ROAD SAFETY MANUAL
A GUIDE FOR PRACTITIONERS!

ROAD SAFETY MANAGEMENT

SAFETY MANAGEMENT SYSTEM

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3. THE ROAD SAFETY MANAGEMENT SYSTEM

KEY MESSAGES

- Preventing death and serious injury in road crashes requires a systematic, planned response, led by an appropriately resourced and accountable governmental leadership.
- Countries with the safest road networks have demonstrated political will by targeting better road safety outcomes, adopting and funding a systematic, evidence-based approach to intervention, and ensuring key organisational arrangements are in place.
- Addressing the Safe System goal means a shift in focus in road safety management from crash prevention to death and serious injury prevention since all humans make mistakes and crashes are inevitable.
- Intervention to improve speed management, the intrinsic safety of vehicles, the road environment, and the efficiency of the emergency medical system, all have a major role to play in addressing this new Safe System focus.
- An effective road safety management system covers three linked elements: institutional management functions, interventions and results. Each element is periodically reviewed against successful international practice to address challenging and ambitious road safety goals.
- All countries should ensure that an effective road safety management system is in place. LMICs need to strengthen their road safety management systems to bring challenging levels of death and serious injuries under control, as do HICs when seeking more ambitious results.
- A new international ISO standard provides a potentially useful tool for organisations of all sizes in the development of road safety management systems and for engaging employers in work-related road safety.
- Critical issues are how to build capacity through institutional reforms; how to accelerate knowledge transfer and learn from previous experience; how to increase investment; and how to increase international cooperation and development aid support (for LMICs) sustainability.
- Essential road safety management tools are available to help jurisdictions and organisations as well as international aid agencies in building capacity. International professional networks play a key role in helping to build knowledge and assist implementation.
- A practical two-step process is outlined in national guidance for countries wishing to improve their results. This starts with a road safety management capacity review and the specification of an investment strategy leading to Safe System project design and implementation.
- To produce rapid results, road safety programmes and projects must initially target high concentrations of crash deaths and serious injuries on sections and areas of the road network where the biggest gains can be made.
3.1 INTRODUCTION

Road safety management is the first and fundamental pillar of the Decade of Action’s Global Plan (UNRSC, 2011). The World Report on Road Traffic Injury Prevention (Peden et al., 2004) and the Global Plan emphasise that improving road safety performance requires a systematic and planned approach. Establishing an effective road safety management system is the means by which countries and organisations can achieve this.

This chapter serves as a brief introduction to the key elements of effective road safety management system frameworks and new tools. The aim is to outline the general scope of understanding of the road safety management task to provide background and context for more specific guidance that follows throughout this manual.

The chapter highlights the importance of institutional management in providing the foundation for successful road safety intervention and sustainable results. It emphasises the overarching importance of governmental leadership at the country level and top management leadership of road safety in organisations. New tools are presented which are designed to help countries and organisations develop or improve their road safety management systems. Practical next steps which countries can take towards these ends are briefly outlined and are developed further in subsequent chapters.

HOW DO I GET STARTED?

LMICs need to work actively to establish and develop their road safety management systems to address challenging road safety problems in a systematic way.

All countries need to review their performance and benchmark it against effective practice before developing new road safety strategies and plans and projects.

All countries should consider adopting the long-term Safe System goal, set interim targets (initially at project level for LMICs) and move to implement effective measures towards its delivery for example, using funded demonstration projects to build new capacity. All countries should target high concentrations of crash deaths and serious injuries on sections and areas of the road network where the biggest gains can be made.

New review tools, international professional networks and international development aid can help LMICs get started. Technical assistance in crash database development, infrastructure safety improvements, and general deterrence-based road safety enforcement programmes can be provided by the International Road Traffic Accident Database Group (IRTAD), the International Road Assessment Programme (iRAP), and the International Road Policing Organization (RoadPOL), respectively.
3.2 MANAGEMENT SYSTEM FRAMEWORKS AND TOOLS

This section presents a brief summary of road safety management system frameworks and related tools for jurisdictions and organisations. The user of this manual is encouraged to consult original sources and the links to detailed information about road safety management frameworks, tools and their use, which are provided throughout the section.

