

Towards a National Road Safety Strategy for South Africa

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Towards a National Road Safety Strategy for South Africa

The Inception Report

Report documentation

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Summary

According to a recent WHO study (2013), South Africa has a mortality rate of 31.9 per 100 000 population ranking it 177th of the 182 countries participating in the study. The Road Traffic Management Corporation (RTMC) is the lead agency for road safety matters in South Africa. Its overall goal is to improve road safety management and to design a set of effective road safety programmes which are well matched with the Safe System approach, and will have their effects on the numbers of (fatal and injury-related) crashes. The RTMC commissioned SWOV to draft a Road Safety Strategy for South Africa.

The current report is the first Deliverable, addressing the first phase of the project: the Inception Report. The aim of this first phase was to get a clear understanding of all the issues related to road safety in South Africa and to get a clear picture of how to design and implement subsequent phases.

The information in this report is collected through face-to-face interviews of several relevant national and regional high level stakeholders, presentations by RTMC staff and during a workshop with a Reference Group set up by the RTMC and consisting of independent academics, experts and practitioners. In addition, the RTMC provided several supporting documents and data.

The Inception Report presents the preliminary findings concerning the road safety situation in South Africa, the current crash registration practices, and the work done so far towards a road safety strategy, and places these findings in the framework of global road safety developments and national policies.

The report concludes that there is a sound body of scientific evidence available to combat the occurrence of road crashes. However, an effective National Road Safety Strategy must be based on a thorough diagnosis of road traffic injuries in South Africa, on current policies and on organisational structures. The Strategy needs to consist of two main components: a 'management' component and an 'intervention' component. The report proposes to structure the work according to three recognized international sources:

1. The three level approach for analysing road safety problems (Rumar, 1999);
2. The SUNflower approach for comparing road safety performances of countries (Koornstra et al., 2002);
3. The World Bank country guidelines for road safety management capacity reviews (Bliss & Breen, 2009).

Furthermore, the report proposes to carry out the project in two more phases. In Phase 2 relevant information has to be collected to get a thorough view of the status quo as well as the of gaps to bridge to realise the road safety level that South Africa wants to reach at some future point in time. In Phase 3 the actual strategy and related implementable road safety programmes have to be drafted and introduced. The findings of the current Inception Phase clearly show that wide consultation with South African key stakeholders during both subsequent phases is vital for success.

Contents

1. Introduction	7
1.1. Background	7
1.2. Towards a National Road Safety Strategy	8
1.3. This report	9
2. Elaboration of the Terms of Reference	10
2.1. Study objective	10
2.2. Phasing of the project	11
2.3. Scope of the project and implementation of the results	11
2.4. Project Deliverables	12
3. Preliminary findings	13
3.1. Road crashes in South Africa	13
3.1.1. Registration	13
3.1.2. Fatalities, injuries, mortality rates	14
3.1.3. Description of road crashes	15
3.2. Road safety strategies	17
3.2.1. Context	17
3.2.2. International developments	18
3.2.3. National policies in South Africa	20
3.2.4. Road Safety Strategies in South Africa	20
3.2.5. Assessment and conclusion	20
4. Theoretical context for this project	22
4.1. The three levels of road safety problems of Kåre Rumar	22
4.2. The SUNflower approach	23
4.3. Guidelines for road safety management systems according to Bliss & Breen	23
4.4. Amplifying questions	25
5. Scope and methodology	29
5.1. Inception Report	29
5.2. Status Quo analysis	29
5.3. Gap analysis	30
5.4. Development of a draft National Road Safety Strategy	31
5.5. Reporting	31
5.6. Dissemination and consultation	31
References	33
Appendix A The RTMC Terms of Reference	37
Appendix B SWOV study proposal	41
Appendix C The Reference Group	52
Appendix D Visiting programme Prof. Fred Wegman	53
Appendix E Three levels of road safety problems	55

Appendix F	The SUNflower approach	59
Appendix G	Guidelines for road safety management systems	62

1. Introduction

The Road Traffic Management Corporation (RTMC) of South Africa was established in terms of Section 3 of the RTMC Act, No. 20 of 1999 as the lead agency responsible for all road safety matters in the country. The RTMC was mandated to establish and run an effective nationwide road traffic management system and to ensure the safety and quality of life of all South Africans. An important facet of this mandate includes the development and implementation of comprehensive and dynamic road safety programmes aimed at improving road safety in general and reducing serious and fatal injury crashes in particular. To facilitate this, an all-embracing Road Safety Strategy needs to be developed and implemented.

The RTMC awarded a contract to SWOV Institute for Road Safety Research in the Netherlands to facilitate the drafting of a National Road Safety Strategy for South Africa as outlined Terms of Reference (ToR - *Appendix A*). The executing agency for the project is the RTMC.

1.1. Background

According to the World Health Organization (2013) South Africa has one of the worst traffic mortality rates in the world and the second worst in Africa (World Health Organization, 2013). This WHO report revealed that South Africa has a mortality rate of 31.9 per 100 000 population ranking it 177th of the 182 countries participating in the WHO study. More than 14 000 people are reported to be killed in road crashes each year and as yet no downward trend can be observed. The RTMC estimates the economic costs to exceed R306 billion/annum and this seems to be an underestimate of the real costs, given the fact that not all cost components are included in this estimate. Furthermore, no correction has been made for underreporting of road crashes.

Road deaths and injuries were projected to be the third leading contributor to the global burden of disease and injury by 2020 (Murray, et al., 1996). More recent estimates confirm this. Road traffic deaths are now the leading cause of death in developing countries for 15-19 year-olds and the second among 5-14 year olds (see also the *World Report on Child Injury Prevention* by the WHO and UNICEF (Peden et al., 2010). It would be of interest to collect and analyse data from South Africa.

It is well documented all over the world that road traffic injuries are sustained disproportionately by the poor and vulnerable (Peden et al., 2004) with a strong impact on children and young adults. Watkins (2010) summarizes findings from research as follows:

- poor people are more likely to be vulnerable road users; they travel on foot, by bicycle or by public transport;
- road traffic injury can dramatically cut household income;
- the poorest families are hit hardest by post-injury costs.

The road crash mortality rate in South Africa is more than 10 times higher than in countries where the Safe System approach toward road safety is embedded in road safety policy and practiced as part of the road safety strategy implementation plans (e.g. Sweden, the Netherlands).

The RTMC has identified a number of key issues (See ToR - *Appendix A*) related to the road safety situation in South Africa, namely, and we quote:

- The approach to address road safety in the country is fragmented across all levels of government;
- Road users do not adhere to the rules of the road;
- Enforcement strategies need improvement and to be aligned to improving road user behaviour;
- Road infrastructure provision is vehicle driven and there is inadequate provision made for vulnerable road users which are the largest group of road users;
- Poor spatial planning and development that do not encourage/stimulate/support integrated and sustainable transportation systems and are not supportive of a safe systems approach.

1.2. Towards a National Road Safety Strategy

Although South Africa, through the RTMC, has adopted the Safe System approach advocated by the plans outlined in the United Nations Decade of Action for Road Safety 2011-2020, it has yet to develop an associated road safety strategy that will help the country address the (growing) road safety problems. The RTMC is officially a member of the United Nations Road Safety Collaboration (UNRSC). In becoming a member, the RTMC has endorsed the approach outlined in the five pillars described in the Global Plan for the Decade of Action (DoA) (United Nations, 2011). In order to give effect to this commitment, South Africa, specifically the RTMC, must in the short term develop and implement a road safety strategy to achieve the goals outlined in the Global Plan.

To facilitate the further development of the strategy, two international road Safety Conferences were hosted by the RTMC. A number of resolutions were adopted at these conferences and these need to be analysed and assessed and perhaps integrated in the new road safety strategy (see also: www.rtmc.co.za/index.php/events).

SWOV in the Netherlands, as one of the founders of the concept Safe System approach (Koornstra et al., 1992), has been identified by the RTMC as a potential party to help the RTMC in developing a road safety strategy in support of the five pillars outlined in the Global Plan for the DoA:

- Road safety management;
- Safer roads and mobility;
- Safer vehicles;
- Safer road users;
- Post-crash response.

A Reference Group (*Appendix B*) providing external expertise was formed by the RTMC to assist SWOV and the RTMC with the development of a road safety strategy.

1.3. **This report**

The current report, the Inception Report, is the first Deliverable of the project, addressing the first phase of the project. The aim of this first phase was to obtain a clear understanding of all the issues related to road safety in South Africa and to get a clear picture of how to design and implement Phase 2 (Status Quo analysis) and Phase 3 (Road Safety Strategy development). Based on the Inception report, a formal proposal for Phases 2 and 3 will be made and submitted to the RTMC.

2. Elaboration of the Terms of Reference

This Inception Report has been prepared on the basis of the Terms of Reference as drafted by the Road Traffic Management Corporation (see *Appendix A*), of the “Study proposal for assisting the review and development of the National Road Safety Strategy for South Africa”, as drafted by the SWOV Institute for Road Safety Research (*Appendix B*), of initial discussions with representatives of the RTMC, and the Department of Transport (several entities such as SANRAL, RAF, C-BRTA) (*Appendix C*) and, finally, on the basis of a first meeting with the Reference Group (see *Appendix D*). This chapter provides the basis for the subsequent detailed project work and the development of the implementation plan.

2.1. Study objective

The following project objective has been identified from the various chapters in the Terms of Reference (ToR) as drafted by the RTMC:

Overall objective:

To facilitate the drafting of a robust and implementable National Road Safety Strategy that, when implemented, will improve road safety in South Africa considerably and to a level that will be defined by politicians during the course of the project.

The ToR propose that this Strategy, and we quote:

- Must follow the best practice prescripts of a good quality strategy (based on an analysis of road safety, a sound description of aims and objectives, well-chosen set of cost-effective interventions, good conditions for an effective implementation of interventions and monitoring of progress and evaluation of implemented interventions).
- Must include implementable safety interventions based on international best practices that will be customized to suit the South African road safety situation.
- Includes inputs from the draft Strategy.
- Includes input from relevant stakeholders.
- Is pro-active and responsive to both international trends and local dynamics of a developmental society that South Africa seeks to be.
- Is based on the Safe System approach, the Decade of Action for Road Safety 2011-2020 and responds to the resolutions of the two road safety conferences (2011 and 2012) organized in the framework of this new Strategy.
- Has a built-in evaluation and impact assessment instrument to measure failures, successes and hindrances in achieving the goal of reducing road fatalities.

2.2. Phasing of the project

As indicated earlier, the ToR prepared by the RTMC, form the initial basis for the project. The project proposal outlines three distinct phases for developing the National Road Safety Strategy:

- Phase 1:
Project Inception report, aiming to get a clearer understanding of relevant issues in Phases 2 and 3.
- Phase 2:
Status Quo analysis, including a diagnosis of road safety in South Africa and the identification of the gaps
- Phase 3:
Road Safety Strategy development, including ‘implementable road safety programmes’.

The subsequent contract that was awarded to SWOV covered Phase 1 of the project. SWOV incorporated a GO-NOGO decision at the end of Phase 1. During Phase 1 SWOV expected to develop a clearer understanding of all relevant issues in Phase 2 and Phase 3. Based on this understanding, plans for implementing Phases 2 and 3 could be formulated. During Phase 1 SWOV learned that consultations with key stakeholders in South Africa during Phases 2 and 3 deserve a great deal of attention. Such consultations will be even more relevant if, for example, quantitative targets for 2020 are being formulated and while discussing how these targets can be reached using information (‘ex ante’) of safety programmes that could be implemented.

This notion of quantitative targets combined with ‘targeted road safety programmes’ can only be successful if we have adequate road safety data and documented road safety programmes that are to be implemented. We must see how to translate international best practices to the South African road safety situation. It is really worthwhile to give this approach a serious chance, also to create a robust starting point for developing road safety management and road safety data systems in South Africa. At the beginning of the project, however, we have to express some doubts about this aspiration. If a strong basis can be found in high quality road safety data systems, this will provide a very attractive possibility for setting quantitative targets.

2.3. Scope of the project and implementation of the results

The ToR are predominantly directed at a Road Safety Strategy. Hence our project does not cover the implementation phase of safety programmes. However, the ToR do make provision for the development of implementation plans which will be part of the overall project report.

International experience has clearly shown that road safety is a shared responsibility and it is in this light that the roles and responsibilities will not only be defined of the lead agency RTMC, but also of the other stakeholders. This also applies to possible funding streams.

The mere fact that past attempts to improve road safety have failed (no clear signals indicating improvements could be identified at this stage) suggest deeper underlying causes and possibly more fundamental problems in South

African society and in the functioning of different tiers of Government. Consequently, our study may take account of these historical developments as part of the development process of an integrated road safety management system.

Furthermore, problems that the RTMC faced in the past, are assumed to be surmountable and this project is believed to have the possibility and mandate to propose changes that may be vital for the future management of road safety in South Africa.

This project must be seen as the catalyst for road safety improvement in South Africa. The overall goal is to improve road safety management and to design a series of effective road safety programmes that are well matched with the Safe System approach, and will have a positive influence on the numbers of (fatal and injury-related) crashes. However, this effect will probably only be seen in the longer term. It has been proved in many countries worldwide that improving road safety requires political leadership, devoted attention and craftsmanship of stakeholder organizations, and adequate and sustained funding over a longer period of time. This should be the perspective in South Africa and stakeholders need to understand that and should be committed to that. Improving road safety requires concerted efforts from all stakeholders involved and will need to be supported by all levels of government. Sustained political support from current and future ruling governments will be vital. If this will all become a reality, SWOV expects that the efforts will result in considerably lower numbers of people killed or injured on South African roads in the future.

