Identify between existing legislation and international laws
- Draft and enact new speed management legislation

Target 2: Review speed limits on all paved roads and strongly enforce to reduce speed limit violations by 50%

Action areas:

- Conduct an assessment and decide speed limits for different road types and road environment
- Install speed limits on all paved roads
- Equip and train the law enforcers to be able to increase scope of speed enforcement and assure enforcement sustainability

Target 3: Ensure the speeds do not exceed 50km/hr in cities, towns, and densely populated villages

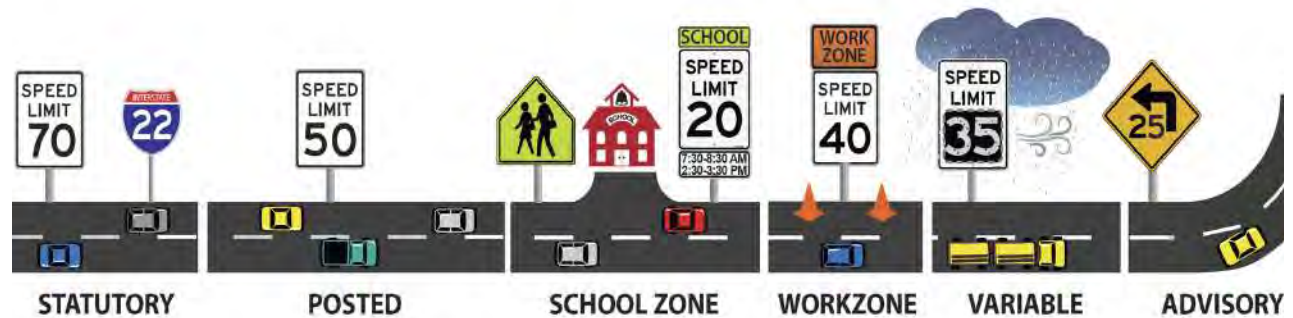
Action areas:

- Pass a legislation that limits speed below 50km/hr and enforce

- Identify low-speed zones and take measures (including infrastructure-based solutions) to control speed below 30km/hr in high pedestrian activity areas such as schools, religious places, market places and residential areas
- Implement safe intersection programs
- Manage speed in school zones

Target 4: Utilizing appropriate technologies to control speed

- Use fixed or portable speed cameras at critical locations such as blackspots to capture speeding vehicles and send data to the central database
- Install speed limiters on prioritized commercial vehicles that are robust enough to change the speed limit of the vehicle in accordance with speed zones.



4.3. Safer Road Infrastructure

Global Targets

Efforts to save peoples' lives from road traffic injuries and fatalities align with goals 3 and 11 of the sustainable development goals (SDG). Goal 3 is stated as 'Ensure healthy lives and promote well-being for all at all ages. Globally, a target was set to halve the road traffic deaths by 2020. Even though the target was not met, it helped countries strive towards solving the road safety problem by adopting the safe system approach provided in the UN decade of action for global road safety. It helped road safety become a policy and research agenda item. Following the end of the first decade of action, member states set twelve road safety performance targets for the second decade of action (2021-2030) and pledged to achieve them. Ethiopia is also committed to meet these targets. Among the twelve targets, two are directly related to road infrastructure:

- **Target 3:** Build all new roads according to high quality technical and safety standards taking into account the needs and uses of different road users including pedestrians, cyclists, and those using motorized transport; and
- **Target 4:** Maintain and upgrade existing roads to ensure that at least 75% of travel occurs on existing roads that meet high quality technical and safety standards for all road users.

Road infrastructure also contributes to the speed-related target:

- **Target 6:** Reduce by half the proportion of vehicles travelling over the posted speed limit and achieve a reduction in speed related injuries and fatalities.

Safe infrastructure is also a means to achieving the Goal 11 of the SDG, to 'make cities and human settlements inclusive, safe, resilient and sustainable'. Target 11.2 gives particular emphasis to road safety and sustainable transport. It is given as, 'by 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and olderpersons'.

The national targets and objectives are prepared by taking into consideration these global targets and commitments, in addition to the local context review.

National road infrastructure safety goals and areas of action

Safe road infrastructure goals and action areas are prepared based on the facts and knowledge obtained from international practices, the global plans, and understanding of the local context. The planned actions should address the problems intended to be solved. They should be realistic and cost- and resource-effective.