Countries with the safest road networks demonstrate many common characteristics in their management of road safety. They have targeted better safety outcomes, adopted a systematic approach to intervention, and put in place a range of institutional arrangements which have been built up over many years (OECD, 2008; GRSF, 2009, 2013). Knowledge about successful practice has been integrated into management tools for countries and jurisdictions (GRSF, 2009; updated in 2013) and for organisations (ISO 39001 – see ISO, 2012). These tools are designed to assist decision-makers and practitioners anywhere in the world in developing sustainable management systems. They outline pragmatic steps to build initial capacity to achieve road safety results. These tools are designed to be mutually reinforcing. They provide guidance on accountable, results-focused institutional management; promote the adoption of the Safe System goal and approach and interim targets and encourage implementation of demonstrably effective interventions to address known risk factors associated with death and serious injury in road crashes (DaCoTA, 2012a).

The main focus of this section is the country or jurisdictional road safety management system. A brief outline of the international standard for organisations is given in Institutionnal Management Functions in Management System Framework and Tools.

COUNTRY MANAGEMENT SYSTEM FRAMEWORK

A road safety management assessment framework has been developed based on effective practice which identifies those elements of management that are crucial to improving country/jurisdictional road safety performance (GRSF, 2009; 2013). Safety is produced just like other goods and services and the production process in the framework illustrated in Figure 3.1: Reference source not found is viewed as a management system with three levels: institutional management functions produce interventions, which in turn produce desired results.
The following sections provide a brief description of the three management system elements shown in Figure 3.1.

INSTITUTIONAL MANAGEMENT FUNCTIONS

The foundation of an effective country road safety management system is institutional management, as indicated in the bottom level of the pyramid shown above. Key elements of effective institutional management have been identified and defined through global study of management systems and leadership arrangements in countries and jurisdictions that have achieved substantial reductions in deaths and serious injuries (as well as those in countries without such arrangements and which have been less effective) (OECD, 2008; GRSF, 2009; 2013, GRSF 2006-09). These are outlined in Box 3.1.
Results focus is the overarching institutional management function. Its ultimate expression concerns a strategic orientation that links all actual and potential interventions with results, analyses what can be achieved over time, and sets out a performance management framework for the delivery of interventions and their intermediate and final outcomes. It defines the level of safety which a country wishes to achieve expressed in terms of vision, goals, objectives and related targets.

- **Coordination** concerns the orchestration and alignment of the interventions and other related institutional management functions delivered by government partners and related community and business partnerships to achieve the desired focus on results.
- **Legislation** (where necessary) concerns the appropriate legal instruments which specify the legitimate bounds of institutions, their responsibilities and accountabilities, their interventions and their related institutional management functions to achieve the desired focus on results.
- **Funding and resource allocation** concerns the financing of interventions and related institutional management functions on a sustainable basis using a rational evaluation and programming framework to allocate resources to achieve the desired focus on results.
- **Promotion** concerns the countrywide and sustained communication of road safety as a core business for Government and society, emphasising the shared societal responsibility to support the delivery of the interventions required to achieve the desired results.
- **Monitoring and evaluation** concerns the systematic and ongoing measurement and evaluation of interventions in terms of achieving the desired road safety outputs and outcomes (results).
- **Research and development and knowledge transfer** concerns the systematic and ongoing creation, codification, transfer and application of knowledge that contributes to the improved efficiency and effectiveness of the road safety management system to achieve the desired focus on results.

**Source:** GRSF, (2009).

The overarching function and the rationale for the management system is **results focus**. This represents the expression of a country or jurisdiction’s desire to achieve better road safety results through performance review; analysis of the scope for improvement, setting long-term goals and interim targets for road safety strategies, programmes and projects and providing the means and accountabilities needed to achieve them. The delivery of this function is discussed fully in [Road Safety Targets, Investment Strategies Plans and Projects](#). Supporting this key function are defined arrangements and capacity for **coordination**, legislation, funding and resource allocation; promotion; monitoring and evaluation and research and development and knowledge transfer. In the absence of a clear and accountable focus on results, all other institutional management functions and interventions lack cohesion and direction, and the efficiency and effectiveness of safety initiatives can be undermined (GRSF, 2009; 2013). For these reasons and as advised in [Road Safety Targets, Investment Strategies Plans and Projects](#), LMICs should exercise caution in establishing complex targeted strategies and plans until data and appropriate management capacity are available. However, measurement of problems and targeting specific results is recommended in funded, ‘learning by doing’ demonstration corridor/area projects.