2.4. Project Deliverables

The Inception Report is the primary Deliverable for Phase 1. Phases 2 and 3 will each be rounded off with a report as well. As indicated, the findings of Phase 1 suggest that special attention is necessary for consultation with key stakeholders on road safety in South Africa and with the Reference Group. Although these consultation efforts will not result in separate Deliverables, they will require the preparation of documents for useful meetings, such as PowerPoint presentations, discussion documents et cetera. SWOV will prepare an archive of the project and this archive will be made available to the RTMC.

3. Preliminary findings

3.1. Road crashes in South Africa

3.1.1. Registration

The RTMC gathers data on road crashes that is registered by the South African Police Services (SAPS), Provincial Traffic Authorities, and Metropolitan and local authorities. The RTMC has developed two ways to register data: the NFAIC (National Fatal Accident Information Centre) and the NAR (National Accident Register).

The NFAIC is a quick response procedure (within 24 hours) for fatal crashes. The data is captured in a database with the aim to ensure accurate, reliable and usable data. Based on this data, reports are compiled on fatal crashes and made available to relevant stakeholders. The NAR gathers information on all road crashes and this is reported and recorded within six weeks of the crash. Both systems face challenges. It is reported that stakeholders have some reluctance to send data to RTMC, and if data is sent, it is sometimes with delay. Furthermore, it is observed that fragmented systems operate across the country. One of the biggest issues with the current data is the poor location assignment of a crash within the crash reports; the exact location is often missing. This creates major problems for road authorities, for example in identifying high-risk locations and patterns of crashes. As a result, doubts are expressed about the quality of the data as compiled by RTMC: completeness, accuracy, consistency and reliability are in question. It is not entirely clear if and how the international definition of a road fatality (death within 30 days after the crash) is applied in practice.

Because of the anticipated poor data quality, the Western Cape Province decided to use another source for their policy purposes: they have given a forensic division in the Provincial Health Department the task of collecting data on road crashes. Based on a comparison between their own data and the RTMC-data the authorities of the Western Cape concluded that they face substantial underreporting when using RTMC-data.

The RTMC acknowledges the quality problems of their crash data and have recently started a project to solve these problems: Crash Information Management System (CIMS). The results are not yet known at this time, but as in almost all other countries: the quality of data on fatal crashes starts with perfect reporting by the police of these crashes. It will be crucial in Phases 2 and 3 of this project to pay attention to the quality of the crash data.

In addition to the NFAIC and NAR, a third piece of information is available which is based on in-depth studies of very serious crashes, e.g. crashes in which five or more persons are killed or fatal crashes with more than four vehicles involved. More than 100 of such serious crashes are investigated annually.

For several reasons it is essential to know the true road casualty total; not only fatal crashes, but also (serious) injury crashes. These reasons are

summarized in an IRTAD-report (International Traffic Safety Data and Analysis Group of OECD/ITF). This report (IRTAD, 2011) states that fatalities only do not fully describe all consequences of road crashes: injury information should complement information on fatal crashes to give a more complete picture of road crashes. For example, this allows us to compare road crashes with other (major) causes of death and injury. Moreover, costs of injury crashes form a substantial part of crash costs: about 50% in the Netherlands. Furthermore, from a public health perspective it is crucial to have a good picture of these consequences (medical consumption, disability). When investment decisions to prevent crashes are made using cost/benefit assessments, injury costs should be included. To the best of our knowledge, South Africa, unlike many other countries in the world, did not yet embark on this new path where injuries are included in road safety policies. The European Union recently decided to develop a common injury definition, thus to encourage EU Member States to collect injury data, and, in addition to the fatality target, to also adopt an injury target for 2020.

When designing road safety strategies and monitoring and evaluating interventions, additional data is also necessary, e.g. population data, vehicle data, road data, mobility data, data on behaviour/violations et cetera. But also for data on policy implementation is important to understand why changes in trends are observed. Some of the relevant data is collected in South Africa, some of the data is not systematically collected; some data is available through pilot studies and some data is not available.

A general conclusion is that the current crash data on fatalities in South Africa is not adequate and not complete. Furthermore, we have hardly any data available on injuries and the relevant background data shows a mixed picture. At least a systematic framework for data collection and analysis is missing presently. Therefore, unless major steps are made with further improvements in data systems, it will be difficult to formulate quantitative road safety targets and to monitor/evaluate progress.

3.1.2. *Fatalities, injuries, mortality rates*

If we consider the development over time of the annual number of fatalities in South Africa, we observe a steady increase: from 1000 in the 1950s, to 5000 in the 1960s, 8000 in the 1970s, 10 000 in the 1980s. This annual number remained stable in the nineties and then it went up to 15419 in year with the highest number, 2006. The number seems to have stabilized during the last couple of years at around 14 000 fatalities a year. These are official figures delivered by RTMC. Because we don't know the exact registration rates, we must be careful about reaching conclusions. The same data source reports 60 000 serious injuries and 160 000 slight injuries.

If these figures are correct, we may conclude that the mortality rate (fatalities per 100 000 inhabitants) for South Africa is somewhat higher than 30. Without any hesitation we can say that this rate is high, compared with other countries worldwide. Perhaps we can even say: very high. However, the positive signal may be that the annual increase of fatalities, observed over decades, seems to have stopped. Further analysis of the data is needed to arrive at a robust conclusion on this. Analysis is also necessary to understand this development.

3.1.3. Description of road crashes

Road crashes can occur everywhere and will occur everywhere. However, we can detect certain 'spikes in distributions': certain provinces, roads, age groups, transport modes etc. Based on RTMC data a first introduction can be given of road fatalities in South Africa.

The RTMC data (2011) show the distribution of the number of fatalities for gender: about 77% of all fatalities are male, 24 % are female. The distribution over road user groups is as follows: 28% drivers, 37% passengers, 33% pedestrians and another 2% are in a rest category. If we consider this distribution for males and females: for drivers: 93% are male and 7% are female, for passengers: 37% are female and 63% are male and for pedestrians: 23% are female and 77% are male. Therefore, the road safety problem in South Africa is predominantly a 'male problem'.

About 60% of all fatalities are in the age group of 20-44 years old, 18% are younger than 20 years of age, 20% are in the age group 45-64 years old, and the remaining (almost 4%) are over-65s.

Two big provinces (Gauteng and KwaZulu Natal) are responsible for a considerable proportion of the number of fatalities: almost 40%. The mortality rate is highest in the province of Mpumalanga (45). The RTMC presented the number of fatalities for the provinces, cities and stretches of roads over a period of three years in a report (RTMC, 2010).

It is of interest to analyse research reports on temporal and geographical variations of road crashes, for example by using studies by Anesh Sukhai and his colleagues (e.g. Sukhai & Jones, to be published). These reports will be analysed in Phase 2 of the project.

These types of distributions are first steps when analysing crashes and they certainly deserve our attention as a starting point for priority setting. Sometimes numbers of fatalities are related to the 'size of a group' (for example kilometres of road length, or number of inhabitants in a certain age group). It is also possible to relate the numbers of fatalities or casualties to exposure to risk, e.g. the number of kilometres travelled. It would then be possible to identify risk differences; for example, that a kilometre walked by a pedestrian is ten times riskier than a kilometre travelled by car.

A very interesting question is why crashes occur and which factors contributed: human being, road, vehicle. Research tells us that it is not very common that just one factor is responsible for causing a crash; it is usually a combination of factors. However, causes of crashes are mostly identified by the police in their police reports. Police reports serve their own objectives (to decide on faults/violations and to be used in courts) and are – by definition - subject to personal interpretation. Sometimes results of in-depth studies are available and these studies come up with more reliable results.

After talking with road safety professionals in South Africa and studying the various reports that were made available, one dominant picture emerged as far as road safety is concerned: *South Africa is a lawless country, road users behave 'shockingly bad' and that is the main reason why so many people are killed on South African roads. That is totally unnecessary!* This suggests

that in the vast majority of road crashes the human being has a central role. A few well-known factors are mentioned:

- Alcohol
- Seat belts
- Speed
- Fatigue
- Red light running

Cell phone use may perhaps be added to this list, but recent scientific research has at least presented some confusing information.

Survey results are available regarding the so-called prevalence of certain road user behaviour (see for example the *2010 Traffic Offence Survey Report*, prepared by Microzone, 2010). It is estimated that in more than 50% of all fatal crashes alcohol (above the legal limit) is involved, while at the same time the prevalence of alcohol in traffic is rather low: only a few percent. The Medical Research Council in South Africa estimated that around 57% of drivers and 58% of pedestrians who are fatally injured in road crashes have some level of alcohol in their blood with average levels greatly in excess of the BAC limit of 0.05 (in: Sinclair et al., 2013). These figures relate only to the fatalities who were tested. The fatalities, however, may not be representative for all fatalities: persons may be tested because alcohol use is suspected.

Furthermore, compared with other countries, seat belt wearing rates in South Africa are low. Whereas wearing rates of more than 95% are rather common in high-income countries, in South Africa wearing rates are less than 70%, higher for front seats than for backseats and extremely low for child restraints (see, for example, a letter from 2011 to the editor of the South African Medical Journal from King cs. indicating that in a pilot study only 3% of all children were adequately restrained). Major differences are observed in seat belt wearing rates between different socio-economic communities (Van Hoving et al., to be published) indicating a wearing rate more than twice as high in high income areas compared with low income areas.

A few studies are available describing certain human behaviour in association with crashes in more detail (e.g. Sukhai et al., 2005). These figures and these studies will be further analysed in Phase 2 of this project.

The 'causes of crashes' are extremely relevant to this project and will receive quite some attention in Phase 2. But let's see where we end up when we re-analyse causes of crashes bringing in the Safe System approach and trying to make a distinction between 'system failures' and 'excessive behaviour' (see also Wegman, 2012; Wundersitz & Baldock, 2011).

It can be hypothesized that bad driving behaviour or aggressive behaviour on the roads do not come alone, but are part of a culture, more specifically, are related to general violence in South African society. It is sometimes assumed that bad behaviour is correlated to risks in traffic. This perspective will be included in Phase 2 and possibly in Phase 3 of this project, assuming this perspective turns out to be of relevance for the National Strategy.

3.2. Road safety strategies

3.2.1. Context

Improving road safety in South Africa has already received attention for quite a period of time. A remarkable moment was the Parliament approval of the Road Traffic Management Corporation Act, 1999 (Act. No. 20 of 1999). The Act provides, in the public interest, for cooperative and coordinated strategic planning, regulation, facilitation and law enforcement in respect of road traffic matters by the national, provincial and local spheres of government.

An important component of this Act was the establishment of the Road Traffic Management Corporation as a partnership between the different tiers of Government. This is well illustrated by the fact that all tiers of Government are represented in the so-called Shareholders Committee. Given this Act it is not difficult to reach the conclusion that the RTMC was intended to be the 'Lead Agency' for road safety in South Africa as proposed in recommendation 1 of the World report on traffic injury prevention (Peden et al., 2004): *"Identify a lead agency in government to guide the national road safety effort"*.

A wide range of functions and tasks for the RTMC were identified in this Act. However, since its inception, the RTMC has covered only part of those functions. Unfortunately, no document is available explaining the history of the RTMC and indicating which of its functions are well developed and which stayed behind (measured by a scientific yardstick). Of course 'stories' are told, but it is hard to get a full picture and to assess its history. A hard fact is a resolve of the Shareholders Committee of the RTMC to dissolve the RTMC. However, this decision has not been executed yet. The Portfolio Committee of South African Parliament stated that changing the RTMC's mandate is up to Parliament and is not a decision that can be made by the Shareholders Committee. Very recently, the Shareholders Committee made another decision and revised its decision to dissolve the RTMC. It is not obvious what the future will bring, but it is crystal clear that the present situation weakens the position of the RTMC, creates uncertainty among key stakeholders, will probably not result in stronger road safety policies, and will, at the end of the day, be detrimental for road safety in South Africa.

Recommendation 1 of the World Report (Peden et al., 2004) is often misinterpreted, suggesting that road safety is just the responsibility of a lead agency and that other stakeholders should not play an active role in improving road safety. On the contrary, road safety is a shared responsibility and it goes without saying that a lead agency has some 'delivery tasks'. However, a more important task of a lead agency is the task to create conditions in a country that ensure that road crashes can be tackled successfully and that all stakeholders contribute and play their role properly.

Therefore, besides the RTMC other stakeholders have their own duties and responsibilities when it comes to improving road safety in the country. It is important to identify which are the key stakeholders, inside and outside Government, for improving road safety how different tiers of Government are considered to make their contribution, and how different functions/tasks/roles should be coordinated by the lead agency RTMC.

It may be appropriate to have a look at the road safety capacities in South Africa from a human resources perspective: do we have enough well-trained staff, at all tiers of Government and outside Government?

3.2.2. *International developments*

In line with the Millennium Development Goals (African Union, 2006), decided upon by the African Ministers of Transport in Addis Ababa in 2006 and approved by the Heads of State, one of the goals of the 2015 Road Traffic Safety Management Plan is to reduce the number of fatalities by 50% in 2015, compared with the number in 2007. Road safety was again an important issue in the so-called Luanda Declaration of the Ministers of Transport, organized by the African Union, in November 2011.

