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# DOCUMENTING ROAD SAFETY

DECADE OF ACTION FOR ROAD SAFETY
2021 - 2030

## A guide for governments and lead agencies

World Health Organization
REGIONAL OFFICE FOR THE Eastern Mediterranean

Design and layout by Michael Mitchell.

## Acknowledgements

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# Contents

# Executive summary

The safety of a country's roads has a direct impact on the health of the population. It influences the well-being of the country's citizens as well as its economic growth and future sustainability. A consistent national road safety strategy and regulatory framework, implemented in accordance with international standards, can address and support responses to a range of development issues and social challenges. Road safety is relevant to public health, economics, urban planning and infrastructure, environment, employment, education and sustainability, and working to reduce annual deaths and injuries from road traffic collisions is critical to deliver the Sustainable Development Goals.

In February 2020, the Third Global Ministerial Conference on Road Safety took place in Stockholm, Sweden. The resultant Stockholm Declaration affirmed the vital role of road safety in delivering the Sustainable Development Goals and called on the United Nations to set an ambitious target to reduce global road traffic deaths and serious injuries by 50% by 2030. In August 2020, the United Nations General Assembly adopted a resolution declaring a second Decade of Action for Road Safety (2021–2030) and adopted the target of reducing such deaths and injuries by 50% by the Decade's end.

As we move into this new Decade of Action, it is imperative that governments and lead agencies take stock of past performance and renew their endeavours to improve safety for citizens on the road as a major social, developmental and public health issue. To aid countries in this stocktaking exercise, this guide offers a mechanism for documenting road safety efforts and facilitating a review of recent progress, as well as a means of setting priorities for the new Decade of Action.

## Why is it important for countries to review road safety activities?

The role that road safety plays in delivering improvements in public health, well-being, education, employment and economic growth demands that it should be a fundamental policy priority and focus. When a country documents the activities it has undertaken to improve road safety, it has the opportunity to identify previous good practice. It can also use evidence-led approaches to make future improvements, by identifying gaps and areas for strengthening.

In addition, the international evidence base on effective interventions in road safety is strong and growing. It can provide guidance on how to maximize reductions in deaths and serious injuries on the roads. Using this robust evidence base can help countries to achieve that aim quickly and efficiently.

Countries are, of course, at different stages in implementing road safety actions and some have advanced further towards creating a Safe System than others. As a result, some countries have better vehicles, more effective enforcement regimes, better roads, lower speed limits and better-equipped postcollision services than others. Cultural differences between countries may also be reflected in differing attitudes, behaviour and priorities. However, any country, regardless of its starting point, can benefit from a review of its road safety activities – one that identifies where the country stands in implementing best-practice road safety interventions and where its interventions could be strengthened. The output from documenting efforts can also be used by countries who wish to increase their regional and international visibility through publication and research.

## Who is this guide for?

This guide will provide significant help and guidance to any authority looking to develop a national documentation exercise. It will present a systematic approach to review and understand the progress in road safety over recent years using a structured framework aligning to international documentation and best practice.

This guide is primarily designed to support a country-level investigation, which can use the tools proposed below to ask questions about legislative, policy and strategy instruments: instruments that are normally set by national governments and led by key government ministries. These tools can also be applied at a subnational level, by adapting them to the legislative arrangements or governmental structures in place at a state or local level.

The process of documenting road safety performance is not an end in itself but rather is a vital part of continued strategy development. Understanding the current national context and allowing it to be challenged by international perspectives helps agencies in reviewing and renewing their efforts to enhance road safety for the future. This situational analysis should be used as part of a wider effort to develop future road safety plans and should, therefore, be developed in collaboration with those responsible for setting road safety strategy.

## Key considerations at inception

### *Defining the starting point*

A documentation exercise of this nature needs a starting point for the performance analysis. This starting point could be the beginning of the first Decade of Action for Road Safety 2011-2020, or it may be the launch or a revision of a national road safety strategy. It should be a meaningful point after which clear and concerted activity to improve road safety has taken place. The analysis will then be able to examine the effect of activities on performance and can serve to galvanize efforts to improve further in the future.

## *Setting goals*

A country needs clarity about the intended goals of its road safety documentation exercise. For example, particular areas of policy or implementation may need additional attention, whereas other areas may have recently been subject to a significant review and therefore do not need to be included in the exercise. Being clear on the goals for the documentation exercise in the country's specific context will ensure clearer communication with stakeholders and better outcomes for all.

Several key questions will help to refine these goals further:

- When was the current road safety strategy approved or implemented?
- What are the appropriate start and end points for this documentation exercise?
- Are there any areas of the road safety programme that need particular focus?
- Are there any areas that cannot reasonably be reviewed at this time?
- How will the results of this exercise inform future strategy?
- Which agency or agencies will be responsible for implementing any recommendations?

## *Selecting a team*

Documenting road safety efforts at a national level requires a team with relevant expertise to explore the issues thoroughly and systematically. The team needs to have sufficient knowledge and experience to be able to provide useful insights and recommendations based on the study. The team should therefore include members with the following skills:

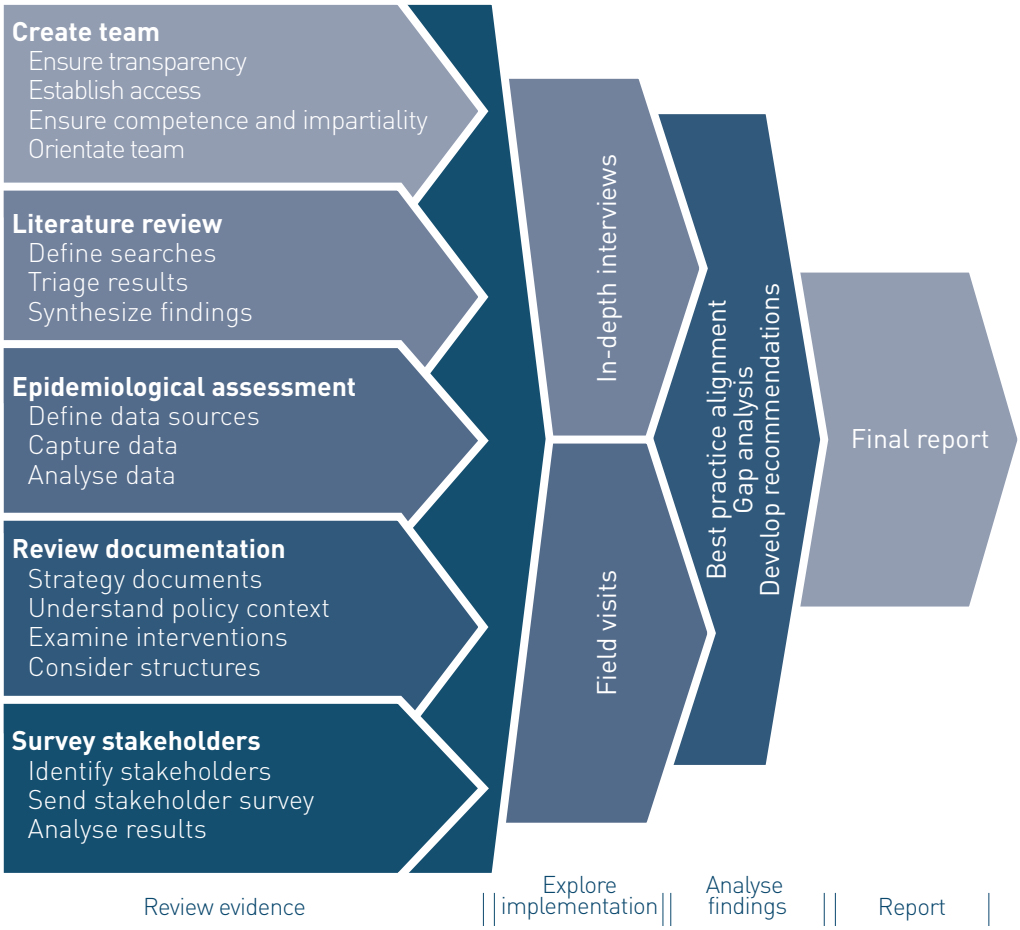
- broad understanding of road safety policy and legislation
- detailed understanding of international guidance on road safety
- ability to engage with key stakeholders including ministers and senior officials
- ability to review and synthesize relevant research
- competence in analysing road safety data.

## How to use this guide

This guide breaks down the process of documenting road safety efforts at a national level into a series of steps, grouped into stages. These steps will guide the investigating team from inception through to final report.

The model in Fig. 1 shows each step required to complete the process, grouped by respective stage. The guide provides a checklist that can be used to check off each step, to ensure that the process is successfully completed.

**Fig. 1. A model for documenting road safety efforts**




The guide also provides detailed guidance on each step required to document road safety efforts. These steps are briefly summarized below, grouped by their respective stages.

## *Stage 1: Review evidence*

### Create team

This exercise will a require a team with the relevant skills and experience to conduct the study. The team will need to be acknowledged as competent and impartial by relevant stakeholders. The team will need access to the necessary documentation and data. Finally, the team will need an orientation to ensure that they have sufficient understanding of recent history, the current strategy and the prevailing policy.

### Literature review

The team will need to conduct a review of the recent scientific literature to gain a detailed understanding of any research findings related to road safety performance. Based on the guidance provided in this guide, the team will need to define search terms and relevant search libraries. Results should be triaged and then findings synthesized.

### Epidemiological assessment

The latest epidemiological data will be critical to understanding current performance. Again, using the relevant sections of this guide, the team will need to define the appropriate data and sources, secure those data in an analysable format and analyse them to generate clear and relevant high-level metrics.

### Review documentation

A substantive part of the evidence comprises documentation outlining strategy and policy as well as the coordinating structures and interventions being delivered. The team will need to review these documents to understand how road safety is being addressed.

### Survey stakeholders

Understanding the perspective of key road safety stakeholders is an essential component of the exercise. The team will need to identify all relevant stakeholders to be included. They will also need to conduct a survey of stakeholders, based on the model survey included in this guide. Finally, they will need to analyse and review the survey results.

## *Stage 2: Explore implementation*

### In-depth interviews

First-hand accounts provide vital understanding of the planning and coordination in place, as well as contextual insights such as the history of recent developments or the prevailing culture of decision-making. Arranging in-depth interviews with key individuals will help the team to secure these insights.

### Field visits

Field visits facilitate a wider array of conversations with key stakeholders and delivery staff regarding how the current strategy is influencing their efforts. Arranging a set of relevant visits will enable the team to observe road safety efforts for themselves to see how they are being implemented.

## *Stage 3: Analyse findings*

### Best-practice alignment

The guide includes a matrix of alignment to measure progress against international standards. The team can use this to check current practice against an organized set of principles that have been collated from global institutions such as the World Health Organization and the World Bank.

### Gap analysis

Using the matrix, the team will be able to observe elements of strategy, policy and practice that are currently weak and that could be strengthened by being aligned with widely accepted standards.

### Develop recommendations

The outputs from the gap analysis can be developed into relevant and actionable recommendations that will influence the safety of the whole road system.

## *Stage 4: Finalize and report*

### Final report

Finally, the team will compile all their evidence, research findings and recommendations into a detailed report that can serve governments and lead agencies in strengthening the country's road safety system for the future.

### Checklist

Although this guide provides detailed guidance throughout, the main steps have been compiled into a checklist at the end of the guide that can be used to ensure that the task of documenting road safety efforts has been delivered in a systematic way.

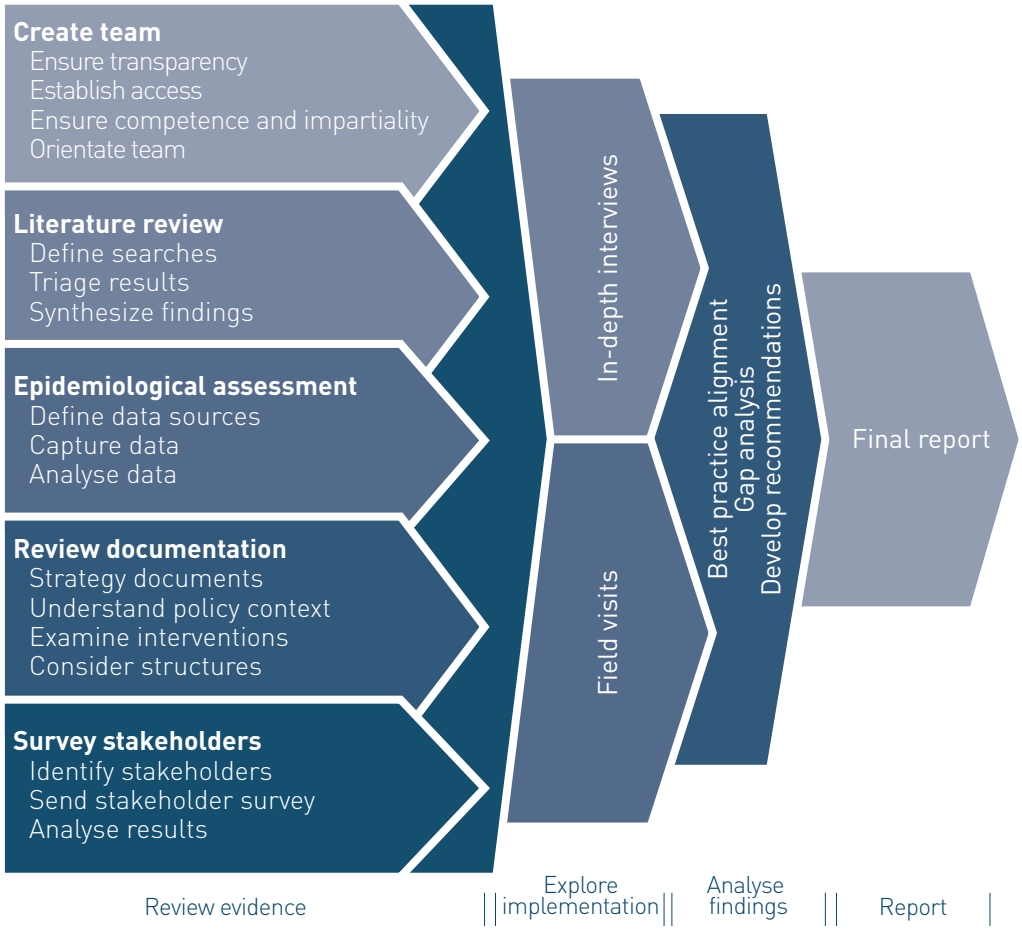
# Introduction


International attention on road traffic injury prevention has increased substantially in recent years, as global institutions, national governments and civil society have recognized the social and economic harm inflicted by motorized traffic. As the call to action has grown louder, the availability of support for policy development and frameworks for intervention has also increased. We are at a point of transition and reflection as we move into the next phase of delivery on an ambitious plan to reduce road deaths and serious injuries by half.

There is a need to consider the effectiveness of actions already implemented and to prioritize future measures. The first Decade of Action for Road Safety ran from 2011 to 2020, after an amplified call for action to reduce road deaths and serious injuries. In August 2020, the United Nations declared a new Decade of Action, from 2021 to 2030. We are, therefore, at a turning point between the two Decades of Action, providing an opportunity for countries to review performance from the first period and continue its momentum into the next.

This guide is not a new framework, set of targets or additional expectations; it is a guide to help governments and lead agencies review and reflect on progress to date. It sets out a step-by-step process for documenting actions already undertaken and supports administrations in identifying areas for continued or renewed focus as they advance their own road safety performance.

**Fig. 1. A model for documenting road safety efforts**




This guide follows an approach that has already been successfully implemented and refined through work with national governments and the World Health Organization (WHO) Regional Office for the Eastern Mediterranean. The guide explores ways in which alignment with international standards and normative guidance can be established by

applying a mixed-methods approach aimed at understanding the policies and practices of the country being reviewed.

## Why is it important for countries to review road safety activities?

The safety of a country's roads has a direct impact on the health of the population. It influences the health and well-being of the country's citizens as well as its economic growth and future sustainability. Road safety should therefore be a fundamental policy priority and focus, with reductions in road danger bringing tangible benefits to employment, education and health. When a country documents the activities it has undertaken to improve road safety, it has the opportunity to identify previous good practice. It can also use evidence-led approaches to make future improvements, by identifying gaps and areas for strengthening.

In addition, the international evidence base of effective interventions in road safety is strong and growing. It can provide guidance on how to maximize reductions in deaths and serious injuries on the roads. Using this robust evidence base can help countries to achieve that aim quickly and efficiently.

Countries are, of course, at different stages in implementing road safety actions and some are more advanced in creating a Safe System than others. As a result, some countries have better vehicles, more effective enforcement regimes, better roads, lower speed limits and better-equipped postcollision services than others. Cultural differences between countries may also be reflected in differing attitudes, behaviour and priorities. However, as highlighted in the Global Road Safety Facility's recent *Guide for Road Safety Interventions*, "in road safety we have more in common than separates us" *(1)*. The guide highlights several critical and relevant commonalities, as follows:

- *The universally applicable laws of physics which determine crash forces, and the effects of speed on force and allowed reaction time;*
- *We have fundamentally similar bodies and thus we are all vulnerable to physical force which may kill or disable us in crashes;*
- *We all make mistakes, and we are all vulnerable to the impairing effects of drugs, alcohol, fatigue and distraction;*
- *All countries have speeds of travel that allow for physical forces which can cause deaths and disabilities in the event of a crash;*
- *All countries have roads that mix vehicles and vulnerable road users;*
- *All countries have roads that allow head-on crashes by employing only thin lines of paint or even less to separate oncoming traffic;*
- *We share similar psychologies: most of us are overconfident of our driving and unrealistically optimistic about our futures, generating feelings of invulnerability to serious crashes.*

A review of the kind proposed in this guide, understanding where a country currently stands in implementing best-practice road safety interventions and where these could be strengthened, is of benefit to all countries, regardless of the starting point. The output from documenting efforts can also be used by countries who wish to increase their regional and international visibility through publication and research, if they wish.

## Who is this guide for?

This guide will provide significant help and guidance to any authority looking to develop a national documentation exercise. It will provide lead investigators and their teams with a structured framework to carry out their study, acknowledging that countries are at different stages in their development of road safety policies and activities.

National governments or lead agencies that are responsible for road safety will recognize the strategic importance of understanding how their country is making progress in reducing death and serious injury on the roads. However, although this guide is primarily designed to support a country-level investigation, the tools within it can also be applied at a subnational level, by adapting them to the legislative arrangements or governmental structures in place at a state or local level.