The data has shown that while paved roads are only 14% of the total road network length, their serious injury and fatal crash risk is about 27 times unpaved roads. In other words, 81% fatal and

serious injury crashes happened on the paved roads. Hence, focusing on paved roads results in a high return for a given effort. An almost equal proportion of people are affected in both urban and rural areas. Therefore, the country must equally focus on the safety improvement of highways and urban roads in its efforts. On the other hand, the country's road network will increase by 63% within 10 years. Therefore, it is necessary to adopt a proactive approach and accommodate the needs of different road users and the road safety requirements in the new roads to be constructed. This helps to avoid rework and related costs. In light of these, goals and action areas to realize the safe road infrastructure are provided as follows.

Target 1: All paved roads have proper signs and markings.

Action areas:

- Identify institutional gaps for sustained implementation and maintenance of traffic signs and markings
- Conduct traffic signs and marking needs assessment on all paved roads
- Implement sustainably the necessary traffic signs and markings on the paved roads
- Adopt the UN road safety conventions relevant to signs and markings and harmonize with the national laws and guidelines.

Target 2: All new paved roads shall meet the minimum safety requirements for all road users

Action areas:

- Update the road design guidelines and manuals to accommodate the needs of all road users including non-motorized transport, mass transport, and goods transport
- Develop and enact road safety audit guidelines, and institutionalize to ensure all new roads are audited from the safety perspectives at the planning, design and pre-opening phases
- Ensure the participation of road safety experts in planning, design and construction of road projects
- Develop work zone safety guidelines and make part of the road construction procedure

Target 3: Critical serious injury and fatal crash risk areas on existing highways are addressed

Action areas:

- Conduct road safety assessment of all paved roads and improve identified crash risks that would cause serious and fatal injuries; utilize and institutionalize iRAP methodology and ensure 75% of paved highways will have more than 3 stars



- Conduct roadsafety inspectionsat blackspots andtake appropriateimprovement measures
- Develop institutional capacity to take quick measures as crashes happen as a result of infrastructure-related problems
- Initiate universal highway safety program to address common problems to all paved roads such as sight distance, clear zone, heavy vehicles climbing lane, safety barriers, increasing sealed shoulder width, signs and marking, providing right of way for NMT and animals
- Improve the safety of unseparated two-lane two way roads (for example adding sealed shoulder, upgrading to 3 lanes with the middle lane for overtaking or turning movement, or four-lane median separated)
- Solve safety issues of heavy vehicles by providing facilities such as widening at curves, providing climbing lanes, bypassing cities, etc
- Provide timely maintenance for the paved roads

Target 4: Solve the critical crash risks in the paved roads in cities, towns and villages with dense settlements where there are high activities of people and animals

Action areas:

- Improve intersections based on safe intersections design principles
- Improve safety in school zones and commercial areas where high pedestrian movement is expected by providing adequate infrastructure for all road users
- Provide a proper right of way for pedestrians, cyclists and animal pulled transport
- Implement proper safety features for road users with disabilities
- Provide streetlights
- Provide dedicated public transport lanes, and proper freight routes; provide public transport and freight terminals, and vehicle parking areas outside the carriageways



4.4. Safer vehicles

Global Targets

Pillar 3 of the Global Plan is dedicated to safer vehicles. The plan lists a range of activities that need to be implemented at national and local levels to make vehicles safer. The topic of safer vehicles is also included in the 12 voluntary Global Road Safety Performance Targets with Target 5 specifically focusing on vehicle safety.

Target 5 puts that by 2030, 100% of new (defined as produced, sold or imported) and used vehicles meet high-quality safety standards, such as the recommended priority UN Regulations, Global Technical Regulations, or equivalent recognized national performance requirements.

National Vehicle safety target and action areas

Target 1: By 2030, all vehicles will be road worthy and meet the minimum safety requirement through improved legal frame work

Action Area

- Draft National Automotive Policy (NAP) to support the adoption of priority vehicle safety requirements standards for all new vehicles assembled in Ethiopia in accordance with the latest international regulatory framework for vehicles.
- Ratification/accession to UN and AUC i.e., WP. 29 and Article 15

- Restrict imports of new or old steering diverted vehicles.
- Develop a minimum safety standard for vehicle import and assembly based on the key vehicle standards
- Develop a regulation for disposing of old vehicles and standard for drive worthiness
- Develop regulation for motorcycles (ABS, daytime headlight on and proper helmet use)
- Provide tax incentives for vehicle inspection machines and basic spare parts for regular vehicle service.