The African Road Safety Conference, organized by the World Health Organization and the United Nations' Economic Commission for Africa, held in Ghana in 2007, adopted a set of resolutions. Well-known areas are covered in these resolutions, for example the six recommendations from the *2004 World report on Injury Prevention*.

Two years later, in November 2009, the First Global Ministerial Conference on Road Safety was organized in Moscow, Russian Federation. This Conference was proposed by the Commission for Global Road Safety in 2006. This Commission is a think tank on road safety issues chaired by Lord Robertson (www.makeroadssafe.org). At the end of the Conference the countries that were represented had agreed on ten resolutions, among which the basic resolution to encourage the implementation of the (six) recommendations in the *World report*.

The General Assembly of the United Nations proclaimed 2011-2020 as the Decade of Action for Road Safety, with a global goal of stabilizing and then reducing the forecasted level of global road fatalities by increasing activities conducted at national, regional and global levels (resolution 64/255 of March 2010). This was to result in saving an estimated 5 million lives over that period (*Figure 3.1*). Furthermore, the concept of action was proposed by the Global Commission for Road Safety.

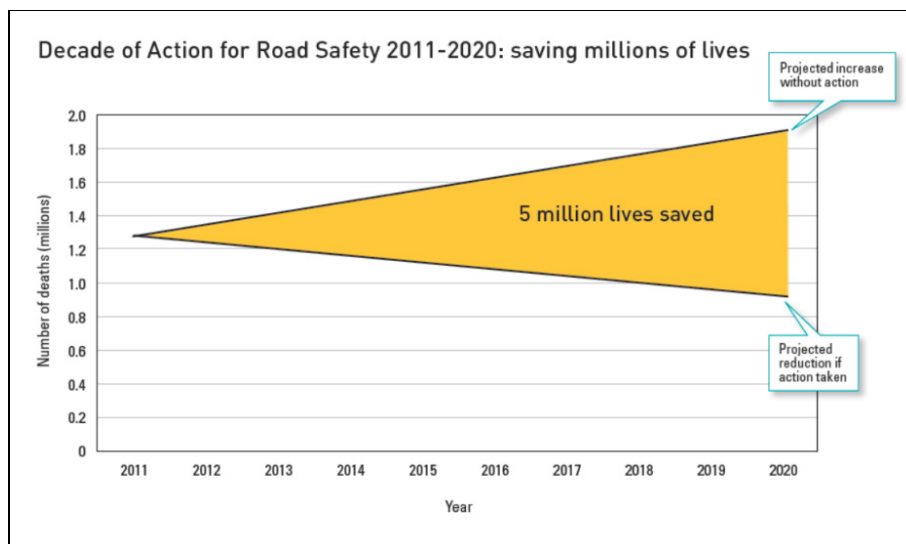


Figure 3.1. Decade of Action for Road Safety: saving 5 million of lives between 2011 and 2020 (Source: World Health Organisation, 2011).

To support the achievement of the ambitious objective, the United Nations Road Safety Collaboration (UNRSC) developed a Global Plan of Action (www.decadeofaction.org). In this Plan countries are encouraged to implement activities as organized in five pillars (Figure 3.2):

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

Figure 3.2. The five pillars that guide national road safety activities in the Decade of Action (Source: United Nations, 2011).

The guiding principles underlying the Plan for the Decade of Action are those in the Safe System approach. The development of this Safe System approach started in the Netherlands (Koonstra et al., 1992) and was presented in Sweden in 1996 (Larsson et al., 2010). This approach was later endorsed by the WHO/World Bank (Peden et al., 2004), OECD (2008) and used in the national road safety strategies in several countries, among which Australia (Australian Transport Council, 2011).

South Africa has become a member of the Global Road Safety Collaboration and this membership gives the country the advantage of being well-connected to the international road safety community and to learn easily from 'best practices' elsewhere. Of course these best practices need to be adapted to the local conditions of South Africa. By adopting several international resolutions, such as UN Resolution 64/255, South Africa has now committed itself to improving road safety, to setting road safety targets (for 2015 and 2020), and to designing and implementing road safety strategies and action plans under the principles of the Safe System approach. This can be done under the flag of the road safety campaign of the RTMC "Safe roads – the change we want to see".

3.2.3. *National policies in South Africa*

Road crashes are among the development indicators on which the South African Government is evaluated annually to determine the progress made in human development in the country. The *National Development Plan 2030: our future – make it work* states (in Chapter 10 Health care for all): *to reduce injury, accidents and violence by 50 percent from 2010 levels*. Other policy documents also include road safety improvement.

It is of interest to identify policy areas which had, have or could have an impact on the risks on South African roads. After having done this, we could indicate how to partner road safety policies with these other policy fields. A few policy fields that may be adjacent to the field of road safety are public health, planning, environment, justice, home affairs, education, traditional affairs, human settlements, etc.

3.2.4. *Road Safety Strategies in South Africa*

To the best of our knowledge no comprehensive assessment is available of progress in the field of road safety over the last few decades. In other words: we do not have a clear picture of which road safety programmes have been carried out and which are their road safety impacts. Of course, we shall look for evaluation results, for example those of the Arrive Alive strategy and those of the school-based curricula as deployed by the Department of Education.

3.2.5. *Assessment and conclusion*

South Africa has one of the worst traffic mortality rates (fatalities per 100 000 inhabitants) in the world. The recent *Global status report on road safety* (World Health Organization, 2013) revealed that South Africa had a mortality rate of 31.9 ranking it 177th of the 182 countries participating in this study. There are no reasons to believe that a different picture will emerge for (serious) injuries. Road traffic injuries in South Africa take an enormous toll on individuals, families, communities and the country as a whole. Road traffic injuries are a very important cause of death and the leading cause of death for young people 5-14 years of age. Conservative estimates of the economic costs of road traffic injuries indicate more than R 300 billion annually.

According to the official statistics 14 000 people are killed every year on South African roads and we do not see clear signals of an improvement. Furthermore, we could not identify strong efforts in the country to reduce the road toll. In the 2013 *Global status report* South Africa gives itself a rather low score, close to 'not effective', on police enforcement

Road crashes are by no means inevitable, caused by random, unpredictable events. On the contrary: road crashes are to a large extent predictable and preventable. We have seen many examples worldwide that prove that road traffic injuries are not too difficult to prevent. And a quote of Nelson Mandela on poverty is very true for road crashes as well: *"Like slavery and apartheid, poverty is not natural. It is man-made and it can be overcome and eradicated by the actions of human beings"*. This is very true for road crashes and injuries.

There is a sound body of scientific evidence available to guide these human actions. We have to diagnose road traffic injuries in South Africa and come up with an effective National Road Safety Strategy. This strategy should consist of two main components: a 'management' component and an 'intervention' component.

4. Theoretical context for this project

To structure our work we will use three international recognized sources:

1. A report written by the Swedish professor Kåre Rumar (1999) which presents a layered structure to be used when analysing road safety problems (*Section 4.1*),
2. The so-called SUNflower approach (Koornstra et al., 2002), used for the comparison of road safety performances of countries/jurisdictions, initiated when comparing the safety performance of the 'SUN' countries Sweden, United Kingdom and the Netherlands (*Section 4.2*).
3. The Country Guidelines (Bliss & Breen, 2009) as produced by the World Bank Global Road Safety Facility for the conduct of road safety management capacity reviews and the specification of Lead Agency reforms, investment strategies and Safe System projects (*Section 4.3*).

These three sources together provide a valuable theoretical context for the 'road safety management' component of this project. For the 'analysis and intervention' component we use the so-called Haddon-matrix (Haddon, 1972). This matrix has two axes: the first one deals with the three phases in the crash process: before the crash, during the crash and after the crash. The other axis shows the three components of our traffic system: the road user, the road and the vehicle. The nine cells in the matrix can be used to classify crash factors and intervention types. We also plan to use another model (Rumar, 1999) in which the size of the traffic safety problem is explained as the product of three dimensions: Exposure (E), crash risk (C/E: number of crashes per exposure) and injury risk (I/C: number of people killed or injured per crash). The additional dimension compared with Haddon was the inclusion of exposure as a variable or dimension to be used to improve road safety and to reduce the number of fatalities and injuries; the WHO/World Bank *World report* (Peden et al., 2004) also includes this exposure dimension when describing risk factors and interventions.

Many of the issues raised in this work are common to all countries and are therefore also relevant to the South African situation; these will be used when drafting the Status Quo analysis (Phase 2) and the National Road safety Strategy for South Africa (Phase 3).

4.1. The three levels of road safety problems of Kåre Rumar

In his lecture *Transport safety visions, targets and strategies: beyond 2000* for the European Transport Safety Council (ETSC; Rumar, 1999), the Swedish professor Kåre Rumar presented a three level split for road safety problems (see *Appendix E*), namely:

1. Problems obvious even at a superficial analysis (First order problems);
2. Problems revealed by a somewhat deeper analysis (Second order problems);
3. Problems almost totally hidden (Third order problems).

This division turns out to be very instrumental when analysing road safety problems. Level one concentrates on the traditional road safety problems when we analyse road safety data and statistics: speed is a problem, novice

drivers run a high risk, etc. Rumar defines the second order problems as those that reduce the effectiveness of measures aimed at solving the first order problems. An example is poor legislation or poor enforcement of that legislation. Third order problems deal with the organization of road safety work such as central or distributed responsibilities, decision making processes, resources, coordination, et cetera. They may also concern road safety management such as the steering process of road safety work. They may concern the awareness, the values and knowledge of road safety measures that are typical for citizens in a society, and for decisions makers, road safety workers as well as road users.

When analysing road safety problems it may be of interest to link all three problem types and to see whether changes at the levels 2 and 3 might (positively) influence first order problems.

4.2. **The SUNflower approach**

The SUNflower model was developed when comparing the safety performances of Sweden, the United Kingdom and the Netherlands; three of the safest countries in the world (Koorstra et al., 2002). The question to be answered was how these countries became relatively safe countries over the years and how these countries could learn from one another. For that purpose a road safety hierarchy was developed inspired by a model originating from New Zealand. Basically, the model tries to establish a causal link between road safety plans and programmes with their outcomes in terms of changes in the numbers of people killed and injured and the related costs. The SUNflower model added an additional layer to the New Zealand model: the structure and culture layer. This layer is intended to generate better understanding of a safety plan and programme from the 'genes' of a country and nation. This layer is rather similar to the third level problems as defined by Rumar. See for more details, several SUNflower reports and *Appendix F*.

4.3. **Guidelines for road safety management systems according to Bliss & Breen**

Implementing the recommendations of the World Report requires capacity building at the global, regional and national levels, to create the resources and tools necessary to target initiatives on a scale capable of reducing significantly and sustainably the numbers of road deaths and injuries in low and middle income countries. The guidelines as drafted by Bliss & Breen (2009) provide a pragmatic approach. The leading thoughts are: supporting the Safe System approach, focusing on results, strengthening management capacity including a responsible and accountable leadership, making staged investments, and learning by doing.

Figure 4.1 shows the resulting Road Safety Management System, distinguishing between institutional Management Functions, Interventions, and Results.

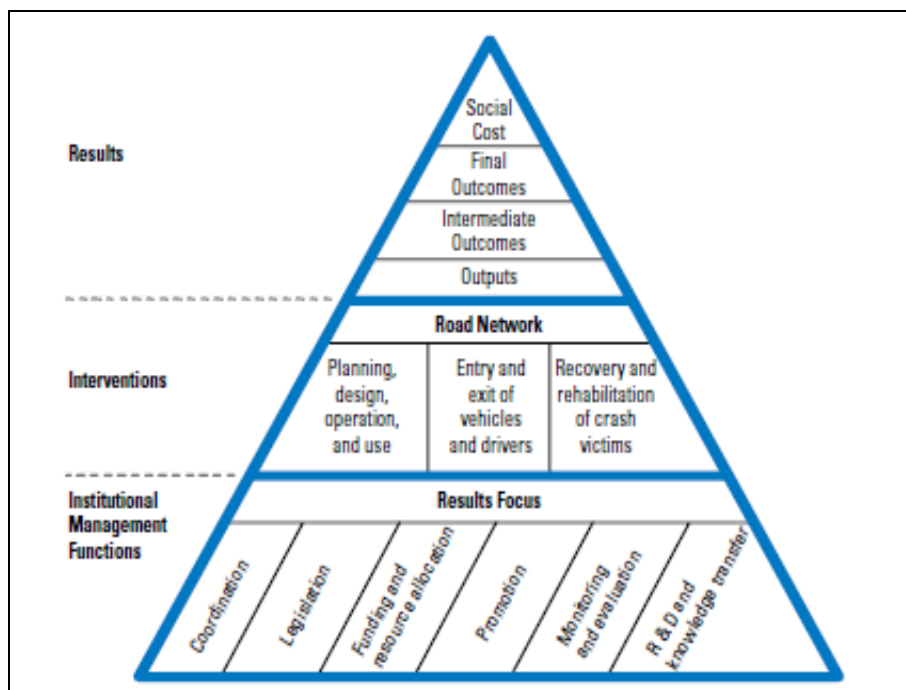


Figure 4.1. Road safety management system (Source: Bliss & Breen, 2009).

Figure 4.2 shows the implementation stages. Two stages are defined, preceding the establishment, the growth and the consolidation of the management system: a country capacity review and the preparation and implementation of Safe System projects.

