Road Safety Data, Collection, Transfer and Analysis

Deliverable 1.2 Road safety management investigation model and questionnaire

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EXECUTIVE SUMMARY

The aim of the DaCoTA Work Package 1 is to investigate road safety policy-making and management processes in Europe. In the Deliverables released previously, the Work Package 1 assessed the experts' needs in terms of road safety knowledge, data and decision support tools (Deliverable 1.1/4.1), as well as the road safety stakeholders' views (Deliverable 1.3). These two Deliverables contain information on the present and future needs and the actual availability of various types of road safety data and knowledge, which the experts and the stakeholders might find useful for their work.

As for the Deliverable 1.2 at hand; it presents the theoretical background for the Work Package 1 "investigation model", as well as the model itself and the questionnaire derived from it. The "investigation model" was designed for the study of the different aspects of actual road safety policy-making and management processes in Europe. Its objective is to allow describing concrete road safety policy-making and management practices. Therefore, it is not a "good practice" model in the normative sense. Rather, it aims at discovering good practices that exist, whether they conform to a normative "good practice" model designed by experts or not.

In designing the investigation model, the group relied on an extensive review of recent literature. Some of the references the group reviewed contain only a small number of case studies. A number of these are limited to well performing developed countries and nevertheless prescribe the implementation of similar structures for road safety decision-making and management in quite different situations and contexts. A few other references, however, advocate a more analytical approach, backing their claim with case studies from a more varied set of countries.

In any case, the group decided to draw on elements from all available models, thus ensuring that while the investigation model is now used to study road safety policy-making and management processes in European countries, its use is by no means restricted to Europe or to the developed countries. The investigation model inquires of course about the actors, processes and components of road safety management that can all probably, but not necessarily, be found in well-performing countries, and that quite certainly cannot all be found elsewhere. The results to the questionnaire will allow a first assessment of the idea that a good road safety record is necessarily linked to certain components of road safety management system.

Road safety management, understood as an area of public action destined to reduce road *un*-safety, includes policy-making tasks and transversal processes, as well as the organisation necessary for these tasks and processes to take place. Policy-making tasks form a cycle, going from agenda setting to policy formulation, then to policy adaption, implementation and finally evaluation, before the cycle begins again—and there are of course feedback loops going from evaluation to policy formulation and implementation stages.

In order to accomplish these policy-making tasks, some management processes are necessary. The group has identified four such processes. As road safety policy-making is an inter-sectoral activity (i.e. it involves several sectors of governmental action) there is a need for inter-sectoral coordination. Likewise, the diversity of actors involved in road safety call for the involvement of stakeholders. Knowledge must be produced and used to justify the need for a road safety policy and the priority status given to it, as well as to identify available options and arbitrate between them. Finally, there must be a process for capacity building. A road safety management system can function if the institutional and organisational arrangements are adequate; if

responsibilities are allocated along with sufficient resources; if knowledge transfers between different positions and between generations are effective.

Furthermore, there are two immaterial ingredients in an operative road safety management system, that may precede it to some extent, but which are also outputs of the system: the political will and the road safety culture.

The model was then used for formulating a series of 69 questions, which assess the different aspects of a road safety management system. After eliminating redundancies, the finalised questionnaire contains 50 closed questions as well as some room for comments from the interviewees. The questionnaires will be used for collecting data from policy-makers and road safety experts in at least 13 European countries in the summer and autumn 2011.

1.INTRODUCTION (PRELIMINARY CHOICES)

Investigating road safety management systems (RSMS) on a comparative basis in European countries is a heavy task as there are several definitions and no research consensus on what a RSMS actually is and what are the good practices in this area. Available literature mostly provides empirical findings which were reviewed (see Chapter 2). These, and the research and practical experience of the DaCoTA team members in charge of building up the investigation methodology, have provided a basis for the development of a new structured approach to the analysis of road safety management.

In the following report, we will thus define our working structure, also denominated "investigation model" (for lack of a better word) as it aims to discern and describe what can be found in countries at the national level in terms of road safety management organisation and practice. The model will then be used to prepare a detailed investigation questionnaire.

In order to define our structural approach, we will

- describe the policy-making processes which are necessary to produce road safety action in terms of programmes, interventions, measures;
- define the road safety management system (organizational "functions" and the actors involved) required as a framework for policy-making, and identify its main components;
- identify at least some criteria of "good practice" in road safety management so that the action produced is effective, acceptable, efficient.

In doing this, we will distinguish between

- the tasks to be accomplished to obtain the desired final output in terms of measures or interventions to prevent or reduce road crashes and injuries,
- the processes necessary to make the performance of these tasks possible,
- the structures (institutional organisation, actors) supporting these processes (i.e. providing the appropriate "functions").

In order to develop the questionnaire, we will identify the elements which need to be described or measured in order to analyse the RSMS and policy-making processes as well as their quality with regards to the criteria of "good practice" pointed out.

In each country, some categories of local actors have a responsibility for the safety of the citizens on their territory, so there are various levels at which road safety initiatives can take place and road safety policies can be developed (national, regional or state-level, county, town or city). Moreover, some decisions are now taken at the international (here the European) level. It is clear that interventions at all these levels do contribute to reaching national goals of road traffic injury reduction. However, in this first investigation, we will focus on the national level in order to limit the investigation questionnaire to a manageable size. In doing this however, some insight will be sought into the relationships between the national and other levels, in particular the consultation procedures between the national and regional or local stakeholders involved in policy-making.

2. LITERATURE REVIEW

2.1. Introduction

The purpose of this literature study is to provide a general description of the road safety management systems (RSMS), including their main components, functions, policy-making processes and actors involved. In addition, the prerequisites of successful road safety strategies and recommended principles of road safety management are discussed, along with examples of good practices. This Chapter presents an abridged version of the literature review which was conducted at an early stage of the project[1] and whose aim was twofold: to describe the framework and basic principles of road safety management and to refer to the needs in data, knowledge and tools for road safety management, based on the published literature. The findings presented below are focused on the RSMS definitions and the essential components which are associated with "good practice" in road safety management (leaving the "needs" out of the current scope of consideration).

The review was based on screening the recent reports on road safety management which were produced by international bodies and working groups, e.g. Organization for Economic Co-operation and Development (OECD), European Transport Safety Council (ETSC), World Health Organisation (WHO), European Road Safety Observatory (ERSO), as well as on some scientific papers and reports concerning the issue. Further elaboration of findings was made accounting for a COWI (2010) report which provided a background for the development of the European Safety Action programme 2011-2020 and for contributions by Muhlrad (2006, 2009) who developed tools for a diagnosis of road safety management and policy-making at the national level, adaptable to low and middle income countries. The review did not intend to present road safety management practices of any specific country but aspired to describe the main components and tasks of the system, which should be available according to the international experience.

2.2. Road safety management: definitions of framework

Road safety management implies systematic work to ensure continuous improvement in road safety (Elvik, 2008), or acting to prevent accidents and to mitigate the consequences of those that still occur (ETSC, 2006). The need for effective road safety management is widely recognized today due to the global burden of road trauma for society and public health; preventability of major parts of road fatalities and severe injuries, and the availability of knowledge on measures and interventions that can be applied to achieve the results (WHO, 2004; ERSO, 2008). There are also more general fields of concern which bring the focus on road safety, e.g. sustainable economic and urban development, questions of social security and safety, reliability of road transport and disruptions caused by accidents, etc (ETSC, 2006). All the concerns together hold essential value for road safety and increase the social demands for actions.

According to ETSC (2006), the development of road safety policy is a dynamic process which could be presented as in Figure 2.1. First, the problem should be socially recognized in the country ("articulation of the problem"). Then, "political will

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[1] Road Safety Management: the framework, basic principles and needs – Review of a recent literature. By V. Gitelman, February 2010 – internal DaCoTA-project document.

and commitment" is required from the side of a number of politicians considering that it is within their power to act and to gather a core group of experts from various areas who can propose actions and implement them. The need to work together to move up the agenda, at the highest levels of policy-making, and proposals for effective political actions to improve road safety should be introduced. "Construction of the action" should be based on strong technical expertise using robust knowledge, often drawn from international experience. At this stage, a balance between adopting ambitious goals and reasonable expectations has to be struck. "Implementation" then requires effective political management, a follow-up of the action being used to be able to adapt and improve upon it, and an assessment of its effectiveness.

Political commitment
- Problem is politically ripe
- Individual motivation a mong elected officials

Construction of the action
- Expertise
- Design dependent on knowledge

Articulation of the problem
- Social demand
- Level of insecurity
- Possibility for action

Implementation of the action
- Action process
- Follow-up – Adaptation
- Evaluation
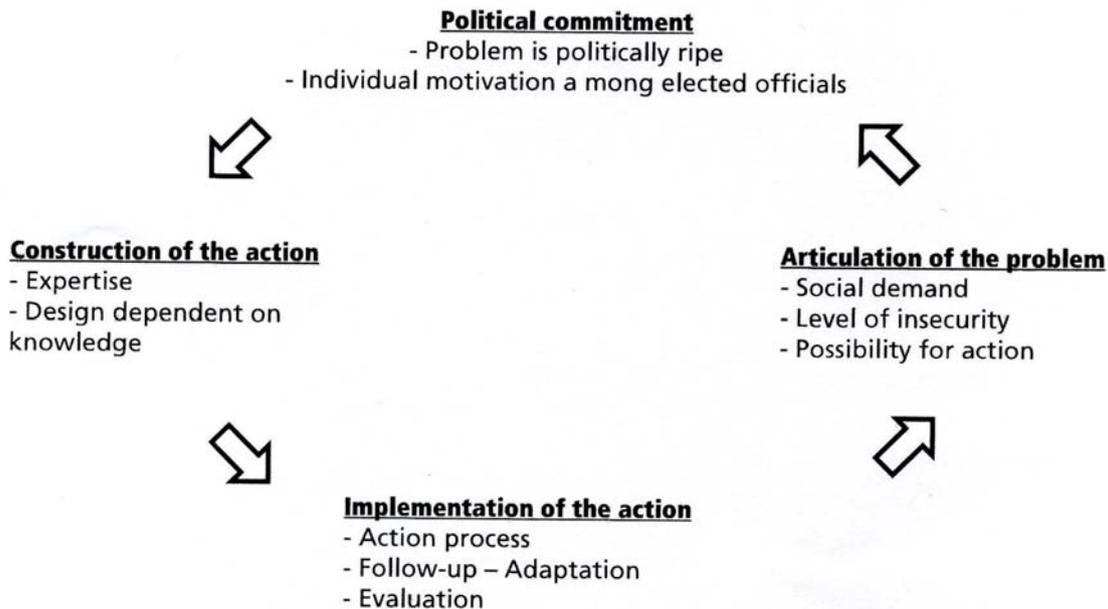
Figure 2.1 The evolution of a road safety policy (ETSC, 2006).

The development and implementation of a road safety programme is a major component of road safety management. Since the 1990s, many countries have set up road safety programmes with their scope ranging from political lip-service to stringent catalogues of measures accompanied by numerical targets together with financing and evaluation plans. There are strong indications that the existence of sound road safety programs together with quantified targets contribute positively to road safety performance (ETSC, 2006). Establishing safety performance targets supported by actions plans that set out specific interventions needed to achieve them is well recognized as international good practice (OECD, 2002; OECD, 2008; ERSO, 2008).

Having analyzed the variety of road safety planning practices, OECD (2002) identified the main steps of a planning procedure for developing and implementing road safety programmes as presented in Figure 2.2. The components of good practice road safety planning are as follows:

A vision gives a strategic view of the nature of the road safety problem and ways to deal with it. The Swedish Vision Zero and Dutch Sustainable safety are examples of such a vision. Targets are quantified and measurable goals to be reached within a certain period of time. They are linked with the road safety programme's components and an estimation of their effects. The setting of targets goes in line with problem analysis: a description of accident numbers and characteristics, historical trends, possible explanations and forecasts.

Developing countermeasures involves the selection of effective interventions which will address identified problems and help meet the targets. Given the varied circumstances of each national situation, no ideal procedure is available for this step. Instead, best practice examples are typically discussed along with the relevant conditions for their use. Having selected the measures, a socio-economic evaluation should be performed, to compare several alternatives of the implementation scenario. Besides, the funding mechanisms should be defined.

Finally, the programme's performance should be monitored and evaluated. Monitoring consists of a systematic recording of actions and activities that make up the programme. Evaluation consists of a systematic study of the effects of the various programme elements on road safety. For those activities whose safety outputs (effects on accidents, fatalities, injuries) cannot be directly measured, surrogate indicators can be developed to measure the scope, quality and success of the activity (OECD, 2002).
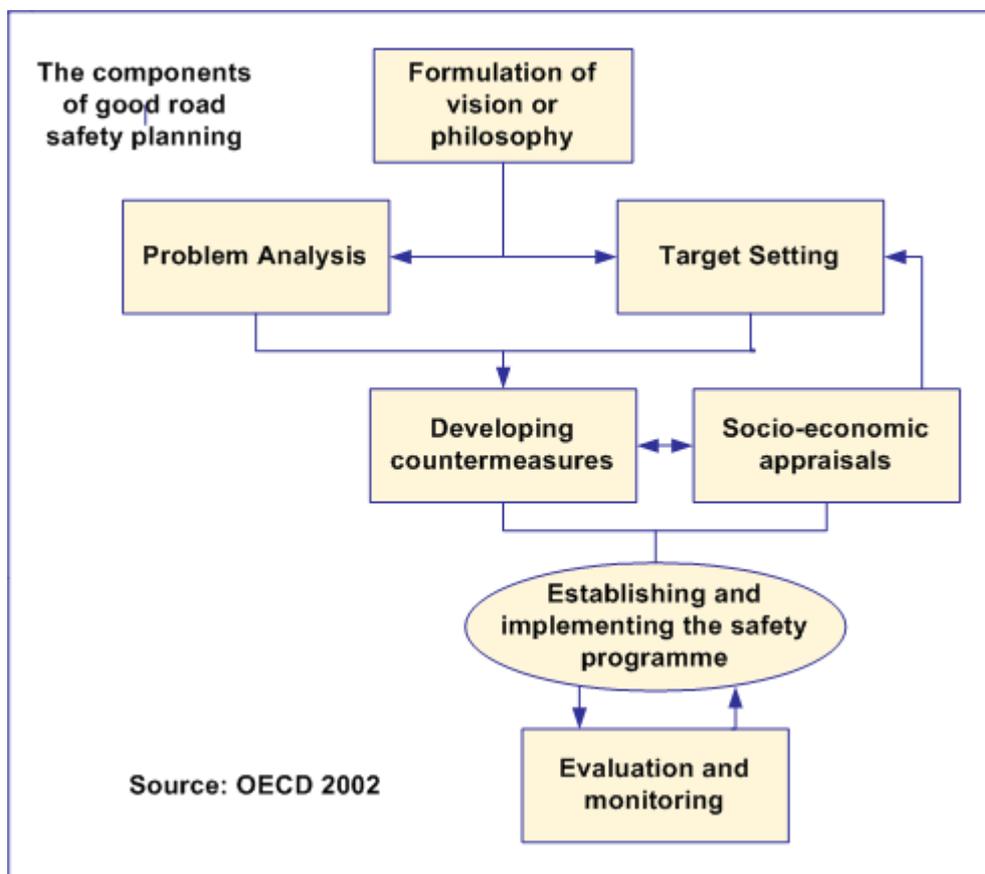
Figure 2.2 Planning procedure for developing and implementing road safety programmes (OECD, 2002)[2].

Recent overview reports on road safety management (OECD, 2008; ERSO, 2008; Bliss & Breen, 2009) emphasized the point previously made by some researchers (Muhlrad, 1993, 2005, Mulder & Wegman, 1999) that the limits of improved road safety performance are shaped by the capacity of the road safety system operating in a country. This system determines the results being sought and produces the interventions to achieve them. The limits of a country's road safety performance are constrained by its institutional capacity to implement efficient and effective

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[2] The figure was improved by Loughborough University: taken from Prof. Pete Thomas' presentation at the DaCoTA Kick off Meeting in January 2010.

interventions, and the subsequent results may fall short of what is technically feasible with any particular set of road safety interventions.

