



Guidelines for improving road safety in emerging countries

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1. Introduction

The General Assembly of the United Nations declared the years 2011 to 2020 as the Decade of Action for Road Safety¹. The proclamation (March 2010) encourages all EU Member States to stabilise and reduce the forecasted level of road fatalities by increasing awareness and strategic action at the regional, national and international level.

More than 1.2 million people die every year as a result of road traffic collisions. Of these, 80% occur in low and middle-income countries where less than half the world's registered vehicle fleet is concentrated. Unless immediate and effective action is taken, road traffic injuries are predicted to rise to an estimated 2.4 million deaths per year, making road traffic fatalities the fifth leading cause of death worldwide. This is, in part, a result of rapid increases in motorisation without the concurrent improvements to road safety strategies and to land use planning.

The impact of accidents on death rates is dramatic. *Figure 1* illustrates the magnitude of various factors on mortality in youth population. As the figure shows, **road traffic injuries far outweigh other causes of death** among people aged from 25-29 years.

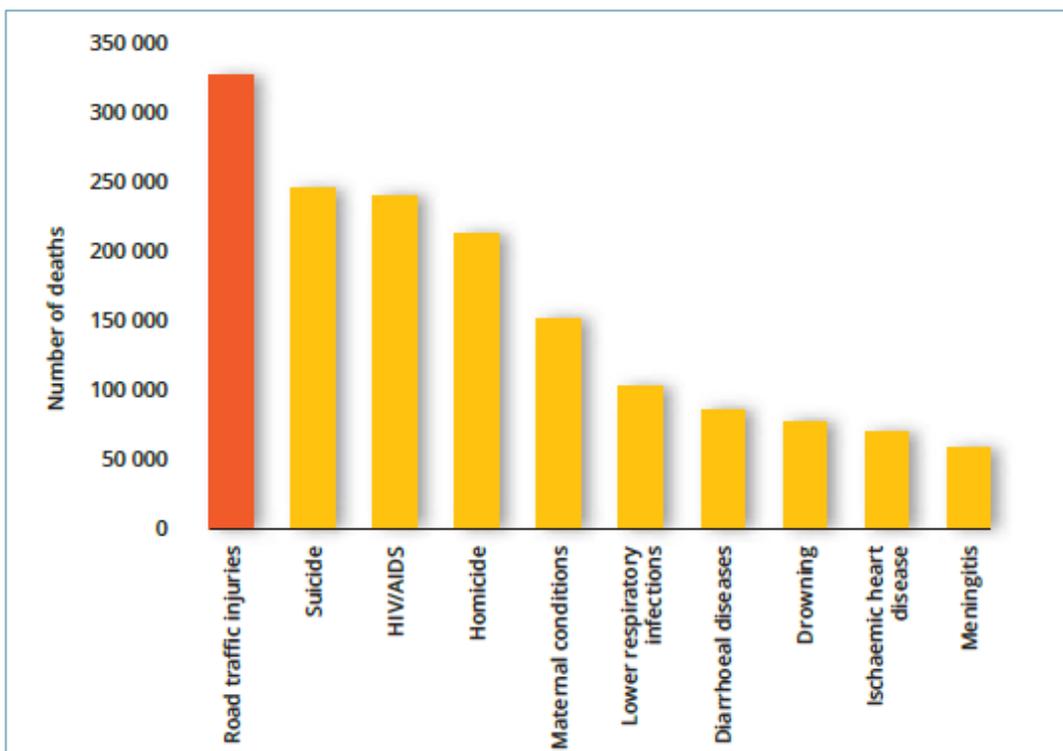


Figure 1: Top ten causes of death among people aged 15-29 years in 2012

(Source: World Health Organization, 2015).

¹ UN General Assembly Resolution A/RES/64/255, <http://www.un.org/en/roadsafety/>

Since 2010, the majority of United Nations member countries have begun to implement or draft different levels of road safety policies in order to try to inverse the current trend in road traffic fatalities.

2. Road Safety Principles

The guiding principles underlying the United Nations Plan for the Decade of Action are outlined in the **“safe system” approach**, aimed at developing a road transport system that is **better able to accommodate human error** and to take into consideration **vulnerabilities in road safety from people and infrastructure**.