It may be important to notice that Phases 2 and 3 of the current project deal with both stages: the First stage includes the Status Quo report and the Second stage deals with the National Strategy including implementation of interventions and measures ('programmes'). Bliss & Breen call the diagnosis phase (we call that Status Quo + Gap analysis) a country capacity review. Such a review goes one step further than our gap analysis because Bliss & Breen not only identify 'gaps' but also the preparedness of a country to bridge gaps. SWOV will include this aspect in our consultations with stakeholders.

The Guidelines (see *Appendix F*) have many generic components that allow application to all countries, irrespective of the status of development or the road safety performance in that country. For more information about the Guidelines we refer to the Bliss & Breen publication.

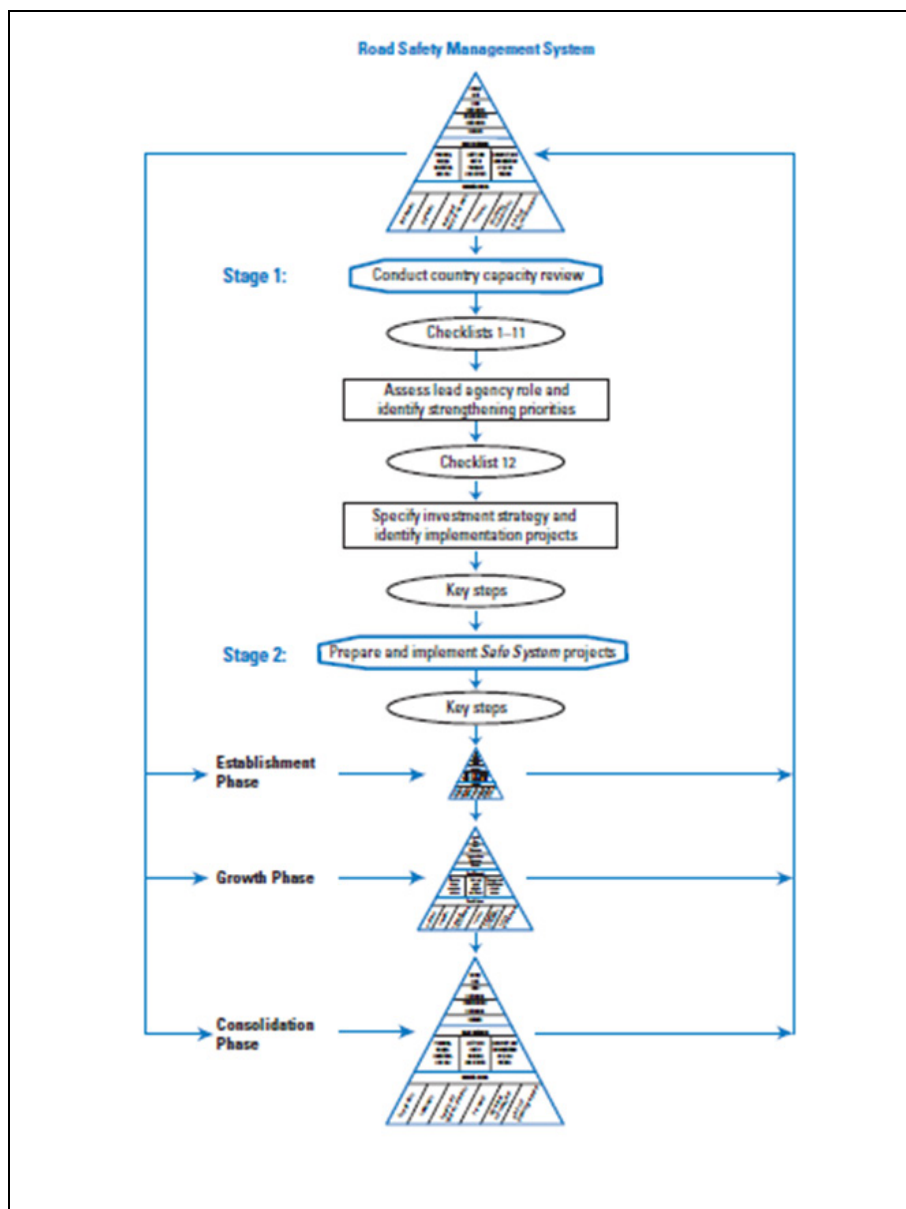


Figure 4.2. Implementation stages (Source: Bliss & Breen, 2009).

4.4. Amplifying questions

Based on the information in the previous sections, on discussions with RTMC-staff, on meetings with some key players in road safety in South Africa (see *Appendix D*), and on input from members of the Reference Group, a number of amplifying questions can be formulated which this study must attempt to answer. Answers can either come from existing studies, from structured interviews with key stakeholders and from the input of the Reference Group. It is not foreseen that this project will require carrying out its own research, nor will there be any form of data collection.

The amplifying questions have been developed based on our understanding of the current developments regarding road safety in South Africa and the organizational and institutional setting in which it is managed. These amplifying questions are:

Related to road safety in general

- 1) How are road crashes perceived in South Africa, by politicians, by institutions, by communities, by the people at large?
- 2) Is road safety a national priority and does it have good support to expect the drafting of a high-quality National Road Safety Strategy and a good chance of effective implementation?
- 3) What are the underlying causes that have prevented the RTMC from fulfilling the roles assigned to it under the RTMC Act?
- 4) How has the split in responsibilities between the RTMC and the wider DoT affected road leadership in South Africa?
- 5) Which views are expressed when it comes to (political) support for an organization such as the RTMC at all levels of Government? How will these views affect the effectiveness of the RTMC?
- 6) Can future co-operation and collaboration between key stakeholders currently responsible for road safety in South Africa be guaranteed and if not, what needs to be done to ensure that this is achievable?
- 7) How can the private sector, NGOs, and communities be included more in the design of a new road safety strategy, and moreover, can they be given a more prominent role in the implementation phase to improve road safety?
- 8) Will the RTMC be able to effectively manage its core tasks as given the RTMC in the 1999-Act, and are the necessary resources available to achieve this (now and in the future)? Are there good reasons to review the RTMC mandate?
- 9) Does the fact that traffic management and enforcement fall under a separate enforcement body (Traffic Police, as opposed to the wider SA Police Service) affect the lack of respect for traffic law? What is the impact of a specialized traffic law enforcement body?
- 10) Is the Safe System approach well known and understood by the road safety community and decision makers in South Africa as the leading vision to improve road safety?

Related to road crash and related data

- 11) Are the current data and data systems adequate to support effective road safety management in South Africa? If not, what is necessary in order to make them adequate?
- 12) Are there barriers or risks that prevent the use of data or limit its availability for use in road safety management? (Are there barriers preventing inter-departmental sharing, legal constraints, issues relating to privacy etc.)
- 13) Do we have adequate resources and staff to design evidence-based road safety strategies and action plans and to monitor progress impartially?

Related to the planning, design, operation and use of the road network

- 14) Have comprehensive safety standards and rules and associated performance targets been set for the planning, design, operation and use of (national, provincial and municipal) roads?
- 15) Has a Safe System approach been adopted in the planning and classification of the road network, in design manuals/guidelines and in the actual design of roads and streets?

- 16) Are speed limits safe and credible and are they in accordance with Safe System design principles?
- 17) Are the applied safety standards and rules monitored for compliance, for example by using a road safety audit system systematically and are remedial programmes the result?
- 18) What traffic and safety management instruments and tools are deployed, such as a RAP (Road Assessment Programme) or high risk location programmes to ensure optimal levels of road safety are provided?
- 19) Do existing resources have the necessary skills and training to effectively manage road safety of the road network?
- 20) Is lack of funding for making roads safer a serious problem for improving road safety and how must this funding issue be addressed?

Related to the vehicles and road users on the road network

- 21) Have comprehensive safety standards and rules and associated performance targets been set to govern the use of vehicles and safety equipment (such as safety helmets) on public roads?
- 22) As in (19) but directed at all road users and drivers of vehicles?
- 23) Is there a system to test the on-going compliance of vehicles and safety equipment to specified safety standards and rules?
- 24) How well do the South African road users understand the rules of the road and the purpose of the existing legislation?
- 25) Do the adopted and applied safety standards meet the needs of high risk user groups and are performance targets set and monitored?
- 26) Do the specified safety standards and rules and related compliance regimes address the priorities of high risk road user groups?

Related to co-ordination, legislation and funding

- 27) Are interventions coordinated across agencies and departments in order to meet stated safety targets?
- 28) Are interventions coordinated across different levels of government in order to meet stated road safety targets?
- 29) Have parliamentary or similar committees (national, provincial, local) been formed and requested to facilitate coordination and to monitor and assess progress, and, if needed, set political priorities?
- 30) Are current legislation and associated procedures that support interventions and other institutional management functions adequate to support meeting stated objectives?
- 31) Are legislation and associated procedures regularly reviewed (e.g. Testing Centres), and where necessary reformed to continue to meet stated objectives?
- 32) Are sustainable funding mechanisms in support of interventions and institutional management functions present to meet the stated objectives?
- 33) Are formal resource allocation procedures in support of interventions and institutional management functions used to meet the stated objectives (e.g. cost-benefit analysis, cost-effectiveness analysis)?
- 34) Have road crashes been economically appraised and is there an official value of a statistical life which can be used as the basis to make decisions regarding allocation of resources?

- 35) Are the funding mechanisms and resource allocation procedures sufficient to achieve the stated objectives?

Related to monitoring, evaluation, research and technology transfer

- 36) Has a national road safety research and development strategy been established?
- 37) Has an independent national road safety research organization been established (a new institute, a virtual institute, or a partnership of existing institutes)?
- 38) Have demonstration and pilot projects been established with sound scientific evaluation and knowledge dissemination components?
- 39) Are mechanisms and media available to disseminate results of research and do these results make their way into policy making?
- 40) Are sustainable systems available for all road categories to collect and manage data on road crashes (fatality and injury outcomes, related road/environment/vehicle/road user factors) and exposure/mobility (traffic counts, road network length, modal split and vehicle use etc.) to monitor and to evaluate the set targets?
- 41) Are sustainable systems available for all road categories to collect and manage data on road network traffic and critical offences (speeding, alcohol, seat belt usage, helmet wearing etc.) to monitor the performance against set targets?
- 42) Are all roads regularly inspected and checked for compliance with safety (design) standards and are programmes of remedial engineering available?
- 43) Is a monitor available of implemented remedial treatments resulting from engineering, police, educational, promotional, driver training, vehicle testing or other interventions for all road types?
- 44) Are systematic and regular surveys undertaken for each category of post-crash service (pre-hospital, hospital or long term care) to assess adherence to standards and set targets?
- 45) Are attitudinal surveys on road safety interventions structurally and regularly undertaken to monitor the performance of stated targets?
- 46) Do all participating departments and agencies have open access to all data collected?

5. Scope and methodology

The review and development of a National Road Safety Strategy will comprise six primary tasks and although these tasks form the bulk of the work programme, an additional number of tasks will need to be executed to address all objectives. The primary tasks are described in this chapter and are defined as follows:

1. Orientation on road safety in South Africa resulting in the present Inception Report (Phase 1)
2. A Status Quo analysis (Phase 2)
3. A Gap Analysis to define the actions required to bridge present and future (Phase 2)
4. The development of a draft National Road Safety Strategy for South Africa, including a set of implementable road safety programmes (Phase 3)
5. Reporting (Phases 2 and 3)
6. Dissemination of results and consultation with stakeholders throughout the entire project (Phases 2 and 3)

The next sections briefly describe the scope of each of these six tasks and the intended approach.

5.1. Inception Report

This task has been completed with the delivery of this draft report and after consultation with the Reference Group and the RTMC. A final report for the RTMC will be submitted.

5.2. Status Quo analysis

The predominant function of this task is a review and analysis of the development of road safety and road safety management in South Africa during approximately the last 20 years. The status quo analysis will pay attention to the two main components in this project: road safety problems in South Africa (for example described in the terms of Rumar) and problems related to road safety management.

To ensure that our analysis is carried out within the context of international best practice, it will explicitly consider the elements of the World Bank Global Road Safety Facility Road Safety Management System Framework (Bliss & Breen, 2009), the SUNflower approach (Wegman & Oppe, 2010), and the views as expressed by Rumar in his lecture for the ETSC (Rumar, 1999). The review and analysis will use insights as presented in recent scientific literature on road safety management (see e.g. Safety Science Special Issue 2010 and recent work of Bax (Bax, 2011)) and be related to literature introducing the Safe System approach policy frameworks: Sustainable Safety (Wegman & Aarts, 2006), Vision Zero (Larsson et al, 2010), and the OECD Towards Zero report (OECD, 2008). Importantly, international experiences and specifically those related to the institutional framework of policy making and the relationship between road safety policy and science should be accounted for in this process. An important input will come from

South African sources such as the draft Strategy, the resolutions of two conferences organized to deliver input for the new National Strategy. Finally, we shall include background documentation that is used for the Decade of Action ('five pillars') and different WHO-manuals (alcohol, speed, pedestrians, data, etc.).

The analysis will be based on a combination of an (international) literature review, structured interviews and assessment of current data information systems, specifically road crash data reporting and collecting and traffic monitoring data. Also results from surveys and monitoring activities on road safety, especially in relation with implemented policies in South Africa, will be analysed. It goes without saying that SWOV, being a research institute, will use scientific standards for the analysis and review. Input from road safety experts from South Africa will be very important and we trust we will receive their input.

The outcomes of the literature review will form the basis of several structured interviews which will be carried out among senior staff of all relevant stakeholders at national, provincial and local level and with stakeholders outside the Government (private sector, NGOs etc.) and with road safety experts (academics and practitioners). The structured interviews will seek to find answers to the amplifying questions listed in *Section 4.4*.