The latest evolution of the road safety management system which enables to overcome the above constraints and is recommended for use by the World Bank and the OECD (2008) is shown in Figure 2.3. The concept was developed based on the New Zealand road safety programme framework, which was adopted by ETSC (2001) and further elaborated by Bliss & Breen (2009) using the Sunflower project's results (Koornstra et al, 2002). The approach highlighted the importance of addressing road safety management weaknesses and the need for effective institutional management as a pre-requisite for successful results-focused interventions. New guidelines based on empirically-determined good practice institutional management have been produced by the World Bank - Bliss & Breen (2009).
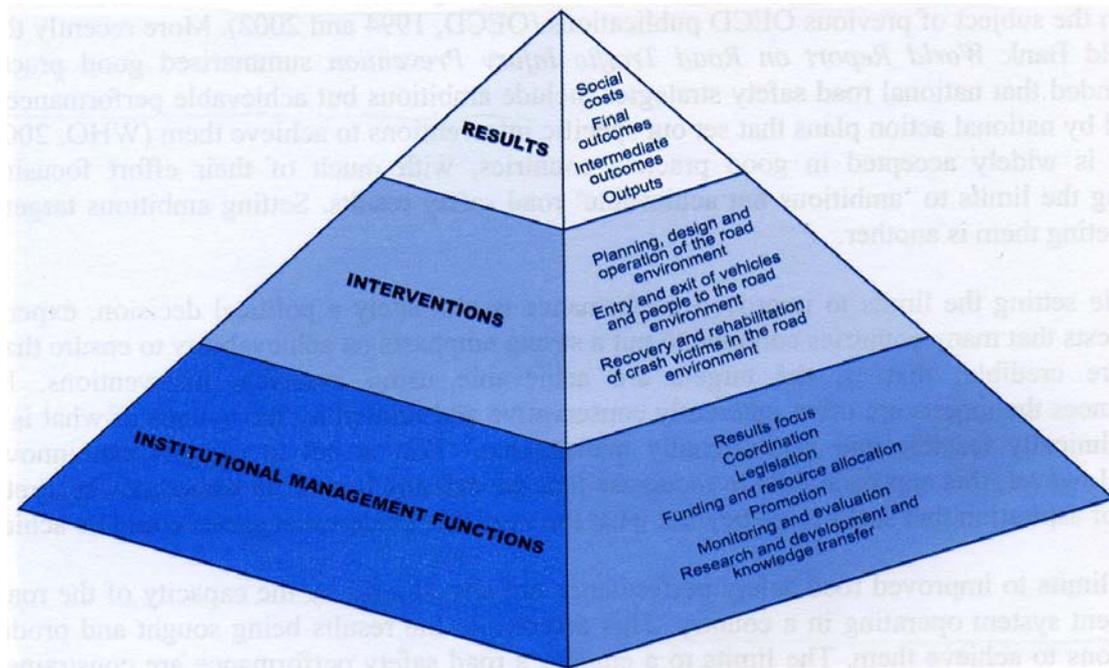
Figure 2.3 The road safety management system (OECD, 2008).

According to this approach (see Fig.2.3), safety is compared with other goods and services and the production process is viewed as a management system with three levels: institutional management functions which produce interventions, which in turn produce results. Their definitions are (ERSO, 2008; OECD, 2008; Bliss & Breen, 2009):

• The seven identified institutional management functions are the foundation on which road safety management systems are built. They are essential for the production of interventions which, in turn, achieve road safety results and for this reason they must receive the highest priority in road safety planning and policy initiatives. The institutional management functions relate to all government, civil society and business entities that produce interventions and ultimately results

• Interventions comprise system-wide strategies and programmes of interventions to address safety targets. Interventions cover the planning, design and operation of the road network, the entry and exit of vehicles and users into the road network, and the recovery and rehabilitation of crash victims. They seek to manage exposure to the risk of crashes, prevent crashes, and reduce crash injury severity and the consequences of crash injury. They comprise safety designs, standards,

and rules as well as a combination of activities to assure compliance with these such as information, publicity, enforcement and incentive.

Road safety results are expressed in the form of long term goals and interim quantitative targets. Targets specify the desired safety performance endorsed by governments at all levels, stakeholders and the community. To be credible, interim targets must be achievable with cost-effective interventions. Targets are usually set in terms of final outcomes. They can also include intermediate outcomes consistent with their achievement, and institutional output measures required to achieve the intermediate results.

The definitions of the institutional management functions are as follows (ERSO, 2008; OECD, 2008; Bliss & Breen, 2009):

- Results focus 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 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, emphasizing 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 of road safety outputs and outcomes (intermediate and final) and evaluation of interventions in terms of achieving the desired 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.

As emphasized by Bliss & Breen (2009), without effective institutional management a country has little chance of implementing successful road safety interventions and achieving desired results.

2.3. Main principles and prerequisites for successful road safety management

Some literature sources suggested summaries of safety managing principles or recommendations for better road safety management. Those summaries reflect the essential components, processes and actors of road safety management, which are typically based on good practice examples of countries with leading road safety performance and/or achievements.

ETSC (2006) reviewed road safety strategies and best practice activities in the SUNflower and SEC belt European countries with the purpose to set out a methodological approach to the effective development and implementation of national road safety policies. The study concluded that no stringent recipes are available for road safety performance success and that the strategy should be adapted to a country's conditions. However, it was clearly stated that the existence of sound road safety programmes together with quantified targets contribute positively to road safety performance.

In addition, summing up the recommendations of international bodies (WHO, OECD, World Bank, ETSC) a number of common prerequisites for successful road safety work was defined. Those were termed "framework checklist for the evaluation of national road safety policies" and included 22 items[3], which are:

- Political support and commitment
- Public and private sector awareness and involvement
- Road safety legislation
- Traffic safety vision or philosophy
- Strategy
- Performance targets
- Public health approach
- Systemic perspective
- Road safety action plan
- Scientific choice of measures
- Institutional roles and responsibilities
- Allocation of responsibility for countermeasures
- Funding
- Monitoring and evaluation
- Accident data
- Safety performance indicators and exposure data
- Research
- Best practice exchange
- Training
- Enforcement
- Emergency response
- Holistic approach

One can notice that the above "framework" comprises the components of pre-conditions for promoting road safety in a country and of good practice road safety

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[3] The comments and examples of good practice, for each item, can be found in ETSC (2006).

planning (see Fig. 2.2), along with basic principles of the activities, "data and knowledge" needs to support the processes, and improving the quality level of the actors involved.

It was recommended (ETSC, 2006) to consider the checklist as a set of suggestions or advice, encouraging decision makers and practitioners to improve their achievements but without an obligatory application of the whole list in a certain country. Besides, most of the items are matters of degree: for instance, the level of public awareness can be high, medium, low or none.

Furthermore, ETSC (2006) emphasized that managing safety actions requires taking local conditions into account, both in their technical dimensions and in their organizational and institutional aspects. The safety problems posed must be analyzed within the specific context of each country. For example, alcohol consumption and attitudes to it differ from one part of Europe to another; the characteristics of vehicle fleet, bicycle riding, the use of motorcycles, the scope of the pedestrian problem, etc. are not uniform among the countries and, therefore, are to be taken into account in road safety assessments.

Similarly, a country's political organization must be considered to necessitate certain differences in safety planning practices. There are countries with a more federal or more centralized structure. Thus, for example, in the case of the French Counties or the German Länders, the regional or provincial level may play a determining role. The responsibilities and relative importance of the various institutional structures - from the national level all the way down - should be taken into account in planning and realization of road safety actions.

ETSC (2006) indicated an increasing use of management by objectives in road safety practice. This implies that a National road safety plan sets quantitative targets at a general level, which are further focused more closely, in order to deal with specific road user groups or problems and to assign specific quantitative targets respectively. Results (targets) are, thus, stressed more than the means used to achieve them (ETSC, 2006, see also Elvik, 1993).

This approach was adopted, for example, in Norway, for the development of their road safety programme by 2020. Based on the overall target of 50% reduction of fatalities and serious injuries, a set of 21 specific targets was developed for various road safety indicators, related to road user behaviour, safety of vehicles and safety of road system. Elvik (2008) carried out an in-depth analysis of the programme components and indicated its essential virtues, e.g. rationality, comprehensiveness, maturity, suitability for ample monitoring, etc. However, it was demonstrated that some of the specific targets stated cannot be realized due to the absence of effective countermeasures or a need for significant institutional or political changes of the system.

Based on previous research, Elvik (2008) described the conditions in which road safety management by objectives may succeed. They are:

"(1) The top management of government strongly endorses the targets and makes a firm commitment to realizing them.

(2) The targets set should be challenging, yet in principle achievable.

(3) There should not be too many targets in view of the available policy instruments designed to realize them.

(4) The agency or agencies given the task of choosing how best to realize the targets should have authority to determine the priority to be given to all available policy instruments.

(5) Responsible agencies should be supplied with sufficient funding to implement all cost-effective road safety measures.

(6) There should be a system for monitoring progress in realizing targets and providing feedback to responsible agencies on their performance.

(7) Incentives should exist to ensure commitment to targets from all agencies responsible for realizing them."

The recent OECD report (2008) also underlines that the "results focus" is a pivotal characteristic of the effective safety management system. A country's "result focus" is a pragmatic specification of its "ambition" to improve road safety and the means agreed to achieve this ambition (Bliss & Breen, 2009). According to OECD (2008), the results focus requires clear identification of:

- a lead agency;
- the core group of government ministries and agencies to be involved, their roles and responsibilities; and
- the performance targets in terms of institutional outputs and intermediate and final outcomes to be achieved within a defined strategy.

As to the lead agency, case studies showed that effective management can be achieved with varied lead agency structural and procedural forms and, thus, no preferred model can be identified (Bliss & Breen, 2009).

Besides, a country with a strong results focus will develop the management capacity to deliver (OECD, 2008):

- in-depth understanding of the road safety issues in the country;
- strategies to meet the targets;
- effective interventions;
- reviews of performance;
- confidence by government and in the community in the level of competence.

Having analysed the evolution of road safety management for results and accounting for the progress achieved by high-income countries in road safety performance, practices and thinking (WHO, 2004), the major sources (OECD, 2008; ERSO, 2008; Bliss & Breen, 2009) recommend a shift to a Safe System approach as a new frontier in road safety management.

Since the 1950s, there have been four significant phases of development in road safety management (OECD, 2008; Bliss & Breen, 2009):

1. Focus on driver interventions, in the 1950s and 60s, where road safety policies placed considerable emphasis on the driver by establishing legislative rules and penalties and expecting subsequent changes in behaviour.

2. Focus on system-wide interventions, in the 1970s and 80s, where a system approach to interventions was introduced based on the Haddon matrix model which encompassed infrastructure, vehicles and users in the pre-crash, in-crash and post crash stages.

3. Focus on system-wide interventions, targeted results and institutional leadership, in the early 1990s, where leading countries began using action focused plans with numerical outcome targets to be achieved and with broad packages of system-wide measures based on monitoring and evaluation. Also, institutional leadership roles were identified, inter-governmental coordination processes were established and funding and resource allocation mechanisms and processes were becoming better aligned with the results required.

4. Focus on system-wide interventions, long-term elimination of deaths and serious injuries and shared responsibility. By the late 1990s, two of the best performing countries had determined strategies that re-defined the level of ambition and set a goal to make the road system intrinsically safe: the Sustainable Safety in the Netherlands and the Vision Zero strategy in Sweden. The new strategies recognize that speed management is central and have re-focused attention on road and vehicle design and related protective features. The 'blame the victim' culture is superseded by 'blaming the traffic system' which throws the spotlight on authorities' accountability. These approaches have further influenced strategies in Norway, Finland, Denmark, Switzerland and Australia. The growing view today is that road safety is a system-wide and shared multi-sectorial responsibility which is becoming increasingly ambitious in terms of its results focus.

The latter was recognized as a Safe-System approach which is recommended for adoption by the OECD countries (OECD, 2008).

From the viewpoint of road safety management, the Safe System concept embraces long term goals to eliminate death and serious injury, challenging but achievable interim targets, exacting intervention strategies and the need for strengthened institutional management systems. This approach (ERSO, 2008):

- builds on existing road safety interventions but reframes the way in which road safety is viewed and managed in the community;
- addresses all elements of the road transport system in an integrated way with the aim of ensuring that crash energy levels are below what would cause fatal or serious injury;
- requires acceptance of shared overall responsibilities and accountability between system designers and road users;
- stimulates the development of the innovative interventions and new partnerships necessary to achieve ambitious long term targets.

The Safe System approach builds on existing knowledge about the identification of specific road safety risks and available countermeasures but analyzes them on a greater level of systemic thinking, where the safety problems and countermeasures are treated by considering the interactions of various components of the transport system. This strategy assumes a higher level of coordination between all the agencies involved, with a clear leadership stated. Last but very important, it should address prevailing attitudes and cultural influences on safety behaviour among all the designers and users of the road transport system, and make connections between safety issues and wider transport and social issues (OECD, 2008).

Based on Bliss & Breen's (2009) recommendations, an effective road safety management system should include the components as presented in Fig.2.3 (see above) with the emphasis on the availability of components composing the institutional management functions' layer. A tool termed "country capacity review of the road safety management system" was recommended for application aiming to

provide an overview of country's organizational needs, including understanding present road safety performance and specifying future challenges. The tool is based on a set of checklists to assess country capacity across good practice dimensions of institutional management functions, interventions and results, and it has been already applied for reviews of road safety status and management in a number of countries (Bliss & Breen, 2009; OECD, 2008).

The afore-mentioned components of institutional management of road safety were discussed during the stakeholder consultations, in the process of preparation of the European road safety action programme for the next decade (COWI, 2010). Among the components which were considered as essential for further progress in road safety in the European countries, were:

- a long-term vision of the safety of the road traffic system accompanied by quantitative interim targets (which is currently lacking in most countries);
- a need for political leadership for road safety at all the levels;
- a need for better coordination of policy both horizontally and vertically;
- the integration of road safety into other policy areas (e.g. education, health, environment, research, economic);
- further harmonization of road safety rules and standards, and mechanisms for their compliance based on research and development, economic analysis, systematic monitoring and evaluation;
- providing adequate funding and resource allocation mechanisms in accordance with the size of the road traffic injury problem considered, based on results of cost-benefit analyses;
- further promotion and communication on road safety, enabling to compete appropriately with environmental and economic issues;
- a periodic, independent review of road safety performance, and a need for high-level reviews of safety management performance;
- further application of research-based measures and effective knowledge transfer.

Muhlrad (2006, 2009) suggested another set of checklists for a diagnosis of road safety management and policy-making at the national level. The set consists of five parts which are:

- Road safety management organisation at the national level;
- Support activities for road safety management;
- Road safety policies: basic or "groundwork" measures;
- Road safety policies: corrective measures and interventions;
- Structural measures or interventions.

Further, each part is subdivided into "types of activity", which are accompanied by "components useful for road safety management and improvement". For example, the "Road safety management organisation at the national level" is subdivided into the following activities:

- Inter-sectoral road safety management;
- Road safety programming;
- Specific funding of road safety programmes and activities;
- Mobilizing decision-makers.

The essential components, for example, for the "Inter-sectoral road safety management", are:

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- Inter-ministerial committee for road safety;
- Designation of a "leader" or leading agency responsible for road safety;
- Road safety inter-sectoral decision-making institution;
- Advisory inter-sectoral road safety body;
- Regional or local road safety inter-sectoral institutions;
- Multi-disciplinary research and development framework at the national level or countrywide;
- Provision of a national or regional technical support network for local authorities.

The framework developed by Muhlrad (2006, 2009) covers all the essential components of road safety management at the national level, including the organisation, its processes and products, pre-conditions, supporting activities, main actors and their quality level, data and knowledge available, countermeasures applied, etc. This tool enables a comprehensive description of the road safety management system in a country without any judgment of good or bad practice. It was successfully applied for diagnosing road safety management systems in a number of low- and middle-income countries.

2.4. Discussion

Recent publications suggesting summaries of road safety managing principles or recommendations for better road safety management were reviewed. Most of them present the results of "collective expertise" of road safety experts which are typically researchers with a strong connection to road safety policy-making and, sometimes, policy-makers. In addition, there are publications reflecting personal or team research experience, on the subject.

The summaries found in the literature enable to recognize some essential components, processes and actors of road safety management, which are typically based on the experiences of countries with leading road safety performance and/or achievements (so-called good practice examples). However, in general, little research was carried out on good practice in road safety management, where evidence-based findings on the relationship between certain RSMS components and road safety outcomes are typically lacking[4].

The literature findings provide a background for further elaboration of a methodology for detailed information gathering on road safety management processes in the European countries. However, they leave us with a lot of freedom to define "good practice" in road safety management by including experiences from the countries and other research projects (e.g. SUPREME, 2007). Logical thinking and using the points of convergence of the various literature sources need to be applied for the development of road safety management investigation model and for further identification and analysis of good practice examples.

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[4] The only exception can probably be seen in setting qualitative targets which was proven to be associated with better road safety performance - e.g. Wong et al (2006).

3. ROAD SAFETY MANAGEMENT INVESTIGATION MODEL

3.1. Basic definitions and structure

Road Safety Management can be globally defined as a government area geared at reducing the number of road crashes and victims on the territory and in the population governed. Road Safety Management is thus justified by its outputs in terms of measures or action programmes implemented to prevent or reduce road crashes and injuries and includes activities (policy-making tasks and transversal processes) as well as the organisation necessary for these activities to take place (the Road Safety Management System).