# Context

Internationally, significant progress has been made in recent years to build consensus around and prioritize road safety as a policy and public health issue. Below is a brief look at some of the major developments in achieving that consensus over the last decade. These developments are presented as context for this guide and for the imperative to continue to address road safety in a strategic and coordinated manner as we head into the second Decade of Action for Road Safety (2021–2030).

## First Decade of Action for Road Safety (2011–2020)

Commencing in May 2011, with a goal of stabilizing and then reducing the forecasted level of road traffic fatalities around the world, the first Decade of Action encouraged countries to intensify efforts in road safety through a focus on strengthening five pillars: road safety management, safer roads and mobility, safer vehicles, safer road users and post-crash response.

A number of actions that should be pursued at a national level were presented in the Global Plan for the first Decade of Action in order to strengthen each pillar. They provide countries with a framework for action *(2)*.

An important component of monitoring and evaluating the effectiveness of the first Decade of Action is the documentation of lessons learned about the realities on the ground. These learnings provide the starting point for the assessment for the next cycle of planning and/or implementation.

## The Safe System

The concept of the Safe System predates the first Decade of Action; however, over this period it has very much come to the fore as the globally accepted approach to address traffic injury prevention. Moving away from a traditional approach that placed significant emphasis on individual adherence to the rules of the road through the education, training, regulation and enforcement of traffic laws, the Safe System is based on a much more rigorous understanding of the underlying causes of road fatalities and serious injuries. "It [the Safe System] is a systemic approach that integrates core management elements and action areas to create a safe mobility system"*(3)*.

The Safe System recognizes that humans are both fallible and vulnerable. It therefore places far greater responsibility on system designers and managers to create robust networks where the consequences of system failure are mitigated to prevent catastrophic outcomes. The *Global Plan for the Decade of Action for Road Safety 2011–2020* summarizes the Safe System approach as follows:

> *This approach aims to develop a road transport system that is better able to accommodate human error and take into consideration the vulnerability of the human body. It starts from the acceptance of human error and thus the realization that traffic crashes cannot be completely avoided. The goal of a safe system is to ensure that accidents do not result in serious human injury (2).*

Under the Safe System, a variety of interdependent system elements need to work together to protect road users from serious harm, as illustrated and itemized below.

**Fig. 2. The Safe System**


Source: Adapted from the Australian National Road Safety Strategy 2021–30 *(4)*.

## Road safety management

The whole Safe System is about managing interactions between road users to eliminate death and serious injury. The Safe System recognizes that there is shared responsibility between road users, vehicle manufacturers and road designers; however, countries still need to manage their road safety systems to achieve the best outcomes.

## Safe roads

Roads are designed to reduce the risk of crashes occurring and to make roadsides forgiving when mistakes occur. Segregating traffic to protect vulnerable road users is prioritized, and dangerous roads are proactively treated to improve both the actual and perceived risks to road users.

## Safe vehicles

Vehicles offer a high level of safety to both occupants and other road users. Fundamental safety systems, such as seat belts, are augmented by more advanced active safety measures such as autonomous emergency braking and electronic stability control. Routine checks for all vehicles ensure that they are maintained to the highest safety standards.

## Safe road users

Road users are educated or regulated in their use of the roads according to their modes of transport and levels of risk. Drivers receive high-quality training and testing and are expected to comply with road traffic laws; meanwhile, provision is made to support children, pedestrians and cyclists to travel in safety.

## Post-crash response

In the event of an incident, an emergency medical response reaches any injured parties quickly, transit to high-quality trauma care is rapid, rehabilitation services are readily available and victim support is on hand. After the incident, data on the causes of the collision feed into systems to rehabilitate roads and evaluate how the system can be strengthened.

## Safe speeds

A road user's ability to avoid crashes or to survive in the event of a collision is directly affected by the speed and consequent energy involved at the point of impact. Safe speeds recognize human frailty, either in decision-making or in surviving an impact, and they ensure that higher speeds are only feasible where the environment and infrastructure can support them.

# Sustainable Development Goals

The direct connection between road safety and the Sustainable Development Goals (SDGs) was affirmed in the WHO publication *Save LIVES – A road safety technical package*:

> *Aimed at halving road traffic deaths and injuries by 2020 and providing access to safe, affordable, accessible and sustainable transport systems for all by 2030, Sustainable Development Goal (SDG) targets 3.6 and 11.2 provide a powerful focus to galvanize governments and the international community into action on road safety policy. The challenge is to seize this opportunity and to significantly scale up implementation of road safety measures (5).*

While working to reduce annual deaths and injuries resulting from road traffic collisions, it is critical to incorporate the SDGs and develop a road safety framework that takes account of climate change and the need to build a resilient transport infrastructure designed for a sustainable future *(6)*.

A consistent national road safety strategy and regulatory framework, implemented in accordance with international standards, can address and support responses to a range of development issues and social needs, such as public health, economics, urban planning and infrastructure, environment, employment, education and sustainability. As observed by the Academic Expert Group for the Third Global Ministerial Conference on Road Safety, the United Nations' 2030 Agenda for Sustainable Development stresses "the fundamental interconnection of the health of people and the health of the

planet" *(7)*. Impacts such as loss of productivity and the resulting economic costs that arise from inaction and an inability to prevent human deaths and injuries on the roads are a vital component of economic and social development, and improvements need to be "translated into actions and solutions" *(7)*.

Developing sustainable road infrastructure provides the complementary benefits of "access to trade, jobs, markets, education, health care and other services that contribute to better lives. It empowers women, persons with disabilities and other vulnerable groups" (6). The positive impacts of improved road safety go beyond reductions in injuries and fatalities. As the Academic Expert Group advocates, other impacts include improved air quality, community health, quality of life and safety of vulnerable road users, which are modal shifts with positive returns on investment in comparison to the costs involved in implementing changes.

## Major goals and targets (SDG targets 3.6 and 11.2)

Target 3.6 of the SDGs highlights road safety directly by setting a target to halve the number of global deaths and injuries from road traffic collisions as part of ensuring healthy lives and promoting well-being for all ages.

Goal 11 aims to make cities and human settlements inclusive, safe, resilient and sustainable. Target 11.2 is specifically focused on providing "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 such as women, children, persons with disabilities and older persons" *(8)*. This target is measured through indicators of the proportion of that population that has convenient access to public transport, disaggregated by sex, age and persons with disabilities.

> *In the coming decade, we have the potential to use the linkages between road safety and the Sustainable Development Goals to expand the reach of our tools well beyond the traditional scope of transportation, public safety and public health. Integrating road safety among a range of Sustainable Development Goals will engage non-traditional public and private stakeholders and lead to road safety activities taking place across entire governmental and corporate value chains (7).*

## Complementary goals

As well as directly setting goals and targets for road safety, the 17 SDGs encompass and intersect to create all-inclusive, indivisible and mutually dependent areas of improvement. Their wide range enables them to overlap and collectively share the benefits gained from implementation and improvement in one area.

Developing safe and reliable road and transport infrastructure can have a positive effect on reducing poverty, hunger and food insecurity (Goals 1 and 2) by increasing access to employment opportunities and a stronger logistic

support and transport network. Introducing and maintaining standards for safe work and labour conditions (Goal 8) for road workers and drivers impacts sustainable economic growth, employment and decent work, which are all part of the SDGs. Gender equality (Goal 5) can be enhanced by incorporating safer active travel opportunities for women as a "higher level of perceived safety is likely to lead to greater mobility and expanded opportunities for social needs including education (Goal 4) and employment (Goal 8)"(*7*).

Goal 9 prioritizes building resilient infrastructure, promoting inclusive and sustainable industrialization and fostering innovation, with Target 9.1 outlining the development of quality, reliable, sustainable and resilient infrastructure regionally and transborder. This supports economic development and human well-being with a focus on affordable and equitable access for all.

Incorporating sustainable consumption and production patterns (Goal 12) such as carbon footprint measurement, transportation supply chain logistics, corporate social responsibility actions and reporting can all contribute to the management and efficient use of natural resources. Public and private sector cooperation in and commitment to sustainable good practice can be rewarded and recognized by awarding contracts and projects to companies and practices that align with and prioritize SDGs *(9)*.

Similarly, awarding "contracts to organizations showing commitment and good practices in road safety" and encouraging "public (and private) procurement of only safe vehicles"(*9*) is where the public sector can provide incentives and take initiatives to deliver results and direct desired outcomes. Goal 17, on partnerships for the goals, entails collaboration and implementation through public–private and civil society partnerships to support the achievement of sustainable development globally through resource allocation, and money committed for building and developing infrastructure.

A strong and consistent road safety strategy can help raise awareness of sustainable lifestyles (Goal 12) by supporting school education programmes focused on safe, sustainable and alternative modes of transport such as active travel or public transport.

Urban planning and design that accommodate speed management, school zones and protection for vulnerable road users align with Goal 16 to create access to public places that are safe, peaceful and inclusive for all. Fear of injury, perceptions of danger and unsafe conditions deter people from walking and using public transport, so having effective provisions in place to create a safe infrastructure supports many SDGs.

Incorporating safety provisions into road design and having a national framework for enforcement of legislation, access to justice and accountable and effective institutions in case of injury or death can provide support to those injured and bereaved. They are to be developed as aspects of postcollision response in the Safe System. This in turn supports Goal 16 through reducing deaths and violence on the roads. Credibility of enforcement and a fining system (*9*) that reduces corruption and bribery is target 16.5 of this SDG.

## Stockholm Declaration and United Nations General Assembly resolution

The year 2020 was marked by two significant events in the global fight to reduce the impacts of road traffic injury. In February, the Third Global Ministerial Conference on Road Safety, "Achieving Global Goals 2030", took place in Stockholm, Sweden. Attended by representatives from around 140 countries, the conference introduced the Stockholm Declaration, a guiding document for furthering the road safety effort in line with the SDGs and setting an ambitious target to reduce global deaths and serious injuries from road traffic by 50% by 2030 *(10)*.

The Stockholm Declaration galvanized international action and carried forward significant momentum into the United Nations General Assembly that northern summer. The General Assembly endorsed the declaration and adopted resolution 74/299 on 31 August 2020 *(11)*.

The resolution, which declares a second Decade of Action for Road Safety (2021–2030) and a target to reduce deaths and injuries by 50%, also approves a decision to convene a high-level meeting of the General Assembly, no later than the end of 2022. This meeting will focus on improving global road safety with a view to addressing gaps and challenges as well as mobilizing political leadership and promoting multisectoral and multistakeholder collaboration.

The resolution addresses many aspects of the road safety system with the following key themes emphasized throughout:

- *Systematic*: Recognizing our shared responsibility between system designers and road users to move towards a world free from road traffic fatalities and serious injuries.
- *Integrated*: Addressing the connections between road safety, mental and physical health, development, education, equity, gender equality, sustainable cities, environment and climate change, as well as the social determinants of safety and the interdependence between the different SDGs, recalling that the SDGs and their targets are integrated and indivisible.
- *Evidence based and data driven*: Stressing the centrality to effective, evidence-based policymaking of gathering quality data, including at the regional level, notably on deaths and serious injuries.
- *Multisectoral*: Addressing road safety demands multistakeholder collaboration among the public and private sectors, academia, professional organizations, nongovernmental organizations and the media.

## Second Decade of Action for Road Safety (2021–2030) and its Global Plan

In accordance with resolution 74/299, the new action plan for the second Decade of Action for Road Safety (2021–2030) continues to build around the Safe System model, encouraging national administrations to review progress

to date and establish appropriate baselines against which to plan future actions.

Developing a national strategy for the next decade necessitates a clear understanding of the road safety system and its current state of maturity, in order to plan the most appropriate measures to strengthen the system and drive safety improvements in the years ahead.

The aim of this guide is to support countries in that journey, taking a step-by-step approach to secure a good understanding of current policy and practice, which in turn can help identify priorities for the 2021–2030 period.

# Documentation process

This section provides step-by-step guidance on how to conduct the documentation process dealing with each of the four main stages identified within the model, explaining the key tools, techniques and processes that will be required.

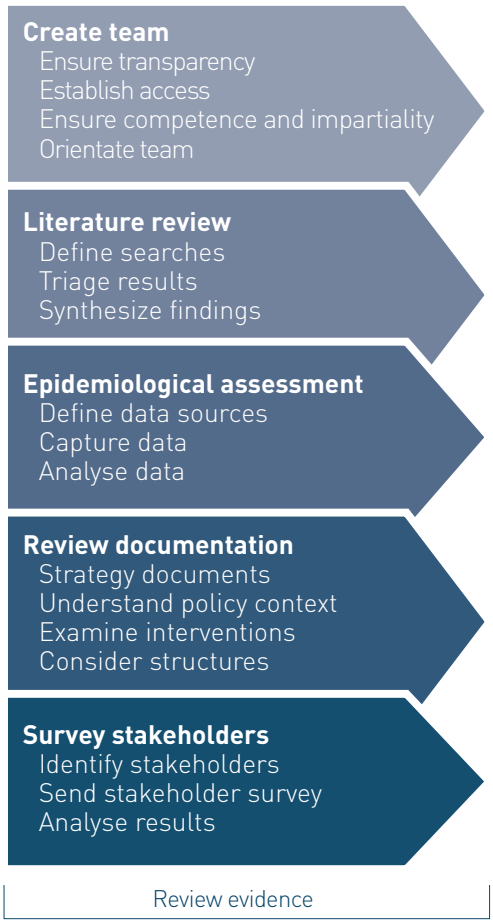
# Stage 1



# Review evidence

The goal of documenting road safety is to produce a fair and thoroughly evidenced assessment of performance over the period analysed. Gathering and reviewing the evidence entails a number of key tasks, as outlined in Fig. 3 and detailed below.

**Fig. 3. Steps of Stage 1**




## Create team

Documenting road safety efforts at a national level requires a team with relevant expertise to explore the issues thoroughly and systematically. The team needs to have sufficient knowledge and experience to be able to provide useful insights and recommendations based on the study. The team should therefore include members with the following skills:

- broad understanding of road safety policy and legislation
- detailed understanding of international guidance on road safety
- ability to engage with key stakeholders including ministers and senior officials
- ability to review and synthesize relevant research
- competence in analysing road safety data.

### *Ensure transparency*

An effective study of this kind is built on the principles of transparency and impartiality. A documentation exercise can only be successful when there is a high level of transparency about the information being reviewed and the results being reported. A transparent exercise is valuable to all stakeholders for several reasons.

- *Participation and visibility of different programmes*: A national road safety effort requires contributions from many ministries and agencies; it is important to secure as comprehensive a picture as possible.
- *Shared learnings:* Different agencies may have experienced similar challenges and have valuable experiences that others can learn from.
- *Improved efficiency*: The documentation exercise will be slow and inefficient if there are barriers preventing the team from reviewing relevant documents and data. Access issues and poor efficiency will result in incomplete findings and weak recommendations.

For the purpose of this guide, transparency means that agencies are willing to share the following assets so that an efficient and effective review can take place.

- *Strategy*: In addition to a national road safety strategy, strategies from individual ministries and sectors or cross-government strategies on issues such as infrastructure, public health, emergency medicine, policing or education may also be relevant.
- *Data*: Several key data sets are necessary to be able to analyse road safety performance over the period being documented; these data sets are outlined in the section on "Data capture".
- *Documentation*: Beyond the strategy documentation, a range of important reports and action plans will enable the team to assess progress. Implementation plans, especially if they denote responsibilities and budgets, are particularly critical here.
- *Evidence*: In addition to road casualty data, other sources of evidence may demonstrate the effectiveness of the road safety measures that have been implemented. This evidence may have been gathered by government ministries or academic institutions, or it may be available in scientific journals or as grey literature (i.e. produced by government, academia, business or industry, but not controlled by commercial publishing).

## Establish access

A second principle of the investigation is that the team should have a good level of access to key stakeholders. These stakeholders may be government ministers or officials, or they may be working in civil society organizations or professional institutions. Their perspectives on how the country's road safety has changed or improved and their perspectives on strategic developments, funding and coordination will be helpful in understanding the influences on road safety performance.

## Ensure competence and impartiality

Third, the impartiality of the team is critical to the success of the exercise. An independent and objective team can enhance and deliver better outcomes

when engaging with stakeholders and reviewing progress than a team aligned with a particular area of interest (e.g. policing, education or trauma care). If the team is regarded as fair and impartial, then the results of the exercise will be more readily received as authoritative and valuable by all parties and will thus be more likely to feed into the development of further road safety enhancements in the future. The team must therefore be seen to have sufficient independence from any vested interests.

Furthermore, if the team was made up entirely of representatives working for the Ministry of Health who had no experience in engineering, vehicle safety or policing, then their judgements may be questioned when they review these aspects of road safety delivery. For the team to have the trust of all parties, it must be able to reflect accurately, knowledgeably and fairly on performance across the whole policy area.

### *Orient team*

Working with a team that is sufficiently independent means that team members will need an orientation process to help them understand the complexities and relationships involved. This orientation should provide the following information:

- national vision and leadership for road safety
- governance structures and coordination
- key agencies and their responsibilities
- strategy development and interoperability of strategies
- key points of contact in each agency.

The orientation process will enable the team to connect with all relevant parties and make rapid progress with the documentation exercise.

## Literature review

Later, in Stage 3, the data and evidence captured in Stage 2 should be subject to rigorous analysis along with an analysis of the available literature. By reviewing the literature and epidemiology (see next section) in Stage 1, the team will gain a good understanding of the current state of road safety performance, longitudinal trends and research insights.

By undertaking a literature review, the assessment team will be able to identify sources in the literature that can give them a broad overview of actions and activities. The intended review is not extensive or systematic and therefore not all relevant studies will be captured, especially if they do not contain the specified search terms. Stakeholder engagement in this step will include a request for relevant evidence and literature for review.

The review should include literature in English and the country's main language. It should focus on articles in peer-reviewed journals that present road safety research conducted in the country under assessment.

## Defining search terms

Prior to commencing the evidence review, key search terms should be defined. Some suggested search terms are as follows:

Country

**AND**

Road Safety Strategy / Vision (+2030) / Actions

Road Traffic Injuries / Collisions / Crashes / Accidents

Motor Vehicle Crashes / Collisions / Accidents

Road Risk / Road Conditions / Crash Risk / Crash Severity / Injury Rates

Rural Roads / Rural Road Network

Road Safety Practices / Behaviour / Knowledge / Attitudes / Enforcement / Prevention

Road Traffic Mortality (+rates)

Road Injuries Type / Severity / Characteristics

Vehicle Speeding

Seat/Safety Belt Use / Child Restraint / Child Seat

Traffic Enforcement / Traffic Control / Safety Cameras / Speed Cameras / Red-light Cameras

Fuel Prices

Built Environment / Urban Planning

Smart Cities / Walkability / Walking / Cycling (+Integration) Urban Transport Systems

## Defining search libraries

The most relevant open-source search engine for academic literature is Google Scholar, although other academic search engines are emerging (including Base and Semantic Scholar) that can be used to search the defined search terms. Proprietary academic search engines and databases, such as Science Direct, can be accessed through institutional licences. Working with academic partners and in-country research institutions will help to facilitate this exercise.