The United Nations recommendations, known as the **five pillars** or activities, to be carried out over the decade at local, national, regional and global levels are:

- Pillar 1: Road safety management
- Pillar 2: Safer roads and mobility
- Pillar 3: Safer vehicles
- Pillar 4: Safer road users
- Pillar 5: Post-crash response

In September 2015 the United Nations launched the 2030 Agenda for Sustainable Development. For the first time, road safety targets were integrated into the new agenda further underscoring the importance of road safety in the developing world. The targets for Sustainable Development -relating to transport- are:

- ✓ **Sustainable Development Goal 3²** - Ensure healthy lives and promote well being for all and at all ages. Sub-goal 3.6 specifically highlights an effort to halve the number of global deaths and injuries from road traffic accidents by 2020.
- ✓ **Sustainable Development Goal 9³** – Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation. The specific sub-goal 9.1 states: Develop quality, reliable, sustainable and resilient infrastructure, including regional and cross-border infrastructure, to support economic development and human well being, with a focus on affordable and equitable access for all.
- ✓ **Sustainable Development Goal 11⁴** – Make cities and human settlements inclusive, safe, resilient and sustainable. More precisely, by 2030, provide access to safe, affordable, accessible and sustainable transport system for all, improving road

² <https://sustainabledevelopment.un.org/sdg3>

³ <https://sustainabledevelopment.un.org/sdg9>

⁴ <https://sustainabledevelopment.un.org/sdg11>

safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons.

These guiding principles highlight road safety as a crucial part of the sustainable development in emerging countries throughout the globe.

3. Evolution of road safety figures worldwide

While the number of road fatalities has increased in the recent years; these figures must be considered together with population growth and increased motorisation indexes (official increase of 16% in the number of registered vehicles between 2010 and 2013). *Figure 2* illustrates this evolution of road traffic fatalities from 2001 to 2013.

Although low and middle-income countries account for only half of the world's vehicles, they concentrate 80% of the world's traffic deaths, as stated in *Figure 3*.

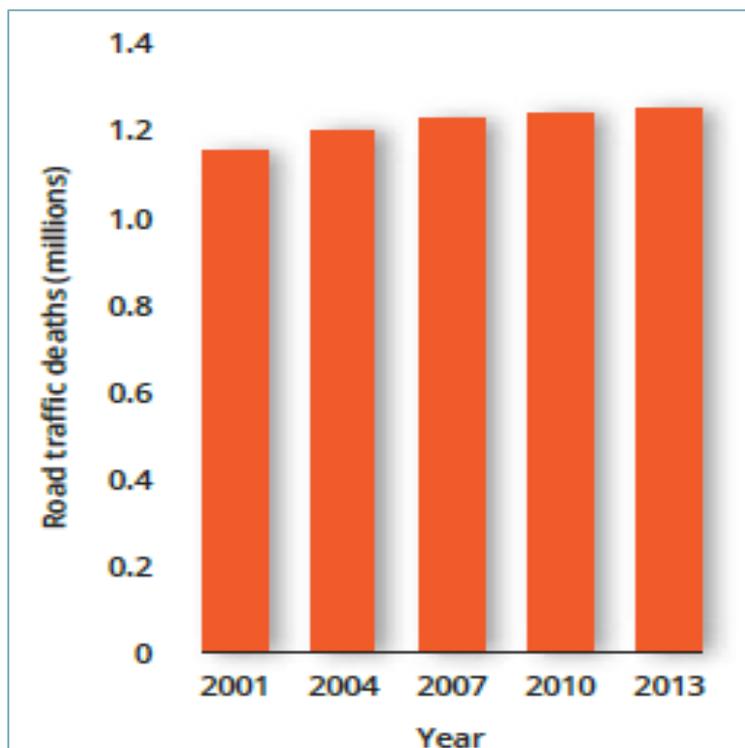


Figure 2: Global road traffic deaths
(Source: World Health Organisation, 2015)

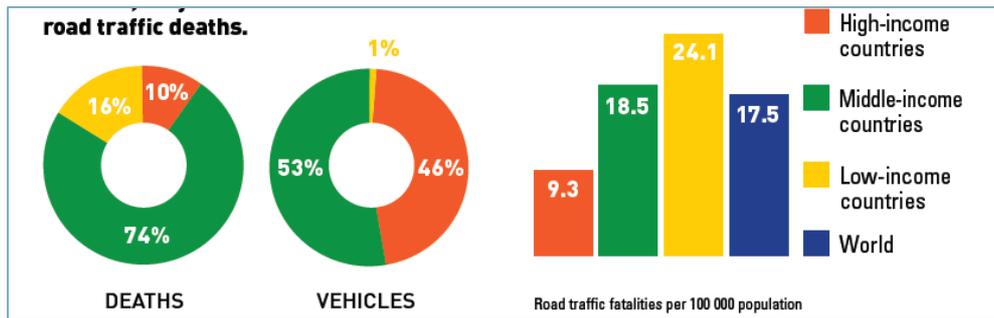


Figure 3: Low and middle-income countries have the highest road traffic death rates

(Source: World Health Organization, 2015)

According to the World Health Organization, between 2010 and 2013, 68 countries have experienced an increase in their number of road traffic deaths (most of these countries fall into the low and middle-income category of nations), while 79 countries have seen a decrease.