Policy-making can be defined as a cyclical series of tasks (see Fig. 3.1). *It begins in the agenda setting stage with recognition and definition of a significant public problem and an organized call to government action. In response, the legislative and bureaucratic machinery of government and associated non-governmental stakeholders may formulate, adopt, and implement a strategy for addressing the problem. Analysis of policy effectiveness in turn often reveals shortcomings in formulation or implementation or new problems to add to the policy agenda* (Dunn, W.N, 1981, http://www.laits.utexas.edu/txp_media/html/bur/features0303_01/ policy.html).
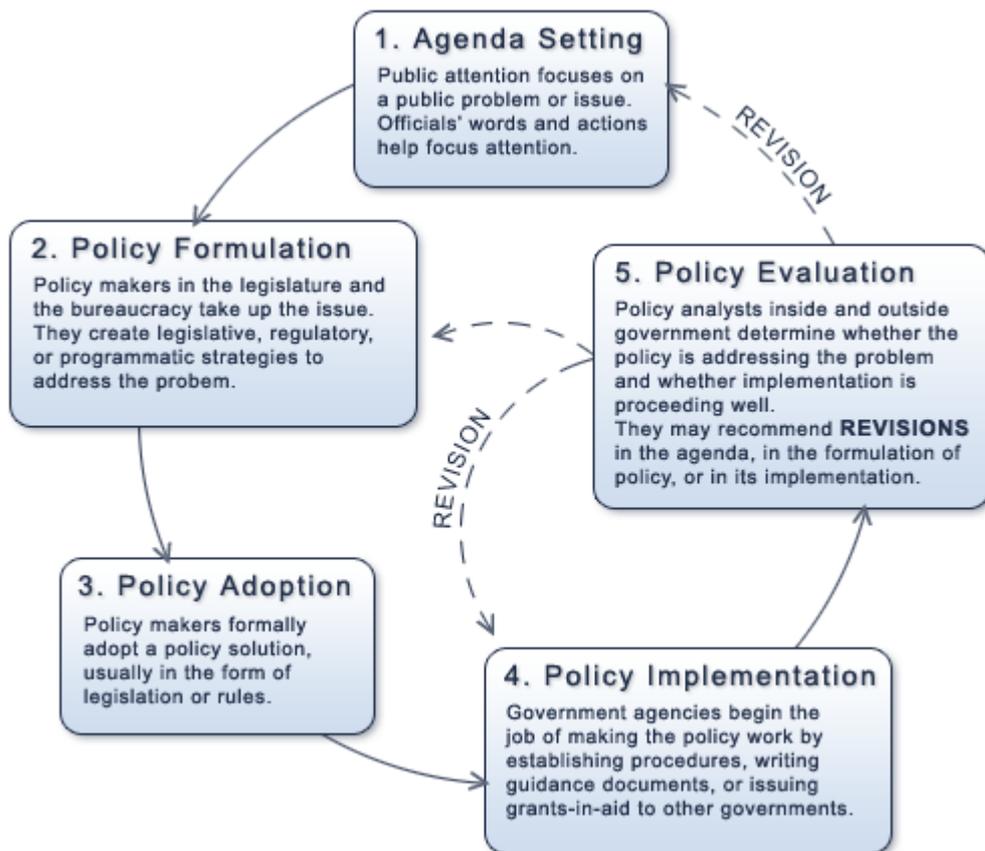

Figure 3.1 Policy-making
(**http://www.laits.utexas.edu/txp_media/html/bur/features0303_01/ policy.html**)

In Road Safety Management at the national level, the five stages of policy-making illustrated above can be described as follows:

Road safety management investigation model and questionnaire

1. *Agenda setting*: Road safety is identified as a major problem in the country (a public health problem), it is described, analysed, measured, efforts are made at understanding its origins and some consideration is given to changes in time and to future trends, especially in relation with infrastructure development. Communication policies ensure that the importance of the issue is explained, justified, and widely disseminated in the public in order to gain support. Road safety thus safety becomes a public policy area and steps are taken at a high political level to initiate action and provide the conditions required fro its completion.

2. *Policy formulation*: Basically, it is a thought process of formulating objectives and of selecting a logical solution among the available options to reach these objectives; the choice of a solution is made through considering all the alternatives, weighing the positives and negatives of each option and forecasting the outcome (http://www.businessdictionary.com/definition/decision-making.html). It is to be noted that this definition of policy formulation implies that factual knowledge (or evidence) is collected as a basis for all choices to be made. Policy objectives may be short, medium and long term and the logical solution may prove different according to the situation in each country (current characteristics of the road safety problem, state-of-the-art of previous and present road safety measures or interventions). The solution may thus include some or all of the following components: a long term vision, a strategy (specific issues to be addressed, main principles and sectors of intervention), a short-to-medium term goal (defined by a quantitative target), a short-to-medium term multi-sectoral (or "integrated") action programme, priority sectoral interventions, and provisions for implementation (operational implementation processes, fund allocation, actors involved, capacity building).

3. *Policy adoption*: Each of the policy components needs to be formally adopted by the proper decision-makers in order to be implemented. For the road safety policy elements requiring adoption at the national level - which are our particular focus for this model, the decision-makers (government, Parliament) need to undertake multi-sectoral consultations and may have to legislate. The final shape and content of the components adopted may vary from what had originally been formulated due to possible trades-off during consultation of the stakeholders. It is to be noted that the task of getting the policy adopted may overlap with policy formulation through a feed-back process.

4. *Policy implementation*: It is the course of action of putting into use the policy components adopted. At this stage, the factors which may slow down the application or reduce the efficiency of the road safety measures (such as resistance from some parts of the society and the media, lack of motivation or of knowledge of actors, etc.) have to be controlled, which may imply that preliminary action is taken. Moreover, the more complex the policy, the more actors are involved in its implementation (including different categories of stakeholders). To avoid the risk of a substantial policy adoption - implementation gap, all actors need to be supported and the necessary links between them established. The competent road safety authority (which can only be a government structure given the nature of its tasks) thus has to mobilize actors, agree on timelines for the implementation of each policy component, provide the necessary legal framework or technical guidelines or standards, allocate funds, provide special training where needed, monitor the implementation processes and ensure that operational interventions are consistent with the adopted policy.

5. *Policy evaluation*: Road safety evaluation includes two categories of tasks addressing two separate goals:
   a. monitoring is intended to check whether implementation is proceeding according to plans, is likely to reach its goals (for instance has reached intermediate targets), and whether potential undesirable side-effects are kept under control; this may lead to revisions of the action programme or of implementation conditions before implementation is completed. Monitoring is a continuing, or at least periodical task, which may be formalized.
   b. longer term "product" evaluation is meant to check that the quantitative targets in terms of crash and injury reduction are reached through the implementation of the policy components adopted; furthermore, it is intended to assess the efficiency of various specific interventions and learn from the experience. The new situation after implementation of the policy is the starting point for a new cycle of policy-making.

To accomplish all the tasks of policy-making, some **management processes** are needed. Each of these processes participate in several tasks (or stages) of policy-making but have a life of their own and thus need to be developed as individual entities. Four main processes have been identified.

Inter-sectoral coordination is an active process required in policy-making at least at three levels where different sets of actors may be involved:

- policy formulation (stage 2): developing a vision, a strategy, quantitative targets, selecting the best programmes or interventions, and defining adequate implementation conditions and funding procedures involve collective work performed by scientific and technical staff in relation with the decision-makers;
- policy adoption (stage 3): for future implementation to be feasible, each policy component adopted has to be supported by the decision-makers in all sectors of government that will be involved; in particular, the degree of priority of road safety issues over other areas of work to be performed by the actors has to be agreed upon as well as the conditions and resources needed for implementation;
- policy implementation (stage 4): as several government sectors and some other stakeholders share the implementation of the policy components adopted, an inter-sectoral process linking decision-makers and implementers is required to perform the monitoring activities as well as to introduce the (hopefully minor) organisational, financial or technical changes needed to preserve the consistency of the policy and solve the unexpected problems that may prevent implementation of some components from going ahead.

Consultation of stakeholders: As on one hand, road crashes and injuries are a public health problem and on the other hand, any measure taken to alleviate the problem impacts on economics, the environment and citizens' everyday life, stakeholders are multiple (provincial or local authorities, Parliament members, private businesses, NGOs) and have varied interests in road safety, ranging from advocacy through participation in action to downright opposition to specific measures [Muhlrad, 2006].

Involving non-governmental stakeholders in policy-making may include two complementary approaches:

- listening, observing and integrating (also termed the "bottom-up approach"): the initiative is to the non-governmental stakeholders who may advocate for road safety or lobby for or against the issue, undertake some action of their own (communication campaigns, training, technical developments, for example on

vehicles) or develop policies and implement them (as local governments do); these activities may help decision-makers boost the priority given to road safety in public policies (stage 1, agenda setting), their potential effects may be taken on board when quantifying targets and selecting solutions (stage 2, policy formulation), and some stakeholders may be called to participate in the implementation of particular components of the national policy adopted (stage 4).

- consulting on the policy formulated at the national level (or the "top-down" approach): the initiative is to governmental actors who perform the consultation in order to identify potential oppositions, adapt or negotiate the policy components to overcome these oppositions before adoption, ensure that local policies will be in agreement with the national one and will contribute to the overall target, and benefit from the competences and motivation of key non-governmental stakeholders to enrich the policy and facilitate implementation (stages 3 and 4 policy adoption and implementation).

Both approaches may be informal, in which case there is a risk that the most vocal stakeholders are the most influential; or they may be performed as systematic and organised processes. Empirical experience has shown that it was indeed practical to involve stakeholders in a systematic way at an early stage in policy-making [OECD 2008].

Knowledge production and use: According to our definitions of the policy-making tasks, knowledge needs to be produced to justify the prominence and priority level of road safety as a public policy; it is also essential in policy formulation to identify available options, weigh their advantages and disadvantages and select from them the logical solutions. Indeed, the task of policy formulation cannot exist unless it is knowledge-based.

Three main areas of knowledge are concerned:

- in-depth knowledge of the road safety situation in the country and of its changes as a basis for policy-making (also termed "fact-finding"): this includes monitoring of the road safety situation and trends, safety diagnosis and epidemiological analyses (in particular in stage 1, agenda setting), in-depth analyses of accident causation mechanisms and crash and injury factors, analyses of behaviour and its determinants, of the social and economic context, etc. (particularly in stage 2, policy formulation).
- knowledge of the expected effects of potentially efficient road safety measures or interventions (or "packages" of associated measures) relevant to the problems identified in the strategy as well as of their cost and implementation conditions (this is particularly needed in stages 2 and 3, policy formulation and adoption); this knowledge is both generated in the country through experimental research and evaluation (the latter as part of stage 5, policy evaluation) and collected from the international pool of experience.
- methodological knowledge which is required to perform fact-finding and evaluation and also other policy-making tasks such as forecasting and monitoring (in stages 2 and 4, policy formulation and evaluation).

The knowledge production and use process is threefold:

- knowledge production in the country through research and studies, provision of data and development of the needed methodological and technical tools;
- knowledge gathering and dissemination by collecting, storing and publishing home results and accessing international literature and reports;

- integration of knowledge into the decision-making process, which implies that formal or informal relationships and exchange procedures are established between the scientists and technical staff producing and collecting knowledge (the technical support) and the government authorities and other stakeholders involved in road safety policy-making at the decisional level.

Capacity building: In order for the Road Safety Management system to work and the policy-making tasks to be performed according to expectations, some attention must be given to the persons involved in these structures and participating in these tasks in order to analyse their professional position (are their other duties compatible with their road safety work and responsibilities?), their needs (for knowledge, for methods), and the resources that are available to them. Moreover, attention must also be given to strengthening capacity in the long term, which means investing in a sustainable process of knowledge production and dissemination.

Capacity building thus involves several types of activities:

- *Institutional organisation*: ensuring that the right people are allocated to each task or process; that the road safety actors are properly integrated into the RSM system, so that they get the links and the human environment they need to perform their tasks, and are rewarded for their road safety duties as for their other responsibilities;
- *Implementation conditions*: ensuring that adequate human, technical, and financial resources are allocated to each task and the corresponding actors;
- *Strengthening abilities*: identifying the needs for methodological approaches and knowledge required for each road safety process or task, identifying the needs for information and knowledge transfer to the actors in post, and providing the missing knowledge under a format adapted to the different categories of actors addressed:
- *Strengthening capacity in the long term*: preparing potential road safety actors to their future tasks through initial training adapted to each discipline concerned; keeping the memory of the work performed in road safety, its effects and the knowledge gained from its evaluation.

The coordination and knowledge production processes can be seen as pre-conditions for capacity building.

For policy-making tasks and processes to be performed, some form of institutional organisation is required which we will call here the *Road Safety Management System* (while *Road Safety Management* as a government area includes tasks, processes and institutional organisation).

Following the ISO 9000, 9001 and 9004 Quality Management Definitions, "a management system is a set of interrelated or interacting elements that organisations use to implement policy and achieve objectives" [http://www.praxiom.com/iso-definition.htm]. Applying this to road safety as a public policy area, a government responsible for the safety and security of its citizens is the form of organisation which will set up a management system. Thus, a **Road Safety Management System** at the national level can be defined as *a complex institutional structure involving cooperating and interacting bodies which supports the tasks and processes necessary to the prevention and reduction of road traffic injuries*.

The Road Safety Management System is lined to the external environment and is characterized by its people ("actors"), its formal structure linking the actors between themselves and linking itself to other areas in government, its resources, equipment

and technologies and its performances in getting tasks and processes accomplished and producing the desired outputs (see Fig. 3.2).

According to our definition, the Road Safety Management System must be designed to support the essential processes (*inter-sectoral coordination, consultation of stakeholders, knowledge production and use*) and the policy-making tasks (from *agenda setting* to *policy implementation and evaluation*) enabling the government to reach its safety goals. The desired output is the setting up of operational tools and the implementation of measures and interventions expected to improve the current and future road safety situation.
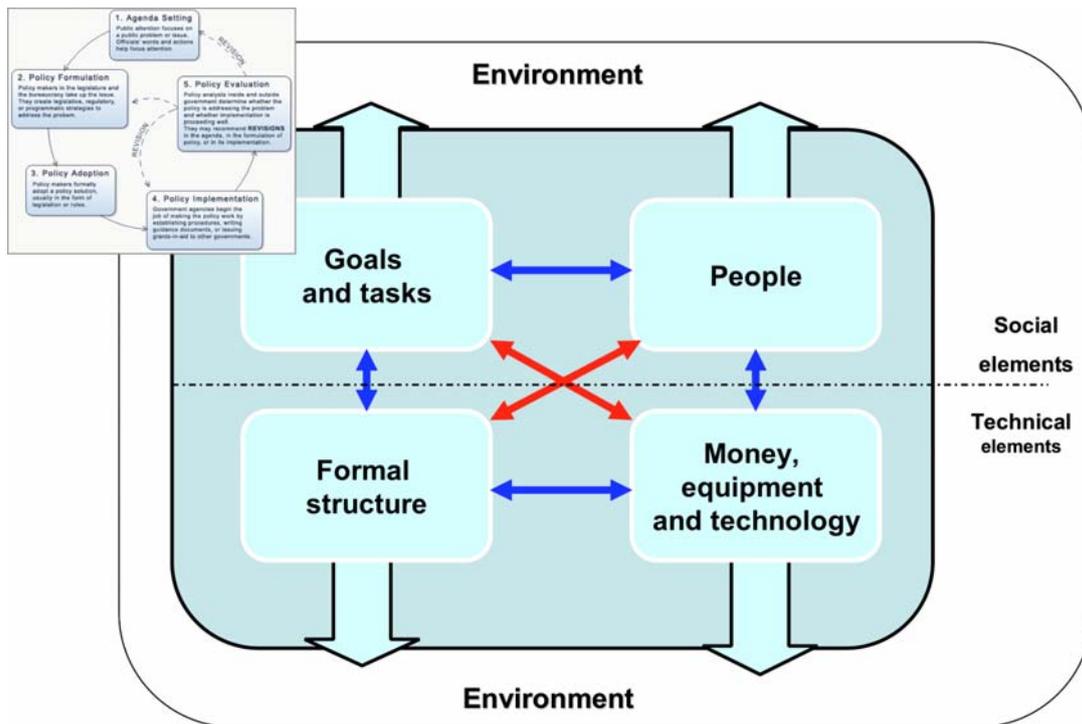
Figure 3.2 Analysing the Road Safety Management System

The *Road Safety Management System* is a complex inter-sectoral structure as it must link and organise very different groups of stakeholders who take an interest in road safety and are thus the actors. The system must also provide these actors with the data, tools, equipment and other resources necessary to their trade [DaCoTA, 2010]. There are some **pre-conditions** for such a structure to be created with all the means to make it work effectively and efficiently, such as:

- political will at the higher level, which is necessary to set up new institutions cutting across the usual administrative sectoral hierarchies and therefore introducing new links and working patterns;
- a climate/vision ("road safety culture") shared by the road safety actors and the road users which makes policy implementation feasible and policy adoption smoother.

According to countries' background in road safety, these pre-conditions may already be met at the onset of the policy-making cycle; or they can be enhanced at the agenda setting and implementation stages of policy-making. This shows that building up a Road Safety Management System can only be performed in an iterative way where experience builds up knowledge and strengthens political and public awareness and each multi-annual programme is a step towards better practice.

The following diagram (Fig.3.3) summarizes Road Safety Management and its components.