A very important component of the review process will be an assessment of the systems used for collecting road safety data. In the assessment attention will be paid to quality aspects: completeness, correctness, potential bias, et cetera. The next step is an assessment of how policy development and road safety management in South Africa is based on road safety data. A detailed review of current crash reporting and recording systems will be carried out (perhaps this will be covered by the so-called twinning in the IRTAD-framework between the RTMC and Sweden; in that case SWOV will refrain from such an analysis).

The analysis will be based on a structure in which all sources that have been mentioned will be brought together. This structure will be discussed with the RTMC and the Reference Group. Special emphasis will be given to the amplifying questions listed in *Section 4.4* of this report.

The outcome of the above activities will be documented in a detailed Status Quo report which will present the SWOV's assessment of the current situation regarding road safety in South Africa. The South African situation will also be considered in context of international best practices.

5.3. **Gap analysis**

The gap analysis will be carried out to make clear where road safety in South Africa wants to be at some future point in time - i.e. "where do we want to be?" and "what do we want to achieve?", as opposed to "where are we currently?" and will then determine how the gap between present and future is to be bridged. In this analysis SWOV will explore the opportunities for quantitative target setting (e.g. for 2020) using data from South Africa, and the options for working with targeted road safety programmes ('how implementing certain road safety programmes will result in reaching a certain target'). This work will be done in close contact with data experts in

the RTMC, and perhaps in other organizations. A Fall Back Plan ('a Plan B') will be developed in case such a quantitative approach is beyond reach.

The outcome of the gap analysis is a set of actions and/or strategies to move from the present to the future to be included in the National Road Safety Strategy. Drafts of this gap analysis will be discussed with the RTMC and with the Reference Group.

5.4. **Development of a draft National Road Safety Strategy**

The foregoing (*Sections 5.2 and 5.3*) will be the primary input for a draft National Road Safety Strategy. This strategy will have two main components: a 'management' component and an 'intervention' component.

It is of vital importance that the draft Strategy takes into account international best practices for both components, while not forgetting the actual situation in South Africa and the lessons learnt from the past (successes and failures).

With respect to the management component, the draft Strategy will address issues relevant for creating conditions for a successful Strategy. These will include, but not be limited to:

- Financial plans and forecasting (incl. initial budgets, funding streams, etc.);
- Capacity building and training programmes;
- Road safety data systems;
- Management plans including Key performance Indicators;
- Proposed legislative and regulatory amendments;
- Communication plans;
- Cooperation between stakeholders on specific topics (because it is assumed that implementation of programmes will be more effective and more efficient if cooperation between different stakeholders results in more integral programmes).

Once the initial proposal has been completed, SWOV will have follow-up discussions with stakeholders to discuss the feasibility of the proposed interventions. The same stakeholders as in earlier phases will be included in these discussions, but SWOV proposes to invite a wider group of road safety experts in this consultation process.

5.5. **Reporting**

The following reports constitute the primary Deliverables:

- Inception report;
- Status Quo report (resulting in a gap analysis);
- Draft National Road Safety Strategy;
- An archive containing all background documentation used and developed in this project.

5.6. **Dissemination and consultation**

Active communication with all stakeholders is seen as a task that is vital to the eventual outcome of the project. As has already been mentioned in earlier tasks, the input of all stakeholders, at national, provincial and

metropolitan/local level, inside and outside the government, will be sought throughout the project. This input will be helpful in the problem definition phase, facilitate the testing of alternatives for the proposed road safety management framework and also the function and structure of the RTMC, and more importantly give an indication of the support that the proposed National Strategy could expect. The input will not only influence the content of the proposed Strategy, and also determine the implementation of the programmes in the Strategy, but will finally have an effect on the people killed or injured on South African Roads. Stakeholders have been and will be involved in the inception phase of the project, and will also be individually approached and interviewed during the next two phases. SWOV intends to use the results of both road safety conferences and the resolutions that are adopted. In close cooperation with the RTMC and with the Reference Group consultations and dissemination of results will be organised.

It is proposed to launch the new Strategy during a major event. This event will be attended by representatives from all relevant stakeholder groups. This event will take place when the Strategy is formally adopted, accepted by all stakeholders and will meet support from the road safety community. The public and the media are expected to play an important role. The purpose of this meeting will be to really mark a new and fresh start of improving road safety in South Africa.

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Appendix A The RTMC Terms of Reference

TERMS OF REFERENCE FOR ASSISTING THE REVIEW AND DEVELOPMENT OF THE NATIONAL ROAD SAFETY STRATEGY FOR SOUTH AFRICA

DISCLAIMER

The Road Traffic Management Corporation reserves the right in its sole and absolute discretion, to decide on whether or not to proceed further with this process in light of the proposals received and the relevant Corporations priorities and policy considerations.

The intellectual property involved in drafting the National Road Safety Strategy will remain the property of the Road Traffic Management Corporation.

1. BACKGROUND

1.1. Definitions/Acronyms used

- Road Traffic Management Corporation: RTMC, Corporation
- National Department of Transport: NDOT
- National Road Safety Strategy: The Strategy
- Non-governmental Organisations: NGO's
- Minister and Members of the Executive Council: MINMEC
- Portfolio Committee of Transport: PCOT
- Shareholders Committee: SC

1.2. Overview

Globally, road safety is not only a transport problem, but also a serious public health, social development, economic and social equity issue. South Africa is no different to other countries, as the costs related to road traffic deaths/injuries amount to R306 billion per annum.

The RTMC, a Public Entity was established in terms of Section 3, of the Road Traffic Management Corporation Act, No. 20 of 1999 to be the lead agency of road safety in all three spheres of Government within South Africa.

The Corporation has the mandate to establish and run an effective road management system to ensure the safety and quality of life of citizens. To do this, the RTMC requires comprehensive and dynamic programmes that have proved to be successful in improving road safety through the creation and implementation of a Road Safety Strategy that will endeavour to address the numerous road safety challenges faced by South Africans on a daily basis.

2. PROJECT BACKGROUND

The RTMC is considering appointing a service provider with relevant background, knowledge and experience in the road traffic sector and drafting strategies for organisations, to work with a core team within the Corporation, relevant government organisations and other identified subject matter expects to review and develop a National Road Safety Strategy for South Africa.

The need for this service has become apparent due to the high number of road deaths and fatalities that occur on a daily basis. The key challenges on road safety for South Africa are due to the following issues:

- ⇒ There is fragmentation of effort in addressing road safety challenges within the three spheres of Government, NGO's and the private sector;
- ⇒ South African road user behaviour does not comply with road rules;
- ⇒ Enforcement strategies need to be improved to ensure compliance with road safety rules;
- ⇒ The road infrastructure does not cater for the current socio-economic situation that the country finds itself in-the roads are becoming broader while the walk ways are becoming smaller, yet the majority of the population are pedestrians.
- ⇒ The continued perpetuation of apartheid spatial planning and development affecting public transport patterns, sustainability and safety.

The Strategy will streamline efforts from relevant stakeholders and secure the undertaking of each stakeholder to play their role in reducing the carnage.

While the RTMC has adopted the "safe systems approach", that states that while human error is inevitable, measures can be put in place to prevent death and/or serious injury as a result of road accidents. Better road safety encompasses activities on road safety management, safer roads and mobility; safer vehicles, safer road users and post crash response. These five pillars of activities have been developed and endorsed by the UNRSC as action plans to achieve The Global Plan for the Decade of Action for Road Safety 2011-2020; which is to reduce road fatalities by 50% by 2020. The RTMC is a member of the UNRSC and as such has aligned its activities and programmes according to these pillars. In order for South Africa to achieve this goal, road traffic related deaths need to reduce from the 2011 ratio of 29/100 000 people to 14/100 000 people in 2020.

The RTMC has also co-hosted two International Road Safety Conferences in collaboration with its road safety partners, where local and international experts on road safety related matters were invited, together with non-profit organisations and members of the private sector. A number of road safety resolutions, as informed by the pillars of the Decade of Action, were made, and these resolutions will form part of the Strategy.

3. TERMS OF REFERENCE

The Terms of Reference serves to guide the process of selecting and appointing a qualified service provider by ensuring that there is a match

between the project requirements and specifications with the expertise and capacity of the service provider to deliver the service on time.

4. EXPERIENCE AND EXPERTISE

Interested service providers need to have the following

- A team with knowledge and experience in the road traffic safety sector;
- A team with highly qualified individuals that are respected as subject matter experts globally;
- A team of members with skills and qualifications in road safety education, enforcement, roads infrastructure and any generic road traffic safety qualifications and;
- Experience in developing strategies of this nature.

A consortium with academic and research institution partnerships will be given preference.

5. SCOPE OF WORK

The foundations for a new strategy are already in place. The RTMC has developed a draft road safety strategy, which should be considered together with other available strategies when developing a new 7-year strategy towards 2020.3.

Roles and Responsibilities

The **service provider** is expected to assist the team to:

- ⇒ Consider the inputs made by different role players;
- ⇒ Benchmark best international practices that are implementable in the short and long term to make an impact in South Africa;
- ⇒ Identify and include external subject matter experts as and when required, in the drafting process;
- ⇒ Assist with the preparation of presentations and narratives of the Strategy for presentation to various stakeholders, including but not limited to, the Shareholders and the Portfolio Committee on Transport;
- ⇒ Assist with the consolidation of inputs received from various stakeholders and forward the amended version to the RTMC via the designated contact person;
- ⇒ Provide guidance with the layout and design of the Strategy that until the final approval by the designated person;
- ⇒ Print and deliver copies of the final approved Strategy to the RTMC.

The **RTMC Team** is expected to:

- ⇒ Foster collaboration between the Service Provider and key Stakeholders;
- ⇒ Remove obstacles to the Service Provider's successful delivery;
- ⇒ At all times maintain the focus of the Service Provider on the agreed scope and expected outcomes; and
- ⇒ Monitor and mitigate against factors outside the service provider's span of control that are critical to its success.

6. DELIVERABLES

The service provider will be expected to facilitate the drafting of the National Road Safety Strategy that:

- ⇒ Must follow the best practice prescripts of a strategy with the following minimum format:
 - Analysis-including environmental scan
 - Priorities and prerogatives
 - Aims and objectives
 - Implementation
 - Monitoring and evaluation
- ⇒ Includes implementable safety programmes and initiatives based on international best practices that can be customised to suit the South African road safety situation;
- ⇒ Includes inputs from the draft strategy;
- ⇒ Includes inputs from relevant role players;
- ⇒ Is pro-active and responsive to both international trends and local dynamics of a developmental society that South Africa seeks to be;
- ⇒ Is based on the safe systems approach, the Decade of Action for Road Safety 2011-2020 and responds to the resolutions of the two International Road Safety Conferences; and
- ⇒ Has a built-in evaluation and impact assessment instrument to measure failures, successes and hindrances in achieving the goal of reducing road fatalities.

7. RESOURCES AND TIME ALLOCATION

The service provider will be expected to use its resources in terms of research, preparing and producing the final approved Strategy.

The time frames attached to the production of the Strategy are will be discussed with the successful service provider

8. REPORTING REQUIREMENTS

The successful service provider shall report to the Acting Executive Manager: Road Safety Education.

9. CONTACT DETAILS

Ms Mampe Kumalo
Acting Executive Manager: Road Safety Education
Tel: (012) 999 xxxx
Cell: (071) 485 xxxx

Appendix B SWOV study proposal

The Road Traffic Management Corporation (RTMC) of South Africa was established in terms of Section 3 of the RTMC Act, No. 20 of 1999 to be the lead agency responsible for all road safety matters in the country. The RTMC was mandated to establish and run an effective road management system in the country and ensuring the safety and quality of life of all South Africans. An important facet of this mandate includes the development and implementation of comprehensive and dynamic road safety programmes aimed at improving road safety in general and reducing serious and fatal injury crashes in particular. To facilitate this an all-encompassing Road Safety Strategy needs to be developed and implemented.

The RTMC has invited submissions to develop a road safety Strategy for South Africa as outlined Terms of Reference (ToR - *Appendix A*). The executing agency for the project will be the RTMC.

This document responds to an invitation by the RTMC to submit a proposal for the above work. The proposal has been prepared by the SWOV Institute for Road Safety Research based in the Netherlands. Where necessary the SWOV will co-opt assistance from local partners in South Africa.

1. Background

The number of serious and fatal injury crashes in South Africa have been increasing over the past years. South Africa has one of the worst traffic mortality rates in the world and second worst in Africa (World Health Organisation, 2013). This report revealed that South Africa had a mortality rate of 31,9/100000 population ranking it 177th of the 182 countries reviewed. More than 14000 people are killed in crashes each year and the number is growing. The cost is estimated to exceed R306 billion/annum.

The road crash mortality rate in the country is more than 10 times higher than in countries where the safe systems approach toward road safety is entrenched in road safety policy and practiced as part of the road safety strategy implementation plans (e.g. Sweden, Netherlands).

The RTMC has identified a number of key issues (See ToR - *Appendix A*) related to the road safety situation in the country, namely:

- The approach to address road safety in the country is fragmented across all levels of government;
- Road users do not adhere to the rules of the road;
- Enforcement strategies need improvement and to be aligned to improving road user behaviour;
- Road infrastructure provision is vehicle driven and there is inadequate provision made for vulnerable road users which are the largest group of road users;
- Poor spatial planning and development that do not encourage/stimulate/support integrated and sustainable transportation systems and are not supportive of a safe systems approach.