## Approach to classification and synthesis

For each combination of key search terms, the first 10 pages of results should be investigated and ordered by relevance. The results should be assessed for the following:

- *Relevance*: Is the study relevant in terms of issues addressed, geography, cultural alignment or specific road-user groups, and how contemporary is it?

- *Reliability*: Is the methodology sound, leading to stable and consistent results?
- *Robustness*: Is the sample size large enough to draw clear conclusions? If it is a meta-analysis or systematic review does it comprise enough individual studies?

The evidence should be synthesized in accessible tables, recording the following information:

- title
- published (source location, including website link)
- author(s)
- background summary
- geographical zone
- aim of study
- methodology of study
- key findings
- relevant data (or evaluation)
- comments.

The evidence should be downloaded and grouped by relevance, according to the six Safe System components. An example is presented in Table 1.

**Table 1. Example evidence review summary**

| Title | Traffic safety effects of new speed limits in Sweden |
|---|---|
| Author(s) Published | Anna Vadeby, Asa Forsman<br>Accid Anal Prev. 2018 May;114:34-39. doi: 10.1016/j.aap.2017.02.003. Epub 2017 Feb 20.<br>Traffic safety effects of new speed limits in Sweden - PubMed (nih.gov) |
| Background | The effects of speed, both positive and negative, make speed a primary target for policy action. Driving speeds affect the risk of being involved in a crash and the severity of injury, as well as noise levels and exhaust emissions. Starting in 2008, the Swedish Transport Administration performed a review of the speed limits on the national rural road network. |
| Zone (geographical) | Sweden |
| Aim | The aim of this study is predominantly to describe and analyse the long-term traffic safety effect of increased, as well as reduced, speed limits. A further aim is to analyse the changes in actual driving speeds due to the changed speed limits. Traffic safety effects are investigated by means of a before-and-after study with a control group, and the effects on actual mean speeds are measured by a sampling survey in which speed was measured at randomly selected sites before and after the speed limit changes. |
| Methodology | Primary research, sampling survey, speed measurement |
| Key findings | Results show a reduction in fatalities on rural roads with speed limits reduced from 90 km/h to 80 km/h, where the number of fatalities decreased by 14 per year, whereas no significant changes were seen for the seriously injured. |
| Comments | |

## Epidemiological assessment

The ultimate goal of road safety interventions is to reduce deaths and serious injuries. Collating and analysing a country's casualty performance data is therefore an essential task in documenting its road safety.

Analysis is only meaningful if the data are actually collected, are collected accurately and are shared for analysis. Some key steps in this exercise are as follows:

- catalogue what data are collected;
- review the quality of the data collected for accuracy and timeliness;
- analyse headline data to reveal current trends in frequency, determinants and costs of road traffic injury; and
- identify gaps in data collection, accuracy and provision.

In most countries, the police are the lead organization in collecting collision data. Insurance companies record incidents involving their clients, and hospitals and health workers maintain medical records on road traffic injuries. Another data source is civil registration and vital statistics for deaths. Collating and analysing casualty data from a variety of sources helps countries gain a fuller picture and account for any reporting biases or underreporting issues. In some countries, the police do not collect information on all non-fatal collisions, partly because legal requirements on reporting differ from country to country. Hospital data can therefore be used to enhance the police data by providing a better understanding of the total number of casualties and their injury severity (although they cannot be a substitute for police data, as they will be missing valuable information about the circumstances of the collision).

Where possible, the International Classification of Diseases (ICD) codes for transport injury events should be used in coding local data. The latest revision of this classification is ICD-11 *(12)*. The purpose of the ICD is to provide an international standard for reporting diseases and health conditions, through defining the universe of disorders, diseases, injuries and other related health conditions. These standards facilitate the easy storage, retrieval and analysis of health information for evidence-based decision-making; sharing and comparing health information between hospitals, regions, settings and countries; and comparing data from the same location across different time periods.

Other data sources can help to place the casualty figures in context and provide information on the general safety of the road network system. These include exposure data (vehicle kilometres travelled by mode), costs to society of road collisions, road traffic violation data (numbers of offences) and traffic data (average speed and traffic flow data).

The WHO publication *Data systems: A road safety manual for decision-makers and practitioners (13)* is an essential guide for assessing and improving such systems. A checklist of data fields that should be collected in casualty data is presented in Table A2.4 in Appendix II of this guide. The WHO manual should

be used as a guide for determining what data are collected, the quality of the available data and how data quality could be improved.

## Data capture

A second aspect of this epidemiological assessment step is to capture key data relating to road traffic injuries. This capture should consist of a longitudinal data set that includes the period over which the documentation exercise is being conducted (e.g. since the launch of the national road safety strategy) and preferably a 3-year baseline period for comparison.

Data on population, demographics, licensing and vehicle registration will assist in exploring risk exposure among road users, and data on road classification will help in understanding network risk. In addition, information on compliance will help to highlight the effect of changes in legislation and enforcement.

Some countries have sophisticated data collection and analysis systems that will make this part of the exercise straightforward. In some cases, the data may already be publicly available. However, in many countries the relevant data are held by different agencies. To support collection, a series of data tables has been included in Appendix IV – Data capture. Countries may have different data sources for the same figure, and there is a need for comprehensive consultation with all sectors to achieve consensus and agree on the data source to be used.

It would be helpful to secure as much of the data requested as possible, although some data may not be collected or available in accessible formats. For example, a record of social costs of casualties is not always available in all countries.

In cases where the data are available but recorded with different definitions, the field names must be adjusted accordingly. For example, WHO's road classification suggests four road types (motorway or highway, arterial routes, distributor roads and local roads) (*13*); if the country typically uses a different road classification system for reporting data, then that system should be used.

The provenance of the data should also be recorded, indicating which organization provided the data. If at a later point there are any discrepancies between different data sets, these may be better understood if the data have come from different agencies that have used different collection methodologies. Standardization and the archiving of data collection are encouraged in order to monitor and evaluate progress during and after the road safety review. Recording the provenance of data and the processes involved in data collection and data analysis makes it possible to reliably replicate analysis over time and monitor trends.

## Alignment with WHO guidance on data systems

The WHO publication *Data systems: A road safety manual for decision-makers and practitioners* (*13*) presents a four-step method for assessing a country's situation in relation to road safety data:

1. *Stakeholder analysis*: Identify the people and agencies involved in the collection, management and use of road safety data. Describe their roles and activities and determine their involvement in the review process.
2. *Assessment of data sources, systems and quality*: Describe the information and variables collected, the format of the data, and the systems used to store the data.
3. *End-user needs assessment*: Identify the different types of users of the data; the circumstances in which they need road safety information; the types, sources and format of the data they would like to access; and the factors that affect or determine access. Surveys, interviews, focus groups, observations, library reports, analysis of requests for information and working groups can all be used to complete an end-user needs assessment.
4. *Environmental analysis*: Determine who the lead agency responsible for road safety is; which government departments have a role in road safety decision-making; and the budgets, policies and capacity for implementing and improving data collection, processing, analysis and dissemination.

Following the WHO guidance on data systems will provide information on what system is currently in place for road safety data, what is needed, and where the gaps are and the level of interest in and commitment to addressing those gaps (*13*).

By assessing the available data sources as part of the exercise on epidemiology, reviewers will have a comprehensive view of what data are available, who collects and manages them, and the quality of the available data. The guidance provides a checklist that can be used to determine if the current data collection is sufficiently resilient to meet needs and provides suggestions as to how data quality could be improved (*13*).

In Appendix II, Table A2.4 sets out the fields that WHO advises should be collected as a minimum. Reviewers should work through these data elements to ensure that the minimum data recommended by WHO are collected at the national level.

## Fatality and casualty numbers

The total numbers of casualties by severity (including deaths) are useful for understanding a country's progress on casualty reduction. For these numbers to be meaningful, they should be reported over a period of time, with 10 years providing sufficient data. Displaying the figures in clear tables or charts will enable stakeholders to quickly understand where reductions have been achieved and where more work is needed.

The definitions of "serious/severe" injuries can vary across countries and can include the following:

- the length of hospitalization;
- the types of injury (with "seriously injured" being based on specific types of injury in some countries);

- the inability to work;
- the length of recovery; and
- long-term disability *(14)*.

The best-practice definitions, which should be used to assist with international comparisons, are set out in Fig. 4 below.

**Fig. 4. Injury severity and crash severity: definitions and relationships**

| Injury Severity | Crash Severity |
|---|---|
| **Fatal**<br>Person killed immediately or dies within 30 days as a result of a road traffic injury accident | **Fatal**<br>Any road traffic crash resulting in a person killed immediately or dying within 30 days as a result of the crash |
| **Serious/severe**<br>Injury that requires admission to hospital for at least 24 hours, or specialist attention, such as fractures, concussions, severe shock and severe lacerations | **Serious/severe**<br>Any road traffic crash resulting in at least one serious injury, and no fatalities |
| **Slight/minor**<br>Injury that requires little or no medical attention (e.g. sprains, bruises, superficial cuts and scratches) | **Slight/minor**<br>Any road traffic crash resulting in at least one minor injury, and no serious injuries or fatalities |
| **No injury** | **Damage-only**<br>Any road traffic crash which does not result in any injuries |

Source: *(13)*.

## Fatality and casualty rates

International monitoring figures, such as those in the Global Status Report on Road Safety *(15)*, are typically based on fatality rates per 100 000 population, which facilitates comparisons between countries while accounting for changes in population figures and the size of the territory. Serious and slight rates per 100 000 population can also be calculated to provide a complete picture.

As with reporting absolute numbers of casualties, rates should be presented over a period of time to show progress.

## Exposure data

Non-road safety data should be collected and combined with casualty data to place road safety performance in context and assist with the measurement of indicators. As described above, population data can be used to create rates and can also be used to delve more deeply into the situation, by making demographic comparisons and highlighting areas of need (casualty rates by age and gender, for example).

Where there is a focus on motorized vehicles and associated casualties, the number of licensed drivers, vehicle fleet size and traffic volume data can also be useful data sources to demonstrate exposure to risk.

Infrastructure data, detailing the quality, condition and design of roads, can be used to highlight areas for investment and to link collision risk with specific location types.

Fig. 5 lists transport-related data elements, which can be used to help understand road safety and to develop effective interventions. These data sources are usually collected by the transport sector and central government agencies, rather than the police.

**Fig. 5. Transport-related data elements**

| Roadway data | Traffic data | Vehicle data | Driver Data |
|---|---|---|---|
| • Number, class and length of road<br>• Road type, by number of lanes, median width<br>• Number of lanes and lane width<br>• Crossing type, intersection design<br>• Type of traffic control (signals, roundabouts, stop or give way)<br>• Alignment (horizontal and vertical curvature, grade, etc.)<br>• Road surface (bitumen, concrete, unsurfaced)<br>• Surface condition (roughness, rutting, potholes)<br>• Shoulders: width, type and condition<br>• Drainage<br>• Speed limites<br>• Lighting by type and location<br>• Parking regulations | • Location data (x,y coordinates, route number and nearest km post or a node-link system<br>• Traffic volumes as vehicles per day, or short specific counts at given locations<br>• Traffic composition by types of vehicles in the traffic mix<br>• Traffic variation (as required by time of day, day of week, month or annually)<br>• Turning movements at junctions<br>• Vehicle speed data | • Details of ownership: date of birth, sex, name, address, year of ownership<br>• Vehicle registration number together with chassis and engine number<br>• Engine size and type, i.e. petrol or diesel<br>• Seating capactity<br>• Year of manufacture and year of first registration in country<br>• Body type (car, van, pick up etc), number of doors, together with details of modifications<br>• Roadworthiness certificate | • Full name and address<br>• DOB, sex<br>• Type of licence held, i.e. full or provisional, and type of vehicle for which licence is valid.<br>• Year and place of issue<br>• Year driving test was passed<br>• Record of offences committed<br>• Record of driving suspensions<br>• Essential medical information |

Source: *(13)*.

## *Social cost of road traffic injury*

Understanding the costs a country bears as a consequence of road traffic collisions facilitates comparisons with outcomes in other policy areas, which in turn helps with decision-making on investments and resource allocation.

Indicators commonly include the cost of one road traffic fatality, the cost of one road traffic injury and the average cost of different severities of road collisions (*13*). Using the numbers of reported deaths, injuries and collisions, these costs can be used to estimate the total economic losses to the country, usually expressed as a percentage of gross national product.

There are different methodologies used for calculating social costs, which may include direct costs such as medical care, property damage, and the costs of police and legal intervention required for collision management. Indirect social costs include loss of output (earning and time) and qualitative costs, including pain, suffering and the loss of amenities of life.

Calculating these costs will provide a figure for the amount that each fatality or injury costs society, and multiplying these costs by the number of deaths or injuries will provide the total economic burden of road traffic collisions. Cost–benefit analysis of investment to reduce the impact of collisions can be undertaken once these values have been calculated.

## Road traffic violations

Collating and analysing the numbers of road traffic violations enables a country to demonstrate where there have been improvements in compliance over time and highlights where more action is required. The data on these behaviours provide an indication of the progress made towards encouraging safe road use within the Safe System.

Violation data will be collected by the police, but they can also be monitored by other road safety agencies through public surveys or observational studies. These data can include the following:

- mean traffic speeds;
- proportions of drivers exceeding the speed limit;
- seat belt wearing rates in front and rear seats;
- use of child restraint systems;
- helmet wearing rates among motorcyclists, moped riders and cyclists;
- incidence of drink-driving;
- proportions of road traffic fatalities resulting from blood alcohol concentration at a predetermined level; and
- proportions of drivers using handheld mobile phones.

## Analysis

Performance data analysis is facilitated by the range of data outlined above, with the outputs providing visual and narrative context to the road safety situation in the country.

It is important to define a date range for data analysis. A period of 10 years is usually sufficient to demonstrate trends, and the date range should run until the most recent year for which data are available.

Analysis could include the following indicators:

- road traffic casualties by year and severity;
- indexed road traffic casualties by year and severity (where the baseline or

first year is shown as 100 and all subsequent years' casualties are indexed against it; this is calculated as Year 1 index = (Year 1 casualties / Year 1 casualties) x 100, Year 2 index = (Year 2 casualties / Year 1 casualties) x 100, Year 3 index = (Year 3 casualties / Year 1 casualties) x 100 … );

- fatality rate per 100 000 population, by year;
- fatality rate for specific time period, by gender;
- all road traffic casualties by age, by year;
- indexed vehicles involved in injury collisions by year (index for each vehicle type);
- number of collisions inside and outside cities, by year;
- indexed risk factors (such as excessive speed and drink-driving), by year; and
- social costs of road traffic injury by year and severity.

## Review documentation

The team will also need to curate a large number of documents and will find it helpful to try and codify these in some way, building up a picture of how key people, policies, committees and interventions interrelate.

As well as ordering documents so that they can be explored and cross-referenced in a systematic way, the visualization of relationships, elements and hierarchies through a mind-mapping[1] diagram may help the team to define key relationships.

Below are some of the areas that the team will need to explore, with associated questions that will help to uncover the right material and identify relevant linkages.

### *Strategy*

Clearly, if a road safety strategy exists, then this will form a significant part of the review. Examining the strategy to see whether it embraces a Safe System model and addresses ways of strengthening all aspects of road safety is key. Understanding whether the strategy embraces the work of a wide range of stakeholders and provides appropriate structures for them to engage in a coordinated way will also be important. The strategy should set out a performance framework to express how progress will be measured in terms of targets and outcome indicators and to address any areas of capacity-building that will be necessary to enact the strategy. Some key questions to ask in relation to the strategy are as follows:

- Who owns the strategy, how and when was it developed, when is it scheduled to be updated?

1. Mind maps are diagrams used to visually organize information. They are hierarchical and show relationships among elements. There is often a central theme in the centre of the diagram, with related elements radiating from the centre. It provides a useful method for showing connections between organizations, actions, responsibilities and policies.

- Is the strategy funded, if so by which agency, how is spending allocated?
- Does the strategy include a performance management framework with targets and key performance indicators?
- Is there a structured implementation plan, where does governance rest, how does accountability work?
- Are there aligned strategies in other policy areas, how do they interact, is there a hierarchy?

## Policy context

The translation of strategy into workable policies is an important aspect of implementation that needs to be evidenced in the documentation. For example, a strategic focus on improving data quality in the strategy will be in evidence through policies on data capture, ownership, management and sharing by health and transportation agencies. Similarly, a strategic focus on speed management will result in policy development around speed limits, safe infrastructure, enforcement site selection, technology approvals, offence processing and offence disposals (fines, driving bans, offender retraining). Some key questions to ask in relation to policy are as follows:

- How is policy developed, where is the evidence to inform policy, who is leading on policy implementation?
- Are policies being developed across all Safe System elements?
- Are all relevant ministries/agencies working on policy within their arena?
- Are policies being evaluated, is this being done independently, is evaluation adequately resourced?

## Interventions

Implementation plans or action plans that support a central strategy should contain details of the planned interventions. It should be possible to review these details to understand the levels of ambition, coordination and activity that are underway and to assess whether the strategy is appropriately funded. For example, if the strategy includes an ambition to address 50% of collision black spots on the major road network and 1000 locations have been identified, is there sufficient funding in place and are plans being developed to address the 500 highest priority crash sites? Some key questions to ask in relation to interventions are as follows:

- Which interventions are being implemented, by which agencies, how systematically, how are they being prioritized?
- Are interventions being delivered in line with international best practice, robustly monitored and rigorously evaluated?
- Are interventions backed up by clear communications, are these coordinated to ensure clarity of messaging, how well understood by road users are they?

## *Structures*

The strategy, policy and implementation documentation to support the above activities will need to be supported by appropriate structures to facilitate leadership, coordination and accountability. These structures could be developed in a variety of ways. However, they should involve sufficiently senior representatives who can make decisions about policy and funding, and the representatives should have clear terms of reference so they can understand their responsibilities and decision-making power. The structures should also have clear lines of accountability that reflect the strategy so that the overall governance structure can hold agencies and key individuals to account for delivering the strategic objectives. Some key questions to ask in relation to structures are as follows:

- Is there an interministerial committee, who leads it, how are representatives selected?
- How does coordination work between ministries and agencies?
- Are there meetings of senior officials with decision-making power and ability to implement programmes?
- Are there inclusive structures for academia, civil society, business and industry?