The Road Safety Management institutional structure is a logical construction whose bricks are people (actors) who all have other duties or interests besides road safety. This could make the construction highly unstable unless precautions are taken. For the system to work as consistently an efficiently as possible, some criteria and functions defining "good practice" will be defined, based on empirical experience (see § 3.2).
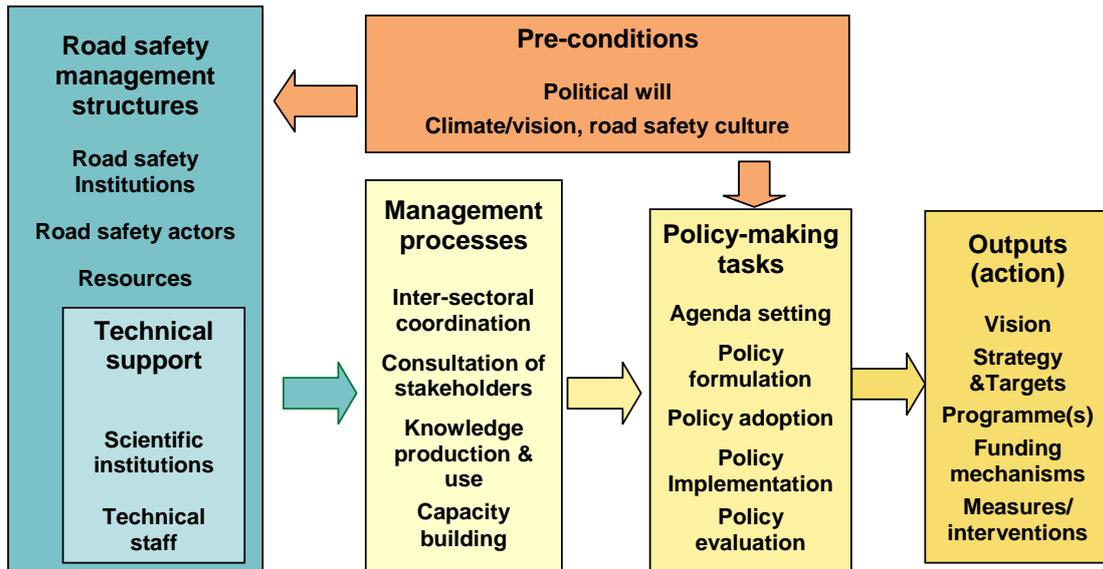
Figure 3.3 Road Safety Management

The investigation of Road Safety Management at the national level in European countries will particularly focus on the institutional bodies indispensable for the development of the essential management processes and on the criteria and conditions which differentiate "good practice" from mediocre road safety management. We will thus review the institutional structures for road safety, the processes, and the presence or absence of the main outputs (objectives, targets, strategies, programmes, interventions). The actual content of these components will not have to be analysed in details as this has been done in earlier European projects. Chapter 4 introduces the investigation questionnaire designed on these lines.

3.2. Good practice in road safety management

As seen in the literature review, recent publications [e.g. OECD, 2008, Bliss & Breen, 2009] propose a "good practice model" based on a consensus of groups of experts. However, there is no acknowledged "good practice" for Road Safety Management as each country has evolved its own system over time and, although the systems are different, it can be observed that many European countries did reach the 2010 European road safety target. Hence, this investigation's purpose is to provide in-depth comparisons between countries' forms of organisation and identify "good practice" where it is found.

In this investigation model, we will define hypotheses of "good practice" and the criteria which may characterize them best.

The ultimate goal of Road Safety Management being to improve — and continue improving — the road safety situation by saving lives and severe injuries, "good practice" must be linked to performances in reaching this goal. We will therefore

define "good practice" as *building up the Road Safety Management System and developing the activities it supports (processes and tasks) so as to ensure that the expected road safety outputs are effectively obtained and are as efficient in reducing road crashes and injuries as we can make them, given the present state of road safety knowledge.*

More precisely, this means that pre-conditions must be met, the road safety institutional structure and organisation must support the essential processes and policy-making tasks, and policy formulation must be based on factual knowledge of the safety situation and what creates it, and of the potential effectiveness of road safety interventions (Hauer, 2005, 2007).

In the following sections, hypotheses on conditions and criteria for "good practice" are made for the key components of Road Safety Management, drawing both from the DaCoTA team work and the available literature. We will find that some criteria are common to several of these components, which is not surprising given the fact that we work on a complex system. This will reflect on the design of the investigation questionnaire which will be performed in two steps: (a) identifying the relevant questions to describe the road safety management system at the national level and indicate whether the "good practice" criteria are met, and then (b) re-ordering and compressing the questions to avoid redundancies.

3.3.1. Pre-conditions

Political will

Political will is a pre-condition to most steps of road safety management:

- As seen above, the road safety institutional structure is meant to allow transversal cooperation to develop between actors in policy-making. Setting up such a structure disturbs the usual administrative pattern of a country (or a state, or a region or a city) as it requires building up new links and taking collective decisions, which in turn may lead to some loss of decision-making power of individual actors with regard to road safety issues and even to priorities in their own sector. To ensure that appropriate institutional building can happen, political will at the highest level is absolutely needed.

- Funding road safety programmes and activities is obviously a necessary condition for implementation. Strategies or action programmes which do not anticipate the needs for funding usually do not reach their target because they are incompletely implemented. In rich countries as in the poorer ones, road safety competes with other issues of social or political value. To ensure appropriate funding can be set aside for the number of years of a road safety programme so that it can be implemented, strong political will is again needed to support the road safety claims to funding.

- Some road safety measures are unpopular with all or sub-groups of road users as they may be perceived as restraining personal freedom or, at least, reducing the amount of pleasure derived from mobility (especially by car or motorcycle). It takes political courage to persist in implementing unpopular but efficient measures at the possible cost of votes and future personal political career, even if some ways can be found to gradually change the attitude of road users.

Setting up strong institutions, compelling objectives and providing the means to ensure that they are reached indicate that a strong political will exists in the country and also show that the key management and policy-making tasks can be effectively performed: unless one can interview all the decision-makers involved and the major stakeholders to analyse motivation and level of awareness, political will can only be

assessed through its outputs. From collected experience (see the literature review in Chapter 2), we can draw a list of points indicating strong political will [OECD, 2008, Elvik, 2008, Muhlrad, 2005, Bliss & Breen, 2009] and further discuss them:

a. *a lead agency responsible for road safety at the highest government level*: this is particularly important in countries where road safety management is a relatively new policy area and new processes and activities must be generated; in other countries where inter-sectoral coordination has long been effective, such a lead agency may become redundant.

b. *a long-term vision enduring political and government changes*: this ensures that political will is sustained, which is necessary to long-term road safety improvement; however, political will may exist temporarily in relation to a given political situation.

c. *a compelling quantitative target, challenging but achievable and commitment of the higher levels of government to reach it*: a compelling quantitative target implies that the country authorities proclaim their responsibility for improving road safety, engage the necessary means to achieve the goal and are evaluated on the results obtained; while positive results may be obtained without a quantitative target, setting up one makes a strong point that failure is unacceptable.

d. *a national road safety programme adopted at the highest level of government after consultation of stakeholders*: this defines the multi-sectoral actions needed to reach the target and is therefore a corollary of point c). The areas covered by the national road safety programme depend upon the key road safety problems identified and the potential effectiveness of known solutions to solve them.

e. *a well-defined and realistic funding procedure and fund allocation*: as mentioned above, provisions for adequate funding are a condition to ensure the action programme will be fully implemented and is therefore a corollary of point d) [see also Muhlrad, 2005]

f. *an efficient coordinating structure at all necessary levels, precisely defined (key sectors and actors involved, roles and responsibilities)*: as discussed above, transversal cooperation between actors in different sectors is essential to ensure full responsibility is taken in implementing the programme; setting up a transversal structure is a sure sign of strong political will, provided the structure has decisional and implementation powers (an advisory multi-sectoral body, even if it includes the relevant stakeholders, does not qualify as a working structure).

g. *a system for monitoring progress in realizing targets and providing feedback to the agencies in charge of implementation*: such a system is meant to ensure that the quantitative target will be reached in time and to help the actors involved do it; as such, it is a corollary to points c) and d).

h. *a strong process of knowledge production and knowledge transfer*: investing in research and studies and providing adequate training to the road safety actors in charge with design and implementations of interventions indicates the will to base policies on factual knowledge rather than on a "pragmatic" approach [Hauer, 2007].

To sustain or generate political will if it is not yet strong enough, advocacy through facts and figures is an essential process [WHO, 2004] which must be supported by communication policies and knowledge inputs through the government structure. Advocacy may be performed by governmental actors who have a strong interest but little direct decisional power in road safety management (such as the Health system),

by researchers and scientists or by other stakeholders. The ultimate target audience of advocacy is high level political decision-makers.

Elements indicating that action is under way to strengthen political will thus include:

a. *collection and publication of comprehensive quantitative and descriptive data on road crashes and injuries (especially health data)*: this is meant to emphasize the magnitude of the problem to be solved and its consequences.

b. *periodical publication of critical reports or articles on the current road safety situation by government agencies and other stakeholders*: this is meant to generate more, or more efficient, action to solve the problem.

c. *communication policy through the media on the road safety situation*: this addresses the citizens and aims at enlisting their support for road safety action.

d. *active communication policy by relevant NGOs*: "lobbying" for road safety is a way to put pressure on political decision-makers.

Creating a climate for road safety

A climate for road safety (or a "road safety culture") links decision-makers, policy-makers and the road users in a country so that there is trust in national policy and a majority of the citizens accept whatever restraints are necessary to implement road safety interventions efficient in reducing fatalities and severe injuries. If citizens are to choose to back road safety goals and policy, they have to be knowledgeable on these issues in order to form an opinion, which implies that a process of knowledge transfer has taken place from the government (supported by scientific and technical staff) to the public. Other stakeholders may take part in this activity.

That there is a good climate for road safety is best indicated by setting up a common goal accepted by all and by designing a balanced policy ensuring that the responsibility for road safety is shared by the government and by the citizens: the government provides the safest possible environment while the road users are expected to behave safely (or comply with the essential safety rules). Information policies to develop this climate address the public in general.

The points indicating a favourable climate for road safety thus include:

a. *an active **information** policy by the government, scientific agencies and other relevant stakeholders*: the transfer of factual knowledge obtained through research and studies under an easily understandable form is crucial for citizens' opinions to be based on facts rather than on a "pragmatic" approach (as defined by Hauer, 2007) and therefore to be sustainable.

b. *a long-term goal or vision prepared by the government and acted in Parliament*: elected representatives are the voice of the citizens; voting a long term vision of road safety improvement is more than an indication of support for current policies, it is a way of putting pressure on the future politicians so that the effort is sustained.

c. *a national road safety strategy and multi-annual programme which focus on the road, traffic, and transport environment as well as on road-user behaviour*: this is the key to shared responsibilities and to a trust between the government and the citizens [OECD, 2008, WHO, 2004].

3.2.2. Road Safety Management system, processes and policy-making tasks

As the Road Safety Management System supports *processes* and *policy-making tasks*, it is logical to use these as entry-points to describe good practice. Sets of criteria for "good practice" have thus been identified for some of the key processes and components of the policy-making tasks. The picture is not comprehensive but is meant to reflect the state-of-the-art of knowledge and reflection on this issue.

Inter-sectoral coordination of road safety activities

As seen earlier, inter-sectoral coordination is needed at several stages in policy formulation, policy adoption and implementation. From logical analysis of government structures backed by experience at country level, we know that inter-sectoral activities cannot easily be carried out in a hierarchical government structure [Muhlrad, 2006, OECD, 1984]; therefore, the transversal links to be established must be formalized into stable management structures. For good practice, two conditions have to be met: the management structures must be appropriate for the right type of coordination and the coordination must actually take place (the structures exist, are properly designed, and are active).

Inter-sectoral decision-making is first required at a high decision-making level to set up goals, define a strategy, adopt a challenging quantitative target, and adopt a multi-annual inter-sectoral action programme or other suitable policy solutions to reach the target. What we are looking for here is:

- a formally established inter-sectoral structure with identified leadership and full responsibility for road safety (this requires legislation or at least a regulatory decision); it is to be noted that this structure should be part of the decision-making chain and therefore belongs to government; a separate structure would be consultative and could not play the desired part of coordinating actors in order to take common decisions [Muhlrad, 2005]; moreover, to be able to adopt targets and strategies that engage most areas of government, the structure has to be placed under the highest government authority (according to country, the President, the Prime Minister, the Chancellor, etc.);
- in this structure, representation of all government sectors which will take part in road safety action (government ministries or departments): this is a condition for all sectoral leaders to know, understand and agree on their particular role in policy formulation and implementation;
- members of this structure to have full authority in their sector for implementing the policy adopted; in particular, they will have to organize their overall load of sectoral activities to accommodate the road safety ones at the correct priority level [Muhlrad, 2006];
- appropriate logistics for the structure to function: a secretariat to prepare meetings and keep track of decisions, technical and scientific support, a budget for communication, etc.
- procedures, or at least a well defined process, to follow up in the next stages of policy formulation and implementation.

High level decision-makers will not get into the details of coordinating policy formulation which, according to our definition, involves much scientific and technical work: in-depth analysis of the current situation, reviewing knowledge in all areas of road safety interventions, weighing advantages and disadvantages of different solutions, forecasting effects, etc. Similarly, they will not directly coordinate implementation which often involves actors dispersed throughout the country to

prepare and perform detailed field operations. The sets of actors involved in policy formulation and in implementation are different and are not high level decision makers and the needs for coordination are therefore at another level. The high level structure responsible for road safety must thus delegate to a more technical inter-sectoral body the care of coordinating the tasks of policy formulation and implementation.

As the technical inter-sectoral body required needs to master implementation processes, it has to be part of the government administration and fully integrated with the administrative sectors; it also has to be closely linked, or at least report, to the high level structure endowed with responsibility for road safety. In order to be able to work, this "second level" inter-sectoral road safety institution should meet the following criteria:

- be formally established (this may require legislation or regulatory documents), with identified leadership and the responsibility of directing the formulation of the action programme(s), of preparing implementation conditions and of ensuring adequate implementation;
- include representatives of all sectors involved, personally designated for a length of time sufficient to supervise at least a medium-term programme [Muhlrad, 2005] and with experience or training in road safety (a capacity building scheme may improve this);
- be supported with appropriate logistics;
- get a budget for applied research and studies and link with the scientific and technical support staff to coordinate the preparatory work for policy formulation (studies, information gathering, etc.);
- be able (e.g. have the authority, the resources, the procedures) to dialogue with the high-level inter-sectoral structure in order to get the policy components adopted;
- be able to dialogue with implementers to identify needs and implementation requirements (resources, training, etc.);
- have the authority to claim adequate funding for implementation (possibly including legislation for a formal funding structure) and to allocate resources to the sectoral interventions included in the action programme;
- be empowered to monitor the implementation of the sectoral components of the adopted road safety policy in real time in order to identify possible discrepancies between what is planned and what is performed;
- be able to help with implementation difficulties by offering training, technical support and capacities of conflict resolution to the field actors involved;
- systematically report to the higher-level coordinating body.

Consultation of stakeholders

As seen in the description of the process, stakeholders may be involved in agenda setting, policy formulation and implementation through a "top down" or a "bottom up" approach.

For the "bottom up" approach, the road safety authorities at the national level (it may be the lead agency, the high level coordinating structure or, more practically, the technical inter-sectoral coordinating body) need to get a sufficient overview of the road safety policies, and of other initiatives likely to positively or negatively affect the road safety situation, carried out in the country by other stakeholders (local authorities, NGOs, other stakeholders from the private sector). Some knowledge can be obtained through informal enquiries but a comprehensive picture can only be

obtained through a systematic information gathering process. As regards local authorities, for example, establishing a National Observatory of local road safety policies and practices has been one of the proposals of the Pedestrian Quality Needs project [PQN Final Report, 2010]. Monitoring the road safety scene to keep track of un-planned and un-coordinated actions that may come in and counteract the effects of the national policy is also a tool of "good practice" as it may enable the authorities responsible for road safety to take action (consultation, negotiation or legislation).

For the "top down" approach or getting the national policies endorsed and supported by non-governmental actors, the coordinating structures need to establish an inventory of stakeholders potentially interested at the national level in the goal, the measures to be implemented, the road users particularly targeted, or the implementation conditions.

For both the "top down" and "bottom up" approaches, linkages and some negotiation and coordinating processes have to be established between the governmental road safety leadership at the national level and the other stakeholders concerned. This is particularly needed at three stages of policy-making: policy formulation, adoption and implementation. Ideally, the consultation process should allow for:

- taking on board the effective regional or local initiatives and integrating them in the national policy being formulated and to be adopted (the "bottom up" approach);
- discussing policy components with the relevant stakeholders in order to check acceptability, identify the potential problems, negotiate implementation conditions, enlist participation in the implementation where possible (the "top down" approach);
- negotiating with "counter-lobbies" at an early stage of policy formulation with a view to convincing them… or neutralizing them (this is important to avoid potential blocking of the implementation process due to unforeseen arguments);
- monitoring and coordinating implementation to ensure compatibility of the road safety activities carried out by the different actors.

In terms of organisation, the process may be performed by the technical inter-sectoral road safety body and thus added to its duties. A permanent consultation structure may also be formally created to dialogue with the road safety authorities. Although the present state-of-the-art of research indicates that consultation of stakeholders is good practice [OECD, 2008], it does not provide good enough indications as to which organisation is best suited to the process. Experience from countries with a dedicated consultation structure suggests that this may be useful if:

- the consultation structure role in advising the government and intervening in policy formulation is well defined so that the consultation process is effectively carried out;
- the members of the structure represent all the relevant stakeholders inventoried and are personally nominated for a determined length of time (no life-time members but a mandate long enough to ensure that experience and expertise build up within the structure);
- the members have access to all available road safety information and the structure gets a budget for sponsoring studies or specific research if deemed necessary;
- the structure is endowed with adequate logistics for meetings and collective work.

The inventory of relevant stakeholders may vary from country to country according to the degree of involvement of the civil society into road safety issues. Some countries go as far as including selected Representatives in the consultation process on behalf of the Parliament and, through it, of all the citizens who are, after all, the main stakeholders! In other countries where the national Parliament plays an active role in target setting and/or policy adoption, relationships between Parliament and government belong more to a partnership than to a consultation process.