4. Road Safety diagnosis in emerging countries

Although every country and region has different characteristics and intrinsic factors that can strongly affect road safety, there are some common elements present in most countries. The following analysis is based on the assessment of the road safety situation in countries in Latin America and Caribbean Region (Inter-American Development Bank, 2013), but can be easily extrapolated to apply to other emerging world regions. This assessment comes as a result of data collection from 26 countries in this region.

4.1. Accident data collection and analysis

Data collection systems and consequent analysis are, in general, **deficient**. It is necessary to improve these collection systems to ensure that all accident data are collected applying the highest quality standards. As this is the first step to identify the major safety problems in the countries, it is necessary to **deploy a harmonised system**, in order to collect data from all roads, not only from the main road network. The urban context should be analysed, as more than 50% of accidents and fatalities take place in urban areas, affecting mainly vulnerable road users.

An in-depth analysis of concurring factors for accidents should be the basis for the development and implementation of specific road safety policies.

4.2. Institutional affairs and financing

Most countries lack a centralised lead authority for road safety. Instead, several institutions are involved in managing various aspects of the road safety system. There is often a **lack of coordination between these organisations and members**. Although some committees for road safety have been created, it is important to clearly establish responsibilities and roles public and private bodies in order to improve road safety. In this context, there are some **front-runners in the Latin American region (Argentina and Chile)**, who display highly valued institutional cohesion.

Regarding road safety financing, it should be noted that some countries have set up specific mechanisms to obtain dedicated resources, by means of **ad-hoc taxes on fuel, taking a percentage of compulsory road safety insurance** or even from **private contributions**. These measures have proved to be effective ways to supplement public resource budgets for road safety.

4.3. Road Safety Plans

Many countries have **elaborated their first national road safety plans in recent years**, making positive steps towards road safety improvements. The challenge now is to adapt the plans to the current situation in each country, ensuring that objectives are achievable to encourage stakeholders to continue focusing on improving road safety.

In addition, providing the required human and economic resources to support each country's plan is necessary for implementation of the UN Actions. The UN Decade of Action for Road Safety has definitively pushed governments to develop road safety plans, which are now available in most countries.

4.4. Road Safety regulation and enforcement

In some regions of the world, such as Latin America, there are many legal instruments related to traffic and expected behaviour of drivers and other users (e.g. the use of safety belts or helmets); however, the main problem is the **lack of formal procedures and human resources for enforcement**. While a strong legal framework is important, it is even more important to ensure that enforcement is properly carried out.

Specifically, there is a general **lack of regulation regarding the use of restraint systems for babies and children**, thereby negatively affecting road safety for younger segments of the population.

4.5. Safe road infrastructures

Network safety management (which includes periodic identification of road sections that pose an increased risk for accidents), road safety audits and road safety inspections should be part of the national road safety policies. Although there have been initial tests in several countries, no formal procedure exists to ensure the development of higher standards for road safety infrastructure management.

There is a **need to establish a global framework for road safety infrastructure**. The European Commission Directive 2008/96/EC (European Parliament and the Council, 2008) may be a potential reference to build a comprehensive infrastructure management framework.

4.6. Vehicle fleet

Safety performance of vehicles is a serious problem in emerging countries. Initiatives such as Latin NCAP⁵ –a project that allows the assessment of safety performance of vehicles commercialised in Latin America--, lay out best practices that could be implemented in other regions.

In addition to these assessment standards, **regular inspections of vehicles should be scheduled** within a country's legal framework. Although small improvements have occurred in this field recently, policies still need to dedicate greater effort in the near future.

4.7. Safety education and training

Safety education should be present throughout all stages of driver's education, not only in the urban areas of major cities, but also in **rural regions**.

Driver training represents another a field for improvement. Inexistent practical and theoretical training combined with the lack of formal procedures and legal frameworks to obtain driving licences are among the main deficiencies identified. This is, potentially, one of the fields where greater action is required.

4.8. Post-accident assistance

Accident victims should receive rapid medical assistance to increase the possibility for post-event survival. While the speed of medical assistance remains an important area for improvement worldwide, it is most acutely felt in emerging countries. There is a general lack of information regarding medical assistance and procedures in road accidents in emerging countries, which leads to the increased probability for deficiencies in post-accident support.