Target 2: By 2030, all vehicles will be roadworthy and meet the minimum safety requirement through an improved vehicle technical inspection

- Institute a statutory planned visits to inspection centres to certify that the equipment and processes/procedures used by operators in testing and certifying vehicles are consistent with the UN Vienna 1997 Agreement (Resolution R.E.6)
- Establish intelligence-led policing, using data to focus enforcement on the times, places and roadworthiness that present the greatest risk.
- Coordinate and integrate enforcement operations in an annual calendar of events/operations that regional states subscribe to in order to achieve continuous compliance.

- Require measuring and test equipment as part of follow-up inspection services, in accordance with R.E.6 minimum requirements for inspection machine calibration
- Ensure that calibration of inspection machines – as well as the standards for calibration – are traceable to the concerned government organization
- Priority should be given for specific vehicle type such as bus and truck
- Provide resources to carry out roadside inspections

Target 3: By 2030, all vehicles will be roadworthy and meet the minimum safety requirement through improved vehicle technical inspection using improved communication and capacity building

- Develop the demand pull for safer vehicles by advocating with the general public on minimum safety requirements.
- Build public support and trust for vehicle enforcement by launching mass media campaigns
- Undertake licensed inspector and mechanic recertification training programs on automotive inspection and maintenance
- Undertake training of inspectors to ensure their continuing professional development



4.5. Safer Road User

Global Targets

Addressing road user behaviour is an essential focus element of the safe system approach. It is based on the understanding that the designer and operator are ultimately responsible for design, operation and use of the road transport system so that it takes into account the behaviours of road users to ensure that human error and deliberate violations do not result in death and injury.

Although the safe system design also anticipates and compensates for inevitable human errors, deliberate behaviours exist that are not the result of human error—such as speeding, drink driving, non-use of protective equipment and use of a mobile phone while driving. These behaviours that undermine the effectiveness of the system, contributing to increased risk of crash, injury and death.

The safe system approach means shifting a major share of the responsibility from road users to those who design the road transport system. System designers include primarily road managers, the automotive industry, police, politicians and legislative bodies.

On 2nd March 2010, the United Nations General Assembly adopted resolution 64/255 whose goal was to reduce the global rate of traffic fatalities. With input from many countries and road safety partners, the United Nations road safety collaboration developed a global plan for the decade of action for road safety 2011-2020. The global plan provided an overall framework for activities of that decade.

It put improving the behaviors of road users' under pillar 4 and included 12 global performance targets, six of which were directly related to road user behavior changes. The global plan also listed activities that need to be implemented both at national and local level by the voluntary member states. The six road- users global performance targets for 2030 which are related to road users are given below.

Target 6: Reduce by half the proportion of vehicles travelling over the posted speed limit and achieve a reduction in speed related injuries and fatalities.

Target 7: Increase the proportion of motorcycle riders correctly using harmonized high standard certified helmets to close to 100%

Target 8: Increase the proportion of motor vehicle occupants using safety belts or harmonized high standard certified child restraint systems to close to 100%

Target 9: Reduce by half the number of road traffic injuries and fatalities related to drivers using alcohol, and/or achieve a reduction in those related to other psychoactive substances.

Target 10: All countries to have national laws to restrict or prohibit the use of mobile phones while driving and

Target 11: All countries to enact regulation for driving time and rest periods for professional drivers, and/or accede to international/regional regulation in this area.

National Targets and action areas for safe road users

4.5.1. Road Safety Communication and Education

Target 1: Develop an efficient licensing system for novice drivers; advance their driving skills and make them safer drivers

Action areas:

- Revise the current driver training curriculum to improve its road safety content and increase the duration of the training
- Introduce professional licensing system for heavy goods vehicles and buses drivers
- Monitor and supervise road safety in driving license training institutions to check the training quality
- Regulate commercial vehicle drivers and provide a separate certification mechanism.
- Set rules on driving time and resting periods (AETR Agreement). Develop a
- centralized data management system to ensure driving licence registration is automated.

Target 2: Ensure road safety education in the new educational curriculum

Action areas:

- Make sure sufficient road safety lessons are included in the new educational curriculum
- Provide various trainings to teachers and school road safety clubs to ensure those lessons are properly reaching the students
- Strengthen the collaboration with various level Education institutions to improve their involvement in road safety

Target 3: Conduct behavioural change mass media campaigns on road safety risk factors to reduce car crash fatalities and severe injuries.