Implementation conditions and funding mechanisms

The measures or interventions included in an action can be implemented only if the right implementation conditions are met:

- for the implementers (in each sector): adequate resources (qualified manpower, funding), equipment and logistics, enabling legal framework, enabling organisation, adequate time-schedule; these elements must have been given attention in the formulation of the action programme, and providing them on the basis of task analyses is part of the capacity building process which must take place before implementation of each policy component;
- for the implementers: adequate knowledge and know-how, capabilities to plan and design the measures or interventions in a way suited to the physical and social context of implementation, and to correct for possible undesired side effects, in order to reach expected efficiency in reducing crashes and injuries; this implies that the required technical skills are available or that training is made available through the capacity building process;
- for the road users: information, understanding, acceptability; this means that preparatory measures addressing the road users (communication scheme, pilot implementation, etc.) may be necessary before implementing some particular interventions.

As concerns the implementation budget, an inventory of the needs must have been done in the course of the formulation of the action programme. If this is not the case, the task has to be performed in each sector. In both instances, specialists in each sector will have to contribute to the technical assessment of needs. Funding may be provided by the national government and its partners, which implies that the assessment of needs has actually been performed at the inter-sectoral level. Other road safety funding mechanisms may have been set up to bypass the national budget procedures (for example, a Road Safety Fund or Foundation), which would provide more flexibility for requesting funds during the implementation phase [SUPREME, 2007].

"Good practice" in road safety can be defined on an effectiveness basis: funds are available as planned to implement the policy adopted (as a pre-condition for implementation to take place); fund allocation takes into account the schedule and duration of implementation of each measure or intervention in the programme; moreover, funds are efficiently allocated precisely where they are needed so that none are wasted [Muhlrad, 2005]. From this, some criteria for "good practice in road safety funding can be derived:

- there are sustainable funding mechanisms for the road safety measures or interventions which continue in the long term (as well as for road safety management processes and tasks);
- sources of funding are identified and their respective contributions to road safety specified in the phases of policy formulation and policy adoption;

- procedures to allocate funds to road safety interventions are rational and precisely defined; in particular, there are adequate linkages between the officially adopted inter-sectoral action programme and the disbursement of funds.

Monitoring and evaluation

According to our definition of the policy-making tasks, there are two main sets of policy evaluation tasks:

1. Monitoring the implementation to check whether it is going according to plans. This includes:
   - following up what is performed by each of the sectors concerned ("qualitative monitoring"); this implies that the actors involved provide periodical information to the technical road safety coordinating body, preferably under a common reporting format; the coordinating body is then able to report on global road safety activities to the higher authorities (lead agency, government, the Parliament), which makes the reporting procedure a tool for high level road safety management.
   - short term monitoring of the effects of the measures or interventions implemented in order to detect possible mistakes or unexpected and undesired side-effects; this may lead to additional measures being taken to counteract side-effects or changes being made to implementation conditions in order to reach the expected efficiency level or the intermediate quantitative targets; short term monitoring has also been termed "process evaluation" [OECD, 1982].

2. Evaluation of the effects on the road crash and injury situation of the programme, measures or interventions ("packages" of complementary measures). This "product" evaluation is performed:
   - globally, to verify if a quantitative target has been reached;
   - for each measure or intervention implemented to assess its efficiency, learn from the experience for the next round of policy-making and add the new results to the existing corpus of knowledge useful for research and policy formulation.

In addition, some monitoring of the road safety situation is needed in order for policy-makers to be alerted if it starts deteriorating and to provide a background for policy-making and a basis for benchmarking; this task contributes to awareness raising to meet pre-conditions and to agenda setting.

Monitoring and evaluation are in themselves elements of good practice, provided they are performed on the basis of sound methodologies, using reliable data, and their results are actually acted upon [Dupont & Muhlrad, ed., 2010]. What is required for "good practice" thus includes:

- for monitoring the road safety situation and for "product" evaluation, good quality data on road crashes, injuries and exposure; for both "process" and "product" evaluation, ad hoc investigations and quantified observations of relevant items of behaviour; performance indicators may be defined, based on available data;
- qualified and independent scientific and technical staff to perform "process" and "product" evaluation, which in organisational terms means strong cooperation between knowledge production institutions and the road safety actors involved in coordination and implementation;
- for monitoring implementation, periodical data collection on activities and outputs in all sectors and for all interventions adopted in policy-making, and formal

    reporting procedures to the higher level (defining information content and time schedule);

- for "process" evaluation to be useful, formal feedback processes to ensure that adequate changes are brought to the programme or to the implementation conditions when proved necessary.

Knowledge production and use

Timelines for producing useful knowledge and for the formulation of policies are different: road safety actors usually want to have the appropriate knowledge available immediately when they need it. This implies that a road safety knowledge production process is set up not only to get at the roots of the road safety phenomenon, but also to anticipate on the future needs of policy makers. "Good practice" requires that knowledge is actually produced and that the Road Safety Management System supports cooperation between scientists and policy-makers to allow for knowledge-based policy formulation.

Road safety is a multi-disciplinary field of research, so knowledge production is team work which requires an appropriate multidisciplinary framework. Based on experience, a set of criteria for "good practice" can be proposed:

- existence of one or several independent and sustainable multi-disciplinary scientific institutions where road safety research is carried out on a continuing basis so that the specific skills needed can develop and research results are stored and memorized;
- a significant government road safety research budget to be allocated to this or these institutions to ensure that research anticipating the needs of, and supporting, decision-making is performed in adequate research conditions; this includes developing contacts and exchanges with a network of similar institutions in Europe and in the world;
- access by the scientific team(s) to all relevant data and information available and provisions for field experimentation;
- contribution of the teams to fact finding, monitoring and evaluation ("technical support") and freedom to disseminate results [Dupont & Muhlrad, ed., 2010];
- dissemination by the research institutions of all research findings that may be useful to policy-makers for advocacy, agenda setting or policy formulation (this comes in addition to scientific publications);
- active cooperation between research institutions and road safety policy-makers and/or the technical inter-sectoral coordinating body in order to make technical support a permanent feature and knowledge-based policy formulation a current practice;
- satisfactory carrier prospects or the researchers involved so that they stick to the job!

Capacity building

Capacity building has been defined as a complex process involving very diverse types of activities (see § 3.1) applying to human and technical resources, policy making and implementation conditions, and organization. Only limited empirical knowledge is available on capacity building practices and even less on "good practice". In this section, the focus will be on capacity building activities addressing road safety actors as implementation and monitoring conditions as well as management structures have already been examined.

The existence of a capacity building process to provide specialised knowledge to current or future road safety actors is in itself "good practice" as it is a systematic way to ensure that all actors with a part to play in road safety do it on sound methodological bases and with a common understanding of the scientific bases of their work. Policy formulation as defined here is a skilled activity to be performed by specialists. Similarly, planning for implementation requires in-depth knowledge of the tasks and the actors involved: while experienced road safety professionals may have acquired some empirical know-how, training is necessary for new-comers and to bring all professionals up to date with the recent research results. As mentioned in § 3.1, knowledge production is a pre-condition for capacity building; access to international knowledge is a corollary.

"Good practice" in capacity building applied to human resources can be logically defined by two criteria: ensuring that the policy formulated, adopted and implemented is knowledge-based; ensuring that road safety work is effectively and efficiently carried out at all levels so that expected effects on the road crash and injury situation can actually be obtained. This means:

- bringing up human resources working in road safety at all stages of policy-making to adequate levels, both in number and in qualifications;
- providing differentiated training to all categories of actors currently involved in coordination, policy formulation, implementation, monitoring and evaluation so that they acquire up-to-date knowledge and the methodological tools necessary to their trade (this involves a preliminary assessment of the needs in relation to the tasks to be performed);
- providing seminars, training sessions or other information activities for decision-makers, be them politicians, and for major stakeholders involved in the consultation process and/or participating in road safety action;
- building capacities for long term road safety management by introducing road safety policy and management issues in professional and scientific education.

"Good practice" also involves building the capabilities to teach and train (a pre-condition). The scientific institutions performing road safety research on a regular basis are obviously involved as they develop and collect new knowledge with which to update the skills of road safety practitioners. Developing specialized training programmes and the means to teach them requires some work in addition to research. Moreover, given the large number of field practitioners involved in most implementation areas, some networks of trainers, themselves trained by the scientific teams, have to be organized. Thus, "good practice" requires sound planning of capacity building activities.

Legislation and the Road Safety Management System

Legislation is neither a process nor a task in itself, but a tool which may have to be used to create institutions and empower actors. The legal and regulatory aspects of the Road Safety Management System cannot be neglected as they are conditions for most of the organization to work effectively. In particular, some legislation, or at least regulatory documents, needs to be enacted:

- to officially adopt a long-term vision for road safety in the country which will endure through successive governments;
- to set up formal coordinating structures, define their responsibilities, define conditions for membership, and allocate resources so that they can function;
- to set up structures formalizing the consultation of stakeholders;

- to define funding mechanisms for road safety management and the implementation of road safety programmes;
- to provide official status to the action programme once it has been adopted and possibly to allocate sectoral duties and tasks;
- to set up or comfort sustainable road safety knowledge production institutions and ensure that they are properly funded and can take initiative to anticipate on research needs;
- to establish monitoring and evaluation procedures, allow access to data and crossing of data-files to authorized technical and scientific staff.

"Good practice" implies that these pieces of legislation do exist and are formulated so as to meet the criteria of good practice relevant to the structure or process they are setting up. As the conditions for road safety management evolve in time, it is also important for most pieces of legislation to include clauses of reviewing and updating.

When investigating road safety management components, it is useful to analyse the current set of legal documents defining structures, processes, tasks and the tools to perform them in order to identify possible gaps or inadequate definitions and to compare how the system is supposed to work and how it actually works.

4. BUILDING UP A QUESTIONNAIRE

4.1. Principle and method

Investigating road safety management systems and identifying "good practice" is not an easy task as can be seen from the issues developed above. As we emphasized in the previous Chapter, in this study, identifying "good practice" where it exists is done with reference to research hypotheses rather than to a formal "model" which one would like to see implemented. Comparing the systems evolved by different countries implies that the investigation is done systematically and itemized so as to ensure consistent information gathering. The best way to achieve this has been found to be a comprehensive closed questionnaire, to be filled in by road safety policy-makers and/or scientists who are well aware of the issues of road safety management through their professional activities. A summary description of the data collection process will be found in Chapter 5.

The questionnaire to investigate road safety management in European countries with attention to "good practice" has been built in a systematic way. This involved two steps:

a. Formulating the suitable questions to describe institutions, processes and tasks as well as to check conditions and criteria of "good practice" according to the hypotheses of our investigation model (§ 4.2). The questions are "closed" (yes/no) answers but include the possibility of freely elaborating if the person filling in the questionnaire feels that some explanation or precisions are needed. Some of the questions are derived from those formulated in checklists reviewed in literature [Bliss & Breen, 2009, Muhlrad, 2009] while others are original, all of them are directly related to the definitions and criteria developed above [see list of questions in Appendix 2].

As all components of Road Safety Management are interacting, it is logical to find some redundancy between the lists of questions obtained for each series of criteria (indicated as A to J in Table 4.1). Thus, the ten lists of questions identified put together do not form an operational questionnaire to be submitted to countries' policy-makers and experts. However, this step is necessary to understand the purpose and relevance of each question.

b. Constructing the questionnaire by re-ordering the questions into a logical structure which will make it easier for the policy-makers and experts participating in the investigation to fill in clear answers (§ 4.3). The questionnaire structure must thus take into account the content of the information requested as well as the understanding of the road safety management situation that the persons interrogated may have from their vantage point. The ten sets of questions formulated in step a) are regrouped so as to eliminate repetitions. As there is no unified vocabulary in road safety, the questions are formulated by using terms provided by previous research papers and adopted by the DaCoTA team and a glossary of terms is provided as Appendix 1 to avoid potential misunderstandings.

For data analysis, it is essential to keep track of the relations of each question in the new set (re-ordered and compressed) developed in step b) to the original ones related to "good practice" criteria. A matrix will thus be built for data treatment in order to link each question in the final investigation questionnaire to the "good practice" issues to which it is related (see further explanations in §4.2-4.3). The

comments collected in the "open" part of the questionnaire will be used to clarify some of the yes/no answers; they will also undergo analysis as they may bring some added value to the investigation.

4.2. Formulating the questions

In step a), an inventory was made of all the questions necessary to describe the components of road safety management (the RSM system, the processes and the policy-making tasks) and to identify elements of "good practice" according to the criteria defined in the previous chapter. The criteria have been divided in ten groups which are the "objectives" towards which the questions are geared.

To make things easier for the reader and to avoid possible confusion with the final operational questionnaire developed in step b), the full list of questions formulated has been exiled in Appendix 2. The following Table 4.1 indicates the ten "objectives" or sets of criteria to be addressed (vertically from A to J) and the number of questions for each objective and road safety management component listed. In total, 69 questions have been framed, including redundancies.

Objectives	Pre-conditions	Inter-sectoral coordination of road safety activities	Policy-making tasks	Other key processes
A: Assessing the presence of political will	11			
B: Assessing the process to build up political will	6			
C: Assessing the process to create a climate for road safety	4			
D: Inter-sectoral coordination - Institutional organization		8		
E: Inter-sectoral coordination - How does it work?		4		
F: Describing policy-formulation and adoption			4	
G: Describing implementation and funding conditions			8	
H: Describing policy evaluation			8	
I: Describing the consultation process				8
J: Assessing knowledge production and use and capacity building				8

Table 4.1 Criteria to be addressed

4.3. The investigation questionnaire

The operational questionnaire needs to be as easy as possible to fill in for the field actors and the experts it is going to be presented to. As different persons may be

able to answer only part of the questions, it seems logical to re-classify the questions bearing in mind the different profiles of the potential interviewees. This process also allows to group and summarize the questions dealing with the same topic, and therefore to avoid redundancies.

Based on the original ten lists of questions geared at ten "objectives" which can be found in Appendix 2, the following operational questionnaire has been obtained. The questions have been further detailed and itemized to ensure that yes/no answers are meaningful and hopefully cannot be misunderstood. The full questionnaire was tested at length by the DaCoTA team to ensure common understanding. The original questions which have been regrouped to avoid repetitions are marked in bold (e.g. **A1. D2. I1. E1** are regrouped in question 1). This will be used to establish the matrix for data treatment. Indications of the type of free comments to be expected from interviewees are presented in the last column.

4.3.1. Preliminary information

Date of interview:

Person interviewed:

Name:

Current position, previous positions if relevant:

Preliminary question:

Can you describe in a few words how the responsibilities for road safety management are divided between the national, regional and local levels in your country:

4.3.2. Institutional organization, coordination and stakeholders' involvement

	Yes	No	Un-known	Please elaborate !
1. Has a high level inter-sectoral **decision-making** institution been established to prepare policy orientations or directions for RS?				*(Name of the institution?) Ex: France, Intersectorial Ministerial Road Safety Committee under the Prime Minister*
If yes: 1a) has it been created legally (law, decree)?				*(Since when?)*
1b) Does it operate :				
- Under the Prime Minister?				*(Does it have authority over ministries, road agencies, etc?)*
- Under the President, etc.?				
- Other?				
1c) Does it represent all governmental sectors potentially involved in RS in the country:				
- Urban planning?				*(Are all sectors represented actually involved in road safety decisions?)*
- Transport and traffic planning?				
- Road infrastructure?				

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- Enforcement?				
- Justice?				
- Health?				
- Vehicles and ITS (Intelligent transport Systems)?				
- Research?				
- Education?				
- Others?				
1d) Are some non-governmental stakeholders represented in the high-level decision-making institution, in particular from:				
- Research institutions				
- Private businesses				
- NGOs				
1e) Has a periodical schedule for meetings been specified?				*(What period?)*
1f) Is the high-level decision-making institution meeting regularly?				*(How often?)*
A1. D2. I1. E1.				
2. Does Parliament have a prominent role in initiating decision-making on road safety orientations or directions? **I3.**				*(Parliament may introduce laws on its own initiative, or may request specific policy components)*
3. Is Parliament involved in adopting road safety orientations or directions? **I2**				*(Parliament may vote a vision or a programme)*
4. Has a Lead Agency been formally appointed to take responsibility for road safety (direct the national road safety effort)? If yes: 4a) Is it				
- A ministry?				*(Which one?)*
- A road safety dedicated structure?				
- An agency (roads, transport, etc.)?				
- A personality?				
A8. D1.				
5. Has a technical inter-sectoral road safety institution been established to coordinate policy formulation and implementation?				*(Under whose authority?)*
If yes: 5a) Has it been created legally (law, decree)?				*(When was the law or decree passed?)*

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5b) Is it integrated into the decision-making hierarchy (as opposed to having been created as an association, a foundation or other non-governmental structure)?				*(Does the policy-making institution have authority to get a programme adopted? To get it implemented by all the stakeholders involved?)*

5c) Does it come under:

- the Prime Minister or other higher level decision-maker,

- the inter-sectoral decision-making institution, or

- the Lead Agency?

5d) Does it include the agencies responsible for road safety interventions in each one of the following fields:

- Rural infrastructure

- Urban infrastructure

- Transport and traffic planning

- Vehicles

- Traffic education

- Driver training and licensing

- Road safety campaigns

- Enforcement

- Health

- Research

- Others

5e) Are some relevant non-governmental actors or networks represented in the institution? *(for example, teachers, driving instructors, health personnel, etc.)*

5f) Are the members of the technical inter-sectoral institution individually nominated (as opposed to generic nominations by position?)