## Survey stakeholders

Having established appropriate principles of investigation and oriented the team around the architecture of road safety planning and implementation, the exercise moves on to a discovery phase: gathering more detailed evidence about the roles and responsibilities, strategy and structures, policy and practices that are in place right across the road safety arena.

In developing this approach, two specific tools for gathering data and insights have been created: the survey tool and the data capture tool (see Appendix IV – Data capture). At this point in the review process, the team must also engage with stakeholders to perform a situational analysis.

## *Survey tool*

A survey was developed in consultation with WHO, with the aim of assessing and capturing information about national progress and current standards of road safety from multisectoral professionals and practitioners. The survey tool has previously been successfully implemented in two Eastern Mediterranean Region countries and was useful for collating multisectoral data.

The survey drew on a number of previous pieces of work, including the following:

- a multidimensional road safety assessment tool developed by WHO;
- the assessment tool included in the Save LIVES package; and

- country guidelines for the conduct of road safety management capacity reviews and for specifying lead agency reforms, investment strategies and Safe System projects, as well as the WHO "how to" manual *(16)*.

The survey collects quantitative and qualitative data to understand the efforts being made regarding road traffic injuries and safety from a range of sources (see Appendix III – Survey tool).

- *Quantitative*: The survey tool includes the opportunity to report updates to the data collected as part of the *Global status report on road safety 2018* (*15*), as well as additional data relevant to monitoring performance indicators, safety measure or programmes.
- *Qualitative*: The survey tool provides a means for collecting qualitative data regarding the implementation of new legislative instruments, strategies or plans. Qualitative feedback is important for understanding the culture, organization, coordination and cooperation between agencies on safety measures. The qualitative work can draw out examples of good practice at a national and subnational level that can be explored and included in case studies or further developed as part of national and regional road safety strategy.

## Identification of appropriate stakeholders

Appropriate stakeholders are individuals with informed authority and sufficient visibility to answer survey questions relating to policy, funding, multi-agency coordination and connectivity with a wide perspective. They will usually be a director, a senior official or a leading practitioner in a related field.

Table 2 provides a non-exhaustive list of examples of government bodies and ministries with related responsible areas of involvement that would be the appropriate stakeholders among which to disseminate the survey tool. The names and titles of departments would vary according to individual states, and many departments overlap in implementation especially in key areas of road safety strategy, policy, legislation, research, capacity-building and road traffic data. These key areas under the cabinet and central government will potentially be distributed between ministries.

## Table 2. Identification of key stakeholders and relating responsibilities

| Main sector | Specific responsibilities/ focus area | Capacity-building | Strategy and policy | Traffic data | Legislation | Research and studies |
|---|---|---|---|---|---|---|
| **Transportation** | • infrastructure planning<br>• public transport<br>• driving standards (training and testing)<br>• vehicle standards and metrology<br>• vehicle testing<br>• active and sustainable travel | | | | | |
| **Health** | • emergency medical services (ambulance)<br>• acute hospitals<br>• trauma centres and registry<br>• injury surveillance systems<br>• rehabilitation systems | | | | | |
| **Policing** | • highway policing | | | | | |
| **Interior/justice** | • traffic offence legislation<br>• prosecution process | | | | | |
| **Education** | • road safety education curriculum<br>• promotion<br>• social and cultural activities in relation to road safety | | | | | |
| **Municipalities** | • public works authority | | | | | |
| **Civil defence** | • rescue services | | | | | |
| **Youth/culture/ sport** | • awareness | | | | | |
| **Industry** | • vehicle standards | | | | | |
| **National statistics office** | • population data<br>• traffic injury data | | | | | |
| **NGOs** | • public policy<br>• victim support | | | | | |
| **Academic institutions** | • trauma research | | | | | |
| **Private insurance sector** | • compensation for victims<br>• insurance technology | | | | | |

Other relevant participants in the stakeholder survey would be nongovernmental organizations, academic institutions and private insurance providers that are involved in public policy, victim support and compensation, raising community awareness and research.

## Alignment of question architecture to overall goals

The questionnaire in the survey tool aims to deliver information across institutions and to draw out insight from key stakeholders involved in decision-making and the practical implementation of strategies and road safety policies. For this survey tool to be effective, the questions in the tool must be designed to provide relevant insights across the breadth of the Safe System. The survey tool addresses this through the inclusion of sections that are relevant to different stakeholders with involvement in many aspects of road safety policy and practice.

Further evaluation on targets and measurable data can be drawn out by asking practitioners and key stakeholders about issues, any improvement noticed in implementation, and possible reasons for such improvement. This creates a wealth of information that can be used to develop and strengthen strategies, by taking into account factors that are not directly quantifiable.

For the survey tool to have the most effective use, it should capture the richest level of data and feedback on specific departments, perspectives and context. When disseminating the survey, lead agencies and policymakers should take local context into account so that they use appropriate formats and maximize engagement and results. The survey tool works best if there is honest consultation and review from stakeholders to improve and flag areas of attention in road safety evaluations.

## Analyse results

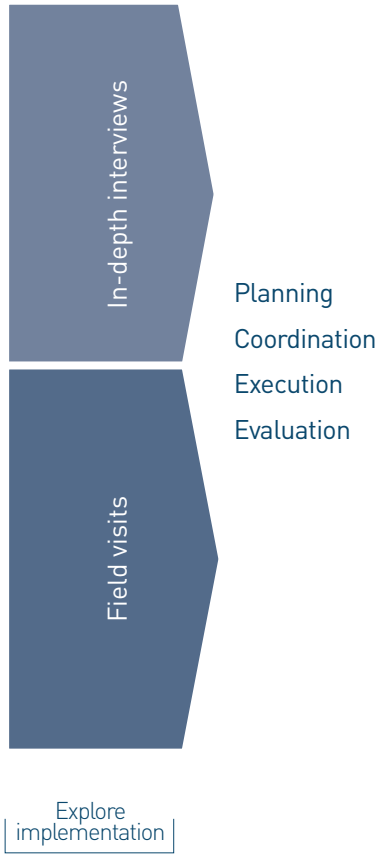
The review of documentation and the survey results can be used to conduct a gap analysis, which can potentially highlight areas where current and proposed strategies and instruments might need strengthening in order to meet the nation's ambitions. This process can also be used to inform lines of questioning to pursue as part of further in-depth interviews and reviews. The findings from the survey and the interviews can then also be used to understand how they might potentially fit with the nation's ambitions, goals and objectives and what barriers to progress and achievement of targets are identified.

It should be noted that sections of the survey tool ask respondents to compare changes made between time periods – for example, "after 2016" or "currently compared to 2016". These comparisons will be dictated by local strategy timelines. The practical implementation and evaluation will be specific to each individual country and to their individual baseline and future targets.

# Stage 2

## Explore implementation

One of the first tasks in Stage 2 is to decide upon the starting point for the period to be documented. This point may be the launch date of the prevailing national strategy, or it may be the beginning of the first Decade of Action; whichever point is chosen, it needs to provide a meaningful period over which to document road safety efforts.




Many strategies are filled with inspiring statements and ambitious targets but have limited amounts of detail on how they should be implemented. This can be the case with national road safety strategies, and it is therefore important to explore how effectively the implementation plan has been or is being executed by the various agencies responsible for delivery. This stage will examine whether sufficient funding has been in place, what roles national and subnational agencies have played in delivering elements of the strategy, and how effective the strategy has been.

In this stage of the documentation process, the focus shifts to exploring four aspects of implementation: planning, coordination, execution and evaluation. The recommended research methods to explore these aspects of implementation are a series of in-depth interviews and field visits. Key stakeholders will be interviewed to see whether their perspectives align with the documentation that has been reviewed, and field visits will be conducted to examine the effectiveness of implementation.

## In-depth interviews

A programme of in-depth interviews with key decision-makers will assist in understanding the level of coordination that exists between the relevant parties and whether there are good systems of accountability in place to ensure that responsibility for implementation is shared appropriately. These first-hand accounts can also help in understanding policy and strategy development and the implementation of solutions, as well as the prevailing culture that

influenced decision-making at the time. Histories will also emerge that provide insights into how the planning and execution of programmes of interventions have taken place, referencing the involvement and contribution of agencies and key individuals. Potential interviewees could include the following:

- head of the interministerial committee on road safety
- head of the lead agency responsible for road safety
- head of road traffic policing
- senior officials in the transport department
- senior officials in the education department
- clinical lead in trauma care
- clinical lead in rehabilitation services
- academic leaders in road safety research
- civil society leaders in road safety.

In-depth interviews are best conducted within a certain set of guidelines, as follows:

- Recruit participants, clearly defining their role and ensuring they understand it.
- Develop key question areas in advance.
- Arrange for interviews to be recorded to allow for transcription and analysis.
- Obtain permission from each interviewee for recording to take place.
- Ensure interviewees are comfortable:
  - » ensure they are clear on the purpose of the interview;
  - » answer any questions they have around the exercise overall; and
  - » discuss the recording arrangements, ensuring that they are comfortable to continue.
- Ask open questions to generate dialogue, allowing follow-up questions to be asked.
- Review notes, recordings or transcriptions to synthesize learnings from each interview.

## Field visits

While measures such as those in the bullet points above will enable the investigation to see high-level results, understanding how effectively the strategy and implementation plan are being executed requires a series of field visits. Field visits will enable the researchers to see the measures that have been implemented and understand the impact that they are having on safety.

Field visits facilitate a wider array of conversations with key stakeholders and delivery staff, which will shed light on how the strategy is influencing their efforts. This process creates a healthy way of sense-checking the content of the implementation plan or the feedback captured in the survey tool that may also highlight areas for potential improvement.

For example, a field visit to see a school could enable the team to observe several aspects of the road safety strategy in action:

- Does the infrastructure around the school conform to the relevant standards?
  - » Is the speed limit appropriate?
  - » Are there controlled crossings where necessary?
  - » Is the quality of school/public transport acceptable?
- Is the environment encouraging the use of active modes of transport?
  - » Are people choosing to walk or cycle?
  - » Is bicycle parking provided?
- Are high levels of compliance with road traffic laws being achieved?
  - » What is the observed speed of traffic?
  - » Are vehicle occupants wearing seat belts and using child restraints?
  - » Are vehicles parking in appropriate spaces so as not to endanger pedestrians?
- Is the road safety curriculum being effectively delivered?
  - » Do teachers report being confident in the curriculum?
  - » Are children knowledgeable of basic road safety principles?
  - » Do school leaders consider that the safety of the local community has improved?

Having the ability to observe strategy initiatives in practice, which in turn may generate further questions to be answered about implementation, demonstrates the value of field visits in probing the reality of road safety delivery as it is experienced in the real world. But how should a programme of field visits be conducted?

First, the programme should be reflective of the areas of road safety being documented. The team will then be able to explore a broad range of activities or perspectives under each of the six components of the Safe System. Some examples of possible activities or locations suitable for field visits are presented in Table 3.

**Table 3. Safe System components and examples of corresponding activities or locations of interest for field visits**

| | | | |
|---|---|---|---|
| **Road safety management** | Municipal road authority | Academic research centre | |
| **Safe vehicles** | Vehicle crash-worthiness testing | Testing station for annual vehicle inspections | Public transport operator |
| **Safe roads and mobility** | Local highway engineering team | Sites that have received treatments | |
| **Safe speeds** | Police enforcement operation | Fine processing unit | |
| **Safe road users** | Driver training and testing facility | Major fleet operator | Local school |
| **Post-crash response** | Emergency call centre | Trauma hospital | Rehabilitation centre |

Field visits can be time-consuming, and the programme should therefore be designed to offer the team a good level of insight into how delivery has progressed, without reducing its capacity to address other parts of the study.

The four aspects that are being investigated in Stage 2 are presented in more detail below.

## *Planning*

Exploring whether a credible implementation plan has been enacted is critical. The plan should have clearly delineated responsibilities and timed actions. For the strategic goals to be achieved, they must be associated with actions that will be effective in delivering measurable outcomes, and these actions should be conceived in such a way that arrangements for delivery are in place.

For example, a strategy might include a goal to reduce traffic speeds around schools, in order to address high casualty rates for children. The implementation plan around this may need to address the following actions:

- suitable speed limits (e.g. 30 km/h) are legally enforceable;
- school locations and speed limits have been mapped;
- mechanisms for surveying vehicle speeds are in place;
- a series of countermeasures has been established (e.g. enforcement, traffic calming) where vehicle speeds are too high;
- communications campaigns on the priority of this policy are scalable and deliverable to all affected areas; and
- a programme for monitoring and evaluating outcomes (changes in speeds and the number and/or type of casualties) has been developed.

For the implementation plan to be credible, each of these actions will need to be owned by an agency with the capability, authority and resources to carry out the implementation process.

## Coordination

Road safety is a cross-disciplinary area and requires the involvement of many agencies. In most countries principal responsibilities are shared by a minimum of three major government ministries: those responsible for transport, health and the interior or home affairs.

Beyond these, there are typically roles for many other ministries, agencies, institutions and organizations that need to coordinate policies and programmes if the implementation plan is to be effective.

It is important to understand the level of coordination that exists between these ministries and stakeholders to identify whether there is good coordination and communication at the political level as well as at the operational level. This means that a good coordination structure is likely to include the following:

- an interministerial committee;
- a coordinating group of senior officials;
- working groups for areas of policy or implementation; and
- stakeholder engagement for ongoing engagement with all sectors (academia, civil society, industry).

For example, the national strategy may dictate that emergency response will be facilitated through calls to a single emergency number (e.g. 111, 999 or 121) and that response times will be set at 8 minutes in urban areas. The delivery of this strategic goal is only feasible with the coordination of a range of agencies, such as the following:

- The ministry responsible for communications will need to lead on implementing a single national number and will work with national telecommunications providers to deliver a solution.
- The health ministry will need to establish appropriate centrally managed call handling and dispatch facilities as well as sufficient ambulances and personnel.
- The ministries responsible for transportation and municipalities may need to work on standards for facilitating the speed of transit for ambulances in cities, such as the phasing of traffic signals or removal of parking.
- The Ministry of the Interior, or similar, will be involved because police enforcement of traffic regulations may be required to support the implementation plan.
- The new strategy will require a major public information and education campaign that may involve national media networks, the education ministry, civil society organizations, associations of driving schools, and so forth.

The other major area of coordination is in sharing data and linkages between data sets. For example, a unique driver number might be linked to an individual's social security record. This means that applying for a licence,

passing a driving test, purchasing a vehicle or being fined for a speeding offence could become analysable data points associated with understanding sociodemographic factors about age, gender or income status. If the driver number is captured when a driver is involved in a road traffic collision, then using such data to better understand the risks experienced by or caused by different road-user groups can be extremely powerful.

Clearly, such data sharing involves a high degree of coordination between the relevant agencies that manage these databases. It also raises privacy and personal data protection issues, which must be addressed. Anonymization would be required, as would good data storage and protection infrastructure, policies and legislation, all of which come at a cost and must be budgeted for.

## Execution

Examining the effective execution of the implementation plan is an indispensable element of documenting road safety performance. Evidence of execution can be gathered using a variety of measures related to the implementation plan, such as the following:

- changes to legislation;
- new systems implemented (data collection, driver licensing, annual vehicle checks or national emergency call number);
- amount of highway assessed and treated;
- numbers of tickets issued for motoring offences (speeding, mobile phone use, seat belts);
- increased capacity for emergency response (staff training, additional ambulances, trauma units); and
- changes to the education curriculum to include road safety content.

## Evaluation of interventions and policy measures

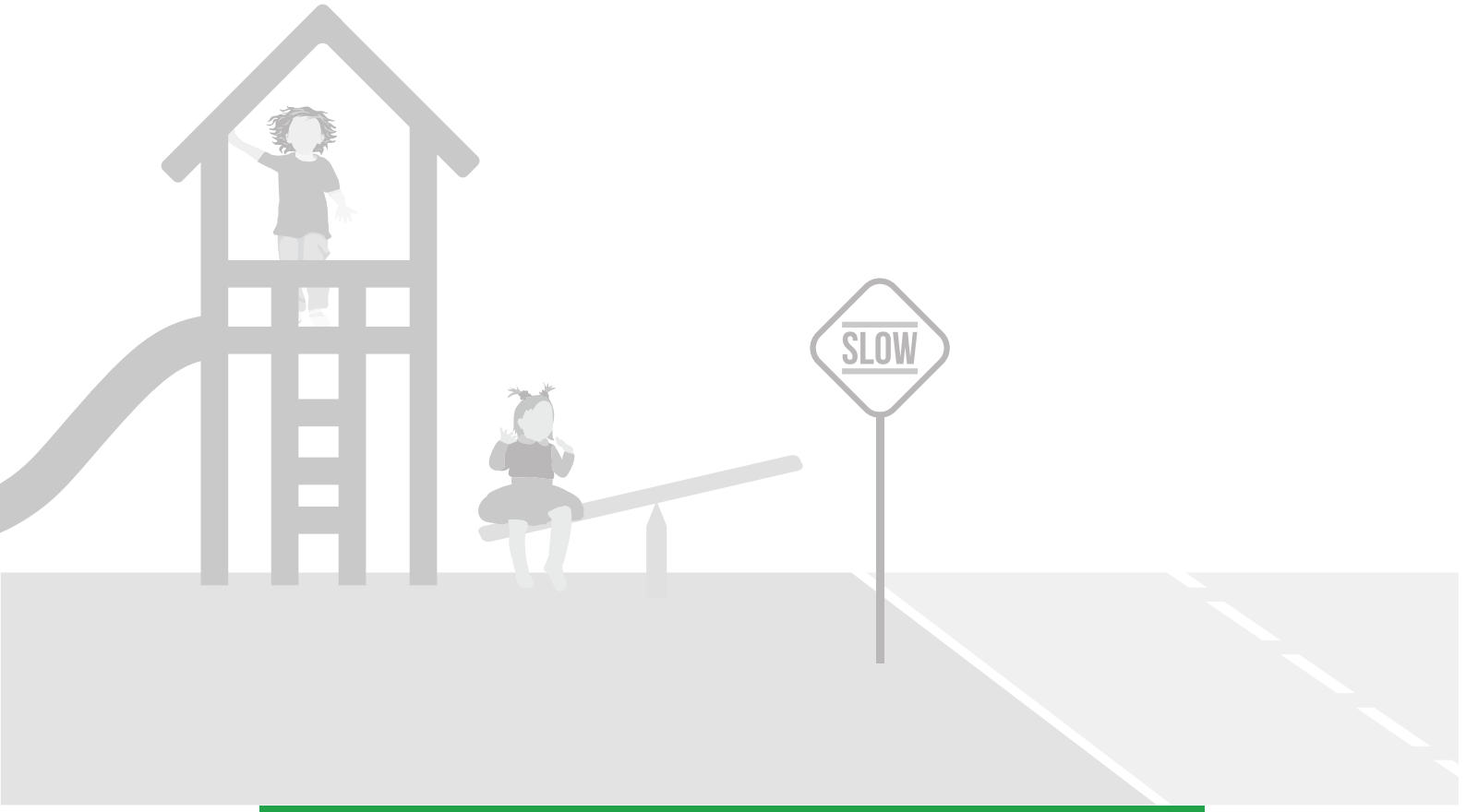
The effectiveness of policy measures and interventions cannot be assumed, even if there is good evidence from other territories that these measures have proven to deliver good road safety outcomes. Reviewers should conduct an evaluation programme to ensure that the road safety strategy and implementation plan are delivering the desired road safety outcomes.