⁵ LatinNCAP for the assessment of motor vehicles. <http://www.latinncap.com/en/#>

5. Road Safety priorities in the context of de UN Decade of Action

Taking into account the existing five-pillar policy promoted by United Nations, the **Smart Transportation Alliance supports the following priorities** under each of the five actions in road safety:

5.1. Priority 1: Infrastructure

In the short to medium term, promoting road safety infrastructure measures can lead to positive results, in terms of reduction of road accidents,. The following sub-priorities have been identified:

- ✓ Road safety impact assessment should be used from the planning stages, to take the most accurate infrastructure decisions to improve safety performance for the road network as a whole.
- ✓ Road safety audits should be conducted at all stages for each specific project.
- ✓ Road safety inspections should be conducted in the existing network.
- ✓ Network safety management should be carried out regularly in the existing network to identify road sections with a high concentration of risk, and to implement the most suitable safety improvement measures.
- ✓ Road safety elements should be included in all road projects and not only for major construction projects. High quality safety measures should be applied to the entire road network –even for non-paved roads– to ensure safety.
- ✓ Road equipment installation and implementation must be secured for safety performance.

5.2. Priority 2: Enforcement

Although actions in this field usually contribute to positive results in the short-term, social rejection can occur, leading to an unsustainable long-term situation. The following fields for enforcement are suggested:

- ✓ Enforcement campaigns for speed control.
- ✓ Enforcement campaigns to avoid drink driving.
- ✓ Enforcement campaigns to promote the use of safety belts and helmets.

- ✓ Investments in material and human resources for enforcement: traffic police should be trained for their duties and have the required resources available to carry out alcohol tests, speed control checks, etc.

5.3. Priority 3: Legal and institutional framework

Political implication is essential for success in the development and implementation of legal and institutional frameworks. The following sub-priorities should be at the core of these efforts:

- ✓ Creation or strengthening of lead agencies for road safety and coordination (in terms of human and economic resources) with other institutions working on road safety.
- ✓ Development and implementation of a road safety plan with a holistic, systems approach that considers the existing situation of the country and provides all required resources for the successful implementation of the plan.
- ✓ Development, when necessary, and adaptation of the existing legal frameworks for all fields involved in road safety; including, safety education and training, licensing, vehicle safety requirements verification, protection of vulnerable road users, insurance, etc.
- ✓ Improvement of medical assistance procedures to guarantee that all injured parties receive the most adequate medical support as soon as possible (preferably during the first 30 minutes after the accident).

5.4. Priority 4: Human factors

Human errors are responsible for a high percentage of road accidents. Although efforts must be taken in the short term, changing social norms regarding road safety would yield the most positive results in the medium-long term. The following sub-priorities are suggested:

- ✓ Road safety education should be extended to all schools, not only in the urban centres but also in the rural areas.
- ✓ Formal procedures for training of drivers should be established: theoretical and practical knowledge should be tested and validated before allowing citizens to drive.
- ✓ Awareness campaigns dedicated to all ages and all types of users should be developed periodically. This action could have a real short-term impact on road injury reduction.

- ✓ Special attention should be taken to reduce the high fatality rates of motorcyclists, especially in urban areas. Further, other vulnerable road users, such as pedestrians or cyclists, should be at the core of safety policies.

5.5. Priority 5: Vehicle

Vehicle fleets in emerging countries are usually older and not adapted with the latest safety technologies. The following sub-priorities are suggested:

- ✓ Make periodic vehicle technical inspections compulsory, in order to verify that all vehicles are in good condition and well maintained.
- ✓ Promote plans -including financial support- for the renewal of old vehicles.
- ✓ Support the introduction of the latest safety technologies in all vehicles: airbags, safety belts in all seats, daytime running lights, etc.

6. Conclusions: A global vision for the future of Road Safety

The above approach for a holistic vision for road safety is **recommended for emerging countries that are starting to take their first steps towards** reducing traffic accidents and injuries.

Traditional approaches to road safety, developed in the 1970s, assumed that the road itself was only responsible for 2-3% of accidents, while 65-67% of accidents were caused by behaviour factors and vehicles held a 2% responsibility for accidents. These percentages were calculated separately from one another. Combined accident situations when analysed proved to have different risk percentages of those mentioned.

However, road safety is not simply a matter of three factors (infrastructure-vehicle-human), but rather a **four-factor issue**.