5g) Is the duration of the mandate of the members precisely defined in order to ensure continuity of RS activities? *(Is the coordinating institution stable enough that its members can acquire adequate expertise?)*

5h) Is the technical inter-sectoral institution endowed with a statutory (law or decree established) budget

- for "fact-finding" (studies, research, preparation of decisions)?

- to implement some road safety interventions? *(For experimentation? for measures which would not otherwise be implemented?)*

If yes: 5i) Does the statutory budget include:

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- Public funding?				
- Private funding?				

A9. D3. E2

If it exists: 6a) is the technical inter-sectoral RS institution also empowered to coordinate implementation of interventions horizontally across agencies?				*(Ensuring that implementation is on schedule? Helping with problems? Ensuring that connected measures are all implemented?)*
6b) If yes, does the coordination actually works across all sectors of interventions?				
If it does not exist or if not empowered: 6c) Are all interventions being coordinated horizontally across agencies through other means or structures?				
6d) Are some types of interventions otherwise coordinated?				*(For example: through bi-sectoral cooperation on specific policy components)*

D4.

If it exists:				
7a) Is the technical inter-sectoral institution also empowered to coordinate interventions vertically between national, provincial and/or local road safety institutions or agencies involved?				*(For example: do provincial authorities participate in national policy formulation? in policy adoption?)*
7b) If not, are interventions being coordinated vertically across agencies through other means or structures?				

D5.

8. Has an institutional structure for the consultation of stakeholders been formally established (by law or decree)?				*(Since when?)*
If yes: 8a) Does it include representatives of:				
- Elected bodies at the national level representing the citizens				*(For example: representatives, senators, etc.)*
- Regional authorities				*(Elected councils? technical services?)*
- Local authorities				
- Professional organizations (related to Health, Transport, Traffic, Enforcement, etc.)				*(Which ones?)*
- NGOs				*(Which ones?)*

- Businesses related to transport or traffic (vehicle manufacturers or importers, insurance companies, etc.)				*(Which ones?)*
8b) Does it include, or can it call upon, scientific experts?				
8c) Does it have its own statutory budget :				
- To operate?				
- To sponsor research or studies?				
D5. I8.				
9. Are the legislative instruments defining inter-sectoral road safety management functions periodically reviewed and reformed,				
- Regarding the higher level decision-making institution?				
- Regarding the policy formulation and implementation institution?				
- Regarding the stakeholders' consultation structure?				
D6.				

4.3.3. Policy formulation and adoption

	Yes	No	Unknown	Please elaborate !
10. Are some government agencies actively advocating the need for taking road safety action:				
- The health sector?				
- The transport sector?				
- The enforcement sector?				
- Others				
B4.				
11. Are there NGOs actively promoting road safety? **B3.**				*(Which NGOs?)*
12. Are regional authorities consulted as to the part they are called to play in national road safety policy, before:				
- Setting up targets?				*(Which ones?)*
- Finalizing an inter-sectoral programme?				
- Adopting specific policy components?				*(Which ones?)*
I4.				
13. Are regional road safety programmes or policy				*(This concerns regional*

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components integrated into the national road safety policy? **I5.**				*targets, measures taken at the regional level, etc.)*
14. Are local authorities (municipalities, counties) consulted as to the part they are called to play in national road safety policy before:				*(This may deal in particular with specific interventions in urban areas)*
- Setting up targets?				
- Finalizing an inter-sectoral programme?				
- Adopting specific policy components? **I6.**				
15. Are local road safety programmes or policy components integrated into the national road safety policy? **I7.**				*(This may involve generalizing or legalizing local innovative or experimental practice)*
16. Has a national "vision" for improved RS performance in the long term officially been set?				
If yes: 17a) Has it been voted in Parliament?				
17b) Is it otherwise compelling for the government?				
17c) Has it already triggered:				
- Action?				
- Research?				
A2. B1. F1.				
17. Have national medium-term (four to ten years) quantitative targets been set for improved safety performance?				*(Is each target realistic, attainable?)*
If yes: 17a) Have the targets been defined:				
- on a purely national political basis?				
- on the basis of the European road safety target?				
- using a rational process based on known key problems and potentially efficient measures?				
17b) Are the targets based on:				
- fatalities?				
- serious injuries?				
- other injuries or accidents?				
17c) Have intermediate performance indicators been defined to check progress towards the target?				
17d) Have sectoral quantitative targets or				

performance indicators been set to mobilize RS actors in the fields of:			
- Rural infrastructure			
- Urban infrastructure			
- Transport and traffic planning			*(Are these targets compelling for the actors concerned? Are sectoral responsibilities clearly established?)*
- Vehicles			
- Traffic education			
- Driver training and licensing			
- Publicity campaigns			
- Enforcement			
- Health			
- Others			

A3. A10. F2.

18. Has a national RS Strategy (or national Policy Directives) been produced based on a Safe System approach (as opposed to primarily improving behaviour)? *Def.: a Safe System approach involves a long term target or vision and addresses all elements of the road transport system in an integrated way, which implies shared responsibility between system designers and the road users* **C2.**			

19. Has a national medium term road safety programme been elaborated?			
If yes: 19a) Is it inter-sectoral?			
19b) Does it focus on the Safe System approach (integrating measures addressing all elements of the road transport system as opposed to primarily improving behaviour)?			*(Does the programme reflect the will of the State to provide road users with a safe environment?)*
19c) Have some preliminary institutional strengthening measures been specified :			
- Enabling laws (for implementation)?			
- Changes in the institutional organisation?			*(please describe)*
- Others?			
19d) Have implementation tasks and responsibilities been distributed between the key actors (government, local authorities, NGOs) within the programme?			

A4. F3.

20. Has a national medium term road safety programme been adopted at high level?			
If yes: 20a) Has it been adopted :			
- by the Head of State/President of the			

Republic?				
- by the Prime Minister				
- by Parliament?				
- Others?				

A5. F4.

4.3.4. Policy implementation and funding

	Yes	No	unknown	Please elaborate !
21. Have partnerships or agreements been established at the national level with the private sector for a contribution in terms of:				
- Management of particular activities				*(Which partners?)*
- Expertise?				
- Research?				
- Funding?				
- Communication on key RS issues?				
- Other?				
D8, D7				
22. If a national road safety programme has been elaborated and adopted, has the budget needed for programme implementation been **estimated**?				*(Have all potential costs been considered?)*
If yes: 22a) Have funding capabilities and opportunities been explored?				
A6. F3.				
23. If a long term vision has been adopted, has a budget been estimated to move towards this vision (distinct from the road safety budgets allocated to medium-term inter-sectoral programmes)?				*(Have all foreseeable costs been considered?)*
If yes: 23a) Is it:				
- A budget for research?				
- A budget for implementation?				
F1.				
24. Has a high level engagement (decision) been taken to ensure availability of a budget for road safety:				
- For a medium term programme?				*(Is it in line with the estimated necessary budget? Was the decision voted in Parliament?)*
- For a long term vision?				
A7.				
25. Does the government allocate the product of fines (or any funds collected from RS measures) to road safety interventions or related activities?				

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If yes: 25a) Is it legalized (law or decree)?				
25b) Is the public informed of the use of funds?				
C4. G4.				
26. Is there a budget specifically allocated to road safety activities, interventions and capacity building from the national budget (Treasury)? **G3.**				*(Is there a line for RS in the national budget? Is RS partly or totally funded through ministries?)*
27. Is there a sustainable funding structure for road safety, independent from the Treasury (RS Fund, RS Foundation)?				*(The national RS budget may be allocated directly (question 27) or through the RS funding structure)*
If yes: 27a) Has it been legally created (law, decree, statutes, etc.)?				
27b) Is the financing coming from one or several of these sources:				
- Treasury?				
- Taxes?				*(For example: a percentage of the tax on petroleum products, specific taxes on driver licenses, vehicle registration, etc.)*
- Tolls?				
- Revenue from road safety interventions?				*(The measures which may bring in a revenue include fines, technical control of vehicles, driver licensing, etc.)*
- Insurance companies?				
- Private sources?				
G5.				
28. Are there formal resource allocation procedures to support road safety management tasks and interventions? **G6.**				*(Is there a list of "fundable" activities? A list of criteria to get funding?)*
29. Is funding allocated to evaluation? **H6.**				
30. Are the funds allocated sufficient to implement the programme or policy components adopted in each area:				
- Rural infrastructure				
- Urban infrastructure				

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- Transport and traffic planning				
- Vehicles				
- Traffic education				
- Driver training and licensing				
- Road safety campaigns				
- Enforcement				
- Health				
- Others				

G8.

31. Are the human resources needed to implement the programme or policy components adopted sufficient in each area:				
- Rural infrastructure				
- Urban infrastructure				
- Transport and traffic planning				*(Has the manpower been adapted to the tasks at hand? Was it there or has it been increased?)*
- Vehicles				
- Traffic education				
- Driver training and licensing				
- Publicity campaigns				
- Enforcement				
- Health				
- Others				

G1.

32. Are the legislative instruments and procedures regularly reviewed and improved as regards?				
- Government (Treasury) funding?				
- Fund allocation procedures?				
- The road safety funding structure?				

G7.

33. Have training plans been designed to support implementation of the national road safety programme or policy components?				
If yes: 33a) Have the plans been designed after exploring the needs for knowledge of the road safety actors involved in implementing the policy ? *(for example, actors can be teachers, policemen, road engineers, etc.)*				
33b) Have the contents of the training plans been established with, or validated by, scientific institutions?				
33c) Has funding been allocated to the training activities planned?				

G2. J8.	

4.3.5. Monitoring and evaluation

	Yes	No	Unknown	Please elaborate !
34. Are sustainable systems (durable, funded, maintained) in place to collect and manage data on road accidents, fatalities and injuries? **H1. J1.**				*(police records, health records, others?)*
35**.** Are sustainable in-depth accident investigations for road safety purposes in place?				
36. Are sustainable systems in place to collect and manage data on behavioural indicators:				
- Vehicle speeds				
- Safety belt wearing rates				
- Alcohol-impaired driving				
- Others				
H2.				
37. Is there a national Observatory centralizing the data systems for road safety?				
If yes: 37a) Does it include data on:				
- accidents, fatalities or injuries?				
- in-depth accident investigations?				
- behavioural indicators?				
- exposure (traffic)?				
- violations or fines?				
- driver licensing?				
- vehicle registration?				
- Other? **H3.**				
38. Has a reporting procedure been set up to monitor the road safety interventions carried out in the country?				
If yes: 38a) Is the reporting				
- periodical?				
- linked to intermediate phases of the RS programme?				
38b) Does it apply to all areas of intervention:				

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- Engineering measures on rural roads			
- Planning and engineering interventions in urban areas			
- Enforcement operations			
- Traffic education			
- RS campaigns			
- Driver training			
- Vehicle related measures			
- Others			

38c) Does it address:

- Delivery by the authorities (actors) concerned			
- Compliance with the timetable of implementation			
- Implementation of the needed legal changes			
- Identified needs for programme modification or changes in implementation conditions			

38d) Is it performed "horizontally" at the national level (covering ministries and government agencies)?

38e) Is it performed "vertically" to cover activities at the regional and/or the local level?

38f) Is the information addressed to?

- the Lead Agency?			
- the high level inter-sectoral decision-making road safety institution?			
- the technical inter-sectoral road safety institution			
- the government?			
- the Parliament?			

38h) Has some action been taken on the basis of the outcome of this information:

- limited changes in the action programme?			
- allocation of funds or human resources?			
- training?			
- others?			

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A11. H4. E3.				
39. Has a procedure been set up to evaluate safety performances of the global programme or policy?				
If Yes: 39a) are the performances assessed				
- on the basis of performance indicators?				
- against national quantitative targets?				
E4. H7.				
40. Is "benchmarking" used to monitor progress in the road safety situation relatively to other (European) countries?				
H8.				
41. Does some "process evaluation" of safety interventions take place during the implementation period of the programme? (checking that measures work as expected and do not generate undesired side-effects)				
If yes: 41a) is the evaluation for interventions addressing:				
- all areas?				
- infrastructure?				
- vehicles?				
- enforcement?				
- road safety campaigns?				
- other areas?				
41b) Does it involve:				
- performance indicators?				
- observations and/or field surveys or measurements?				*(Please give examples)*
41c) Are scientific teams involved in performing process evaluation?				
41d) Are the evaluation results available to all stakeholders?				
41e) Has some action been taken on the basis of the outcome of this information such as:				
- partial changes in the action programme?				
- improvement of implementation conditions? **H5**				*(This may involve legal or institutional changes, increased budget or human resources, training, etc.)*
42. Has an evaluation process been planned to				

assess the effects on accidents and injuries of some policy components ("product" evaluation)?				
If yes: 42a) Which areas of intervention are covered by the evaluation plan:				
- infrastructure?				
- enforcement?				
- vehicle related measures?				
- others?				
42b) Is the evaluation actually being performed?				
42c) Are scientific teams involved in the evaluation process?				
42d) Are the results available to all stakeholders?				
42e) Are the results formally published?				*(Through which media? Under which initiative?)*
H6.				

4.3.6. Scientific support and information, capacity building

	Yes	No	Unknown	Please elaborate !
43. Is there at least one institute or university department performing multi-disciplinary road safety research and/or studies?				
If yes: 43a) Are there steady research teams				*(Do at least some of the researchers have a permanent or long-term appointment)?*
43b) Is evaluation of safety measures, interventions and/or programmes part of the research and studies carried out in the country?				
43c) Are road safety research results published at the international level?				*(this would mean in English language)*
43d) Are road safety research results systematically made available to the decision-makers and policy-makers in the country?				*(Do researchers or research institutions translate their scientific findings into applicable results?)*
43e) Is there sustainable funding available for road safety research?				
B5. J3. J4.				
44a) Are results of safety analyses and research actually used in formulating the country's RS policy?				

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44b) Are the teams of road safety researchers in the country systematically requested by policy-makers to contribute knowledge for policy formulation?				
J5. J6.				
45. Are the government or road safety institutions providing factual and valid information on road accidents, injuries and risk to the citizens?				
If yes: 45a) Is it communicated:				
- Through reports?				
- Through the media?				
- On internet?				
C1. B2.				
46. Are the government or road safety institutions systematically (or periodically) informing the citizens of the national road safety policy and interventions and their effects?				
C3.				
47. Are there articles or programmes in the media on road accidents and/or on road safety activities which review, criticize or challenge current policies?				*(How often do such articles appear?)*
B6.				
48. Is there at least one university (or other superior education structure) providing a **multi-disciplinary** course on road traffic safety for students?				
If yes: 48a) At which level:				
- under-graduate?				
- post graduate?				
48b) Does the course lead to a diploma or a certificate?				
J2.				
49. Do universities or other educational institutions offer specialized courses addressing future professionals who may be involved in road safety:				
- Urban planners?				
- Road engineers/technicians?				
- Teachers?				*(Courses integrated in initial training)*
- Enforcement officers?				
- Driving instructors?				
- Health personnel?				
- Others?				
J7.				
50. Do universities, research or other educational institutions offer further-training sessions addressing				

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key professionals currently involved in road safety:				
- Urban planners?				53
- Road engineers/technicians?				*(Training sessions may be part of continuing education programmes)*
- Teachers?				
- Enforcement officers?				
- Driving instructors?				
- Health personnel?				
- Multidisciplinary?				
- Others?				
J7bis.				

5. DATA COLLECTION AND ANALYSIS PRINCIPLES

The methodology for data collection was broadly defined while building up the investigation questionnaire. It will be refined and detailed in the next tasks of the DaCoTA Work Package and, no doubt, will have to be adjusted after the first tests. The main principles are indicated below.

5.1. Selection of a sample of countries

Ideally, all European countries as well as partner countries participating in this research should be included in the data collection and the analyses. However, the time and human resources available do not allow for such a comprehensive investigation. Moreover, such a complex questionnaire requires thorough understanding, which raises the problem of the language barrier: there are no resources available to translate the questionnaire into all European languages and the variety of languages totalled by DaCoTA team members does not cover the whole European set.

It has thus been decided to work, within the time-span of the DaCoTA project, on a sample of countries as representative as possible of Europe and partners in terms of geographical location, size and road safety performances. If the results obtained on this sample are found useful, the methodology for data collection and the questionnaire are available to complete the investigation on missing countries at a later stage.

The sample tentatively selected includes countries of origin of the DaCoTA team members and other European countries where the language spoken is mastered by some of the team members. Care has been taken to include some of the smaller countries where road safety management may be tackled in a different way. The sample will be finalized by the DaCoTA team in charge with data collection and should include at least: Austria, Belgium, Cyprus, Finland, France, Greece, Italy, Israel, the Netherlands, Poland, Switzerland, the United Kingdom and one of the Baltic countries.

5.2. Selection of key road safety actors

Two categories of road safety actors have been considered to fill in the questionnaire in each country:

a. Road safety practitioners involved in policy-making in a position to have a good overview of the road safety management system. Such actors may provide the most complete information; however, there may be a bias in the way they describe a system in which they are immersed.

b. Road safety researchers or scientists: they may provide an objective and critical view of the system from an external viewpoint as they may be involved in policy-formulation but not in decision-making; however, they may not be aware of all the details that the questionnaire aims at clarifying.