There are several levels of evaluation. While road casualty reduction is the ultimate goal, it can be difficult to link specific interventions and actions to the number of collisions occurring on the roads. Reviewers should look for realistic aims and objectives in evaluations of policy measures and interventions, to detail how success was measured and by when. Ideally, objectives should be SMART: specific, measurable, achievable, realistic and time bound. An example objective for a mobile phone use intervention might be "To reduce the number of drivers admitting to using their mobile phone while driving by 20% after the intervention, compared to before". This objective could be measured through self-reported surveys before and

after the intervention. The 20% reduction will either be achieved in that time or it will not. In evaluations, aims and objectives could be measured using existing data sources, or new data may be collected (both qualitative and quantitative). Evaluations may provide insight into the types of people the intervention is most (and least) effective for, and qualitative feedback about the experiences of road users may help in improving interventions and achieving higher levels of success.

Aims and objectives can be linked to key performance indicators (KPIs), which are not measuring the effectiveness of a specific intervention but rather the success of the overall package of measures being delivered. Linking KPIs to the Safe System enables a country to assess its progress towards improvements in each of the components. In the United Kingdom, a set of safety-focused performance indicators have been recommended, based on international research into how to effectively monitor the safety of a transport system *(17)*. For mobile phones, the indicator is *Percentage of drivers not using an in-car phone (handheld or hands free)*, which enables the United Kingdom to track compliance over time, linking improvements to policy and intervention changes. Reviewers should aim to use KPIs that enable a country to identify where greater effort needs to be made and that can be linked back to measurable performance in addressing road traffic injury.

# Stage 3




# Analyse findings

Armed with all the evidence from the preceding steps, the team will now focus on analysing and reporting on how national performance has progressed over the study period.


While the outcome data on how traffic injuries are changing over time are clearly critical, the analysis also needs to look at how the country is performing in building capacity, developing policy and implementing measures that will secure long-term success.

Stage 3 will start by examining alignment to international best practice as laid out in guidance documents from the global community. This process will enable the team to identify current gaps in policy and practice, which will feed into a set of recommendations that can be taken forward.

## Best-practice alignment

The final stage in the review process is to bring all of the evidence together. Appendices in this guide provide a structure for determining whether an element of road safety strategy and delivery aligns with international best practice. This framework provides a consistent approach for assessment and also enables comparisons between countries.

For each set of actions and alignment set out in this guide, a short description of the recommended assessment approach is provided, alongside signposting to direct reviewers to guides and publications that provide detailed guidance. Importantly, determining alignment with international best practice requires understanding how to interpret non-binary values with descriptive elements. In these cases, this guide provides guidance on what to look for in policy documents and literature.

The matrices of actions and alignment are drawn from the following publications:

- *Global Plan for the Decade of Action for Road Safety 2021–2030* (in particular, its five pillars) *(18)*
- *Save LIVES – A road safety technical package (5)*
- *Towards the 12 voluntary global targets for road safety: Guidance for countries on activities and measures to achieve the voluntary global road safety performance targets (19)*
- guidance documents from the United Nations Road Safety Collaboration:
  - *Country guidelines for the conduct of road safety management capacity reviews and the specification of lead agency reforms, investment strategies and safe system projects (20)*
  - *Strengthening road safety legislation: A practice and resource manual for countries* (16)
  - *Data systems*: *A road safety manual for decision-makers and practitioners (13)*
  - *Seat-belts and child restraints: A road safety manual for decision-makers and practitioners (21)*
  - *Speed management*: A road safety manual for decision-makers and practitioners *(22)*
  - *Pedestrian safety: A road safety manual for decision-makers and practitioners (23)*
  - *Helmets: A road safety manual for decision-makers and practitioners (24)*
  - *Drinking and driving: A road safety manual for decision-makers and practitioners (25)*
  - *Powered two- and three-wheeler safety*: *A road safety manual for decision-makers and practitioners (26).*

When assessing whether a country is delivering a specific intervention or adhering to a particular standard, it may be necessary to re-engage with stakeholders to seek clarification. Policy documents and action plans may suggest that a particular intervention is in place, but if in doubt, reviewers should request further information to determine if best practice is being fully applied.

The task for reviewers is to search policy documents and action plans to determine if the intervention is being delivered. They should note the details of the source document, the lead stakeholder (or "owner") of the action and the timescales for delivery. Any future plans to deliver the specific action should also be noted so that the reviewers can clearly identify which actions are not being delivered. Compiling this information at the time of analysis will help with the report writing stage.

## Alignment with Safe System priority areas

Ensuring that the country is delivering activities to improve all facets of the Safe System is imperative for improving road safety. In addition to the specific targets, actions, commitments and legislative acts recommended in other guidance, Table A1.1 in Appendix I of this guide sets out best-practice activities and their alignment with the Safe System.

This comprehensive table includes interventions and targets from the WHO topic-specific guides and other guides to delivering a Safe System.

Arranged by key sector, each activity (described as a "Focus area") is assigned to one or more of the Safe System components, enabling the country to demonstrate the breadth of interventions being delivered across the Safe System.

Reviewers should work through the table, indicating which activities and measures are being delivered, making notes regarding that delivery.

## Alignment with voluntary global performance targets

Twelve voluntary global performance targets for road safety were agreed during a meeting of WHO Member States in Geneva, Switzerland, in November 2017. Guidance to help countries implement and monitor these targets was published by the Global Road Safety Partnership and reiterated the importance of setting and monitoring road safety targets:

> *Countries and regional or local authorities that have managed to improve road safety have shown that doing so is aided by setting targets and reporting on progress towards those targets. Such processes help in maintaining momentum and implementing effective interventions. Targets and associated indicators provide a means to monitor the extent of progress and provide an opportunity to adjust the focus and scale of road safety interventions to ensure that targets are met (19).*

A table listing all 12 voluntary global performance targets is set out in Appendix II. A column is provided for reviewers to indicate whether the country's strategy includes each of these targets.

Detailed advice on the assessment of each target is included in the Partnership's guidance (*19*). For some indicators, the assessment is straightforward in that it requires confirmation that a particular piece of legislation, process or plan is in place. Target 2 is an example of this: "By 2030, all countries accede to one or more of the core road safety-related UN [United Nations] legal instruments". In this guide, a table of these legal instruments is included in Appendix II and can be used to indicate whether a country is a signatory.

Other indicators may require specific data to measure the current situation and progress towards achieving the target. The appropriate data source must therefore be identified and the data extracted and analysed.

Improving road-user behaviour is the subject of several of the indicators. Calculating these indicators will require survey data, either observational, from in-vehicle devices or from road users' self-reported behaviour. "In all surveys, care must be taken to identify a representative sample, and consistency of data collection across time must be assured, in order to be able to record meaningful trends" *(19)*. The indicators related to enforcement can be measured using police records or the frequency of police checks reported by road users.

Targets 1 and 12 require an assessment of documents, whereas many of the other targets require measurements of outcomes. Target 1 is that "By 2020, all countries establish a comprehensive multisectoral national road safety action plan with time-bound targets". To meet this target, the country must fulfil the following criteria:

- have a comprehensive action plan that contains objectives, targets, planned interventions and expected outcomes, and that outlines responsibilities for interventions and reaching the targets;
- identify the sectors and stakeholders coordinating to deliver on the common and agreed goal, and detail who the lead agency is for coordinating and implementing the national strategy;
- specify what actions are to be delivered, when they will be completed by and how they will be measured; and
- implement a scientifically based system to measure the effectiveness of specific interventions by their contribution to the reduction of fatalities and injuries, as well as changes in behaviour, attitudes and knowledge.

Target 12 is that "By 2030, all countries establish and achieve national targets in order to minimize the time interval between a road traffic crash and the provision of first professional emergency care". This requires the country to set, at the national level, a maximum time before emergency attendance. A target could be expressed as a mean number of minutes.

Table 4 provides a guide to the actions that should be undertaken to achieve each target and that reviewers should identify to be able to indicate that a target has been met.

## *Alignment with United Nations legal instruments on transport*

Table A2.1 in Appendix II of this guide lists all of the United Nations legal instruments on transport since 1949. The exercise to be completed in this part of the review is to determine if the country is a signatory to each of these legal instruments.

The reviewers should use the table to indicate whether the country has acceded to or ratified each agreement and convention. The number of agreements and conventions fully implemented at the national level should also be recorded.

## Table 4. Voluntary global performance targets for road safety and corresponding main actions

| Target | Actions |
|---|---|
| **Action plan** | A national action plan for road safety with time-bound targets<br>Nominate a lead agency by government<br>Implement the national action plan<br>Regularly update the targets<br>Operation of the lead agency |
| **Global alignment** | Adhere to and ratify agreements and conventions |
| **New roads** | Appropriate technical standards (three star or equivalent) for new roads<br>Use these standards in the design and build of new roads<br>Use a systematic approach for undertaking preliminary/detailed road safety design audits of new roads |
| **Existing roads** | Appropriate technical standards for existing roads<br>A plan for the safety improvement of existing roads<br>Establish a budget for safer roads<br>Improve existing roads in view of meeting the technical standards<br>Use a systematic approach to the conduct of road safety inspections/ assessments of existing roads or International Road Assessment Programme star ratings<br>Undertake road safety inspections/assessments for existing roads with identified corrective safety work |
| **Vehicle standards** | Have high-quality safety standards for produced, imported and registered vehicles<br>Implement standards for new vehicles<br>Set up and operate a vehicle inspection system<br>Implement standards for importing used vehicles |
| **Speeding** | Policy and legislation on speed management, including speed limits setting and speed enforcement<br>Set safe and appropriate speed limits on all roads<br>Enforce the speed limits<br>Implement data systems on speeding and speeding related injuries and fatalities<br>Hold regular public awareness activities on speeding |
| **Motorcycle helmets** | Policy and legislation on quality of helmets, on appropriate helmet wearing and on enforcement of helmet use by all motorcyclists (riders and passengers)<br>Implement a compliance system for ensuring quality of helmets sold (in order to meet United Nations regulation 22 or equivalent national standards)<br>Enforce helmet wearing (for all riders and passengers of 2- and 3-wheel powered vehicles)<br>Implement data systems on helmet use<br>Hold regular public awareness activities on helmet use |
| **Vehicle occupant protection** | Policy and legislation on installation and use of safety belts in cars<br>Policy and legislation on quality, installation and use of child restraint systems (CRS) in cars<br>Policy and legislation on the enforcement of the use of safety belts and CRS<br>Implement a compliance system for ensuring the quality of child restraints sold and used<br>Enforce the correct seating position and the use of safety belts and CRS<br>Implement data systems on safety belt and CRS use<br>Hold regular public awareness activities on safety belt and CRS use |

| | |
|---|---|
| **Driving under the influence** | Policy and legislation on drink-driving management (driving under the influence limits, enforcement, awareness)<br>Policy and legislation on drug-impaired driving management<br>Enforce driving under the influence limits and other alcohol-related legislation<br>Enforce drug-impaired driving laws<br>Implement data systems on driving under the influence of alcohol and/or other psychoactive substances<br>Hold regular public awareness activities on driving under the influence of alcohol and psychoactive substances |
| **Distraction by mobile phone** | Policy and legislation on the use of mobile phones while driving (phone mode, awareness, enforcement)<br>Enforce mobile phone legislation<br>Implement data systems on distraction by phone<br>Hold regular public awareness activities on the distracting effects of mobile phone use |
| **Professional drivers** | Policy and legislation on licence requirements, driving times and rest periods for professional drivers<br>Implement legislation on licence requirements, driving time and rest periods for professional drivers<br>Enforce the legislation for professional drivers |
| **Timely emergency care** | Designate a lead government agency with authority to coordinate prehospital and facility-based emergency care<br>Adequate distribution and resourcing of emergency care services across the country |

Source: Adapted from (*19*).

## *Alignment with Save LIVES technical package*

> *Save LIVES provides an evidence-based inventory of priority interventions for road safety decision-makers and practitioners to implement towards achieving SDG targets 3.6 and 11.2 on road safety and human settlements. … The core components of the Save LIVES technical package are **S**peed management, **L**eadership on road safety, **I**nfrastructure design and improvement, **V**ehicle safety standards, **E**nforcement of traffic laws and **S**urvival after a crash (5).*

The Save LIVES technical package uses a Safe System approach to bring together a selected group of related interventions to support road safety decision-makers and practitioners in their efforts to achieve and sustain substantial improvements in road safety risk.

Table A2.3, in Appendix II, sets out the recommended interventions that can contribute to SDG targets 3.6 and 11.2. Interventions were assessed for their effectiveness and classified as "proven" (where there is evidence from robust studies); "promising" (where there is evidence from robust studies but further evaluation from diverse settings is required) and "insufficient" (where there is a lack of evidence). Only those interventions with a strong evidence base are recommended as part of the Save LIVES technical package.

Reviewers should work through policy documents and strategies to determine if the Save LIVES interventions are being delivered.

## *Alignment with WHO guidance documents*

WHO and its partners have created the following series of useful guidance documents on key road safety topics:

- *Data systems: a road safety manual for decision-makers and practitioners (13)*
- *Strengthening road safety legislation: a practice and resource manual for countries (16)*
- *Seat-belts and child restraints: a road safety manual for decision-makers and practitioners (21)*
- *Speed management: a road safety manual for decision-makers and practitioners (22)*
- *Pedestrian safety: a road safety manual for decision-makers and practitioners (23)*
- *Helmets: a road safety manual for decision-makers and practitioners (24)*
- *Drinking and driving: a road safety manual for decision-makers and practitioners (25)*
- *Powered two- and three-wheeler safety: a road safety manual for decision-makers and practitioners (26)*

These manuals outline a series of steps a country needs to undertake to reduce risk in specific topic areas. They cover the following points:

- why the topic is important for reducing road safety risk and why related interventions are required;
- how to assess the country's situation:
  - how big the problem is in terms of injury rates, compliance rates and usage rates, as well as guidance on how to delve more deeply into the problem, and
  - what is already being delivered to reduce risk (thinking about laws, standards and programmes);
- how to design and implement a programme (with guidance on setting objectives, identifying activities that could be delivered to meet those objectives, defining time frames and dedicating resources); and
- how to evaluate the programme or programmes to determine effectiveness.

The manuals include best-practice interventions for each of the data elements listed in Table A2.4 in Appendix II of this guide.

## Gap analysis

The tasks required and the evidence gathered in Stage 1 and Stage 2 of this review process lay the groundwork for a gap analysis to be performed in Stage 3. By determining alignment with best-practice guidance, it will be

clear where action or legislation is required to move the country forward. Once the "matrix of alignment" has been completed there may be obvious gaps that lead agencies and governments need to address – for example, by checking alignment with United Nations legal instruments on transport it will immediately be apparent whether there are international agreements that could strengthen internal road safety performance.

Second, the in-depth interviews and field visits can be used to verify gaps that may have been evident but not explicit in the research and documentation. In some cases, it could be that there is a difference between documented actions and implementation – such as the way junctions are treated at high-risk sites – but that the measures being introduced are insufficient to deliver a significant reduction in collision frequency.

An epidemiological approach can also highlight gaps, especially when used in association with the literature review. Data and research can be used to identify who is most at risk, the locations where collisions are most likely to occur and the common circumstances leading to these collisions occurring. When analysing the findings, reviewers should identify where interventions and legislation can effectively target at-risk groups and priority locations, as well as highlight groups that generate increased danger to other road users so that greater focus can be placed on them.

## Develop recommendations

Gap analyses lead to the development of recommendations. The manuals and best-practice guidance provide clear recommendations for how countries can improve road safety. Once the gaps in a country's practice have been identified, the manuals should be used to detail what the country can do to address them.

It might be useful to prioritize the list of recommendations, using a system such as a "RAG" rating (a red, amber, green system, in which red is the top priority), to emphasize which actions should occur first to facilitate subsequent actions and/or which actions are fundamental to improving the country's road safety situation.

While the focus of this exercise has principally been to understand how road safety has developed over the study period, the value of the insights that have been gleaned can be carried forward to deliver an ongoing programme of improvement. Recommendations should have the following key characteristics:

- *Evidence based*: This exercise is rooted in an understanding of how the evidence informs and guides policy and delivery. Recommendations must therefore draw on the available evidence from international guidance, local studies and the data.
- *Systematic*: As the Safe System is the lens through which this study is undertaken, recommendations should reflect the need to strengthen the entirety of the system.

- *Actionable*: The recommendations that are proposed should be appropriate to the national situation and actionable, while recognizing prevailing conditions. For example, recommending the implementation of intelligent speed assistance without an established network of legal speed limits, or even a well-defined map of roads, would not be an actionable recommendation.
- *Sustainable*: Road safety will not be significantly advanced by implementing unsustainable programmes, the recommendations should therefore focus on the initiatives that can be sustained and developed. For example, embedding road safety education in the national school's curriculum might be a more sustainable intervention over time than national media campaigns.

The recommendations will only be effective if they are matched with engagement and accountability from the relevant committees, ministries and institutions. Therefore, ensuring that there is a commitment to receive, review and respond to the recommendations that are made will be an important aspect in deriving value from a national documentation exercise.

# Stage 4

## Final report

The report should be written and structured to be accessible and to provide a clear summary of the findings, successes and identified areas for improvement. It should be framed to reflect the Safe System components and address all pillars of the Decade of Action's Global Plan.