Action areas:

- Develop and air PSAs on speeding to reduce road traffic injuries and fatalities related to speeding
- Develop and air PSAs on drink and driving to reduce road traffic injuries and fatalities related to drivers using alcohol
- Develop and air PSAs on helmet-wearing to reduce road crash death and injury as a result of failure to use motorcycle helmets
- Develop and air PSAs on seat-belt wearing and child restraint use to reduce road crash death and injury as a result of failure to use seat belts and child restraints

Target 4: Improve Road user's awareness on road safety by using various outlets to reduce car crash fatalities and severe injuries

Action areas:

- Build road users' awareness on road safety by using social media, earned media and outdoor outlets
- Give capacity building training for road safety professionals, drivers, supporting community associations, forums and stakeholders
- Incorporate road safety education programs in formal education syllabuses in all grade levels; prepare and use extra-curriculum guidelines and road safety educational reference materials
- Develop road safety communication guidelines, manuals and training materials

Target 5: Enhance road safety stakeholders and community engagement

Action areas:

- Establish different road safety community associations and forums; work with religious institutions and civil societies
- Coordinate efforts of the responsible government and non-governmental organizations on road safety communication activities

- Organize road safety-events and workshops
- Coordinate and support enforcement using strategic communication interventions

Target 6: Ensure the effectiveness of awareness creation activities

Action area:

- Conduct baseline survey and post-valuation road safety communication activities
- Monitor media coverage on road safety safety; track and record the data
- Share road safety education best practices and experiences

4.5.2. Enforcement

Target 1: Increase the proportion of motorcycle riders correctly wearing standard helmets to 100%

Action area:

- Set minimum helmet standard
- Make sure correctly wearing standard helmets is adequately addressed in the legislation review
- Increase motorcycle riders' awareness of the benefits of helmet wearing
- Increase police capacity for proper helmet wearing enforcement

Target 2: Increase the proportion of vehicle drivers and occupants using seat belts and standard child restraint systems to 100%

Action area:

- Set minimum seat belt and child restraint standard
- Ensure drivers and passengers seat belt and using child restraint is adequately addressed in the legislation review
- Increase the awareness on the benefits of seat belt and child restraint
- Increase the police capacity on seat belt and child restraint enforcement

Target 3: Reduce by half the number of road traffic injuries and fatalities related to drivers using alcohol, and/or achieve a reduction in those related to other psychoactive substances.

Action area:

- Ensure alcohol content set during the legislation review is in accordance with international best practice
- Increase awareness of the risks associated with drink-driving
- Increase the police capacity on drink driving enforcement by improving the supply of necessary alcohol measurement devices with a priority to major cities

Target 4: Enforcing safety laws restrict or prohibit the use of mobile phones while driving.

Action area:

- Ensure distracted driving is adequately addressed during the legislation review
- Increase awareness of the risks associated with distracted driving
- Increase police capacity on distracted driving enforcement



Target 5: Strengthen the capacity of road policing leadership and operations to enforce law related to risk factors, and to build sustainability of enforcement operations

Action areas:

- At the national and regional levels, apply defined road safety enforcement strategies, targeted operational plan, and tactical plan, all of which are data-led and which address the most critical illegal behaviors relating to road safety.
- Allocate sufficient trained and professional road policing and adequate equipment resources to conduct road safety operations safely, increase enforcement, and deter those drivers who violate road safety regulations.
- Emphasise strong partnerships among federal, regional and state traffic police and other road- safety stakeholders as the main focus.
- Implement a nationwide selective traffic enforcement program (STEP) to solve critical safety problems within each regional state.
- In order to combine limited road policing resources into effective operation, follow a team policing enforcement approach at the federal and regional states level.
- Implement and enforce graded penalties for different levels of speeding, demerit point sanctions or license disqualification and suspension at the federal and state level.

- Conduct continuous training of operational traffic law enforcement officers, volunteers from the community and road policing leadership on major traffic risk factors and international best practice.
- Conduct highly visible enforcement throughout the country. An 'anywhere, anytime and anybody' approach which will provide a strong deterrence for road users.

Target 6: Prevent illegal commercial and social roadside activities to increase overall pedestrian safety and to reduce pedestrian risks

Action areas:

- Prevent or strictly control illegal commercial and social activities carried out on pedestrian sidewalks and other road corridors in order to create free flow and safe traffic.

Target 7: Enforce road safety laws to minimize violations by 50%

Action areas:

- Mandate the consistent implementation of minimum traffic regulations based on international best practice throughout the country.
- Increase the scope of traffic enforcement by at least 20% in the first two years, then increase the volume of enforcement constantly from year to year, so that by 2030 it will increase by 50% compared to 2020.
- Monitor and evaluate implementation of regulations throughout Ethiopia.

