DELIVERABLE 5.6
Capacity Review – Tunisia

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Foreword

This road safety and traffic management Capacity Review (RSMCR) is based on international methodologies. It was carried out in Tunisia in 2017-2018. It is the outcome of broad investigation of the road safety situation in Tunisia, including interviews and discussions with top key stakeholders. Moreover, a careful analysis of available data, information and literature was realised.

The overall objectives of the capacity review are to assess the state of road safety and traffic management with a view towards developing funded remedial and sustainable activities; to identify the strengths and weaknesses of road safety management capacities with a particular focus upon results, interventions and institutional delivery. One main expected outcome is to reach consensus amongst the key agencies about next steps and interventions to implement for improving road safety and traffic management capacities with an objective to defend a long term Safe System strategy and some proposals to launch it. The road safety conference organised in Gammarth in January 2018 contributed to start the building of a consensus among actors for improving the current situation.

Road safety and traffic management in Tunisia was reviewed and analysed by a review team from Ifsttar participating in SaferAfrica WP5, assisted by some local experts. This review is based on a literature search of documents and information available on the Ministries’ official websites (Tunisian Ministry of the Interior, Ministry of the Environment, etc.), national data (Tunisian Federation of Insurance Companies, etc.) and analysis reports on the situation in Tunisia published by international organizations (World Bank, etc.). This report also borrows from the preparatory work undertaken by N. Bouhamed on specific Tunisian territorial features (geographical context, administrative organization and the organization of skills in relation to transports and road safety). The review rests also upon consultations with experts from the Tunisian Ministries of the Interior, Equipment and Health, as well as the FTUSA (Fédération Tunisienne des Sociétés d’Assurance – Tunisian Federation of Insurance Companies).

This report describes the current situation of road safety and traffic management in Tunisia. It includes a general overview of context (geography, demography, political organisation of the country, economic constraints, etc.) in Tunisia. The road safety management system is presented and discussed. The analysis context includes a broad analysis of institutional factors, which are crucial to take into consideration for having a full understanding of the Tunisian situation since the political event of 2011.

The capacity review follows the international guidelines with a further analysis of the different road safety pillars: road, use, post-crash and data and information system analysis. For each dimension, the capacity review proposes some conclusions issued from the pillar analysis and some recommendations for helping in designing new solutions for the future.

A last section concerns the different outcome and outputs of the Tunisian road safety system. It provides some up-dated information concerning road crashes and road crash victims.

An ultimate section propose a synthesis of road safety solutions and strategic priorities for a long-term investment strategy.

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1 Doctoral thesis in management sciences, University of Sfax, Tunisia -Ifsttar (under preparation)
I. Introduction

The SaferAfrica project aims to establish a Dialogue Platform between Africa and Europe focused on road safety and traffic management issues.

The platform works at two levels. A decision making level, run by a Management Board with Working Groups addressing specific topics. The Management Board is constituted by prominent institutions like the European Commission, the African Union Commission, International Financial Institutions, and Regional Economic Communities. The technical level involves government and research institutions, international and stakeholders organizations (e.g. NGOs), with a balance between African and EU partners. The Dialogue Platform aims at constituting a stable body, able to orient road safety policies beyond the project end as well as facilitating activity during the project.

The project activities adopt a “Safe System” approach resting upon four pillars: Road Safety Knowledge and Data; Road Safety and Traffic management Capacity Review (which is the focus of this report); Capacity Building and Training; Sharing of Good Practices. These have been specifically identified to be aligned with the mid-term review of the African Road Safety Action Plan.

The activity of the Platform focuses also on the reinforcement of the endogenous African capabilities through the dissemination of EU know-how. In addition to Twinning Programs, different training activities could be identified and carried out. Local contexts are taken into account and studies on specific risk factors as well as transferability analysis of measures already tested elsewhere will be conducted.