Given this discussion, it has been decided that questionnaires will be filled in twice for each country, by a policy-maker (or a team of them) and by a scientist (or a team of them). A list of "interviewees" is to be set up, including high level Experts

designated by the European Commission (policy-makers) and scientists identified by the DaCoTA team.

5.3. The role of the DaCoTA team members

Policy-makers as well as road safety scientists usually work on a tight schedule and filling in a questionnaire of 50 questions with multiple items is time-consuming. Sending the questionnaire and requesting an answer may not be enough of an incentive for most of the interviewees to respond. Moreover, the language barrier remains as the questionnaire is only available in English.

To overcome these difficulties, the DaCoTA team members will be involved in "accompanying" the interviewees in the filling up of the questionnaire in order to provide translation when needed and explanations in case of misunderstanding of a question. DaCoTA members may also stimulate free comments. To set the scene, a written version of the questionnaire in English will first be sent by the European Commission to the list of persons identified in each sample country. DaCoTA members will then contact the interviewees in their own country and the others of which they are in charge and make an appointment for collecting the information through the questionnaire: this will be done preferably face-to-face and on the telephone if a personal meeting is impossible.

5.4. Quality checks

The questionnaires returned will be centralized by the DaCoTA team responsible for the data collection and checked for completeness and consistency. Possible problems which may be encountered when getting the questionnaires filled in will be dealt by the team and the solutions communicated to all DaCoTA members involved to ensure continuing consistency of the data collection. In some instances, DaCoTA members may be requested to get back to their interviewees for complements before the questionnaires are forwarded to the analysis team.

5.5. Indications for data analysis

Statistical analyses of the information collected through this questionnaire will be performed, based on a matrix crossing the questions (numbered from 1 to 49) and the objectives or groups of criteria they are designed to address (categories A to J indicated in bold in the questionnaire). Some factorial analyses will also be carried out. Results will be provided for each country and for the whole sample of countries examined.

The information obtained under the question "Please, elaborate!" will be treated separately, using similar text analysis methods as used in Deliverable 1.1 of DaCoTA [Dupont & Muhlrad, ed., 2010].

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APPENDIX 1 GLOSSARY OF ROAD SAFETY TERMS

From the working group of DaCoTA WP1 with elements from [Muhlrad, 2006, 2009].

Accident: fortuitous event, adverse event.

> **Road accident** (or **traffic accident**): a collision between two or more vehicles, at least one vehicle and a pedestrian or one vehicle and an obstacle, occurring on a public road and resulting in damage and possibly casualties; a road accident is no "accident" as it is not fortuitous but results from a causation process involving non-random factors: hence the preferred use of **road crash** [WHO, 2004].

> **Fatal accident**: Road accident in which at least one person involved died as a result of the collision within a defined period of time. The period of time is normally of thirty days according to WHO recommendations, although some countries still use shorter periods.

> **Injury accident** (or **injury-producing accident**): road crash or accident in which at least one of the road users involved is either killed or injured.

> **Accident process**: A chain of events involving elements of several interacting components of the road transport system (infrastructure and the road environment, vehicles and traffic, road users) which leads to an accident, with or without casualties. The accident process is usually described in successive phases: pre-collision, collision and post-collision phases.

Benchmarking: In management: a marketing or quality management technique which involves studying and analyzing management methods and organization of other businesses with a view to identifying the best practices and getting inspiration from them. It is a continuing process of research, comparative analysis and adaptation of practices to improve performances [from: Wikipedia]. In road safety: comparing one country's safety situation with that of other countries in order to show differences, explain them in terms of organization and measures taken, and get inspiration to move towards better practice and performances.

Capacity building: Developing institutional structures and the competences within them to enable a country or a local authority to perform the tasks it is responsible for. Capacity building thus includes developing a management system (institutions and processes) and providing the participants in the system with adequate knowledge (through training and technical assistance) and the needed data and technical tools.

Casualty: a road user injured or killed in a crash (see also **victim**).

Communication: The fact of establishing a relationship with somebody (or something). The technical means through which people can communicate.

> **Communication with the road-users, with the public:** Set of means developed to pass on a message to the road users, usually with a view to

changing behaviour or increasing acceptance of particular safety measures. The content of the message.

Cost-benefit analysis: A form of evaluation of safety measures or interventions that compares the costs of avoiding the crash and injuries to the costs of the injuries saved or expected benefits from the measures. The benefit-cost ratio represents the economic advantage of the safety measures. Cost-benefit analysis requires the valuation of lives saved and injuries avoided.

Cost-effectiveness analysis: a cost-effective measure is one which achieves a particular objective at reasonable cost. In cost-effectiveness analyses, the cost of a measure is set against its effects which are not expressed in monetary terms. Starting from a given safety budget, this method can identify the path which will produce the highest casualty savings.

Education: Set of specific means applied to the training and development of the human being.

> **Traffic education:** Set of means developed and applied to help individuals adapt to road traffic and acquire the needed level of performances to participate in it safely as a pedestrian, a rider or a car driver.

Evaluation: Qualitative and/or quantitative assessment of the effects of corrective (or remedial) measures, of programmes or of policies which is aimed at determining:

> - whether the goals or *target* originally set have been or are being reached, or
>
> - whether a reduction in the numbers of *fatalities* or *casualties* has been obtained, and how much it will be.

> **Process evaluation**: Evaluation study aimed at checking that the changes generated in the *road transport system* by implementing a road safety *measure* meet the original assumptions made when designing the measure. If this proved not to be the case, the expected effects in terms of *accident* or *casualty* reduction could not be reached: process evaluation thus anticipates on product evaluation.

> **Product evaluation**: Evaluation study aimed at estimating the quantitative effects in terms of reduction of expected *accidents* or *casualties* of a particular type of road safety measure.

Evidence-based policy: the concept that policy should be based on rigorous evidence, in addition to political knowledge and stakeholder opinions. As evidence requires proof, it is seldom available in road safety, so that there is a risk that potentially effective measures may be postponed. For this reason, *knowledge-based policy* may be preferable.

Fatality: a death occurring as a result of a *road crash* within a defined period of time; the period of time is normally of thirty days according to WHO recommendations, although some countries still use shorter periods. By extension: the person dying.

Information (of the road users, of the public): Activity of passing on objective facts and knowledge to the public (in road safety: on road crashes and the way they occur, on traffic behaviour, on road safety measures and their effects, on road safety policy, etc.).

Injury: physical trauma resulting from a ***road crash***; by extension, person injured (in the Health sector, injuries only refer to the process and not the outcome so that the term includes fatal injuries; in the transport sector, injuries are usually considered as an outcome of the crash and so are distinct from fatalities)

> **Light injury:** any non-fatal and non-serious ***injury*** sustained in a road crash.

> **Serious injury:** A non-fatal ***injury*** sustained by a road user involved in a road crash which requires a number of days of hospitalization or ranks high on the severity scale used by physicians in emergency wards (the definition varies according to countries).

> **Injury process:** 1. A chain of events involving interacting elements of several components of the ***road transport system*** (infrastructure and the road environment, vehicles and traffic, road users) which leads to an ***injury accident***. 2. A series of events occurring during and immediately after a ***crash*** which inflicts bodily damage.

Knowledge-based policy: the concept that policy should be based on factual knowledge obtained through research in addition to political knowledge and stakeholder opinions. Relevant knowledge may address identification of the key road safety problems and of their determinants, what measures do and how they work, conditions for implementations, expected outcome, side effects and acceptability.

Lead agency: the public agency which has the principal responsibility for road safety and has a range of functions. In Europe, the lead agency is usually a single government department, but it can also be a multi-sectoral governmental body. Its responsibilities are often set out in legislation.

Local authority: Administrative territory endowed with legal powers and an elected executive body. A city, a county, etc. can be local authorities. By extension: government and administration of the territory

Mobility: the fact of being able to move; the ability of a population to move through various transport modes; by extension, the amount of travelling performed by groups of population or ***road users***.

Monitoring: Following up a process or the functioning of a system in real time.

> **Monitoring the road safety situation:** Following up accident and casualty trends in real time (or at short intervals), using adequate modelling techniques to eliminate confounding factors.

> **Monitoring the implementation of a safety programme or intervention:** Following up the implementation process in terms of organization, funding and performances in real time (or at short intervals).

Policy-making: in "good practice" theory, a cyclical series of tasks which begins with ***agenda setting***; in response, the legislative and bureaucratic machinery of

government and associated non-governmental **stakeholders** may **formulate**, **adopt**, and **implement** a strategy for addressing the problem; analysis of policy **effectiveness** in turn may reveal shortcomings in formulation or implementation or new problems to add to the policy agenda.

Policy adoption: Accepting a policy (or some policy components) which has been formulated with a view to getting it implemented. Policy adoption usually involves **inter-sectoral** consultations and consultation of non-governmental **stakeholders**. The final shape and content of the components adopted may vary from what had originally been formulated due to possible trades-off. In "good practice", policy adoption is phase 3 of policy-making.

Policy agenda setting: Identifying **road safety** as a major problem in the country (a public health problem) and making it a public policy area, so that steps are taken at a high political level to initiate action and provide the conditions required for its completion. In "good practice", agenda setting is phase 1 of policy-making.

Policy evaluation: Road safety evaluation includes two categories of tasks addressing two separate goals: **monitoring** to check whether implementation is proceeding according to plans, and **evaluation** to assess the effects of the policy or interventions implemented and check that targets will be reached. Monitoring and **process evaluation** may lead to some changes being made in the **programme** or in the **implementation** conditions to improve performances. In "good practice", evaluation is phase 5 of policy-making but overlaps with phase 4, implementation.

Policy formulation: a thought process of formulating objectives and selecting a logical solution among the available options to reach these objectives; the choice of a solution is made through considering all the alternatives, weighing the positives and negatives of each option and forecasting the outcome. Objectives may be short, medium and long term and the solution may include some or all of the following components: a long term **vision**, a **strategy**, a short-to-medium term goal (defined by a quantitative **target**), a short-to-medium term **inter-sectoral** (or "integrated") action **programme**, priority sectoral **interventions**, and provisions for implementation (operational implementation processes, fund allocation, **actors** involved, **capacity building**). In "good practice", policy formulation is phase 2 of policy-making.

Policy implementation: the course of action of putting into use the **policy adopted**. The competent road safety authority or **lead agency** thus has to mobilize **actors**, agree on timelines for the implementation of each policy component, provide the necessary legal framework or technical guidelines or standards, allocate funds, provide special training where needed, **monitor** the implementation processes and ensure that operational **interventions** are consistent with the adopted policy. In "good practice", implementation is phase 4 of policy-making.

Risk: Hazardous situation to which a population may be exposed.

Risk exposure: being in a situation where hazards may occur; by extension, quantitative indicator estimated to measure the time or frequency with which a group of population is submitted to a risk.

Accident risk: the probability of being involved in an *accident* in a given traffic situation (on a given route, in a particular area, at a specific location, at a particular time, etc.) or for a particular group of population in all situations (children, young drivers, two-wheelers, elderly *road users*, etc.).

Injury risk: the probability of being involved in an *accident* and being *injured* in a given traffic situation or for a particular group of population.

Fatality risk: the probability of being killed in an *accident* in a given situation of for a particular group of population.

Road safety (or **traffic safety**): quality of a *road transport system* which would generate no *fatalities* or (serious) *injuries* from road crashes; by extension, the situation described by annual numbers of fatalities and injuries and which needs to be improved (more accurately: **road un-safety**); by extension, the set of activities and the organisation which aim at improving road safety.

Road safety action: the process of intervening on the *road transport system* in order to prevent or reduce future road crashes and/or injuries.

Road safety actor: any person taking part in road safety activities, whether in decision-making, planning, implementing or research. By extension: *road users* may be considered as road safety actors as they adapt their traffic behaviour in order to avoid crashes.

Road safety activity: any task related to road crash and injury prevention (*policy-making*, road safety *management processes*, *road safety management* and support systems) or to road safety research.

Road safety policy: the output of the *policy making* process; a road safety policy may include some or all of the following components: a long term *vision*, a *strategy*, a short-to-medium term goal (defined by a quantitative *target*), a short-to-medium term *inter-sectoral* (or "integrated") action *programme*, priority sectoral *interventions*, and provisions for implementation (operational implementation processes, fund allocation, *actors* involved, *capacity building*).

Road safety strategy: From the military: set of coordinated actions aimed at a goal. Applied to road safety: the long term inter-sectoral targets, political choices and orientations which are meant to govern the design of medium-term road safety *programmes* and other planned *road safety activities*.

Road safety vision: a qualitative goal or quantitative *target* to be reached in the distant future. Such a vision is acknowledged and accepted by a country's society and independent of the political changes which may occur over time.

Road safety intervention: a coherent *package* of road safety measures in which a "central" measure is supported by other measures, often implemented in different sectors; the "supporting" measures may aim at facilitating implementation of the "central" measure (for example, a change in the law), at

increasing its acceptability, or at reducing or neutralizing potential undesired side-effects.

Road safety management: the government area geared at reducing the number of road *crashes* and *victims* on the territory and in the population governed. Road safety management is thus justified by its outputs in terms of measures, interventions or action programmes implemented to prevent or reduce road crashes and injuries and includes activities (*policy-making* tasks and transversal *processes*) as well as the organisation necessary for these activities to take place (the *Road Safety Management System*).

Inter-sectoral (also called **integrated**) **road safety management**: road safety management is inter-sectoral or integrated when several government *sectors* participate in the activities aimed at reducing the numbers of road crashes and victims and work together at reaching this goal. By extension: the *co-ordination* processes and organization set up to facilitate inter-sectoral work in road safety.

Road safety management processes: enabling processes without which the tasks involved in policy-making could not be accomplished. Road safety management processes have implications for institutional organization and therefore for the design of *road safety management systems.*

Road safety management system: the actors, tasks and institutional structure necessary to perform road safety activities and implement policies.

Road safety measure: any action affecting the road transport system and aimed at improving road safety.

Corrective road safety measure (or *action* or *intervention*): measure aimed at improving the future road crash and injury situation by introducing some changes in the transport system in order to eliminate identified road crash or injury processes.

Package of road safety measures: an association of several measures addressing a common target and interacting and comforting each other.

Road safety programme: a coherent set of road safety measures and interventions to be implemented over a definite period of time and on a particular physical territory (country, region, city).

Inter-sectoral road safety programme: a programme including road safety measures and interventions to be implemented by more than one government sector.

Long-term road safety programme: an action process geared at reaching an ambitious qualitative goal or quantitative target (or **road safety vision**) in a distant future. Examples of long-term programmes are "Vision Zero" or "Sustainable Safety".

Short-term road safety programme: a programme planned to be implemented over a relatively small period (for example, four or five years).

Targeted road safety programme: a programme designed to reach a quantitative target of fatality and/or serious injury reduction over the time-period set for it.

Road transport system: the structure and organisation offering travelling opportunities and thus supporting mobility; the road transport system includes several components which interact: infrastructures and their environment, vehicles and traffic organisation, road users; the legal framework addressing the design of the system and behaviour of the human component may be considered as an internal rule governing interactions.

Road user: any person using the road either to travel (in a vehicle, on a two-wheeler, as a pedestrian) or to perform other activities (meeting, leisure, selling goods, etc.).

Safe System approach: Ideally, as defined by [Bliss & Breen, 2009], a safe system approach reframes the way in which road safety is managed in the community by addressing all elements of the road transport system in an integrated way (see also integrated road safety management [OECD, 1984]), requiring shared responsibility between system designers and road users, and stimulating new partnerships and innovation to achieve long term targets. Similarly, road safety management viewed from the perspective of Health promotion implies that a safe environment (road traffic system) is provided by the system designers to the road users who, conversely, are expected to behave safely when using it.

Sector: a homogenous set of activities carried out under one umbrella, usually a national or local government department (sectors of Transport, Infrastructure, Planning, Administration, Justice, Finances, etc.); by extension, the management structure for each set of activities (actors and organisation).

Pilot sector: sector involved in planning, design and/or management of the road transport system and thus expected to play a leading role in developing or improving its safety performances; the Health sector may also be a pilot sector (in countries where it takes the lead in inter-sectoral road safety management).

Partner sector: sector involved in inter-sectoral road safety action programmes or in charge with "fundamental" measures without playing the leading role in road safety policies.

Inter-sectoral institution: an institutional structure composed of representatives of several sectors and designed to take common decisions and/or coordinate action.

Sectoral activity: activity performed, or measure implemented, within one sector.

Inter-sectoral activity or **intervention:** a set of related tasks or measures, each belonging to a different sector, which aim at a common goal and are performed or implemented according to a common plan or schedule.

Inter-sectoral coordination: the transversal institutional organisation and set of tasks required to prepare inter-sectoral action programmes and ensure that

sectoral implementation processes are consistent with their content and structure.

Stakeholder: any person or group with an interest in road safety; a stakeholder may be an actor, a lobby, a business related to road crashes or to components in the road transport system (road building, maintenance, vehicle manufacture or repair, etc.), an organisation representing professional interests (medical associations, professional transport unions, etc.) or a non-profitable association with health or other social goals (road safety promotion, defense of road crash victims, children welfare and health, care for senior citizens, etc.).

Target: *a* quantified and measurable goal to be reached within a certain period of time. In road safety, targets are usually expressed in terms of fatality or casualty reduction, the baseline being at the onset of the time period.

Transport modes: All means of conveyance which may be used by citizens to perform trips.

Non-motorized transport modes: cycling, walking, horse-riding, animal-driven carts, etc.