The report should contain an executive summary that highlights the salient findings in terms of achievements, progress and areas that could be strengthened (including recommendations for future action). The achievements and recommendations should be arranged in clear sections, aligned with the Safe System. The report should also describe the national context in terms of funding, strategy, and top-line traffic and casualty trends. Fig. 6 shows an example of suitable content and layout for the executive summary.

**Fig. 6. Example executive summary format**

# Executive summary

## *Background and context*

Over recent years, Country X has made a strategic and sustained investment in traffic safety. Since the creation of the National Road Safety Committee and the launch of the National Road Safety Strategy in 20XX, the pace of change has been significant …

A review of the headline data demonstrates some of the progress that has already been made, as the number of road traffic fatalities has reduced by 25% since 2015. This is all the more impressive in a period during which the population grew by 40% and the number of registered vehicles more than doubled …

## *Documentation: Findings and achievements*

The five pillars of the Global Plan of the Decade of Action for Road Safety 2011–2020 describe different aspects of the road system that should be strengthened. Countries are encouraged to design and implement actions in a concerted and complementary manner to improve road safety across the whole system. These five pillars, in addition to other global measures such as the WHO Save LIVES technical package and the voluntary global performance targets for road safety, have been used to analyse and document road safety efforts in Country X.

## Road safety management

With clear leadership from the Minister of Health and the Traffic Safety Department, it is apparent from the various institutions that there is a cogent, unifying vision that permeates the work to improve traffic safety, with senior engagement being achieved through the National Committee.

With the launch of the National Road Safety Strategy (20XX), a comprehensive 5-year road safety action plan translates the aspirations and ambition of the strategy into a coherent, implementable programme of work for reducing road trauma …

The report should also contain a section on methodology, outlining the various steps undertaken by reviewers to collate and analyse the data and information. The methodology should detail the stakeholders and departments involved in the provision of information and data, as well as the systems used to collect and review those sources. It is important to explain who was interviewed and how qualitative analysis of interview data was conducted. Fig. 7 shows an example of layout and content for the methodology section.

**Fig. 7. Example methodology format**

# Methodology

The objective of this exercise is to develop a comprehensive documentation report of national road safety efforts in Country X, based on the pillars of the Decade of Action for Road Safety 2011–2020, the voluntary global performance targets for road safety, and other relevant WHO normative guidance. A mixed-methods approach was used to assess how far Country X has progressed towards the implementation of a national strategy and to make recommendations accordingly. The exercise comprised three parts: a review of documentation, a survey and in-depth interviews.

The results of these three phases of information gathering and insight have then been synthesized and presented in this report.

## *Review of documentation*

A range of documentation was reviewed to understand the current context and inform further stages of research and analysis, looking for alignment against recognized global best practice and normative guidance. Documentation in this review included the following:

- National Road Safety Strategy 2010–2019;
- Vision Zero Strategy 2020–2030;

- analysis of alignment with the five pillars of the Decade of Action for Road Safety;
- analysis of alignment with the voluntary global performance targets for road safety;
- a rapid literature review of articles published in English and the local language in peer-reviewed journals on road safety research conducted in Country X; and
- analysis of alignment with the Save LIVES technical road safety package published by WHO in 2017 …

### *Survey*

A survey was developed to capture information about progress in County X. The survey tool, which drew on a range of sources, collected quantitative and qualitative data …

## *Evidence review findings*

A literature review section should cover evidence from the available scientific and grey literature relating to road safety research in the country. It should concentrate on recent evidence, drawing on older literature to offer a more comprehensive context.

As with the whole of the report, the evidence should be synthesized within the six Safe System components used throughout: the five traditional pillars used by the Decade of Action for Road Safety, plus Safe Speed.

Evidence should be properly referenced to allow the reader to find the literature presented and absorb it for themselves.

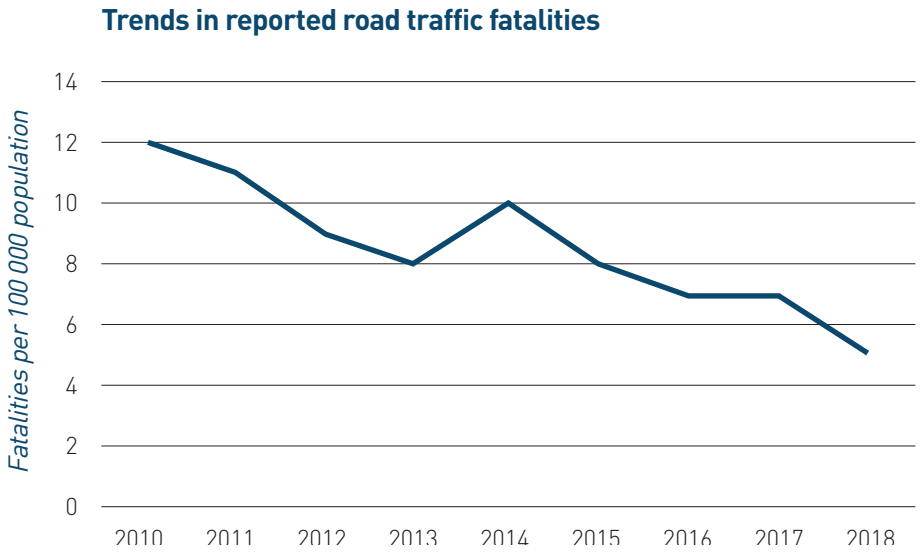
## *Data analysis*

Casualty data analysis should be presented, using the work undertaken in the data stage (see Stage 1: Review evidence, Epidemiological assessment above) to show trends over time, severity levels and comparisons with other countries (using population-based rates). Simple, well-designed charts should be used to make findings easy to understand (see Fig. 8 for an example). Other quantitative data could be shown to provide context, including vehicle registration numbers over time and demographic analysis of casualties.

## *Policy analysis*

The policy analysis section is a descriptive summary of the ways in which the country is aligning with the various actions, targets and legislation and will form the main body of the report; see Fig. 9 for an example. The tables from the appendices in this guide should be completed and included as appendices in the country's report; see Table 5 for an example.

**Fig. 8. Example chart showing fatality rates for Country X**




Detailed narratives will place the actions identified in the appendices into context, providing an explanation of how they are being delivered, by whom, by when and how effectiveness is being measured. The source policy documents will be used to create these descriptions, directing readers to the relevant literature, websites or stakeholders for further information. These narratives should be arranged under the six Safe System components and should also highlight where there are gaps or weaknesses in provision or policy.

**Fig. 9. Example policy analysis**

## SAFE ROAD USERS

### *Actions corresponding to pillar 4: Safer road users*

The first national road safety action plan (2012–2016) includes a number of specific actions corresponding to the safer road users pillar, as follows:

*Driver training and testing*

- Improve the licensing system
- Improve driver training and testing …

*Policing and enforcement*

- Efficient enforcement to deter and detect negative behaviours, through highly visible or covert plans …

## *Decade of Action for Road Safety pillar activities*

*Mobile phone use while driving*

The action plan focuses extensively on ensuring resources and support to increase the efficiency of enforcement of rules and regulations about the use of mobile phones while driving. Policing and enforcement actions are correlated with road safety engineering solutions to increase detection rates and efficiency. These actions are supported by awareness and education actions and empowered by legislation and regulations adapted continuously to encompass and respond to new trends and threats in a timely manner.

**Table 5. Example of a focus and priority areas table with completed actions ticked**

| Key sector | Focus area | Related Safe System component | | | | | |
|---|---|---|---|---|---|---|---|
| | | Road safety management | Safer roads and mobility | Safer vehicles | Safer road users | Post-crash response | Speed management |
| **Road safety management and coordination** | Establish lead agency and coordinated mechanisms and develop core work programmes | ✓ | | | | | |
| | A road safety national strategy to guide national efforts, specifying long-term investment priorities and agency responsibilities | | | | | | |
| | Achieving intergovernmental coordination and decision-making that delivers effective road safety performance | ✓ | | | ✓ | | |

## Recommendations and accessible findings

The documentation exercise will help to clarify opportunities for development in the years ahead, resulting in the identification of recommendations. The matrices and the manuals from which they were drawn can be used to inform these recommendations. Missing actions and best-practice activities can be used to form an action plan and identify key actors for delivery.

The key findings and recommendations should be presented in accessible formats, and the recommendations should be actionable; see Fig. 10 for an example.

**Fig. 10. Example recommendations section**

# Recommendations

Progress is clearly being made across the various pillars of the Safe System. However, this progress will need to continue with a consistent and concerted effort for the period of Country X's National Road Safety Strategy if Country X is to attain levels of road safety performance consistent with global leaders. Besides the range of recommendations under the six road safety pillars, looking across the system, as reflected elsewhere in the report, there are a number of priority areas that Country X would be advised to focus on in order to sustain progress in the years to come. They are summarized below:

## *Safe vehicles*

There is significant potential for casualty reduction from crash avoidance and active safety technologies, with many nations moving towards adoption of higher safety specifications for new vehicles. Country X could play a leading role locally in ensuring that additional safety technologies become mandatory and that "safety by default" becomes the choice for consumers.

- Enhanced vehicle safety standards: The current vehicle safety standards employed should be harmonized with the United Nations Economic Commission for Europe's WP29 to keep pace with safety developments in other nations.
- Mandate safety and collision avoidance technologies: Many other nations are looking at mandatory fitment of technologies such as intelligent speed assistance and autonomous emergency braking, or a role for systems such as alcohol interlocks. There is a need to consider the role that these technologies could play.
- Promote a new car assessment programme: Harness consumer demand for safer vehicles by providing information and empowering citizens and fleet procurement to focus on safety.

## Checklist

Throughout the guide, detailed guidance has been provided to ensure that the task of documenting road safety efforts has been delivered in a systematic way. The main steps have been outlined below as a checklist, which will enable the team to review and ensure that all steps have been completed.

| Review evidence | |
|---|---|
| **Create team** | |
| Ensure transparency in terms of agencies' willingness to share strategies, data, documentation and evidence | |
| Establish access for team to be able to review all necessary documentation and data | |
| Ensure team are recognized as being competent and impartial | |
| Orient team with understanding around history, strategy and policy | |
| **Survey stakeholders** | |
| Identify all relevant stakeholders contributing significantly to road safety context | |
| Secure stakeholder engagement and send out survey tool | |
| Analyse results comparing responses from stakeholders | |
| **Literature review** | |
| Define search terms and search libraries | |
| Triage results for relevance, reliability and robustness | |
| Synthesize findings to draw out meaning for relevant stakeholders and agencies | |
| **Epidemiological assessment** | |
| Define sources of data, period to be analysed and relevant data owners | |
| Capture data in machine readable, analysable format | |
| Conduct analyses to explore key headline metrics | |
| **Review documentation** | |
| Catalogue and review all strategy documents | |
| Review relevant current policies between ministries and across jurisdictions | |
| Examine which interventions have been applied, and how consistently and robustly | |
| Consider the governance structures in place for accountability and reporting | |
| **Explore implementation** | |
| Conduct in-depth interviews to understand levels of planning and coordination | |
| Conduct relevant field visits to explore execution and evaluate progress | |
| **Analyse findings** | |
| Complete matrix of alignment to measure progress against international standards | |
| Conduct a gap analysis to identify areas for future development | |
| Prepare relevant, actionable, systemwide recommendations | |
| **Report** | |
| Prepare a detailed report, compiling evidence and recommendations for review | |

## Next steps

Clearly, producing a detailed report and actionable recommendations is only one step on the road to delivering further change in the future. The process of documenting efforts in road safety should be embedded in a wider programme to enhance road safety performance through an ambitious strategy, strong performance framework and coordinated efforts from a wide range of relevant stakeholders. The output from this exercise therefore needs to be embraced by leaders who will own the recommendations and make themselves accountable for delivering improvements. In some jurisdictions, this exercise may create a platform upon which to build a future strategy, reflecting the current analysis and the need to enhance each aspect of the Safe System overall. For others, where clear strategic direction has already been articulated well, the recommendations may serve authorities and partners in enacting more rigorous implementation plans for the strategy that is already in place.

Whatever stage a lead agency or government is at, this process of documenting efforts in road safety will operate as an important inflection point, providing pivotal understanding about the effectiveness of activities already undertaken and benchmarking performance to create a reference point against which to measure future successes.

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# Appendix I

## Focus and priority areas

**Table A1.1**

| Key sector | Focus area | Related Safe System component | | | | | |
|---|---|---|---|---|---|---|---|
| | | Road safety management | Safer roads and mobility | Safer vehicles | Safer road users | Post-crash response | Speed management |
| **Example (best practice)** | Improving effectiveness of current national road safety arrangements | ✓ | | | | | |
| **Road safety management and coordination** | Improving effectiveness of current national road safety arrangements | | | | | | |
| | Establish lead agency and coordinated mechanisms and develop core work programmes | | | | | | |
| | Achieving a shared road safety philosophy and approach nationally | | | | | | |
| | A road safety national strategy to guide national efforts, specifying long-term investment priorities and agency responsibilities | | | | | | |
| | Achieving intergovernmental coordination and decision-making that deliver effective road safety performance | | | | | | |
| | Road safety management and technical training and development | | | | | | |
| | Government agencies supporting nongovernmental stakeholders to participate in the road safety challenge and to role model their organization's road safety behaviours | | | | | | |
| | Funding adequacy and budget allocations for long-term sustained priority road safety activities and expenditure | | | | | | |
| | Establish formal evaluation mechanism with indicators and targets | | | | | | |
| | Adopting the Safe System philosophy and vision and Road Safety Strategy Vision and Targets, SDGs, Congestion Management, Economic Development Goals and National Security | | | | | | |
| **Research, monitoring and evaluation** | Establishing research programme and facilities | | | | | | |
| | Establish a framework to monitor and report on performance | | | | | | |
| | Ensure knowledge of different initiatives is made available | | | | | | |
| | Collection of data to support road safety analyses and a coordinated evaluation results database to be used nationally | | | | | | |
| | Building capacity | | | | | | |
| | Collection of information in crash reports (locations, manoeuvres, crash types) to support analyses | | | | | | |
| | Improving road safety knowledge and skills | | | | | | |

| Key sector | Focus area | Related Safe System component | | | | | |
|---|---|---|---|---|---|---|---|
| | | Road safety management | Safer roads and mobility | Safer vehicles | Safer road users | Post-crash response | Speed management |
| **Crash data system** | Allowing access to crash data by a wide range of stakeholders | | | | | | |
| | Improving knowledge on data analysis and providing software to support analysis | | | | | | |
| | Establish trauma registries and care systems in health care facilities to gather information on the cause of injury and clinical interventions | | | | | | |
| | Ensuring wide dissemination of crash data analyses | | | | | | |
| | Linking of databases (e.g. crash data and medical data and road inventory information) | | | | | | |
| | Develop practical methodology to collect and review crash data | | | | | | |
| | Train frontline police traffic officers to collect crash data | | | | | | |
| **Insurance** | Greater involvement of insurance industry in road safety activities | | | | | | |
| | Insurance policies to reflect driver risk factors | | | | | | |
| | Increase insurance premiums and third-party premiums based on risk profile to better cover actual claim levels | | | | | | |
| **Road safety engineering** | Improve the design of new roads and build roads with provision of latest intelligent transport systems technologies | | | | | | |
| | Functional hierarchy of roads assigned | | | | | | |
| | Self-explaining, self-forgiving roads and road design infrastructure | | | | | | |
| | Assess and treat safety priorities on existing roads | | | | | | |
| | Improve speed management by developing a policy for setting, reviewing and signing speed limits | | | | | | |
| | Improve safety for pedestrians and pedal cyclists (consideration for all modes of transport) by reducing pedestrian exposure to vehicular traffic, reducing vehicle speeds, improving sight distance and/or visibility between motor vehicles and pedestrians, and/or improving pedestrian and motorist safety awareness and behaviour | | | | | | |
| | Improve work zone safety and management processes | | | | | | |
| | Institutional arrangements and evaluation such as developing a professional road safety engineering accreditation body or mechanism | | | | | | |
| | Promote road safety ownership and accountability among road authorities, road engineers and urban planners | | | | | | |
| | Developing and promoting standards for safe road design and operation that recognize and integrate with human factors and vehicle design | | | | | | |

| Key sector | Focus area | Related Safe System component | | | | | |
|---|---|---|---|---|---|---|---|
| | | Road safety management | Safer roads and mobility | Safer vehicles | Safer road users | Post-crash response | Speed management |
| | The use of traffic calming, such as speed humps, gateway treatments, roundabouts and pavement narrowing to reduce vehicle speed | | | | | | |
| **Crash data system** | Allowing access to crash data by a wide range of stakeholders | | | | | | |
| | Improving knowledge on data analysis and providing software to support analysis | | | | | | |
| | Establish trauma registries and care systems in health care facilities to gather information on the cause of injury and clinical interventions | | | | | | |
| | Ensuring wide dissemination of crash data analyses | | | | | | |
| | Linking of databases (e.g. crash data and medical data and road inventory information) | | | | | | |
| | Develop practical methodology to collect and review crash data | | | | | | |
| | Train frontline police traffic officers to collect crash data | | | | | | |
| **Insurance** | Greater involvement of insurance industry in road safety activities | | | | | | |
| | Insurance policies to reflect driver risk factors | | | | | | |
| | Increase insurance premiums and third-party premiums based on risk profile to better cover actual claim levels | | | | | | |
| **Road safety engineering** | Improve the design of new roads and build roads with provision of latest intelligent transport systems technologies | | | | | | |
| | Functional hierarchy of roads assigned | | | | | | |
| | Self-explaining, self-forgiving roads and road design infrastructure | | | | | | |
| | Assess and treat safety priorities on existing roads | | | | | | |
| | Improve speed management by developing a policy for setting, reviewing and signing speed limits | | | | | | |
| | Improve safety for pedestrians and pedal cyclists (consideration for all modes of transport) by reducing pedestrian exposure to vehicular traffic, reducing vehicle speeds, improving sight distance and/or visibility between motor vehicles and pedestrians, and/or improving pedestrian and motorist safety awareness and behaviour | | | | | | |
| | Improve work zone safety and management processes | | | | | | |
| | Institutional arrangements and evaluation such as developing a professional road safety engineering accreditation body or mechanism | | | | | | |
| | Promote road safety ownership and accountability among road authorities, road engineers and urban planners | | | | | | |