4.6. Post-crash response

Global targets

The 2030 agenda of Sustainable Development Goals (SDGs) has recognized traffic injury as a principal global health issue. Within goal 3, target 3.8 in particular aims to achieve universal health coverage, including financial risk protection and access to quality essential health care service.

Among the global road safety targets set by the ministerial councils in Stockholm for the next decade, target 12 is directly related to improving post-crash health response. All countries are expected to establish and achieve national targets minimizing the time interval between a road traffic crash and providing initial professional emergency care.

National Post-Crash Care Systems Targets and Action Areas

The post-crash care system is a hybrid of traditional patient experience pathways and the perspective of health program building blocks.

This (traditional) patient experience pathway could be simplified as:

- scene to facility (pre-hospital)
- facility level care
- post-acute care rehabilitation

The health program perspective establishes the trauma care system from the six building blocks of health programs. This document combines the quality in health service advocated by the WHO with the One Health tool advocated by other international health agencies. In health. The building blocks are:

- Infrastructure
- Medical supplies and equipment, maintenance
- Finance
- Governance and leadership
- Information system, digitization and research
- Human resource for health and logistics

Based on the SWOT analysis of the local context and international best practices, the targets and action areas for the next 10 years are as follows.

Target 1: Providing pre-hospital care within 30 minutes of traffic crash

Providing prompt emergency care and rapid movement of injured victims rapidly from the scene of injury of injury to a health-care facility can save lives, reduce the incidence of short-term disability and dramatically improve long-term outcomes.

Action areas:

- Provide first-aid training to drivers, police, and volunteers
- Ensure at least one paramedic team per 50,000 people that is well-trained and equipped with necessary first-aid equipment and ambulance

- Establish the necessary communication and management system for effective use of first-aid resources

Target 2: Improve the accessibility of trauma care centre

Post-crash care is delivered at fixed facilities (health centre, clinics and hospitals) and its systematic organization serves as one of the fundamental avenues of approach to deliver essential trauma service.

Action areas:

- Study the gaps in providing acceptable trauma care
- Expand trauma care centres
- Train health professionals in trauma care
- Equip trauma care centres with necessary equipment

Target 3: Improving post-crash care rehabilitation system

Appropriate rehabilitation protocol is the most important part of RTI patients' management. This rehabilitation protocol will include psychological support with clinical psychologists or psychiatrists, mobility exercise with trained or occupational therapists, and support from nutrition experts.

Action areas:

- Identify and study the gaps in trauma rehabilitation service
- Expand the rehabilitation centres
- Strengthen the rehabilitation centres



5.0

Monitoring and Evaluation



Progress Monitoring and Evaluation Mechanisms

Monitoring and evaluation are primarily the responsibility of the lead agency. The lead agency is responsible for ensuring that short-term, medium-term, and long-term plans are prepared and updated. It makes sure all responsible institutions have taken actions relevant to their institutional responsibilities and implemented them. It prepares quarterly reports on the progress of yearly plans by collecting information from the implementing institutions. Progress shall be evaluated every 6 months (twice a year) in the presence of all road safety council members, stakeholders, the chairperson, and the secretary. The secretary of the council is the lead agency. At the start of the fiscal year, progress over the last six months and over the last year should be evaluated and directions given by the council's chairperson. Plans for the new fiscal year are discussed and launched. Six months later, in the middle of the fiscal year, progress shall again be evaluated. In the meetings, the findings of the outcome indicators and road safety statistics shall be presented.

Major performance indicators should be measured and assessed by an independent body or the lead agency in collaboration with the responsible institution. For example, changes in road-user behavior, improvement of blackspots, improvement of trauma service, the institutional and legal capacity created, and other factors should be evaluated yearly based on objectively selected performance indicators.

Every year road safety reports should be prepared, published, and shared with stakeholders and the public.

The strategy implementation plan needs to be prepared for five years. Based on this plan, plan every year all implementing institutions in collaboration with the lead agency should prepare their yearly plan and implement it. At the end of the first phase of the implementation (five years), the impacts of the first phase actions should be evaluated to the required detail level, strengths and gaps should be identified, and lessons are drawn. Based on this information the implementation plan shall then be prepared for the second phase. Table 3 provides milestones for monitoring and evaluation.