Victim: A road user injured or killed in a crash (see also ***casualty***).

APPENDIX 2 BUILDING UP THE QUESTIONNAIRE: QUESTIONS BY OBJECTIVES

1. Pre conditions

Objective A: Assessing political will

	Yes	No	Unknown	Please elaborate *(for example)*
A1. Has a high level inter-sectoral decision-making body been established to prepare policy orientations for RS?				*(How effective is it?)*
A2. Has a national vision for improved RS performance in the long term officially been set?				*(Is it compelling? Does it actually trigger action?)*
A3. Have national quantitative targets been set for improved safety performance?				*(Are the targets realistic, attainable?)*
A4. Has a national road safety programme been elaborated?				*(Is it inter-sectoral? Has it been built with a view to reaching targets?)*
If yes: does it focus on the Safe System approach (as opposed to primarily improving behaviour)?				*(Does the programme reflect the will of the State to provide road users with a safe environment?)*
A5. Has a national road safety programme been adopted at high level (President, Prime Minister, Parliament)?				
A6. Has a budget been estimated to implement the programme?				*(Have all potential costs been considered?)*
A7. Has a high level engagement (decision) been taken to ensure availability of a budget for road safety?				*(Is it in line with the estimated necessary budget?)*
A8. Has a lead agency (or structure) been appointed to take responsibility for road safety?				*(What decisional powers? Has it got the means to assume responsibility?)*
A9. Has an inter-sectoral coordination structure been established for policy making and implementation?				*(Under whose authority?)*
A10. Have sectoral targets been set to mobilize RS actors (infrastructure, legislation and enforcement, vehicle safety, etc.)?				*(Are these targets compelling for the actors concerned? Are sectoral responsibilities clearly established?)*
A11. Has a formalized reporting process been set up to monitor road safety activities in the country at high level?				*(Is it a periodical process? Who participates? Who receives the reports? How are they used?)*

Objective B: Awareness raising - Assessing the process to build up political will

	Yes	No	Unknown	Please elaborate
B1. Has a national vision for improved road safety performance in the longer-term (compelling for the government) been voted in Parliament?				
B2. Is detailed and explanatory data on road crashes and injuries publicized?				*(Where is the data to be found: reports, papers, internet?)*
B3. Are there NGOs dedicated to promoting road safety?				*(Which NGOs? How active are they?)*
B4. Are some government agencies actively advocating the need for taking road safety action?				*(Which agencies: the ministry of Health, the Police, others?)*
B5. Is there active research on road accidents in the country?				*(Which kind: epidemiological research, in-depth crash investigations, etc.)*
If yes: are the results widely published for the public?				*(In which media? Under which initiative?)*
B6. Are there articles or programmes in the media on road accidents and/or on road safety activities which review, criticize or challenge current policies?				*(How often do such articles appear?)*

Objective C: Awareness raising - assessing the process to create a climate for road safety

	Yes	No	Unknown	Please elaborate!
C1. Are the government and other stakeholders providing factual and valid information on road accidents and risk to the citizens via the media or other means?				*(Information as opposed to campaigns and communication)*
C2. Has a national RS Strategy been produced based on a Safe System approach (as opposed to primarily improving behaviour)?				
C3. Is the government systematically (or periodically) communicating on its road safety interventions and their effects?				
C4. Is the government ensuring that any funds collected from citizens through RS measures (for example through enforcement, vehicle checks, etc.) are recycled into RS activities?				*(Is it official? Is it "transparent"? How are the funds transferred to road safety activities?)*

2. Inter-sectoral coordination of road safety activities

Objective D: Describing inter-sectoral coordination - Institutional organisation

	Yes	No	Unknown	Please elaborate!
D1. Has a Lead agency (for example, a Ministry, a specific authority, etc.) been formally established or designated to direct the national road safety efforts?				*(Is the responsibility for RS policy-making of the lead agency effective?)*
D2. Has a high level inter-sectoral decision-making institution been established to prepare policy orientations for RS?				
If yes: has it been created legally (law, decree)?				*(When was the law or decree passed?)*
Does it operate at the highest level (under the Prime Minister, the President, etc.)?				*(How powerful is the decision-making institution with respect to ministries, road agencies, etc?)*
Does it represent all governmental sectors potentially involved in RS in the country?				*(Potential sectors may include urban planning, transport, roads, enforcement, health, industry, research, justice, education)*
Are some non-governmental stakeholders represented in the high-level decision-making institution, in particular from:				*(Do they actually participate in decision-making – as opposed to just being consulted?)*
- research institutions				
- private businesses				
- NGOs				
Has a periodical schedule for meetings been specified?				

D3. Has an inter-sectoral road safety policy-making institution been established to follow up on high level decisions or orientations?				
If yes: has it been created legally (law, decree)?				*(When was the law or decree passed?)*
Is it integrated into the decision-making chain (as opposed to having been created as an association, a foundation or other non-governmental structure)?				*(Does the policy-making institution have authority to get a programme adopted? To get it implemented by all the stakeholders involved?)*
Does it come under: - the Prime Minister or other higher level decision-maker, - the inter-sectoral decision-making institution, or - the Lead agency				
Are all relevant ministries or national agencies involved in RS represented in the policy-making institution?				*(Potential sectors may include urban planning, transport, roads, enforcement, health, industry, research, justice, education)*
Are some relevant non-governmental actors or networks represented in the institution?				*(For example, teachers, driving instructors, health personnel, etc.)*
Are the members of the policy-making institution individually nominated (as opposed to generic nominations by ...)?				
Is the duration of the mandate of the members precisely defined in order to ensure continuity of RS activities?				*(Is the coordinating institution stable enough that its members can acquire adequate expertise?)*
Is the coordinating institution allocated a budget for "fact-finding" (studies, research, and preparation of decisions)?				*(Is it an annual or a multi-annual budget? How is it allocated?)*
Is the coordinating institution allocated a budget to implement some road safety interventions?				*(An earmarked road safety budget for experimentation? or for measures which would not otherwise be implemented?)*
D4. If it exists, is the policy-making institution also empowered to coordinate implementation of interventions horizontally across agencies?				*(Ensuring that implementation is on schedule? Helping with problems? Ensuring that connected measures are all implemented?)*
If it does not exist or if not empowered: Are interventions being coordinated horizontally across agencies through other means or structures?				*(For example: through bi-sectoral cooperation on specific policy components)*

D5. If it exists, is the policy-making institution also empowered to coordinate interventions vertically between national, provincial and/or local road safety institutions or agencies involved?			*(For example: do provincial authorities participate in policy formulation? in policy adoption?)*
If it does not exist or if not empowered: Are interventions being otherwise coordinated vertically?			*(For example: is there another structure of consultation of non-governmental stakeholders?)*
D6. Are the legislative instruments defining inter-sectoral road safety management functions periodically reviewed and reformed?			
D7.Have partnerships been established with the private sector in policy-making at the national level?			*(Which partners are involved: the industry, NGOs, professional organizations...?)*
D8. Have partnerships been established with the private sector at the national level for the implementation of some policy components (human resources, expertise, funding)?			*(Which partners, which kinds of participation?)*

Objective E: Describing inter-sectoral coordination - How does it work?

	Yes	No	Unknown	Please elaborate!
E1. Is the high-level decision-making coordinating body meeting regularly?				
E2. Have the agencies responsible for (or contributing to road safety interventions) been identified for each one of the RS fields:				
- Rural infrastructure				
- Urban infrastructure				
- Transport and traffic planning				
- Vehicles				
- Traffic education				
- Driver training and licensing				
- Publicity campaigns				
- Enforcement				
- Health				
- Research				
- Others				
E3. Is the lead agency or the inter-sectoral policy-making institution periodically reporting to the high-level decision-making body on the activities performed?				*(Is the reporting on activities performed or on their effects? How frequent is it?)*
E4. Has a procedure been set up to report progress, based on performance indicators?				

3. Policy-making tasks

Objective F: Describing the policy-making tasks—Policy-formulation and adoption

	Yes	No	Unknown	Please elaborate!
F1. Has a long term road safety "vision" been established?				
If yes: Has it been voted in Parliament or				
Is it otherwise compelling for the government?				
Has a budget been allocated to move towards this vision (distinct from the road safety budgets allocated to medium-term inter-sectoral programmes?				
Has implementation already started?				
F2. Has a medium-term quantitative target been adopted?				
If yes: Has it been defined on a political basis?				
Or has it been defined using a rational process based on known key problems and potentially efficient measures?				
Have global performance indicators been defined to check progress towards the target?				
Have sectoral performance indicators been set for some or all areas of RS interventions:				
- Rural infrastructure				
- Urban infrastructure				
- Transport and traffic planning				
- Vehicles				
- Traffic education				
- Driver training and licensing				
- Publicity campaigns				
- Enforcement				
- Health				
- Others				
F3. Has an inter-sectoral medium-term road safety programme been designed?				
If yes: Have all areas of road safety interventions been considered in the programme (Safe System approach)?				

Have some preliminary institutional strengthening measures been specified in the programme (if needed)?				*(For example, a specific law may have to be passed to permit implementation; changes in the institutional organisation are necessary to implement "packages" of measures; etc.)*
Has a global budget been estimated for implementation of the programme?				
Have funding capabilities and opportunities been explored?				
Have implementation tasks and responsibilities been distributed between the key actors (government, local authorities, NGOs,) within the programme?				
F4. Has the medium-term programme been adopted?				
If yes: By the government?				
By Parliament?				

Objective G: Describing the policy-making tasks - Implementation and funding conditions

	Yes	No	Unknown	Please elaborate!
G1. Are the human resources needed to implement the programme or policy components adopted sufficient in each area:				*(Has the manpower been adapted to the tasks at hand? Was it there or has it been increased?)*
- Rural infrastructure				
- Urban infrastructure				
- Transport and traffic planning				
- Vehicles				
- Traffic education				
- Driver training and licensing				
- Publicity campaigns				
- Enforcement				
- Health				
- Others				
G2. Has a training plan been designed to support implementation of the national road safety programme or policy components?				
G3.Is there a budget specifically allocated to road safety activities, interventions and capacity building from the national budget (Treasury)?				*(Is there a line for RS in the national budget? Is RS partly or totally funded through ministries?*

G4. Is the product of fines systematically allocated to road safety interventions or related activities?				
G5. Is there a sustainable funding structure for road safety, independent from the Treasury (RS Fund, RS Foundation)?				
If yes: Has it been legally created (law, decree, statutes, etc.)?				
- Is the financing coming from one or several of these sources:				
- the Treasury?				*(The part of the national budget allocated to RS may be allocated directly (question above) or through the RS funding structure)*
- Taxes?				*(For example : a percentage of the tax on petroleum products, specific taxes on driver licenses, vehicle registration, etc.)*
- Tolls?				
- Revenue from road safety interventions?				*(The measures which may bring in a revenue include fines, technical control of vehicles, driver licensing, etc.)*
- Private sources?				
G6. Are there formal resource allocation procedures to support road safety management tasks and interventions?				*(Is there a list of "fundable" activities? What information must be produced – package of measures, cost, expected benefits, etc.) – to get funding?*
G7. Are the legislative instruments and procedures governing RS funding regularly reviewed and improved?				
G8. For the programme or policy components currently to be implemented, are the funds available sufficient to meet the requirements?				

Objective H: Describing the policy-makings tasks - Policy evaluation

	Yes	No	Unknown	Please elaborate!
H1. Are sustainable systems (durable, funded, maintained) in place to collect and manage data on road crashes, fatalities and injuries?				
H2. Are sustainable systems in place to collect and manage data on behavioural indicators:				
- Vehicle speeds				
- Safety belt wearing rates				
- Alcohol-impaired driving				
- Others				
H3. Is there a national Observatory centralizing all the data systems described above?				
H4. Has a formal procedure been set up to monitor the road safety interventions carried out in the country?				*(Is it periodical? Linked to intermediate phases of the RS programme?)*
If yes: Does it apply to all areas of intervention:				
- Engineering measures on rural roads				
- Planning and engineering interventions in urban areas				
- Enforcement operations				
- Traffic education				
- RS campaigns				
- Driver training				
- Vehicle testing				
- Others				
Does it address:				
- Delivery by the authorities (actors) concerned				
- Compliance with the timetable of implementation				
- Implementation of the needed legal changes				
- Identified needs for programme modification or changes in implementation conditions				
Is it performed "horizontally" at the national level (covering ministries and government agencies)?				
Is it performed "vertically" to cover activities at the regional and/or the local level?				

Road safety management investigation model and questionnaire

What agency is responsible for gathering the information? (lead agency for RS, intersectoral structure, others)				
Who is the information addressed to? (the lead agency, the government, the Parliament)				
Are the results of the monitoring process being published and available to all stakeholders?				
Has action sometimes been taken on the basis of the outcome of this information? (partial changes in the action programme, allocation of funds or human resources, training, etc.)				*(Can you give some examples?)*
H5. Does "process evaluation" of safety interventions take place during the implementation period of the programme? (checking that measures work as expected and do not generate undesired side-effects)				
If yes: is the evaluation systematic for all areas of interventions?				*(If only for some areas such as infrastructure, enforcement, etc., please specify)*
Does it involve performance indicators?				
Does it involve observations and/or field surveys or measurements?				
Are scientific teams involved in the performance of process evaluation?				
Are the evaluation results available to all stakeholders?				
Has action sometimes been taken on the basis of the outcome of this information? (partial changes in the action programme, in implementation conditions)				*(Please give examples)*
H6. Has an evaluation process been planned to assess the effects on crashes and injuries of the programme or some of its components?				*(Which areas of intervention are covered by the evaluation plan: infrastructure, enforcement, others?)*
If yes: Is there funding allocated to the evaluation?				
Is the evaluation actually being performed?				
Are scientific teams involved in the evaluation process?				
Are the results being published and available to all stakeholders?				
H7. Are systems in place to evaluate safety performance against national targets?				
H8. Is "benchmarking" used to monitor progress in the road safety situation relatively to other (European) countries?				

4. Other key processes

Objective I: Describing the consultation process

	Yes	No	Unknown	Please elaborate!
I1. Are some non-governmental stakeholders represented in the high-level decision-making institution (if any), in particular from:				
- Research institutions				
- Private businesses				
- NGOs				
I2. Is Parliament consulted for any major decision on road safety policy?				
I3. Has Parliament initiated decision on road safety policies?				*(Parliament may vote a vision, introduce laws on its own initiative, or may request specific policy components)*
I4. Are regional authorities consulted as to the part they are called to play in national road safety policy before a strategy, an inter-sectoral programme or other policy components are adopted?				*(This concerns allocation of regional sub-targets, implementation of national policy components by regional stakeholders, etc.)*
I5. Are road safety programmes or policy components adopted and implemented at the regional level integrated into the national road safety policy?				*(This concerns regional targets, measures taken at the regional level, etc.)*
I6. Are local authorities consulted as to the part they are called to play in national road safety policy before a strategy, an inter-sectoral programme or other policy components are adopted?				*(This may deal in particular with specific interventions in urban areas)*
I7. Are road safety programmes or policy components adopted and implemented at the local level integrated into the national road safety policy?				*(This may involve generaliszing or legalizing local innovative or experimental practice)*

I8. Has an institutional structure for the consultation of stakeholders been formally established (by law or decree)?				
If yes:does it include representatives of:				
- The Parliament				
- Regional authorities				
- Local authorities				
- Professional organizations (related to Health, Transport, Traffic, Enforcement, etc.)				
- NGOs				
- Businesses related to transport or traffic (vehicle manufacturers or importers, insurance companies, etc.)				
Does it include, or can it call on, scientific experts?				
Does it have its own budget?				

Objective J: Assessing knowledge production and use and capacity building

	Yes	No	Unknown	Please elaborate!
J1. A pre-condition: Are sustainable systems (durable, funded, maintained) in place to collect and manage data on road crashes, fatalities and injuries?				
J2. Is there at least one university (or other superior education structure) providing a multi-disciplinary course on road traffic safety for students?				
If yes: at which level? (under-graduate, post graduate)				
J3. Is there at least one institute or university department performing multi-disciplinary road safety research and/or studies?				
If yes: Is (are) the research team(s) permanent?				*(Is the team formalized as an institution? Do at least some of the researchers have a secure job?)*
Is there sustainable funding available for road safety research?				
Are road safety research results published at the international level?				*(This would mean in English language)*
Are road safety research results systematically made available to the decision-makers and policy-makers in the country?				*(Do researchers or research institution produce applicable results based on their scientific findings?*

J4. Is evaluation of safety measures, interventions and/or programmes part of the research and studies carried out in the country?				
J5. Are the teams of road safety researchers in the country systematically requested by policy-makers to contribute knowledge for policy formulation?				
J6. Are results of safety analyses and research actually used in formulating the country's RS policy?				
J7. Do universities or research institutions offer training sessions or courses addressing key professionals involved in road safety:				*(Some courses may lead to a diploma while others, or training sessions, may be part of continuing education)*
- Urban planners				
- Road engineers/technicians				
- Teachers				
- Enforcement officers				
- Driving instructors				
- Health personnel				
- Others				
J8. Has a training plan been designed to support implementation of the national road safety programme or policy components?				
If yes: Has the plan been designed by exploring all areas where road safety actors involved in implementing the policy needed knowledge?				
Has the content of the training plan been established with, or validated by, scientific institutions?				
Is there funding for the training activities planned?				
Is the plan being performed on schedule?				