Although South Africa, through the RTMC, adopted the Safe System approach advocated by the plans outlined in the United Nations Decade of Action for Road Safety 2011-2020 (United Nations, 2011), it yet has to develop an associated road safety strategy that will help the country address the (growing) road safety problems. The RTMC is officially a member of the United Nations Road Safety Collaboration (UNRSC) and by becoming a member has endorsed the approach outlined in the five pillars described in the Global Plan for the Decade of Action (DoA). In order to give effect to this endorsement South Africa, specifically the RTMC, must in the short term develop a road safety strategy and implement this to achieve the stated goals outlined in the Global Plan, namely to reduce the mortality rate to 14/100000 population by 2020, more than halving the current mortality rate.

To facilitate the further development of the strategy, two international road Safety Conferences have been hosted by the RTMC. A number of resolutions were adopted at these conferences and these will need to be integrated into the new road safety strategy.

The RTMC is seeking external expertise to assist a core team comprising RTMC staff and personnel from relevant government departments with the development of a road safety strategy.

The SWOV in the Netherlands, as one of the founders of the concept of the safe systems approach, has been identified by the RTMC as a potential service provider to help the RTMC in developing a road safety strategy in support of the five pillars outlined in the Global Plan for the DoA (United Nations, 2011).

2. Comments on the Terms of Reference

This proposal has been prepared on the basis of the Terms of Reference (ToR - *Appendix A*) issued for the development of a National Road Safety Strategy for South Africa. This section serves to clarify the ToR and to ensure that the ToR have been correctly interpreted.

General

The ToR relates to the development of a road safety strategy for South Africa. The road safety strategy will be developed on the basis of a detailed review of past, current and future practices in the country. This specific project is aimed at the development of a strategy and the implementation thereof does not form a part of the project and is subsequently not addressed in this proposal.

Section 4 of the ToR

The ToR indicates preference for a team of experts to develop the strategy. This assumes that a multi-disciplinary approach is preferred, implying specific expertise from a number of persons as opposed to the expertise of a specialist in road safety in general. Mention is made of “knowledge and experience in the road traffic sector”. It is assumed that this knowledge and experience relates to both local and international knowledge and experience.

Finally, preference will be given to consortia with academic and research institution partnerships. Again it is assumed that local institutions are implied.

Section 5 of the ToR

It is suggested that a framework for a new strategy is already in place. It is assumed that this plus any other relevant documentation will be made available to the consultants/service provider upon appointment.

Section 6 of the ToR

Section 6 provides an outline of the content of the subsequent strategy and this is essentially the primary deliverable of this project. Given the uncertainties, it is proposed that this project be conducted in phases, the first being the development of an inception report, the following a problem definition phase (Status Quo review) followed by the final phase, the development of the road safety strategy. This proposal concentrates on the first phase of this work which relates to the development of an inception report. The inception report serves to define the primary problems and provide an outline and work programme for the rest of the project.

Section 7 of the ToR

No time frames have been indicated but these will be proposed in this document. Given discussions with the RTMC it has been suggested that there is considerable time pressure to develop and deliver the road safety strategy and therefore urgency is the order of the day.

3. Study Objectives

Although the ToR do not define specific objectives for the project, we define them as follows:

Primary objective:

- To facilitate the development of a robust and implementable road safety strategy aimed at fundamentally improving road safety in South Africa by 2020 with the aim of reducing the mortality rate from 32/100000 population to 14/100000.

Enabling objectives

- To review the management of road safety in South Africa and to integrate and streamline the efforts, roles and responsibilities of all stakeholders in the strategy
- To analyse the efficacy of current road safety management systems and strategies
- To develop and propose reforms in order to systematically improve road safety management in general and reduce injury related road traffic crashes in particular.
- To incorporate the institutional management functions, the intervention strategies and the monitoring and evaluation systems into the strategy
- To provide remedial action programmes for all road users in the road safety strategy

4. Scope and methodology

As mentioned in *Chapter 2*, the project will be carried out in 3 separate phases, namely;

- Phase 1: Project inception report
- Phase 2: Status Quo analysis
- Phase 3: Road Safety Strategy development

This *proposal focusses on Phase 1 only*. On completion of Phase 1, a clearer understanding of all the issues will be developed and discussed with the RTMC and other stakeholders and based on the outcome of this, the details and costs of the following Phases will be prepared. At this point the RTMC can decide to continue with the proposed approach or to terminate the project (Go, No-Go decision). However, this proposal will give an overall indication of the work expected to be conducted in Phases 2 and 3.

Although this approach deviates from that called for in the ToR, the SWOV is of the opinion that the development of an initial inception report gives the RTMC the surety and confidence that the methodology outlined here and detailed in the inception report will lead to the desired outcome, namely a robust and implementable road safety strategy for South Africa.

Phase 1: Inception report and project implementation plan

Following formal appointment, a kick-off meeting between the SWOV project team and the most important stakeholders in South Africa (to be identified by the RTMC) will be held. We call this the SA- core team. SWOV expects that organisations such as RTMC, the Department of Transport; provincial and local governments; NGO's such as the AA, Road Freight Association etc. will be represented in the SA-core team.

RTMC will appoint a small group of RTMC staff members (2 – 3) to assist SWOV in this project. We call this the RTMC-team.

After initial discussions with RTMC (executive management and the RTMC-team) SWOV will meet with the SA-core team to discuss the outline of the proposal. The purpose of the meeting is to hand over all relevant documentation, provide a history of developments to date regarding road safety management in South Africa and to finalise the work programme using the proposal as outline but ensuring that local needs and insights are accounted for. Documents that should be handed over to the project team should include at least:

- Current and past National road safety policies and strategies (white papers and others)
- National road safety action and implementation plans
- National development programmes and plans
- Relevant National legislation, rules and regulations impacting on road safety strategy implementation
- Southern African Development Community (SADC) protocols entered into in the area of road safety
- Historical development of road safety in South Africa (road crash trends and statistics)
- Remedial programmes and interventions and reports
- Resolution and outcomes of the two road safety conferences hosted by the RTMC
- Any other documentation deemed relevant by the RTMC core team

Following the kick off meeting, The RTMC core team will facilitate high level exploratory discussions between the SWOV Project Manager Prof Fred Wegman and the Minister responsible for road safety and most senior officials and employees from at least the following organisations:

- Department of Transport (DG and/or Directors Roads; Public Transport; Integrated Planning)
- RTMC (CEO/COO)
- Roads Agency (CEO/COO)
- Road Traffic Infringement Agency (CEO/COO)
- Road Accident Fund (CEO/COO)
- SALGA (CEO)
- Any other organisations deemed essential by the RTMC for providing input on road safety matters in general and policy development and implementation in particular.

Given the time constraints it is proposed that for the purpose of developing the inception report a maximum of 10 discussion/interviews are held.

The outcome of these meetings will result in the preparation of a project implementation plan which will be integrated in the Inception Report to be presented to the RTMC for approval.

The inception report will elaborate on the proposed methodology presented in this proposal and will ensure that the stakeholders share a common understanding of how the project and related evaluation will be conducted.

The inception report will include:

- An introduction/background
- Preliminary findings/scoping
- Problem definition (in the form of hypotheses and/or questions to be answered by the review in Phase 2), including specific questions regarding the regulatory impact
- The data collection and evaluation process
- Limitations
- The development of the road safety strategy
- Project Implementation plan (timetable, milestones, budget, etc.)

Phase 2: Status Quo review

The Status Quo review will only be initiated pending the approval of the Inception report by the RTMC. The status quo review will take place within the context of a safe systems approach (Bliss & Breen, 2009; Koornstra et al., 2002; Wegman & Aarts, 2006) reflecting international best practice. It will explicitly consider the elements outlined in the Sunflower study and of the World Bank Global Road Safety Facility Road Safety Management System Framework (Bliss & Breen, 2009). It will also take into account the outline provided in ISO 39001:2012 (E) (ISO, 2012) and be related to policy frameworks such as Sustainable Safety (Wegman & Aarts, 2006) and Vision Zero (Tingvall & Haworth, 1999). Importantly, international experiences and specifically related to the institutional framework of policy making and the relationship between road safety policy and science should be accounted for in this process.

The review will be based on a combination of (international) literature review, structured interviews with all key stakeholders in South Africa (concentrating on officials and persons in the highest decision making positions), an assessment of current practice regarding development and implementation of road safety strategy, review of road safety management in practice (focussed on institutional management functions such as coordination,

legislation, funding, monitoring etc.; interventions at the level of vehicles and road users, road design and use, emergency services; and results) and a review of the supporting data information systems, specifically road crash data reporting and collecting and traffic monitoring data.

In order to develop a robust and implementable road safety strategy, a complete and independent review of the current road safety management practices in South Africa is required. In the first instance this will be made possible by a review of all relevant documentation and literature that has a bearing of current and future road safety strategy development and implementation. Therefore all procedures and policies related to for example road safety policy, legislation, interventions, remedial programmes but also to employment, procurement, project planning and control etc. will need to be studied (elaborating on the work described in Phase 1). It is likely that also annual reports, management reports and other related documents in which (historic) mission statements, road safety policies and goals, strategic outlines and financial (audit) reports that have been documented will need to be assessed. Also documentation related to the legislation and regulation will form part of the review. Furthermore, it is anticipated that documentation related to road crash reporting and recording, traffic monitoring (systems) and traffic management will require review and that these will be made available to the consultant. In addition, current developments regarding the decriminalisation and adjudication of road traffic offences will be taken into consideration. It is proposed that the RTMC-team plays an important role in executing this task.

The review of relevant documentation will provide a reasonably complete (albeit initial) outline of road safety management practices in South Africa

The outcomes of the literature review will form the basis of structured interviews which will be carried out among senior staff of the organisations identified in Phase 1.

Since the efficacy of road safety strategy is measured in terms of outcomes, the availability and quality of data are essential. Consequently it is proposed that a review of current accident reporting and recording systems is carried out. In view of international road safety management practices and the supporting data requirements for comprehensive road safety management systems, an initial assessment of the data collection and analysis capability of the following aspects will also be carried:

- i. Monitoring of critical offences
- ii. Traffic counting programmes and systems
- iii. Traffic enforcement programmes and systems
- iv. Road network data (specifically network classification, chainage, design elements, etc.)

This review will be based on an examination of the data definitions and requirements; data sources, the sampling process including updates, the registration processes, the quality control process (validation), the analyses and the data interpretation. The aim of this activity is to identify actual and potential shortcomings in the data definition, collection, validation and/or analysis phases and to ensure that the data are adequate for short term use (specifically monitoring and evaluating the efficacy of any new road safety

strategy and associated programmes). Again, it is proposed that the RTMC-team will make a significant contribution to this task.

The outcome of the above activities will be documented in a detailed Status Quo report in which the consultants' interpretation of the current situation regarding road traffic safety management in South Africa and in context of the safe systems approach will be presented.

Phase 3: Road Safety Strategy development

The final Phase of the project will be the development of a new road safety strategy. As indicated in the ToR an outline for the strategy is already in place but this will need to be integrated with the results of the Status Quo review.

In order to develop an effective and robust strategy requires that a gap analysis be conducted reflecting the difference between current practice and what is ideally intended by the safe systems approach. This analysis reveals shortcomings in terms of current practice and the ideal end state. It helps set the course of the new strategy and allows the development of a phased approach for those aspects where the gap between the current and end state is too large to bridge in the short term.

Based on this analysis a new road safety strategy will be developed in consultation with all relevant stakeholders: As indicated by the ToR, the strategy will include:

- Analysis (including environmental scan)
- Priorities and prerogatives
- Aims and objectives
- Implementation
- Monitoring and evaluation

As is evident from the foregoing, the strategy will meet the criteria stipulated in the ToR and will:

- include implementable programmes and initiatives based on international best practice and tailored to the South African situation
- include inputs from the draft strategy (and other relevant documents)
- include inputs from stakeholders
- be pro-active and responsive to international and local trends and needs
- be based on a safe systems approach
- include an integrated evaluation and monitoring programme, including instruments to measure and assess these.

Reporting

The following reports constitute the primary deliverables for the entire project should this be approved: (Note-this proposal covers Phase 1 only)

- Phase 1: Inception report (incorporating project implementation plan)
- Phase 2: Status Quo report (incorporating the gap analysis)
- Phase 3: The draft and final South African Road Safety Strategy 2014-2020

Support and consultation

This is seen as a task that is vital to the eventual outcome of the project. As has already been described in earlier tasks, the input of all stakeholders will be sought throughout the project. These will help the problem definition

phase, facilitate the testing of alternatives for the proposed road safety strategy, and, more importantly, provide an indication of the support or resistance that the proposed plans could expect. These will impact the underlying strategies and plans that will ultimately determine the success of the implementation of the project.

Stakeholders will be involved from the inception stage of the project but will also be individually approached and interviewed during the problem definition stage.

It is proposed that a closing stakeholder workshop be organised and hosted by the RTMC. During this workshop the SWOV will present the project and outline the proposed strategy as outlined in section 5 of the ToR.

5. Project planning, deliverables and milestones

Phase 1 of the project is scheduled to commence on 15 July 2013 and conclude on 15 August 2013. For each delay in appointment the project planning will be adjusted accordingly.

Phase 2 will depend on approval of the Inception report, associated project work plan and budget but can be completed within three months of this.