Institutional management functions are delivered primarily by the government agencies with core road safety responsibilities – e.g. transport, land-use planning, roads, justice, police, health, occupational health and safety and education. They are also delivered in government partnerships with civil society and business, in alignment with country and organisational goals and targets. The professional and research community provide key support for demonstrably effective next steps (Peden et al., 2004). As highlighted previously, governmental leadership and the setting up of a governmental lead agency are prerequisites

Institutional management functions and examples of their delivery are referred to throughout this manual. A range of in-depth case studies which illustrate successful country delivery can be found in Annex 2 and Annex 4 of the road safety management guidelines produced and used by the World Bank (GRSF 2009). Road Safety Targets, Investment Strategies Plans and Projects as well as Annex 3 and Annex 4 of global road safety management guidance (GRSF 2009, 2013) provide guidance on establishing or strengthening lead agency arrangements.

INTERVENTIONS

The second element of the road safety management system framework outlined in Figure 3.1 is system-wide intervention. Effective intervention focuses on the implementation of evidence-based approaches to reduce exposure to the risk of death and serious injury; to prevent death and serious injury; to mitigate the severity of injury when a crash occurs, and to reduce the consequences of injury. Interventions need to address the safety of all users and take future demographics into account, notably the physical vulnerability of an ageing society. Interventions typically address the planning, design, operation and use of the road network (Part 3 of this manual); the products and services used within it and the conditions under which vehicles and road users can safely use it; and the safe recovery and rehabilitation of crash victims. In all these areas, specific standards, rules, guidelines and protocols are set, as well as the means of securing compliance with them.

A common misperception in countries getting started in road safety is to assume that since 90% of crashes may be due to human error, then direct approaches relying heavily upon education and training play a substantial part in saving lives and preventing serious injuries. Although these measures play a supportive
role, there is little evidence to confirm that education and training, alone, will achieve road safety results. Speed management, the safety engineering of vehicles and roads and improvements in the emergency medical system response are observed to play the major role (Peden et al., 2004). At the same time, the Safe System goal requires the examination of contributory factors in road safety engineering and other interventions to shift from a focus on crash prevention to a focus on death and serious injury prevention. Again, research on contributory factors to deaths and serious injuries indicates that intervention to improve speed management and the intrinsic safety of vehicles and the road environment all have a major role to play in addressing this new focus (Stigson et al., 2011).

Better performing countries implement integrated packages of road safety interventions that have demonstrated significant performance gains as well as implementing innovation based on established safety principles. To produce rapid results, road safety programmes must initially target high concentrations of crash deaths and serious injuries on sections of the road network where the biggest gains can be made. The findings of the World Report on Road Traffic Injury Prevention provide a substantial consensus-based blueprint for country, regional and global action, and have subsequently been endorsed by successive United Nations General Assembly resolutions (Peden et al., 2004). Reports by the OECD (e.g. OECD 2008) also provide international reviews on the effectiveness of interventions. Information is also available from the SUNflower study (Koornstra et al., 2002), the European Road Safety Observatory (2014) and guidance produced by the UNRSC (2006-13). Key recommended intervention strategies include:

- safety conscious planning and proactive safety engineering design;
- encouraging use of safer modes and safer routes;
- safe separation/safe integration of mixed road use;
- managing speeds to crash protection levels;
- providing crash protective roadsides and vehicles.
- deterring dangerous behaviour and ensuring compliance with key safety rules by social marketing and increased highly visible police enforcement using camera technologies and other means, by providing proven driver assistance safety technologies in vehicles to help drivers keep to speed limits, wear seat belts, or avoid excess alcohol;
- managing risk via vehicle standards/designs and driver standards e.g. graduated driver licensing;
- fast and efficient emergency medical help, diagnosis and care.

This manual does not set out to provide detailed guidance on road safety intervention in general but relates specifically to the planning, design, operation and use of the road network. See Intervention Selection and Prioritisation for guidance on intervention selection and prioritisation in this area. Here, cross references are also made to key work carried out by PIARC which includes its recent work and guidance on road hierarchies which provide a fundamental framework for safety management of the road network.

RESULTS (OUTCOMES AND OUTPUTS)

The final element of the road safety management system shown in Figure 3.1 concerns the measurement of results and their expression as targets in terms of final outcomes, intermediate outcomes, and outputs (Bliss, 2004). Targets define the desired safety performance endorsed by government at all levels, stakeholders and the community. The level of safety is ultimately determined by the quality of interventions that have been implemented, which in turn are determined by the quality of the country’s delivery of institutional management functions.