| Key sector | Focus area | Related Safe System component | | | | | |
|---|---|---|---|---|---|---|---|
| | | Road safety management | Safer roads and mobility | Safer vehicles | Safer road users | Post-crash response | Speed management |
| **Road safety education in schools** | Developing and promoting standards for safe road design and operation that recognize and integrate with human factors and vehicle design | | | | | | |
| | The use of traffic calming, such as speed humps, gateway treatments, roundabouts and pavement narrowing to reduce vehicle speed | | | | | | |
| | Develop and implement a national policy | | | | | | |
| | Improve delivery in schools | | | | | | |
| | Develop and disseminate materials | | | | | | |
| | Improve delivery of road safety education outside of schools | | | | | | |
| | Improve evaluation by establishing and implementing an appropriate evidence-based methodology for assessing performance with regular reviews to evaluate effectiveness | | | | | | |
| **Driver licensing, training and testing** | Improve the licensing system (e.g. graduated driver licensing systems for novice drivers and competence-based testing for driver licensing) | | | | | | |
| | Establish vehicle licensing categories that differentiate between different classes of vehicle | | | | | | |
| | Improve driver training and testing | | | | | | |
| | Improve standards for professional drivers | | | | | | |
| | Improve driver information | | | | | | |
| | Introduce additional measures for young drivers | | | | | | |
| **Campaigns, awareness and media** | Improve campaign coordination | | | | | | |
| | Implement priority campaigns for seat belts and child restraints | | | | | | |
| | Campaign design and targeting guidance | | | | | | |
| | Training in campaign design | | | | | | |
| | Establish evaluation process | | | | | | |
| **Legislation** | Review, update and make available executive statutes | | | | | | |
| | Communicate the content of the traffic law with the motoring public | | | | | | |
| | Review and update penalty point system and mechanisms for recording violations | | | | | | |
| | Introduce high-priority legislation | | | | | | |
| | Improve the evidence presented in the judicial process by developing standards protocols for investigation and detection | | | | | | |
| | Produce a comprehensive Highway Code outlining traffic rules and regulations to the general public, for accessibility ensure it is available in different languages | | | | | | |

| Key sector | Focus area | Related Safe System component | | | | | |
|---|---|---|---|---|---|---|---|
| | | Road safety management | Safer roads and mobility | Safer vehicles | Safer road users | Post-crash response | Speed management |
| **Policing and enforcement** | Improve the visibility of enforcement on the highway | | | | | | |
| | Video monitoring and speed detection systems in traffic police vehicles, provide training on system use | | | | | | |
| | Introduce specialist training for traffic police | | | | | | |
| | Improve equipment and training for incident response | | | | | | |
| | Establish a crash investigation capability by developing and implementing a basic forensic crash scene investigation training programme | | | | | | |
| **Vehicle safety** | Improve the standard of new and existing vehicles nationally, vehicle approval standards | | | | | | |
| | Ensure audit processes to check import standards and discourage import and export of new or used cars that have reduced safety standards with mandatory periodic technical inspection | | | | | | |
| | Improve static periodic vehicle inspections | | | | | | |
| | Establish a targeted programme of in-use vehicle inspections | | | | | | |
| | Improve the regulation of hazardous goods; identify a lead agency responsible and develop emergency protocols to deal with any hazardous goods incidents | | | | | | |
| | Improve the regulation of overloading | | | | | | |
| | Improve the regulation of drivers' hours | | | | | | |
| | Establish a new car safety assessment programme and increase consumer information about the safety performance | | | | | | |
| | Introduce legislation defining the requirement to fit seat belts and child restraints to reduce crash injuries | | | | | | |
| | Encourage universal deployment of crash avoidance technologies with proven effectiveness such as electronic stability control and anti-lock braking systems in motorcycles | | | | | | |
| | The use of speed-limiting technology and intelligent speed adaptation, including road speed limiters, electronic data recorders and intelligent speed adaptation | | | | | | |
| **Post-crash response** | Implementation of a single nationwide telephone number for emergencies | | | | | | |
| | Improve coordination mechanism for dispatching multi-sector emergency response to incidents (fire brigade, police, ambulance) | | | | | | |
| | Improve the knowledge and capability of the motoring public (e.g. first aid training and public awareness campaigns) | | | | | | |

| Key sector | Focus area | Related Safe System component | | | | | |
|---|---|---|---|---|---|---|---|
| | | Road safety management | Safer roads and mobility | Safer vehicles | Safer road users | Post-crash response | Speed management |
| **Safer speed** | Introduce a basic life support training programme for all police and civil defence staff and continued professional development training for all emergency medical services staff | | | | | | |
| | Develop prehospital care systems and trauma care systems and provide early rehabilitation and support to injured patients and those bereaved by road traffic crashes | | | | | | |
| | Ensure 24-hour access – regardless of ability to pay – to operative and critical care services that are staffed and equipped | | | | | | |
| | Establish requirements for multidisciplinary post-crash investigation | | | | | | |
| | Speed limit enforcement and the use of penalties for non-compliance (fines, demerit points and licence suspensions) | | | | | | |
| | Introduction of community-based speed management programmes | | | | | | |
| **Safer road users** | Drink-driving laws and evidence-based standards and rules to reduce alcohol-related crashes and injuries | | | | | | |
| | Set minimum age and vision requirements for drivers | | | | | | |
| | Enforcement of drink-driving laws, through alcohol screening of drivers (random and based on "probable cause") and/or targeted enforcement based on intelligence | | | | | | |
| | Public awareness campaigns to achieve a specific objective in relation to drink-driving (information of legislation, enforcement, risks, social consequences) | | | | | | |
| | Laws and evidence-based standards and rules for motorcycle helmets to reduce head injuries | | | | | | |
| | Voluntary measures to increase helmet use, such as public education, commercial marketing, role model initiatives, employee incentive schemes and/or government schemes | | | | | | |
| | Compulsory measures to increase helmet use, such as publicizing the law on helmets, enforcing the law, training police officers and/or introducing penalties for non-compliance | | | | | | |
| | Hazard perception training and testing | | | | | | |
| | Fatigue monitoring, with maximum driving time and minimum rest periods for professional drivers | | | | | | |
| | Undertake enforcement and introduce penalties for non-compliance with seat belt fitment and usage laws | | | | | | |

Note: Cells in white indicate that the focus area relates to that Safe System component and activities should be recorded. This enables teams to see where Safe System activities are commonly directed. Grey cells indicate that the action does not relate to that Safe System component.

# Appendix II

## Matrices of actions and alignment

### Table A2.1. Alignment with United Nations legal instruments on transport

| Convention | Signatory |
|---|---|
| **1949 Convention on Road Traffic** | |
| **1968 Convention on Road Traffic** | |
| **1968 Convention on Road Signs and Signals** | |
| **1958 Agreement on UN Regulations for vehicle type- approval**<br>This Agreement is inoperative without the transposition of a minimum number of UN Regulations annexed to it into the national legislation of the Contracting Party. UN suggests: UN Regulations Nos. 94 and 95 (front and side impact protection); UN Regulation No. 140 (Electronic stability control (ESC)); UN Regulation No. 127 (Pedestrian safety); UN Regulation No. 16 and 14 (Safety-belts and safety-belt anchorages); UN Regulations Nos. 44 or 129 (Child Restraint Systems) and UN Regulation No. [145] (ISOFIX anchorage systems, ISOFIX top tether anchorages and i-Size seating positions); UN Regulation No. 78 (Motorcycle braking); UN Regulation No. 22 (Protective helmets); ); UN Regulation No. [100 or new] | |
| **1997 Agreement on periodic technical inspection**<br>The Agreement is inoperative without the transposition of the UN Rule No. 2 (Roadworthiness) into the national legislation of the Contracting Party | |
| **1998 Agreement on UN Global Technical Regulations on vehicle construction**<br>The Agreement is inoperative without the transposition of a minimum of UN GTRs into the national legislation of the Contracting Party. UN suggests: UN GTR No. 9 (Pedestrian safety); UN GTR No. 8 (ESC); UN GTR No. 3 (Motorcycle braking); UN GTR No. 20 | |
| **1957 Agreement on transport of dangerous goods by road (ADR)** | |

Source: Adapted from (19).

The following table takes a systematic approach in seeking to identify alignments between the targets articulated in the voluntary global performance targets and the nationally documented policy and actions.

### Table A2.2. Alignment with voluntary global performance targets for road safety

| Voluntary global performance targets for road safety | Included in national targets? |
|---|---|
| **Target 1:** By 2020, all countries establish a comprehensive multisectoral national road safety action plan with time-bound targets. | |
| **Target 2:** By 2030, all countries accede to one or more of the core road safety-related UN legal instruments. | |
| **Target 3:** By 2030, all new roads achieve technical standards for all road users that take into account road safety, or meet a three star rating or better. | |
| **Target 4:** By 2030, more than 75% of travel on existing roads is on roads that meet technical standards for all road users that take into account road safety. | |
| **Target 5:** 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. | |
| **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. | |
| **Target 7:** By 2030, increase the proportion of motorcycle riders correctly using standard helmets to close to 100%. | |
| **Target 8:** By 2030, increase the proportion of motor vehicle occupants using safety belts or standard child restraint systems to close to 100%. | |
| **Target 9:** By 2030, halve 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:** By 2030, all countries have national laws to restrict or prohibit the use of mobile phones while driving. | |
| **Target 11**: By 2030, all countries to enact regulation for driving time and rest periods for professional drivers, and/or accede to international/regional regulation in this area. | |
| **Target 12:** By 2030, all countries establish and achieve national targets in order to minimize the time interval between road traffic crash and the provision of first professional emergency care. | |

The following table takes a systematic approach in seeking to identify alignments between the activities outlined in the Save LIVES technical package and the nationally documented policy and actions.

### Table A2.3. Alignment with Save LIVES technical package

| Acronym | Component | Interventions | Alignment? |
|---|---|---|---|
| Save | Speed management | Establish and enforce speed limit laws nationwide, locally and in cities | |
| | | Build or modify roads which calm traffic, e.g. roundabouts, road narrowing, speed bumps, chicanes and rumble strips | |
| | | Require car makers to install new technologies, such as intelligent speed adaptation, to help drivers keep to speed limits | |
| L | Leadership on road safety | Create an agency to spearhead road safety | |
| | | Develop and fund a road safety strategy | |
| | | Evaluate the impact of road safety strategies | |
| | | Monitor road safety by strengthening data systems | |
| | | Raise awareness and public support through education and campaigns | |
| I | Infrastructure design and improvement | Provide safe infrastructure for all road users including sidewalks, safe crossings, refuges, overpasses and underpasses | |
| | | Put in place bicycle and motorcycle lanes | |
| | | Make the sides of roads safer by using clear zones, collapsible structures or barriers | |
| | | Design safer intersections | |
| | | Separate access roads from through-roads | |
| | | Prioritize people by putting in place vehicle-free zones | |
| | | Restrict traffic and speed in residential, commercial and school zones | |
| | | Provide better, safer routes for public transport | |
| V | Vehicle safety | Establish and enforce motor vehicle safety standard regulations related to: | |
| | | • Seat-belts | |
| | | • Seat-belt anchorages | |
| | | • Frontal impact Side impact | |
| | | • Electronic stability control | |
| | | • Pedestrian protection | |
| | | • ISOFIX child restraint points | |
| | | Establish and enforce regulations on motorcycle anti-lock braking and daytime running lights | |
| E | Enforcement of traffic laws | Establish and enforce laws at national, local and city levels on: | |
| | | • Drinking and driving | |
| | | • Motorcycle helmets | |
| | | • Seat-belts | |
| | | • Child restraints | |
| S | Survival after a crash | Develop organized and integrated prehospital and facility-based emergency care systems | |
| | | Train those who respond to crashes in basic emergency care | |
| | | Promote community first responder training | |

The following table provides the minimum data elements for road traffic data systems recommended by WHO. This checklist can be used to ensure that the data elements are collected.

### Table A2.4. Alignment with WHO guidance on data systems

| Element |
|---|
| **Crash data elements** |
| C1. Crash identifier |
| C2. Crash date |
| C3. Crash time |
| C4. Crash municipality and region |
| C5. Crash location |
| C6. Crash type |
| C7. Impact type |
| C8. Weather conditions |
| C9. Light conditions |
| **Crash data elements derived from collected data** |
| CD1. Crash severity |
| **Road data elements** |
| R1. Type of roadway |
| R2. Road functional class |
| R3. Speed limit |
| R4. Road obstacles |
| R5. Road surface conditions |
| R6. Junction |
| R7. Traffic control at junction |
| R8. Road curve |
| R9. Road segment grade |
| **Vehicle data elements** |
| V1. Vehicle number |
| V2. Vehicle type |
| V3. Vehicle make |
| V4. Vehicle model |
| V5. Vehicle model year |
| V6. Engine size |
| V7. Vehicle special function |
| V8. Vehicle manoeuvre |
| **Person data elements** |
| P1. Person number |
| P2. Occupant's vehicle number |
| P3. Pedestrian's linked vehicle number |
| P4. Date of birth |
| P5. Sex |
| P6. Type of road user |
| P7. Seating position |
| P8. Injury severity |
| P9. Safety equipment |
| P10. Pedestrian manoeuvre |
| P11. Alcohol use suspected |
| P12. Alcohol test |
| P13. Drug use |
| P14. Driving licence issue date |
| **Person data elements derived from collected data** |
| PD1. Age |

# Appendix III

## Survey tool

### Documenting road safety efforts

The following survey aims to understand the state of road safety and the road safety actions taking place nationally and the significant changes that have already taken place. The survey seeks to capture the processes that are leading to changes in road safety outcomes. Questions are therefore focused on specific actions and activities, in conjunction with the agencies involved, the changes in legislation and any identifiable outcomes.

At the end of the questionnaire there is a section providing an opportunity to describe any activities not described in the rest of the survey. These could relate to, but do not need to be limited to, the following:

- how your organization is involved in leading, planning, delivering, overseeing, evaluating or reporting any of the mentioned actions or other relevant ones;
- the unique role your organization is contributing with regard to road traffic safety actions and activities;
- early stage or planned actions/legislation/proposals relevant for road traffic safety; and
- other significant changes related to road traffic safety taking place between the relevant time periods of strategy implementation.

Please be aware that not all questions are mandatory for each respondent. Each respondent should respond to questions when they are familiar with the topic and the required information.

**A. Road and infrastructure building** *(Skip this question if you do not think you have the expertise or knowledge to complete it)*

**A.1. Current implementation** – *please pick the option that best describes the level of implementation of the following measures*

### New infrastructure

| | Yes | Partially | No | Don't know |
|---|---|---|---|---|
| Do designs (plans) for new road infrastructure projects require a formal *road safety audit* prior to construction? | ☐ | ☐ | ☐ | ☐ |
| Do designs (plans) for new road infrastructure projects require a formal *star rating / safety rating assessment* prior to construction? | ☐ | ☐ | ☐ | ☐ |

### Existing infrastructure

| | Yes | Partially | No | Don't know |
|---|---|---|---|---|
| Are existing road networks required to undergo *maintenance safety inspections* on a regular basis? | ☐ | ☐ | ☐ | ☐ |
| Are existing road networks required to undergo formal *road safety inspections/assessments* on a regular basis? | ☐ | ☐ | ☐ | ☐ |
| Are existing road networks required to undergo *star rating / safety rating assessments* on a regular basis? | ☐ | ☐ | ☐ | ☐ |

### Risk management

| | Yes | Partially | No | Don't know |
|---|---|---|---|---|
| Is there a *black spot / hotspot programme*[2] in the country to target investment and upgrade high-risk locations on existing roads? | ☐ | ☐ | ☐ | ☐ |
| Is there a *safer roads investment plan*[3] in the country to target investment and upgrade high-risk locations on existing roads? | ☐ | ☐ | ☐ | ☐ |
| Is there a *Safe System investment programme*[4] in the country to target investment and upgrade high-risk locations on existing roads? | ☐ | ☐ | ☐ | ☐ |

### Walking and cycling

| | Yes | Partially | No | Don't know |
|---|---|---|---|---|
| On roads where pedestrians and cyclists are present, do design standards provide for *managing speed to 30 km/h?* | ☐ | ☐ | ☐ | ☐ |
| On roads where pedestrians and cyclists are present, do design standards provide for *safe crossings for pedestrians and cyclists?* | ☐ | ☐ | ☐ | ☐ |
| On roads where pedestrians and cyclists are present, do design standards provide for *separation of pedestrian and cyclists from vehicular traffic?* | ☐ | ☐ | ☐ | ☐ |

### Public transport

| | Yes | Partially | No | Don't know |
|---|---|---|---|---|
| Are there policies and supporting investment in *rapid transit systems* (e.g. urban metro rail or bus rapid transit)? | ☐ | ☐ | ☐ | ☐ |
| Are there policies and supporting investment in *formal bus / minibus systems*? | ☐ | ☐ | ☐ | ☐ |

2. A black spot / hotspot investment programme identifies points on the network with a high density of road collisions and addresses them by local improvement measures.
3. A safer roads investment plan aims to prioritize investment in reducing death and serious injuries through improvement measures along routes, concentrating on the most cost-effective treatments.
4. A Safe System approach identifies weaknesses in the road safety system and proactively addresses them to remove the risk of death and serious injury.