Task and deliverable (D)	Month and week (X=1week)					
	July 2013	Aug 2013	Sept. 2013	Oct. 2013	Nov 2013	Dec 2013
	XXXX	XXXXX	XXXX	XXXX	XXXX	XXXX
Phase 1						
Inception meeting	X					
Initial discussions	XX					
Inception report (D1)	X	XX				
Go, No-go decision						
	July 2013	Aug 2013	Sept. 2013	Oct. 2013	Nov 2013	Dec 2013
Phase 2 and 3*						
Literature review		XXX				
Stakeholder interviews			XXX			
Status quo report (D2)			X	XX		
Gap analysis				XX		
Draft Road safety Strategy				X	XX	
Stakeholder workshop					X	
Consultation					X	
Final Strategy (D3)					XX	X
Handover						XX
Note * - start date dependent on approval Inception report and related work programme for Phase 2 and 3						

Table B.1. *Tasks and deliverables (GANTT chart).*

6. Project team

Phase 1 of the project will be carried out by the SWOV Institute of Road Safety Research from the Netherlands. The following persons will be responsible for the execution of the project (see *Appendix B* for CV's and *Appendix C* for an overview of the SWOV):

Prof. Fred Wegman	Specialist Advisor, SWOV and Professor Traffic Safety, Delft University of Technology
Drs. Ingrid van Schagen	Cluster manager and senior researcher, SWOV
Dr. Charlotte Bax	Senior researcher, SWOV
Ing. Govert Schermers	Senior researcher, SWOV

The SWOV and her team of experts are recognised specialists in the area of road safety in general and road safety management in particular. The organisation is responsible for the development and implementation of the Sustainable Safety programme which is internationally recognised as one of the most comprehensive and successful road safety strategies in the world. The SWOV recently conducted an institutional and legislative review of the National Road Safety Council in Namibia whereby the safety systems approach was used as the basis for the review (Schermers, Labuschagne & Botha, 2013a; 2013b). The SWOV also recently completed work in South Australia in which the safe systems approach was adopted in developing strategies for reducing the road death toll (Wegman, 2012).

Fred Wegman was Chairman of the committee responsible for drafting the conclusions and recommendations of the WHO *World Report on Road Traffic Injury Prevention* (Peden et al., 2004), was a reviewer of the Bliss/Breen-report (2009).

7. Project management

Phase 1 of this project will be managed by Prof. Fred Wegman.

The SWOV will be responsible for the administrative and financial management, including:

- Progress reports based on contractual requirements
- The preparation of project financial statements
- Payment of partner invoices
- Payment of project costs
- Invoicing

The primary task related to the technical management is monitoring that the project objectives are achieved. To facilitate this a detailed project plan will be developed and form part of the inception report. This plan will be discussed at an inception meeting at which all principal stakeholders will be present.

Furthermore the project manager will conduct the following tasks:

- Planning of meetings between partners and client;
- Interviewing key stakeholders in South Africa
- Review of WP work plans and WP deliverables;

- Coordination between the different tasks, project team members and the external project environment.
- Coordination of the finalization of all deliverables and taking care of their distribution;
- Project-monitoring;
- Managing of problems, risks and errors;
- Quality control

The project manager will utilise standard project management tools to plan and coordinate the various project tasks.

To ensure that the project deliverables meet international best practices, these will be subjected to the SWOV internal project report review process.

Literature

Bliss, T. & Breen, J. (2009). *Implementing the recommendations of the World Bank Report on Road Traffic Injury Prevention Country Guidelines for the conduct of road safety management capacity reviews and the specification of Lead Agency reforms, Investment strategies and safe systems projects*. World Bank Global Road Safety Facility, Washington DC.

ISO (2012). *Road traffic safety (RTS) management systems - requirements with guidance for use*. Geneva.

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United Nations (2011). *Global Plan for the Decade of Action for Road Safety 2011 - 2020*. Geneva.

Wegman, F. & Aarts, L. (2006). *Advancing Sustainable Safety; National Road Safety Outlook for 2005-2020*. SWOV, Leidschendam, the Netherlands.

Wegman, F.C.M. (2012). *Driving down the road toll by building a Safe System - Adelaide Thinker in Residence 2011-2012*. Government of South Australia, Adelaide.

World Health Organisation (2013). *Global status report on road safety 2013: supporting a decade of action*. WHO, Geneva.

Appendix C The Reference Group

Mr. Kenneth Africa	Department of Community Safety Western Cape
Prof. Sebastian van As	Red Cross War Memorial Children's Hospital
Mr. Morne Gerber	Road Traffic Management Corporation
Prof. Kopano Ratele	SA Medical Research Council
Dr. Marion Sinclair	University of Stellenbosch
Ms. Marlini Sinclair	Department of Transport Kwazulu Natal
Mr. Anesh Sukhai	SA Medical Research Council

Appendix D Visiting programme Prof. Fred Wegman

DAY 1: Wednesday, 17 JULY 2013

TIME	PLACE	THEME	ORGANISATION	PERSON	
8h00-9h00	Lombardy Hotel	Breakfast meeting with Mampe Kumalo	RTMC	Ms Mampe Kumalo	A/Executive Manager: Road Safety Education
10h00 -	Pretoria	Meeting with internal stakeholders	RTMC	Mr Ashref Ismail	Executive Manager: Law Enforcement
				Ms Magadi Gainewe	Senior Manager: Road Traffic Information
				Mr Mphikeleli Jele	Specialist Traffic Information and Research
				Mr Basil Nkhwashu	Executive Manager: AARTO and National Traffic Police Unit
18h00 - 19h00	RTMC	Meeting with Mr. Chris Hlabisa	Department of Transport	Collins Letsoalo Chris Hlabisa Mampe Kumalo Prof. Wegman	Deputy Director General: Road Transport

DAY 2: Thursday, 18 JULY 2013

TIME	PLACE	THEME	ORGANISATION	PERSONS	
03h00-6h30	Kwa-Mhlanga-Moloto Road	Pedestrian Safety Awareness	RTMC	Unit Members and NTP	Road Safety Education and Campaigns Unit
10h00-11h00	Menlyn	Meeting with Mr Sipho Khumalo - Chief Executive Officer	Cross Border Road Transport Agency	Prof. Wegman Mampe Kumalo Etiyel Chibira Samson Gogi General Monyepao Mr Setsabo	SWOV RTMC Senior Manager: PMO, Research and Management Road Safety Education Head Law Enforcement Research and Management
12h00 - 14h00	Medupi Primary School Mamelodi,	Nelson Mandela Day Celebration	RTMC	RTMC Staff	RTMC
18h00 -19h00	Pretoria, CBD	Meeting with Deputy Minister	Department of Transport	Collins Letsoalo Prof. Wegman Mampe Kumalo	MEETING DID NOT TAKE PLACE

DAY 3: Friday, 19 JULY 2013

TIME	PLACE	THEME	ORGANISATION	PERSONS	
10h00 - 15h30	Pretoria	Meeting with Internal stakeholders	RTMC	Mr Earl Naidoo	Crash Investigation
				Ms Magadi Gainewe	Senior Manager: Road Traffic Information
				Ms Rosina Moloto	Deputy Manager: Road Traffic Information
				Mr Ndengeza Masangu	Senior Manager: Research and Development
				Mr Mphikeleli Jele	Specialist Traffic Information and Research
				Mr Paulus Plaatjies	Senior Manager Traffic Training
				Ms Granny Sebake	Manager Traffic Training
				Mervin Moodley	Senior Manager Internal Audit

DAY 5: Sunday, 21 JULY 2013

TIME	PLACE	THEME	ORGANISATION	PERSONS
17h00	OR Tambo Airport	Travel to Cape Town	SWOV RTMC	Prof. Wegman Mampe Kumalo Mpho Manyasha Violet Mohapi

DAY 6: Monday, 22 JULY 2013

TIME	PLACE	THEME	ORGANISATION	PERSONS
09h45 – 11h00	Cape Town	Meeting with MEC Carlisle	Western Cape Government	MEC Carlisle Prof. Wegman Mampe Kumalo Mpho Manyasha Violet Mohapi
12h30 – 14h00	Lord Neethlings Hof Wine Estate	Lunch with the Reference Group Members	RTMC SWOV MRC Dept of Community Safety - WC University of Stellenbosch GRSP DoT – KZN	Mampe Kumalo Mpho Manyasha Violet Mohapi Prof Wegman Prof. Kopano Ratele Anesh Sukhai Kenneth Africa Prof. Sebastian van As Dr Marion Sinclair
14h30 – 18h00	University of Stellenbosch	Meeting with the Reference Group	RTMC SWOV MRC Dept of Community Safety - WC University of Stellenbosch GRSP DoT - KZN	Prof. Kopano Ratele Dr. Marion Sinclair Anesh Sukhai Marlini Pillay Prof. Sebastian van As Kenneth Africa Clive Le Keur Mampe Kumalo Mpho Manyasha Violet Mohapi

Appendix E Three levels of road safety problems

Source:

Chapter 4 from the ETSC Lecture "TRANSPORT SAFETY VISIONS, TARGETS AND STRATEGIES: BEYOND 2000" by Professor Kåre Rumar, Swedish Road and Transport Research Institute, 26th January 1999 Brussels.

"The problems of road safety seem to be possible to split into three levels:

1. Problems obvious even at a superficial analysis (First order problems)
2. Problems revealed by a somewhat deeper analysis (Second order problems)
3. Problems almost totally hidden (Third order problems)

1. First order problems

By first order (obvious) road safety problems are meant the road safety problems that come out directly from the way we analyse our accident and injury statistics. The way the accident and injury statistics is collected, organised and analysed varies from country to country. Most countries within the EU have a number of common first order problems, problems to which we give a very high priority. The ranking of the problems is not identical but they seem to be common problems, which each country tries to reduce.

One reason for national differences is of course that the problems are different both in quality and quantity. Another reason is that the criterion for giving a high priority to a problem may differ from country to country. It may be the number of fatalities (e.g. young drivers), number of injured persons or number of accidents (e.g. built up areas). Or it may be high risks based on some calculation (e.g. motorcyclists). Or it may be a negative trend (e.g. drugs and driving or old drivers). Or it may be the fact that the road users in question cannot themselves reduce the problem (e.g. children or old persons).

Consequently it is difficult to give a general ranking list of the most important first order road safety problems in the EU. An attempt is made to list 17 problems that seem to constitute a group of common top priority direct road safety problems for the fifteen EU countries is presented below. For the reasons just given they are not ranked.

Furthermore the first order problems listed below are to a large extent overlapping and interacting.

- Speeds, especially in built up areas, are too high.
- Alcohol and drugs are too frequent in road traffic.
- Road safety is too low in urban areas.
- The road safety of children is inadequate.
- The road safety of unprotected road users is too low.
- The crash risk for young drivers is too high.
- Driving of cars is too widespread especially in urban areas.
- The standard of the roads and streets is not correct in many places.

- The accident and injury risks for elderly road users are too high.
- Too many roads and vehicles are inadequate from an injury prevention point of view.
- The usage of protective devices (belts, helmets etc.) is too low
- The rescue service and medical treatment of traffic victims is not effective enough
- The conspicuity of road users is insufficient in daylight. Their conspicuity at night is much worse.
- The crash risk in reduced visibility conditions such as darkness and fog is too high.
- The crash risk in winter traffic is too high.
- Heavy vehicles are over-represented in serious crashes.
- Some intersection types have crash risks which are too high.

Among these first order road safety problems speed is the most important one. There are many reasons for this, some are the following:

- Speed influences both crash risk and crash consequence
- Speed has an exponential effect on safety
- Speed is not realised as a danger factor comparable to height
- Speed is a key behavioural variable because driving is a selfpaced task
- Reduced speed has an immediate effect on safety
- Reduced speed is an inexpensive (sometimes even beneficial) measure

2. Second order problems

The second order road safety problems are not equally obvious but they show up at a closer analysis of the first order problems. One way of defining them is to say that they reduce the effectiveness of countermeasures aiming at solving the first order problems. Such second order problems are e.g.:

- Road traffic rules (legislation) are not clear, not logical and not consistent
- Enforcement of license requirements and traffic rules is not efficient enough
- The control of road condition from safety point of view is insufficient
- The control of vehicle condition from safety point of view is insufficient
- Training and examination for drivers' license is not good enough
- Traffic and traffic safety education of citizens is not adequate
- The way traffic offences and crimes are treated in court is irregular and not in harmony with the corresponding risks

3. Third order problems

By third order (hidden) road safety problems are meant problems that do not become immediately obvious from studying the accident or injury statistics. These problems are often of a more general character, not dealing directly with the traffic situation but with underlying processes or conditions. These conditions may deal with the organisation of road safety work such as central or distributed responsibilities, decision processes, resources, coordination and roles. They may also concern the management of the road safety such as the steering process of road safety work. They may concern the awareness, the values and knowledge of road safety measures that are typical for citizens in a society, decisions makers, road safety workers as well as roads users.

Third order road safety problems prevent or block the possible solutions of the first and second order problems. An improvement of third order problems would facilitate the implementation of much of the knowledge we have today about effective countermeasures which for one reason or another are not implemented. On the one hand most people have placed the main responsibility for road safety on governmental or at least a public bodies.

On the other hand when an accident occurs it is normally the road user who gets the blame. To a large extent this paradoxical situation will of course be true also tomorrow. However, the division of responsibilities between the individual and the public sector must be made much clearer. It seems that the main role of road users should be to follow the rules agreed upon, formally as well as in its spirit, and to demand new road safety actions to be taken. When unintentional mistakes are made the user should not be punished with death.