Final outcomes can be expressed as a long-term goal for the future safety of the road traffic system (e.g. as in Safe System, Vision Zero) and interim, short- to medium-term targets towards this expressed in terms of social costs, fatalities and serious injuries usually presented in absolute terms. They can also be measured and targeted in terms of rates per capita, vehicle, and volume of travel. See IRTAD (2014) for
Intermediate outcomes are linked to improvements in the final outcomes and typical measures include average traffic speeds, the proportion of drunk drivers in fatal and serious injury crashes, seatbelt-wearing rates, helmet-wearing rates, the physical condition or safety rating of the road network (e.g. iRAP ratings), the standard or safety rating of the vehicle fleet (e.g. Global NCAP ratings), and emergency medical system response.

Outputs represent physical deliverables that underpin improvements in intermediate and final outcomes. Examples are kilometres of safety engineering improvements implemented and the number of police enforcement operations required to reduce average traffic speeds, increase seatbelt use or reduce drinking and driving. They can also correspond to milestones showing a specific task has been completed (Bliss, 2004).

Countries active in road safety are increasingly setting measurable final outcome and intermediate outcome targets. In some cases, they also set related measurable output targets in line with the targeted outcomes. As mentioned previously, in many LMICs, where capacity to implement national targeted plans is non-existent or in a fledgling state, countries are advised to adopt the long term Safe System goal but to restrict the setting of quantitative targets to funded corridor and area demonstration projects. Road Safety Targets, Investment Strategies, Plans and Projects provides guidance on road data systems, which allow the setting and monitoring of targets. Case studies are presented in Roles, Responsibilities, Policy Development and Programmes of target-setting in different contexts.

All three elements of the road safety management system – institutional management functions, interventions and results – need to be benchmarked against identified effective practice as countries develop new projects, programmes and strategies, regardless of their stage of development (OECD, 2008). Institutionnal Management Functions in Management System Framework and Tools outlines recommended steps and available tools to assess the strengths and weaknesses of country road safety management and to implement necessary capacity building initiatives.
COUNTRY MANAGEMENT SYSTEM TOOL

Guidance has been published by the World Bank to assist countries which want to improve their road safety outcomes (GRSF, 2009, 2013). These acknowledge that building effective capacity requires long-term investment and will not be achieved overnight. These address the central issue of how to shift from weaker to stronger institutional management to make this happen. The guidance outlines two practical steps to strengthen country road safety management. The first step, noted below, comprises a road safety management capacity review which helps to identify strengths and weaknesses in current approaches.

STEP 1: CONDUCT CAPACITY REVIEW AND SPECIFY INVESTMENT STRATEGY PROJECTS

The recommended first step for countries is to carry out a road safety management capacity review. Road safety management capacity review has been independently evaluated as a cost effective, good practice tool that has been used widely in LMICs. It has also been used in Sweden and Western Australia where it has contributed to strengthening in some aspects of institutional delivery to good effect (GRSF, 2012).

Capacity review objectives: The aims of the capacity review are to:

- set out an integrated, multi-sectoral framework for dialogue with country partners and stakeholders on potential road safety investments;
- assess government ownership of safety results and identify related institutional responsibilities and accountabilities;
- reach official consensus on road safety management capacity weaknesses and institutional strengthening, and determine investment priorities to overcome them;
identify Safe System implementation projects to launch the investment strategy (GRSF, 2009).

Road safety management capacity review involves engagement with senior management in key government agencies and the private sector who are able to influence country results. The review is conducted by experienced, internationally recognised, external road safety specialists with senior management experience at country and international levels.

**Capacity review steps:** A country capacity review is conducted through nine distinctive steps:

1. set review objectives;
2. prepare for review;
3. appraise results focus at system level;
4. appraise results focus at interventions level;
5. appraise results focus at institutional management functions level;
6. assess lead agency role and identify capacity strengthening priorities;
7. specify investment strategy and identify Safe System implementation projects;
8. confirm review findings at high-level workshop;

Twelve checklists are used to help assess and benchmark all elements of the management system and their linkages according to effective practice (see GRSF, 2009, 2013).

**Long-term investment strategy:** On the basis of the review, a long-term investment strategy is developed which lays a pathway from weak to strong capacity via establishment, growth and consolidation phases of the investment strategy. These phases are discussed fully in *Targets and Strategic Plans*.

The first stepping stone for many LMICs in establishing their road safety activity will be to prepare road safety projects rather than embark initially on the ambitious national road safety plans foreseen in the growth phase. Road safety management capacity reviews indicate that LMICs that specify national plans without the funded capacity to achieve them are unsuccessful (GRSF, 2006–13). The practical aim is to deliver key capacity building elements in funded implementation projects, such as those outlined in Section 3.4 in the establishment phase of the investment strategy.