This fourth factor -probably the most important nowadays- is **enforcement**. Enforcement should be understood in its broadest sense as: **i)** an adequate institutional framework for road safety, **ii)** the existence of a legal framework and **iii)** the capacity (in terms of human, economic and technology resources) to secure fulfilment of the rules.

In this context and based on experience from more advanced countries, three courses of action should be considered as priorities: speed, drink driving and use of safety belts/helmet. By implementing enforcement policies to reduce speed, reduce drink driving and increase the use of safety belts and helmets, countries should see a **reduction of**

accidents in the short term (even up to a 50% reduction), while incurring **relatively low cost**.

Road infrastructure factors are unavoidably linked to human factors; any measure to increase the safety of the road, road equipment or environment, is linked to driver behaviour. Road works are usually associated with major investment and can be expected to generate positive results in the medium term. **Calculations estimate up to a 30% reduction in accidents by changing the road environment.**

So, what happens then with the remaining 20%?

Is it possible to develop and implement integrated policies in order to reduce accidents by 100%?

This 20% is the final challenge for the future of road safety. This remaining 20% of road accidents is hidden within the complex relationship among the previously mentioned four factors and needs to be addressed together to make the final strides forward. *Figure 4* illustrates, that a 20% reduction can be achieved **in the long term, with a medium cost**. As shown, in *figure 4*, it is the combination of factors that will bring about absolute road safety:

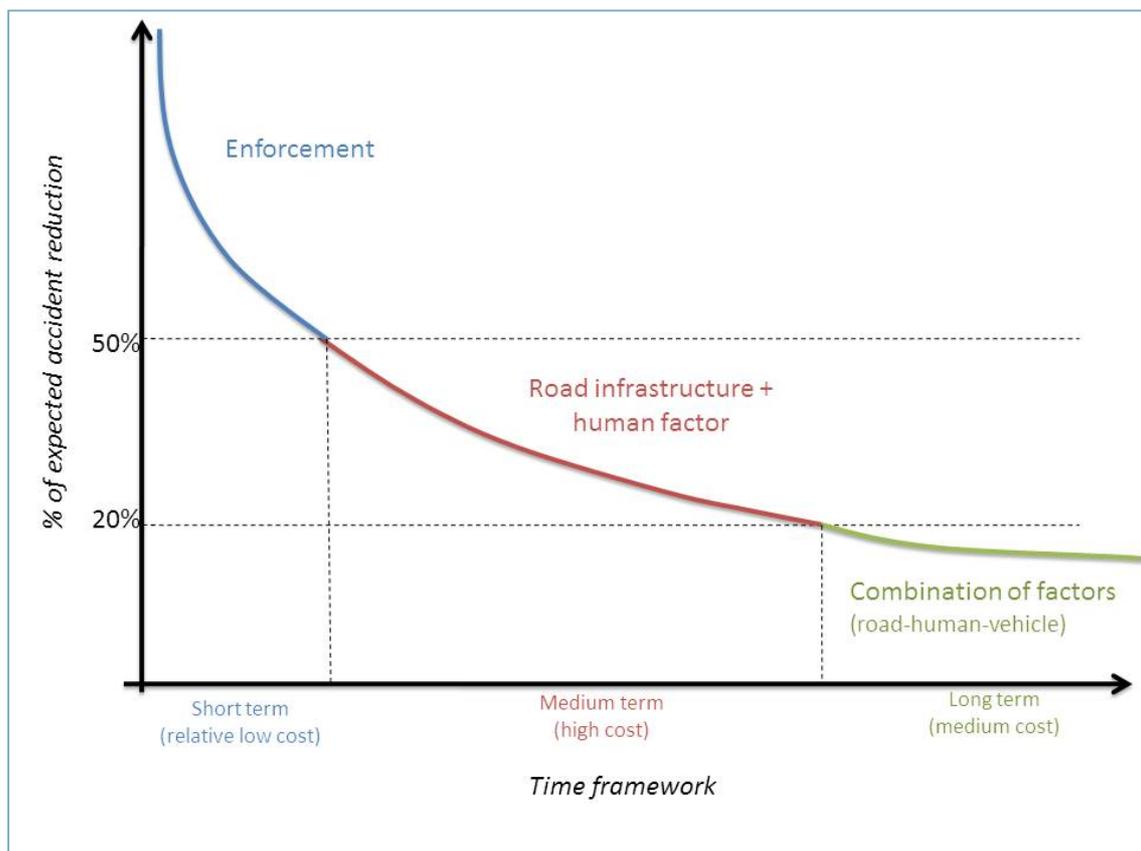


Figure 4: Expected accident reduction in the time

(Source: Díaz, J.)

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