1.1 The Decade of Action for Road Safety

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, 50 million serious injuries and US$ 5 trillion over that period. Furthermore, the concept of action was proposed by the Global Commission for Road Safety. To support the achievement of the ambitious objective, the United Nations Road Safety Collaboration (UNRSC) developed a Global Plan of Action ([www.decadeofaction.org](http://www.decadeofaction.org)). In this Plan countries are encouraged to implement activities as organized in five pillars (figure 1).

<table>
<thead>
<tr>
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<td>Road safety management</td>
<td>Safer roads and mobility</td>
<td>Safer vehicles</td>
<td>Safer road users</td>
<td>Post-crash response</td>
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Figure 1. 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 aligned with the Safe System approach. The development of this Safe System approach started in the Netherlands (Koornstra et al. 1992) and was presented in Sweden in 1996 (Tingvall and Haworth 1999). This approach was later endorsed by the WHO/World Bank (Peden et al. 2004; OECD 2008. It inspired many national road safety strategies in several countries, among which Australia (Australian Transport Council, 2011).

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2 This introductive section is common for each capacity review.
1.2 Road Safety Outcomes and Forecasts

According to the *Global Status Report on Road Safety 2015* of WHO, “road traffic injuries claim more than 1.2 million lives each year and have a huge impact on health and development”. Despite significant efforts and actions implemented over the world, road traffic crashes are a leading cause of death among young people, and the main cause of death among those aged 15–29 years. Without further, effective action the World Health Organization forecasts that road traffic injury will be the 7th leading cause of death for all by 2030.

The economic impact heavily burdens national economies and households. Moreover significant differences appear between countries. Data suggest that road traffic deaths and injuries in low- and middle-income countries are estimated to cause economic losses of up 5% of GDP. The situation is highly disproportionate according the income of the country accounting respectively for 82% of population and 90% of road traffic deaths, but only for 54% of registered motorized vehicles for low- and middle-income countries (Figure 2).

The risk of a road traffic death varies significantly by region (Figure 3), and the disparity in road safety results is increasing. Using WHO regions, there has been a further deterioration in road fatality rates in the WHO Africa region from 24.1 fatalities per 100,000 population in 2010 to 26.6 fatalities per 100,000 in 2013. Over the same period, there was a further improvement in road fatality rates in the WHO Europe region from 10.3 fatalities per 100,000 population in 2010 to 9.3. Road trauma in Africa is projected to worsen further, with fatalities per capita projected to double over the period 2015-2030, while fatalities per capita are projected to decline by around 20% for HIV/AIDS and malaria. This Euro-African initiative comes at a critical time to stop and reverse these projections.

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The last estimation of WHO accounts for about 270,000 road traffic deaths in Africa. The problems are huge and numerous. They are related to a number of issues, which are complicated to manage. Typical problems include weak institutional management systems, the poor safety quality of road infrastructure and vehicles, the absence of or inefficiency of emergency medical systems, insufficient deployment of modern traffic management systems, inadequate legal and regulatory framework, weak enforcement of safety measures, lack of trained staff, and unsafe behaviour of road users.

Years of road safety investment and capacity building by many European countries supported by important actions from the European Commission, have led to significantly improved road safety conditions (Figure 4). However, achieving the road safety performance of global road safety leaders is unlikely to be achieved overnight in Africa, and will necessitate long-term investment and capacity building in road safety management.

Europe could play an important role in supporting African countries in improving their road safety and traffic management conditions to achieve better performance. Besides transferring and adapting, the results of the European research and experiences to the local contexts, significant support can be provided by all the European road safety stakeholders for designing and implementing a Regional / African vision towards a change of paradigm on road safety management.

Several actions are already on-going and important policy documents (i.e. the African Road Safety Charter and the African Road Safety Action Plan 2020), led by the AU and supported by UNECA and SSATP activities, are already in place paving the way for road safety improvements.

A further and urgent step in support of these efforts consists in capitalising upon this political commitment to build and enhance existing activity. The aim is to promote the adoption of effective road safety management and sound innovative solutions towards a long-term goal of safe mobility in Africa.