The project involves building core institutional capacity to measure and target safety outcomes in high-volume, high-risk corridors and areas, with specific attention being paid simultaneously to lead agency and related coordination arrangements and monitoring and evaluation. This provides a basis for the scaling up of investment to accelerate this capacity strengthening, and the achievement of improved results across the road network in a national plan for the growth phase.

**STEP 2: IMPLEMENT SAFE SYSTEM PROJECTS TO LAUNCH INVESTMENT STRATEGY**

The second step of the country guidance is the careful preparation and implementation of Safe System road safety projects to deliver the establishment phase of the investment strategy (GRSF, 2009; 2013). As mentioned previously, carefully prepared and funded demonstration corridor projects provide an excellent means for countries starting out in road safety or countries embarking on more ambitious approaches to build initial capacity.

Current World Bank road safety investment in capacity building efforts is focusing on systematic, measurable and accountable investment programmes. These simultaneously advance the transfer of road safety knowledge, strengthen the capacity of participating governmental partners and stakeholders, and rapidly produce results in targeted high-risk corridors and areas. The aim is to provide benchmarks, dimensions and capacity for the next stage of investment (GRSF, 2013). Recommended project components are briefly outlined in the ‘Getting Started’ material at the end of this chapter, while examples...
are provided in *Roles, Responsibilities, Policy Development and Programmes*. Complementary guidance has been issued for a streamlined approach to capacity review and project development and ‘mainstreaming’ road safety in regional trade road corridors (GRSF, 2013; Breen et al., 2013).

While the two-step process outlined above has been identified to inform investment priorities in LMICs, the above tools have also been used by HICs which have moved to a Safe System approach (Breen et al., 2008; Howard et al., 2010). *Roles, Responsibilities, Policy Development and Programmes* provides examples of capacity building demonstration projects that can help build leadership and coordination arrangements, implement multi-sectoral action, and achieve quick results in targeted high-volume, high-risk corridors and areas.

This section has briefly introduced capacity building tools. The main principles which underpin this guidance can be summarised as: the need to address all elements of the road safety management system in reviewing management capacity to produce results; adoption of a phased approach to road safety investment and a ‘learning by doing’ approach; targeting the highest concentrations of deaths and serious injuries across the road network and adopting a Safe System approach; and building global, regional and country road safety management capacity. Practical examples of how these tools are being used worldwide are presented throughout this manual. Readers are referred to the original guidance for a detailed discussion (GRSF, 2009, 2013).

*ISO 39001 FOR ORGANISATIONS*

Motor vehicle crashes are a leading cause of death and long-term injury at work and in driving associated with work. For example, surveys in several EU countries indicate that between 40–60% of all work accidents resulting in death are road crashes. Studies conducted across the world indicate that the costs of work-related crashes are substantial, both for society and employers (DaCoTA, 2012b). Against this background, the International Standards Organization ISO 39001: Road Traffic Safety Management
Systems: Requirements with guidance for use standard has been produced.

The standard is designed to assist organisations in integrating road safety as a core objective into their management systems, as well as aligning with country road safety goals and strategies. The standard is aimed at both small and large organisations, as well as the public and private sector. Specific examples given include organisations concerned with transporting goods and people; those generating traffic, such as schools and supermarkets; and those responsible for provision of the road network.

The ISO 39001 standard links to other ISO management systems standards and sets out specific and wide-ranging top management responsibilities and key management functions. ISO 39001 requires organisations to adopt the Safe System goal and to make decisions on objectives and targets for the interim as well as plans to achieve them. The organisation is required to follow a process that starts with a review of its current road traffic safety performance; makes an assessment of the context for the organisation’s activity; and considers specified, measurable road traffic safety performance factors known to reduce the risk of fatal and serious injury within the organisation's sphere of influence. The organisation has to select the road traffic safety performance factors to work on and then analyse what it can achieve over time. When establishing its targets, the organisation is required to consider the management capacity required to achieve them, as well as monitoring results and reviewing its road safety management system towards continual improvement (ISO, 2012).

Early adopters of ISO 39001 include freight and passenger transport organisations and companies in Sweden and Japan. They report adoption of the Safe System goal, improvements in road safety outcomes and strengthened company interest in adopting road safety measures as outcomes of this adoption. If implemented within the national policy framework, the tool has high potential to engage employers of organisations of all sizes in effective road safety activity. In the case of LMICs, early adoption of ISO 39001 by large corporations in the first instance could assist governments in meeting their serious road safety challenges.