**A.2. Difference from 2016 – Compared to 2016, please rate if the implementation of the following measures has improved, remained at the same level or declined.**
*For example, improvement may have been achieved through increased investment, enhanced guidelines or better training of staff. If there has been a decline, this might be through reduction to size of skilled workforce, reduced investment or reliance on less robust processes.*

### New infrastructure

| | | | | |
|---|---|---|---|---|
| *Road safety audit* for new road infrastructure | Improved ☐ | Same ☐ | Declined ☐ | Don't know ☐ |
| *Star rating / safety rating assessment* for new road infrastructure | Improved ☐ | Same ☐ | Declined ☐ | Don't know ☐ |

### Existing infrastructure

| | | | | |
|---|---|---|---|---|
| *Maintenance safety inspections* for existing road network | Improved ☐ | Same ☐ | Declined ☐ | Don't know ☐ |
| *Road safety inspections/assessments* for existing road network | Improved ☐ | Same ☐ | Declined ☐ | Don't know ☐ |
| *Star rating / safety rating assessments* for existing road network | Improved ☐ | Same ☐ | Declined ☐ | Don't know ☐ |

### Risk management

| | | | | |
|---|---|---|---|---|
| *Black spot / hotspot programmes* | Improved ☐ | Same ☐ | Declined ☐ | Don't know ☐ |
| *Safe System investment programmes* | Improved ☐ | Same ☐ | Declined ☐ | Don't know ☐ |
| *Safer roads investment plans* | Improved ☐ | Same ☐ | Declined ☐ | Don't know ☐ |

### Walking and cycling

| | | | | |
|---|---|---|---|---|
| *Managing speed to 30 km/h* where pedestrians and cyclists are present | Improved ☐ | Same ☐ | Declined ☐ | Don't know ☐ |
| *Safe crossings for pedestrians and cyclists* where pedestrians and cyclists are present | Improved ☐ | Same ☐ | Declined ☐ | Don't know ☐ |
| *Separation of pedestrian and cyclists from vehicular traffic* | Improved ☐ | Same ☐ | Declined ☐ | Don't know ☐ |

### Public transport

| | | | | |
|---|---|---|---|---|
| *Rapid transit systems* (e.g. urban metro rail or bus rapid transit) | Improved ☐ | Same ☐ | Declined ☐ | Don't know ☐ |
| *Formal bus/minibus systems* | Improved ☐ | Same ☐ | Declined ☐ | Don't know ☐ |

**A.3. Engaging agencies –** In the road and infrastructure building area, please rate from 0 to 10 the level of engagement of each agency in each of the functions on the columns, where 0 means there is no engagement of the agency related to that function, and 10 means that there is full engagement of the agency in completing the function.

| | Coordination | Legislation and regulation | Implementation (building) | Monitoring and evaluation |
|---|---|---|---|---|
| Ministry of Transport | | | | |
| Ministry of Health | | | | |
| Local government | | | | |
| Regional government | | | | |
| Police | | | | |
| Other (please specify): | | | | |

**B. Enforcement –** *(Skip this question if you do not think you have the expertise or knowledge to complete it)*

**B.1. Current implementation** – *please pick the option that best describes the level of implementation of the following measures*

### Speed control

| | Yes | Partially | No | Don't know |
|---|---|---|---|---|
| Is *manual speed enforcement* mechanism (requiring operation by an enforcement officer) used commonly nationwide? | ☐ | ☐ | ☐ | ☐ |
| Is *automated speed enforcement* used commonly nationwide? | ☐ | ☐ | ☐ | ☐ |

### Drink- and drug-driving

| | Yes | Partially | No | Don't know |
|---|---|---|---|---|
| Is *breath testing* at specific locations or times used to enforce drink-driving laws? | ☐ | ☐ | ☐ | ☐ |
| Is *breath testing* all year round used to enforce drink-driving laws? | ☐ | ☐ | ☐ | ☐ |
| Is *drug testing* at specific locations or times used to enforce drug-driving laws? | ☐ | ☐ | ☐ | ☐ |
| Is *drug testing* all year round used to enforce drug-driving laws? | ☐ | ☐ | ☐ | ☐ |
| Are *fatally injured drivers* tested for their blood alcohol content? | ☐ | ☐ | ☐ | ☐ |
| Are *non-fatally injured drivers* tested for their blood alcohol content? | ☐ | ☐ | ☐ | ☐ |
| Are *fatally injured drivers* tested for drug consumption? | ☐ | ☐ | ☐ | ☐ |
| Are *non-fatally injured drivers* tested for drug consumption? | ☐ | ☐ | ☐ | ☐ |

### Mobile phone use

| | Yes | Partially | No | Don't know |
|---|---|---|---|---|
| Is enforcement of legislation regarding *mobile phone use while driving* deployed at *specific locations or times?* | ☐ | ☐ | ☐ | ☐ |
| Is enforcement of legislation regarding *mobile phone use while driving* deployed *all year round?* | ☐ | ☐ | ☐ | ☐ |
| Are data about mobile phone use while driving collected routinely *as part of police crash reports?* | ☐ | ☐ | ☐ | ☐ |

| | | | | |
|---|---|---|---|---|
| Are data about mobile phone use while driving collected routinely through observational studies? | Yes ☐ | Partially ☐ | No ☐ | Don't know ☐ |

**Safety and protective equipment**

| | | | | |
|---|---|---|---|---|
| Is there an effective nationwide enforcement strategy for *motorcycle helmet use*? | Yes ☐ | Partially ☐ | No ☐ | Don't know ☐ |
| Is there an effective nationwide enforcement strategy for *seat belt wearing* for all passengers? | Yes ☐ | Partially ☐ | No ☐ | Don't know ☐ |
| Is there an effective nationwide enforcement strategy for *child restraint use?* | Yes ☐ | Partially ☐ | No ☐ | Don't know ☐ |

**B.2. Difference from 2016 – Compared to 2016, please rate if the implementation of the following measures has improved, remained at the same level, or declined**
*For example, improvement may have been achieved through increased investment, enhanced equipment or better training of staff. If there has been a decline, this might be through reduction to size of skilled workforce, reduced investment or reli ance on less reliable equipment.*

**Speed control**

| | | | | |
|---|---|---|---|---|
| *Manual speed enforcement* | Improved ☐ | Same ☐ | Declined ☐ | Don't know ☐ |
| *Automated speed enforcement* | Improved ☐ | Same ☐ | Declined ☐ | Don't know ☐ |

**Drink- and drug-driving**

| | | | | |
|---|---|---|---|---|
| *Breath testing* | Improved ☐ | Same ☐ | Declined ☐ | Don't know ☐ |
| *Drug testing* | Improved ☐ | Same ☐ | Declined ☐ | Don't know ☐ |
| *Blood alcohol content* for all injured drivers | Improved ☐ | Same ☐ | Declined ☐ | Don't know ☐ |
| *Drug consumption* for all injured drivers | Improved ☐ | Same ☐ | Declined ☐ | Don't know ☐ |

**Mobile phone use**

| | | | | |
|---|---|---|---|---|
| *Enforcement* of legislation regarding *mobile phone use while driving* | Improved ☐ | Same ☐ | Declined ☐ | Don't know ☐ |
| *Collection of data* regarding *mobile phone use while driving* | Improved ☐ | Same ☐ | Declined ☐ | Don't know ☐ |

**Safety and protective equipment**

| | | | | |
|---|---|---|---|---|
| *Motorcycle helmet use* enforcement | Improved ☐ | Same ☐ | Declined ☐ | Don't know ☐ |
| *Seat belt wearing* enforcement | Improved ☐ | Same ☐ | Declined ☐ | Don't know ☐ |
| *Child restraint usage* enforcement | Improved ☐ | Same ☐ | Declined ☐ | Don't know ☐ |

**B.3. Engaging agencies –** In the road traffic safety enforcement area, please rate from 0 to 10 the level of engagement of each agency in each of the functions on the columns, where 0 means there is no engagement of the agency related to that function, and 10 means that there is full engagement of the agency in completing the function.

| | Coordination | Legislation and regulation | Implementation (enforcement activity) | Monitoring and evaluation |
|---|---|---|---|---|
| Ministry of Transport | | | | |
| Ministry of Health | | | | |
| Local government | | | | |
| Regional government | | | | |
| Police | | | | |
| Other (please specify): | | | | |

## C. Road safety education *(Skip this question if you do not think you have the expertise or knowledge to complete it)*

Please answer the following questions to the best of your knowledge.

**C.1.** Is there a road safety education curriculum taught in schools?

- ☐ Yes
- ☐ No *(please move to question C.2.)*

C.1.1. Have any changes been made in the provision of road safety education since 2016?

- ☐ Yes, it has been increased
- ☐ No, it has remained the same
- ☐ Yes, it has been reduced

C.1.2. Which agency is responsible for road safety education provision?

**C.2.** Is there an additional professional driver training framework in place in the country?

- ☐ Yes
- ☐ No *(please move to question C.3.)*

C.2.1. Have any changes been made in the provision of additional professional driver training since 2016?

- ☐ Yes, it has been increased
- ☐ No, it has remained the same
- ☐ Yes, it has been reduced

C.2.2. Which agency is responsible for driver training provision?

**C.3.** Is there national legislation to require retraining for drivers who commit offences?

- ☐ Yes
- ☐ No *(please move to question C.4.)*

C.3.1. Which agency is responsible for driver retraining?

**C.4. Engaging agencies –** In the road safety education area, please rate from 0 to 10 the level of engagement of each agency in each of the functions on the columns, where 0 means there is no engagement of the agency related to that function, and 10 means that there is full engagement of the agency in completing the function.

| | Coordination | Legislation and regulation | Implementation (delivering interventions) | Monitoring and evaluation |
|---|---|---|---|---|
| Ministry of Transport | | | | |
| Ministry of Health | | | | |
| Local government | | | | |
| Regional government | | | | |
| Police | | | | |
| Other (please specify): | | | | |

## D. Emergency response *(Skip this question if you do not think you have the expertise or knowledge to complete it)*

Please answer the following questions to the best of your knowledge.

**D.1.** Is emergency care universal?

☐ Yes

☐ No

**D.2.** In the cases of road traffic collisions, which agencies are responsible of the following (*fill in the boxes; multiple answers allowed):*

*Traffic management at the collision location:*

*Control of fire and hazardous substances at the scene of a crash:*

*Extrication of casualties:*

*Emergency care:*

*Transport to hospital or prehospital:*

*Clear up the area postcollision:*

*Collision investigation reporting:*

**D.3. Engaging agencies –** In the road traffic emergency response area, please rate from 0 to 10 the level of engagement of each agency in each of the functions on the columns, where 0 means there is no engagement of the agency related to that function, and 10 means that there is full engagement of the agency in completing the function.

| | Coordination | Legislation and regulation | Implementation (collision response) | Monitoring and evaluation |
|---|---|---|---|---|
| Ministry of Transport | | | | |
| Ministry of Health | | | | |
| Local government | | | | |
| Regional government | | | | |
| Police | | | | |
| Other (please specify): | | | | |

## E. Licensing *(Skip this question if you do not think you have the expertise or knowledge to complete it)*

Please answer the following questions to the best of your knowledge.

**E.1.** Is there a driver training competency framework in place in the country?

- ☐ Yes
- ☐ No *(please move to question C.3.)*

E.1.1. Have any changes been made in the provision of driver training since 2016?

- ☐ Yes, it has been increased
- ☐ No, it has remained the same
- ☐ Yes, it has been reduced

E.1.2. Which agency is responsible for driver training provision?

**E.2.** Is there a nationwide standard theoretical training delivered to prelicensing students?

- ☐ Yes
- ☐ No *(please move to question E.2.)*

E.2.1. Have any changes been made in the provision of the standard theoretical training since 2016?

- ☐ Yes, it has been increased
- ☐ No, it has remained the same
- ☐ Yes, it has been reduced

E.2.2. Which agency is responsible for delivering the theoretical training?

**E.3.** Is there a nationwide standard driving skills training delivered to prelicensing students?

- ☐ Yes
- ☐ No *(please move to question E.3)*

E.3.1. Have any changes been made in the provision of the standard driving skills training since 2016?

- ☐ Yes, it has been increased
- ☐ No, it has remained the same
- ☐ Yes, it has been reduced

E.3.2. Which agency is responsible for delivering the driving skills training?

**E.4.** Is there national legislation to require retraining throughout a driver's career or life?

- ☐ Yes
- ☐ No *(please move to section D)*

E.4.1. What agency is responsible for driver retraining?

## F. Vehicle standards *(Skip this question if you do not think you have the expertise or knowledge to complete it)*

**F.1.** Are the following United Nations safety regulations (or equivalent national standards) applied?

F.1.1. Seat belts

- ☐ Yes
- ☐ No

F.1.2. Seat belt anchorages

- ☐ Yes
- ☐ No

F.1.3. Frontal impact protection

- ☐ Yes
- ☐ No

F.1.4. Side impact protection

- ☐ Yes
- ☐ No

F.1.5. Pedestrian protection

- ☐ Yes
- ☐ No

F.1.6. Electronic stability control

- ☐ Yes
- ☐ No

F.1.7. Child restraints

- ☐ Yes
- ☐ No

F.1.8. Anti-lock braking systems in motorcycles?

- ☐ Yes
- ☐ No

## G. Important changes *(Skip this question if you do not think you have the expertise or knowledge to complete it)*

**G.1.** What do you think are the most significant changes that have taken place in the last few years in relation to the following topics?

G.1.1. The impact of integrated urban transport systems on road safety performance:

G.1.2. The emergence of strategies considering transportation as a system as opposed to the previous approaches looking at individual behaviours:

G.1.3. Rural and urban risk approaches:

G.1.4. Nationality and ethnicity analysis of casualty classes and the development of targeted interventions:

G.1.5. International vehicle standards adoption:

G.1.6. Trauma data collection and systematic linkages:

## H. Comments

Please use this space to describe, but not be limited to, any subject that is related to the following:

- other significant changes related to road traffic safety taking place between 2016 and the present
- how your organization is involved in leading, planning, delivering, overseeing, evaluating or reporting any of the mentioned actions or other relevant ones
- what makes your organization different from the national ones or from other similar organizations with regard to road traffic safety actions and activities
- early stage or planned actions/legislation/proposals relevant for the road traffic safety

**Your details**

**Name:**

**Title / Position:**

**Institutional affiliation:**

**Email address** *(optional):*

**Telephone number** *(optional):*

# Appendix IV

## Data capture

The data requested in this series of tables are designed to help track and understand changes in road safety performance over the last decade. Each table shown here only has fields for a single year; however, data collection should include the period over which the documentation exercise is being conducted and, preferably, a 3-year baseline period for comparison as well.

Data on population, demography, licensing and vehicle registration will assist in exploring risk exposure among road users, and data on road classification will help to understand network risk. In addition, information on compliance will help to highlight the effect of changes in legislation and enforcement.

With respect to data on how many injury crashes were recorded, they are expected to refer to crashes that resulted in a non-fatal injury or a death but not to include crashes that resulted only in material damage.

It would be helpful to secure as much of the data requested as possible, although some data might not be collected or available in accessible formats. For example, a record of social costs of casualties is not always available in all countries.

In cases where the data are available but recorded with different definitions, the field names should be adjusted accordingly. For example, road classification suggests four road types (motorway or highway, arterial routes, distributor roads and local roads). If there is a different road classification system that is typically used for reporting data, please use this system.

The provenance of the data should also be recorded; therefore, indicate in every data set which organization provided the data. If there are any discrepancies between different data, these may be better understood if the data are coming from different agencies and the collection methodologies are not consistent.

### Population

Population is a fundamental measure to be able to calculate rates; therefore, securing population data is critical to assessing road safety performance.

**Table A4.1. Population data capture**

| Year | Gender | ←20 | 20–29 | 30–39 | 40–49 | 50+ | Total |
|---|---|---|---|---|---|---|---|
| 20XX | Male | | | | | | |
| | Female | | | | | | |
| | Total | | | | | | |
| | | | | | | | |
| Which agency is the source of these data? | | | | | | | |

## Casualties and social costs

Casualty data are key to understanding road safety performance. If social costs data are also available then economic impact can be analysed.

### Table A4.2. Casualties and crashes data capture

| Year | No. of road traffic casualties | | | No. of road traffic crashes | | |
|---|---|---|---|---|---|---|
| | Fatalities | Serious injuries | Slight injuries | Fatalities | Serious injuries | Slight injuries |
| 20XX | | | | | | |
| Which agency is the source of these data? | | | | | | |

### Table A4.3. Social cost of road traffic casualties data capture

| Year | Fatalities | Serious injuries | Slight injuries |
|---|---|---|---|
| 20XX | | | |
| Which agency is the source of these data? | | | |

## Traffic injuries by age and gender

### Table A4.4. Road traffic injuries and fatalities by age and gender

| Year | Gender | Fatalities | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 0–4 | 5–15 | 16–20 | 20–29 | 30–39 | 40–49 | 50+ |
| 20XX | Male | | | | | | | |
| | Female | | | | | | | |

| Year | Gender | Serious injuries | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 0–4 | 5–15 | 16–20 | 20–29 | 30–39 | 40–49 | 50+ |
| 20XX | Male | | | | | | | |
| | Female | | | | | | | |

| Year | Gender | Slight injuries | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 0–4 | 5–15 | 16–20 | 20–29 | 30–39 | 40–49 | 50+ |
| 20XX | Male | | | | | | | |
| | Female | | | | | | | |

## Traffic crashes by vehicle type

### Table A4.5. No. of road traffic fatalities and injuries by year

| Vehicle type | 20XX | |
|---|---|---|
| | Fatalities | Injuries |
| Drivers* | | |
| Passengers* | | |
| Powered 2 and 3 wheelers | | |
| Pedal cyclists | | |
| Pedestrians | | |
| HGVs | | |
| Buses | | |

*(cars, SUVs, light vans and pickups)

| | |
|---|---|
| Which agency is the source for these data? | |

## Road class and rurality

### Table A4.6. No. of road traffic fatalities and injuries by road classification

| Road class | 20XX | |
|---|---|---|
| | Fatalities | Injuries |
| Motorway/highway | | |
| Arterial routes | | |
| Distributor roads | | |
| Local roads | | |
| Which agency is the source for these data? | | |

### Table A4.7. No. of road traffic fatalities and injuries by urban/rural locations

| Rurality location | 20XX | |
|---|---|---|
| | Fatalities | Injuries |
| Urban | | |
| Rural | | |

## Safety and compliance

### Table A4.8. Safety and compliance data capture in proportion

| Year | Proportion of drivers wearing a seat belt | Proportion of passengers wearing a seat belt | Proportion of motorcycle riders wearing a helmet | Proportion of motorcycle passengers wearing a helmet |
|---|---|---|---|---|
| 20XX | | | | |
| Which agency is the source for these data? | | | | |

### Table A4.9. No. of safety and compliance offences

| Year | No. of speeding offences detected | No. of drink-driving offences detected | No. of seat belt offences detected | No. of mobile phone offences detected |
|---|---|---|---|---|
| 20XX | | | | |
| Which agency is the source for these data? | | | | |

### Table A4.10. Risk factors and no. (or proportion) of road traffic fatalities and injuries

| Year | No. (or proportion) of road traffic fatalities | | | |
|---|---|---|---|---|
| | Fatalities | Involved excessive speed | Involved drink-driver | Involved drug-driver |
| 20XX | | | | |
| | Injuries | Involved excessive speed | Involved drink-driver | Involved drug-driver |
| Which agency is the source for these data? | | | | |

## Registration and licensed drivers

### Table A4.11. Registered vehicles by vehicle type

| Year | Cars | Powered 2 and 3 wheelers | HGVs | Buses |
|---|---|---|---|---|
| 20XX | | | | |
| Which agency is the source for these data? | | | | |

### Table A4.12. Licensed drivers by age and gender

| Year | Gender | Licensed driver's age | | | | |
|---|---|---|---|---|---|---|
| | | ←18 | 19–30 | 31–40 | 41–50 | 51+ |
| 20XX | Male | | | | | |
| | Female | | | | | |
| Which agency is the source for these data? | | | | | | |