1.3 General scope and context of the SaferAfrica Project

SaferAfrica research project aims at inducing positive changes in the African regions concerning the road safety issue. Its general goals imply:
• Contributing to the development and design of actions related to the Action Plan (and, in particular, to its mid-term review) together with individual African countries/organisations.
• Assessing progress toward the goals of the Action Plan and, based on evaluations of the solutions adopted by various countries, releasing recommendations.
• Increasing the endogenous capacities of African countries.
• Fostering the adoption of the principles of the Safe System approach, in which all elements of the road transport system are defined in an integrated way, with the aim of ensuring crash energy levels below what would to cause fatal or serious injury.

The Safe System approach is recommended to all countries, irrespective of socioeconomic status, by the leading international organisations concerned with road safety and development, and is supported in good practice by a long-term Towards Zero or Vision Zero goal.

The actions and studies that will be carried out in the SaferAfrica project and related to road safety and traffic management are:

• Conducting capacity reviews
• Data collection and evidence gathering
• Analysis of specific risk factors
• Assessment of specific problems and mapping of critical areas
• Analysis of road safety assessment methodologies
• Analysis of road safety management systems
• Set up of methodologies and tools for targeting and measurement of future progresses
• Development and implementation of training programmes
• Definition of research and innovation needs.

SaferAfrica has been organised into nine work packages (see Figure 5).

Figure 5 SaferAfrica Work Packages
Working Package 5 deals with road safety and traffic management capacity reviews. The capacity reviews will play a leading role in the SaferAfrica initiative, and its results could influence the actions required to further develop and implement the Safe Systems approach in the African context.

For more details the reader is referred to the SaferAfrica website for further information regarding the other work packages.

### 1.4 Outline of Work package 5 – Road safety and traffic management capacity reviews

The overall objectives of a road safety and traffic management capacity review, based on engagement with senior management of the key agencies are to:

- systematically assess the state of road safety and traffic management
- summarise the strengths and weaknesses of institutional capacities to significantly improve road safety results
- reach consensus amongst the key agencies about next steps and sustainable activities
- improve road safety and traffic management by proposing a long term headline Safe System strategy and a project concept for activity to launch it.

Given the scope of SaferAfrica generally and WP5 specifically, it is not feasible to involve all African countries in all Regional Economic Communities and especially it is not possible to conduct detailed capacity reviews for each country of the African continent. For the purpose of the SaferAfrica project five countries representing the main geographic areas of Africa have been selected to be reviewed on the basis of the Road Safety Management Capacity Review (RSMCR) assessment framework outlined in the World Bank guidelines (Bliss and Breen 2009). The countries are:

- Cameroon
- South Africa
- Kenya
- Burkina Faso
- Tunisia

This capacity review task realise pilot activities aimed at conducting Road Safety Management Capacity Reviews (RSMCR) by reviewing and analysing (the development of) road safety and traffic management in the five selected countries (see above). The RSMCR will be conducted by review teams drawn from the SaferAfrica project team and assisted by two internationally recognised experts (Martin Small and Jeanne Breen). To ensure that the reviews take place according to international best practice, RSMCR will explicitly follow an approach based on the World Bank Global Road Safety Facility Road Safety Management System Framework (Bliss and Breen 2009), as outlined in ISO 39001:2012 (E) (ISO 2012), and be related to policy frameworks such as Sustainable Safety (Wegman, Dijkstra et al. 2005, Wegman and Aarts 2006) and Vision Zero (Tingvall and Haworth 1999), known generically as Safe System (ITF 2016). Furthermore, recommendations on road safety management provided by important EC-funded projects (e.g. DaCoTA, in which most of the project partners were involved (DaCoTA 2012) will be considered. Importantly, international experiences and, specifically, experiences related to the institutional framework of policy making and the relationship between road safety policy and science, will be considered in this process.