PATHWAY TO IMPROVING ROAD SAFETY MANAGEMENT

GETTING STARTED

- International organisations recommend that all countries and organisations should consider adopting the long-term Safe System goal as the focus of their road safety management system.
- The recommended first step before establishing a road safety investment strategy for countries at any stage of development is to commission a capacity review to be carried out by senior independent road safety experts. This review assesses all elements of the road safety management system and its linkages; sets out the strategic lines of a road safety management investment strategy; and broadly identifies Safe System projects to launch it.
- The recommended second step to building the capacity identified by a review is the careful design and implementation of multi-sectoral funded Safe System projects. The aim is to ‘learn by doing’. The recommended approach is to simultaneously advance the transfer of road safety knowledge, strengthen the capacity of participating governmental partners and stakeholders, and rapidly produce results in targeted high-volume, high-risk corridors and areas to provide the dimensions for the next stage of investment.
- Key project components recommended in country guidance include:
  - capacity strengthening priorities: lead agency establishment/development, crash database development and other institutional reforms
  - high-risk corridors and areas to be targeted with good practice interventions: infrastructure safety improvements; general deterrence-based traffic safety enforcement programmes, supported by intensive publicity and awareness campaigns (e.g. speed, alcohol, seatbelts and helmets, fatigue,
commercial vehicles); and improved post-crash response and emergency medical and rehabilitation services

- reviews of policy reforms: e.g. driver licensing, vehicle safety standards
- project management arrangements: lead agency role, coordination
- monitoring and evaluation: survey measurement (e.g. safety behaviours such as mean speed, drinking and driving, use of protective equipment); vehicle and road network safety quality; and efficiency of emergency medical response); performance targets for high-risk corridors and areas; procedures; and reporting arrangements; the development of a crash database and analysis system.

**MAKING PROGRESS**

- A scaling-up of investment is recommended after initial basic capacity has been built to include leadership, multi-sectoral working, and monitoring and evaluation. Based on what has been achieved in the targeted corridors and areas and policy reviews, this growth phase involves:
  - setting quantitative national targets;
  - rolling-out comprehensive multi-sectoral measures across high fatal and serious crash-density corridors and urban areas of the total road network;
  - implementing ongoing reforms of safety policies and interventions, and introducing new measures in accordance with effective international practice;
  - strengthening and refocusing lead agency role and functions and related coordination arrangements;
  - managing, monitoring and evaluating road safety results across high fatal and serious crash density corridors and urban areas of the total road network;
  - implementing ongoing reforms of institutional management functions;
  - disseminating safety performance data from the national crash analysis system and ensuring open access to the system by all partners and stakeholders.

**CONSOLIDATING ACTIVITY**

- As capacity is steadily built, national activity undergoes periodic review and continual refinement and is expanded to include a safety performance framework for regions, provinces and districts. This involves:
  - extending national targets and also applying these to regions, provinces and districts;
  - sustaining comprehensive multi-sectoral measures across the total road network and extending targeting to less risky roads;
  - reviewing and internationally benchmarking safety policies and interventions, and implementing reforms;
  - reviewing and reforming lead agency role and functions and related coordination arrangements;
  - extending performance monitoring and evaluation of safety results to less risky roads in the network;
  - reviewing and reforming institutional management functions;
  - upgrading national crash analysis system and extending performance monitoring capabilities.
3.3 REFERENCES


Breen J, Humphreys RM & Melibaeva S (2013), Guidelines for Mainstreaming Road Safety on Regional Trade Road Corridors, SSATP, World Bank, Washington DC.

DaCoTA (2012a), Road Safety Management Deliverable 4.8d of the EC FP7 project DaCoTA, Brussels

DaCoTA (2012b), Work-related Road Safety Deliverable 4.8d of the EC FP7 project DaCoTA, Brussels

European Road Safety Observatory (2014),

Global Road Safety Facility (GRSF) & World Bank (2006-2013), Unpublished country road safety management capacity reviews, Washington DC.


Global Road Safety Facility GRSF (2012), MDB Staff Training Program: Module 7, African Development Bank, Tunis, Tunisia

Global Road Safety Facility (GRSF) (2013), Road Safety Management Capacity Reviews and Safe System Projects, by Bliss T & Breen J; World Bank, Washington, DC.


http://www.swov.nl/rapport/Sunflower.pdf