It is also expected that trade and industry will play a much more important role in the future. Today many progressive communities and companies have developed and introduced environmental policies and plans for their activities. In the future communities and companies should develop corresponding road safety plans for their activities. For instance when they buy transport one part of the specification should deal with the safety aspects of transport itself. This is fairly self-evident when buying transport of school children. But it should of course apply also for bus transport in general and for the transport of goods. Such policies would have a very strong and immediate impact on road safety.

In the same way consumers of transport products could be used in a very efficient way if we just give them the means to evaluate the safety of various products. The car itself is the most obvious and important product. By testing, rating and publishing at least passive safety of various car models it would be possible to influence the safety of the vehicles much faster, more effectively and less expensively than by traditional legislative means (which are still needed to set minimum safety requirements).

Some of the more important third order road safety problems are:

- Current awareness of the seriousness of road safety problems, the value of road safety measure is too low among decision makers and road users. This has many negative effects. The main one is that that it prevents us from implementing the already existing knowledge about how to reduce road safety problems. One of the main reasons for this low awareness is the difference in perspective on road safety from above (authorities: striking large problem) and from below (road users: no striking problem).
- The present management system for road safety work is inadequate. It is slow and inaccurate. In many cases it is almost non-existent. A quick and efficient road safety management system requires result management based on performance indicators.
- When it is possible to create a vision of the future that most people in a company or a society stand behind, that is the most efficient way to lead people in the right direction and to create creativity, energy and participation. Road safety work in EU lacks good vision. In Sweden we

have created the zero fatality vision that seems to work even better than was expected.

- At least as important as visions are quantitative targets. Experience shows that quantitative targets on national, regional and local level are beneficial for the success of road safety work. An EU target would also be very worthwhile.
- The present information and diagnosis system for road safety is very crude and partly inaccurate. In most countries it is exclusively based on police reported accidents. Road accident injuries and fatalities are a public health problem. Consequently the information system must be able to measure the health problem. To manage that hospital statistics must be used in a better way.
- Most countries carry out extensive road safety research. This is a complicated, demanding and expensive process. There is a fairly good co operation between researchers. However there is very limited cooperation between financiers of research. This leads to differences in decision material and unnecessary differences in decisions. Road safety research within the EU should be more and better coordinated. The research on problems of the first and second order is quite extensive. However, research on implementation problems (third order) is very limited and should be expanded.
- We must ensure that consumers, communities and companies become more actively involved in the road safety effort. If that is handled properly it will be a strong, powerful and quick force to influence and improve road safety.

The third order road safety problems are not as eye catching as the primary and secondary road safety problems. They are, however, probably more important problems in European road safety work than the first and second order problems for the following reasons:

- The first and second order problems immediately raise countermeasure questions and answers. The third order problems deal with the implementation difficulties that we all are facing
- Contrary to the first and second order problems people are not aware of the third order road safety problems
- The first order problems are comparatively narrow. The second order problems are comparatively broad. If we solve some third order problems we will influence the whole road safety process. “

Appendix F The SUNflower approach

Source:

Benchmarking road safety performances of countries (Chapter 2), by Fred Wegman and Siem Oppe. In: Safety Science 48 (2010) 1203-1211.

The SUNflower approach attempts to answer the question what exactly caused road safety to improve in (SUN) countries. When specific beneficial aspects of measures, operational practices, or underlying concepts can be determined, what are the possibilities for transferring these aspects to another SUN country or other countries? A better insight into the relationship between the developments of traffic risks and road safety policies, programmes and measures in these countries might conceivably identify key actors, which could further improve the current road safety practice in each of the SUN countries, and in other countries.

The methodological approach is based on a road safety target hierarchy as shown in Figure 1 and was adapted from the consultation document on the Road Safety Strategy 2010 of New Zealand (LTSA, 2000). In this approach a fundamental understanding is required of traffic safety processes at different levels in the hierarchy of causes and consequences that lead to casualties and costs for society. The main reference is the model that describes a target hierarchy of 'structure and culture' towards 'social costs' (Koonstra et al., 2002).

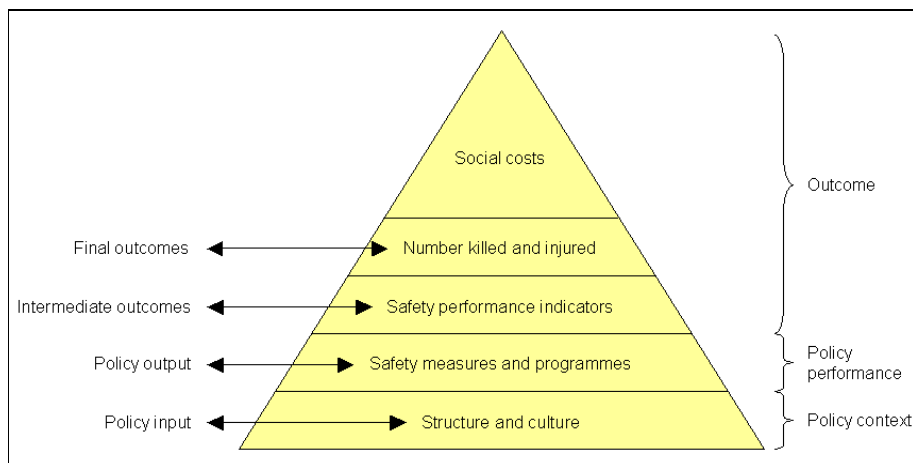


Figure F.1. A target hierarchy for road safety (Koonstra et al., 2002; LTSA, 2000).

In addition to the New Zealand approach we added the 'structure and culture' layer. It was argued that such a basic layer was necessary as a policy context for understanding (impacts of) road safety policy. The component 'structure' addresses two dimensions: the physical structure and the operational (functional) structure. The 'culture' element concentrates on how a society and its citizens perceive the road safety problem compared with, for example, the role of (motorized) traffic in our society and its

contribution to economic growth, welfare, environmental consequences, et cetera. Furthermore, questions are relevant on how responsibilities are defined for individuals and the government. We can also use the term 'safety culture' here (AAA, 2007).

The vertical dimension is formed by the different levels of the pyramid. The traditional way to describe the safety performance (outcomes of the system) is by using the number of killed and injured, indicated in the pyramid by final outcomes. Going up one layer, the top of the pyramid is formed by the social costs, which can be related to the number of casualties and damage. Going down, the level safety measures and programmes reflects the policy performance, or the extent to which policy makers succeed in organizing safety policy in goals, strategies and activities. This policy output should lead to an increased safety quality of the traffic system, which is reflected by better operational conditions for every day traffic (e.g. quality of roads, vehicles, behaviour). The indicators at this level are called safety performance indicators (SPI), and are the intermediate outcomes between the policy output and the number of casualties. SPI's can predict safety levels before accidents have happened, assuming that causal relationships are known. At the bottom level, the structure and culture of a country describe the policy context such as public attitudes towards risk and safety, the organisation of a country, and its history and cultural background. These items should always be taken into account when customizing one country's measures to another country.

In order to understand a country's road safety performance, one can move through the pyramid in both directions: bottom-up or top-down. The SUNflower approach uses case studies for this purpose. For instance, from a sociological point of view, one can first describe public attitudes towards drinking or speeding (structure and culture) and climb the pyramid to identify measures (such as legal limits and enforcement activity) and consequently understand the extent of misbehaviour, and the related casualties and costs. From a cost-effectiveness point of view, one can take the opposite direction, by identifying which problems are responsible for the highest costs, tracking those problems down to their origin, and solving them in a cost effective way. It is not necessary to start only at the bottom or only at the top level, for instance when tracking the effects of established safety measures. Moreover, some mechanisms are not bound by the sequence of pyramid levels. For instance, a change of casualty numbers or the occurrence of a severe accident with a lot of publicity may affect public attitudes directly.

Each level of the pyramid contains several problems, events, or safety topics. The performance of a country with respect to these problems is a reflection of its road safety performance. These problems can be disentangled into the components of the traffic system which constitute the structure of each level, called the second (horizontal) dimension. If we analyse a case study we select part of the horizontal dimension of each of the layers of the pyramid. For this purpose the traditional components vehicle, road and road user aspects could be used. These can be subdivided into vehicle types, road types, user groups, age groups and typical behavioural aspects. A differentiation in regions within a country, seasons within a year or types of casualties can also be introduced here. The actual subdivision may be different for each level, but overlap and interaction is aimed for as much as possible. Subsequently, developments of

factors in both the horizontal dimension and the vertical dimension can be tracked over time, the third dimension.

The SUNflower approach used comparisons of three (European) countries. When comparing only two countries it is never easy to interpret observed differences between the two (is one high, or the other one low?), but when three countries are compared, the result is always that two are somewhat closer to each other and the third one is further away. So both in the original SUNflower study (Koornstra et al., 2002) and in the SUNflower+6 study (Wegman et al., 2005) comparing three countries turned out to be valuable for generating potential explanations for observed differences. Furthermore, it turned out that comparing 'comparable' countries has a certain advantage. Although this was not a formal part of both studies, it became apparent that the three clusters in SUNflower+6 (SUN, South, Central) were more involved and interested in each other. On the other hand it is not a proven fact, nor a hard and fast rule, that comparing three countries is the only or the best approach.

In working with this 'SUNflower-approach' it was felt a necessity to condense the vast amount of information in indicators or indices in a concise and comprehensive way. This could be done in two steps. First of all, indicators for road safety performances must be identified. And as a second step, indicators must be brought together in one index.

Literature

AAA, 2007. *Improving traffic safety culture in the United States*. The journey forward. American Automobile Association AAA Foundation for Traffic Safety, Washington D.C.

Koornstra, M., Lynam, D., Nilsson, G., Noordzij, P., Pettersson, H-E., Wegman, F., Wouters, P., 2002. *SUNflower; A comparative study of the development of road safety in Sweden, the United Kingdom, and the Netherlands*. SWOV Institute for Road Safety Research, Leidschendam, the Netherlands.

LTSA, 2000. *Road safety strategy 2010; A consultation document*. National Road Safety Committee, Land Transport Safety Authority LTSA, Wellington, New Zealand.

Wegman, F., Eksler, V., Hayes, S., Lynam, D., Morsink, P. & Oppe, S. (2005). *SUNflower+6; A comparative study of the development of road safety in the SUNflower+6 countries: Final report*. SWOV Institute for Road Safety Research, Leidschendam, the Netherlands.

Appendix G Guidelines for road safety management systems

Source:

Implementing the Recommendations of the World Report on Road Traffic Injury Prevention by Tony Bliss & Jeanne Breen (2009).

The generic characteristics of the Road Safety Management System (RSMS) of the World Bank are as follows (adapted from Bliss and Breen, 2009):

- The RSMS deals with road safety as a production process in the same fashion one would deal with the production of any other goods or services. This production process is depicted as a management system comprising three levels, namely institutional management functions which produce interventions that in turn produce results.
- The RSMS is a generic model that is neutral to country structures and cultures which shape the way institutions function and goals are set and achieved.
- The management system can be used to review road safety management capacity and prepare related strategies and programs, irrespective of the stage of road safety development.
- The RSMS can be applied to any land use/transportation system. The current and projected exposure to risk arising from that system is taken as a given. However, land use/transport trade-offs can be managed by considering these as options in the desired focus on results. These can then be addressed by interventions related to the planning, design, operation and use of the road network and the entry and exit of vehicles and road users to this network.
- The model takes the road network as its frame of reference. The interventions are directly associated with the road network and have strong spatial dimensions. The difference between this approach and models based on safer roads, safer vehicles and safer people is that these are placed specifically in the network context where deaths and serious injuries occur. The model focuses safety interventions on network failures and near failures as is the case with for example air transport. This implies that the RSMS is suitable for applying the Safe System approach.

Bliss & Breen distinguish several so-called implementation stages, adapted from Mulder & Wegman (1999). The process described in the Guidelines, and specifically the checklists used for the Institutional Management Functions (bottom layer of the pyramid) can be used as a basis for the structured interviews during the Status Quo review (see *Section 5.2*).

The Institutional Management Functions have one main objective: results focus. A country's results focus can be interpreted, according to Bliss and Breen, as a pragmatic specification of its ambition to improve road safety and the means to achieve this ambition. In the absence of a clear and accountable focus on results all other institutional functions and related

interventions lack cohesion and direction and the efficiency and effectiveness of safety initiatives can be undermined.

Bliss & Breen decided to distinguish seven management functions:

- Results focus
- Coordination
- Legislation
- Funding and resource allocation
- Promotion
- Monitoring and evaluation
- Research and development and knowledge transfer

All these functions will be covered in Phases 2 and 3 of this project.

On top of the layer 'Institutional Management Functions' (similar to but more detailed than pillar 1 of the Global Plan of the Decade of Action!) Bliss & Breen come up with a layer on interventions and on results. For the Intervention layer we use in this project four of the five pillars from the DoA: safer roads and mobility, safer vehicles, safer road user and post-crash response. For the top layer ('results') we use the SUNflower-model.

Literature

Bliss, T. & Breen, J. (2009). *Implementing the recommendations of the World Bank Report on Road Traffic Injury Prevention Country Guidelines for the conduct of road safety management capacity reviews and the specification of Lead Agency reforms, Investment strategies and safe systems projects*. World Bank Global Road Safety Facility, Washington DC.

Mulder, J. & Wegman, F. (1999). *A trail to a safer country. Conceptual approaches to road safety Policy*. SWOV, Leidschendam.