The outcomes of task 5.2 will be documented in a report describing the current situation of road safety and traffic management in each reviewed country.
The primary activities anticipated for task 5.2 are:

a) Preparation of RSMCR (identifying what is known, preparing and finalising the assessment framework and planning the reviews)
b) Capacity reviews (incl. Data review) in 5 selected countries (applying the assessment framework; interviews and discussions)
c) Gap analysis (analysing the results and comparing current practice with best practice)
d) Development of strategic initiatives (based on (c), develop remedial action plans; management plans and KPI; legislative framework etc.)

The output of this task will comprise a capacity review report for each selected African country and, as described above, define a high-level long-term investment strategy.

1.5 Conduct of Road Safety Management Capacity Review

Based on international methodologies (Bliss and Breen 2009), a road safety and traffic management capacity review (RSMCR) was carried out in Tunisia and the outcome is described in this report. The overall objectives of the capacity review, following engagement and discussion with the senior management of the key agencies and other key stakeholders are: to assess the state of road safety and traffic management with a view towards developing funded remedial and sustainable activities; to identify the strengths and weaknesses of road safety management capacities with a particular focus upon results, interventions and institutional delivery. One main expected outcome is to reach consensus amongst the key agencies about next steps and interventions to implement to improve road safety and traffic management capacities with an objective to defend a long term Safe System strategy and some proposals to launch it.

Road safety and traffic management in Tunisia was reviewed and analysed by a review team from Ifsttar participating in SaferAfrica WP5, assisted by a local expert. The elements of the World Bank Global Road Safety Facility Road Safety Management System Framework was explicitly considered to ensure that the review takes place according to international best practice (Bliss and Breen 2009). Furthermore, international experiences and, specifically, experiences related to the institutional framework of policy making and the relationship between road safety policy and science was considered in this process.

This report describes the current situation of road safety and traffic management in Tunisia. A functional framework based on the World Bank guidelines was applied to define the primary functions of road safety and traffic management. These include institutional management functions, road safety interventions, documentation and measurement of results. The road safety management framework essentially defines what is ideally needed for effective road safety management. Current practice has been overlaid on the model to facilitate insights into locations of possible shortcomings (i.e. gap analysis, Activity 5.2c).

The review was based on a combination of newly sourced literature, structured interviews (with representatives of the key agencies with responsibilities for road safety and road injury prevention as well as other individuals and organizations with potentials to contribute to improving road safety results) (see Annex 1), and the assessment of current data information systems, including road crash data reporting and collecting, traffic monitoring and law enforcement data. In support for one of the underlying objectives of the SaferAfrica project, the review has been conducted as part of a capacity building exercise. In this light, the project review team was supported by road safety and traffic management experts from the country being reviewed [N. Bouhamed and A. Frigui] (Tunisia). The actual review and reporting was the responsibility of the international review team. The capacity
review of Tunisia road safety management system provides a useful management tool for road safety policymakers and managers. This review reflects stakeholder views about current approaches (strengths and weaknesses) and expresses an expert road safety management opinion about the scope for further multi-sectoral action across the management system based on national and international good practice.

In the framework of Safer Africa project and in line with good management practice, a road safety management capacity review has been carried out in Tunisia in October 2017. The review has drawn from information gathered from face to face interviews with the key stakeholders both in government agencies and independent consultants as well as from national and international road safety publications and reviews. Moreover, further discussions were undertaken with top officials about outcomes of this review, while a national road safety conference was organized in January 2018 for debating about some proposals.
II. Key findings of the Road Safety Management Capacity Review: Context

2.1 Political Context

Tunisia’s administrative divisions have varied throughout its history. The precolonial divisions followed natural and historical features and expressed the separations and communication problems between locations, and were replaced by the colonial division (civilian controls) based on the colonizer's needs for exploiting the country. Since independence in 1956, Tunisia has undertaken a process of sector-based planning (with a finer breakdown) in view of fostering the emerging nation’s economic and social development (Belhedi A., 2004).