Outcome	Year 2	Year 4	Year 6	Year 8	Year 10	Lead institution
Overall outcome						
Reduction in RTF	5%	15%	30%	40%	50%	RSIFS
Institutional capacity and management						
Establish lead agency						
Road safety laws						
Updating the traffic law						MoTL
Harmonizing international laws						MoTL
Data management RSIFS						
Having a strong and integrated RTC data system						
Having a strong vehicle and driver data system						RSIFS
Safer road user						
Mandate seat belt use for public transport providing intercity transport service						
Reduced speed violations by 50%	10%	20%	35%	40%	50%	FP, RP, CP
Reduced seat belt violations by 100%	50%	100%				FP, RP, CP
Reduced helmet violations by 100%	50%	100%				FP, RP, CP
Reduced drink-driving violations by 70%	20%	40%	50%	70%		FP, RP, CP
Reduced distracted driving violations by 30%	10%	30%				FP, RP, CP
Safer vehicles and technology						
Prepare and implement minimum vehicle safety standards						RSIFS
Implement speed limiters on public transport and freight transport						RSIFS
Safer Road Infrastructure						
Developing and institutionalizing RSA						ERA
Updating road design guideline						ERA
Developing and institutionalizing work zone safety guidelines						ERA
Assess and improve the safety of all paved roads to meet the minimum safety standard such as iRAP 3 stars	20%	40%	60%	80%	100%	ERA
Review and implement speed limits on all paved roads (% of total length)	50%	100%				ERA, CA
Post-crash medical service						
Deliver first-aid training to all traffic police, and drivers	25%	50%	75%	100%		MoH
Expand and strengthen trauma centers to WHO standard for low-income countries	20%	40%	60%	80%	100%	MoH
Improve ambulance service to WHO standard for low-income countries						MoH
Develop and implement universal emergency call						MoH
Expand and strengthen rehabilitation centres						MoH

Structure of the National Road Safety Strategy Management System

While the implementation of the strategy is led by the national road safety council and the lead agency, it is also important to create subcommittees for efficient leadership. The subcommittees shall be formed for the following strategic areas:

- Safer road user: institutions responsible for this include city police commissions, city transport bureaus, federal police commission (FPC), and RSIFS

- Safer vehicles: City transport bureaus federal police commission (FPC), and RSIFS could be part of this committee
- Post-crash medical response: members could be MoH, city health bureaus and regional health bureaus
- Road safety performance and data: may include the lead agency, RSIFS, regional transport bureaus, city transport bureaus, city police commissions, FPC, MoH

Each subcommittee should have a chairperson selected from the heads of the member institutions. The structure is given in the diagram below. The subcommittee meets every quarter to evaluate their progress.

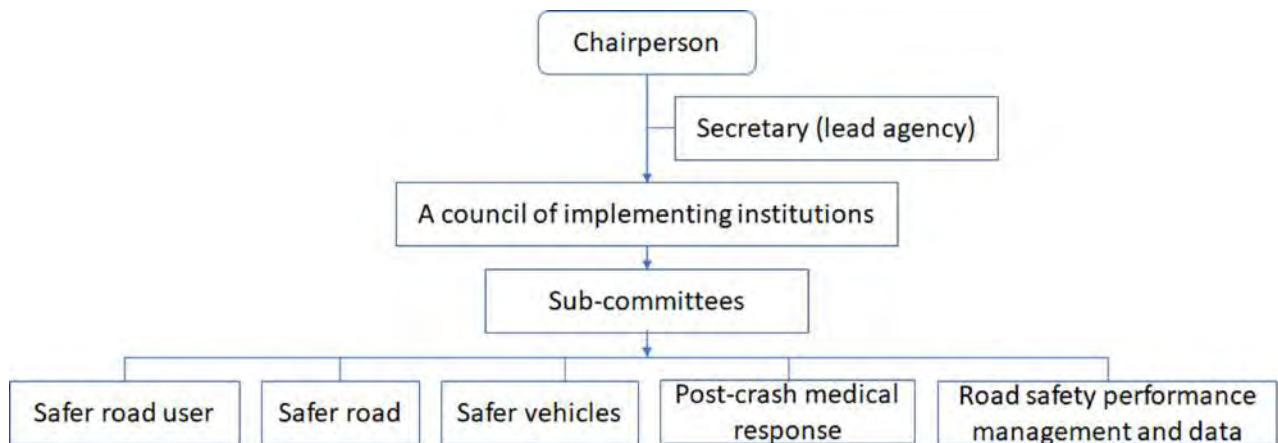


Figure 5: Road safety management structure