Figure 6. Politico-administrative division of Tunisia

Source: http://fr.mapsofworld.com/tunisia/

In 2010, the number of governorates (comparable to provinces, states or regions in English speaking countries) amounts to 24 and the number of delegations to 264, which are subdivided into 2,073 sectors. With such a large number of governorates, the Tunisian government decided to divide the Tunisian territory into seven planning regions to optimize application of its policies. Figure 6 shows the current administrative composition of the Tunisian Republic. Furthermore, there is another territorial subdivision of the country into municipal areas and non-municipal areas. This municipal division targets the municipality as the basic unit of all of the government’s economic and social policies; the most appropriate framework for administrative management and for bringing the administration closer to the citizens (Hagui A. et al.; 2014).

With the Revolution of January 2011, Tunisia, “the birthplace of the Arab Spring”, evolved toward a constitutional democracy. In January 2014, the elected National Constituent Assembly adopted a new constitution, which led Tunisia to a transition period from an autocracy to a democracy. The upheaval that shook Tunisia in 2011 gave rise to renewed interest in a strategic approach to territorial development. Pushed by the strong social demands coming from every governorate, the new Tunisian constitution enshrines the principle of decentralization, transmitting this power to local authorities; municipalities, regions and districts (currently being defined), which must be
managed by elected stakeholders. These authorities have juridical personality as well as administrative and financial autonomy. They adopt the mechanisms of a participatory democracy and the principles of open governance conducive to participation by citizens and civil society in the context of preparing development and planning programs. Consequently, local power is based on decentralization (political, administrative, financial and economic), which takes on the form of local authorities including municipalities, regions and districts. Decentralization is one of the fundamental conditions for the success of “good local governance” by encouraging accountability, inclusion and participation by citizens and economic activities in local development (Labiadh I.; 2016).

For each structure, the following table presents the bodies that represent it, the electoral system, its missions and its position in relation to road safety. That table illustrates a quite complex organizational context for road safety in Tunisia, with many territorial layers and different departments involved in specific issues related to road safety.

Conclusion: the important number of political units and its diversity raised important issues related to the coordination dimension for implementing the road safety public policy. Moreover, the political change initiated with the revolution and the adoption of a new constitution suggest local governments have to be strongly considered for building political coalition for a road safety policy and for involving population. The political climate has also to be taken into consideration with a central state, which has to consolidate its new legitimacy.
<table>
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<th>Administration</th>
<th>Government Structure</th>
<th>Representative body</th>
<th>Electoral system and responsibilities</th>
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<tr>
<td>National</td>
<td>Ministry of the Interior</td>
<td></td>
<td>• The Ministry of the Interior is the ministry with the greatest presence in road safety questions. It manages databases through the Road Safety Observatory.</td>
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| Regional               | Governors (24)             | Governor (Wali in Arabic) Regional Development Council | • Governor:  
Head of the governorate, appointed by the President of the Republic on proposal from the Ministry of the Interior.  
• Regional councils:  
These are in charge of examining questions of interest to the governorate in economic, social, environmental and cultural areas. These councils manage the governorate’s affairs; they are presided over by the governor and are made up of elected officials such as the governorate deputies and mayors, presidents of the rural councils and representatives of the technical services of the ministerial departments. |
| Local                  | Delegations (264)          | Local Development Council Delegate | • Delegate:  
This is the government’s representative in each delegation. He is appointed by the Minister of the Interior and is placed under the authority of the governor. He oversees the operations of the local administrative services.  
• Local Development Councils:  
The council is presided over by the delegate and is made up of the presidents of the municipalities or municipal districts located in the |
delegation, the presidents of the rural councils, the sector heads, representatives of external administration services and public establishments on the local level. It is a concentrating body dealing with questions relative to economic, social and cultural development in the delegation. They intervene in road safety through discussions on how the road network is organized and how regional roads are managed in cooperation with the National Guard.

<table>
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<th>Local</th>
<th>Municipalties (Communes) (264)</th>
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These can also be called “urban municipalities”. As a local administrative structure, the municipalities are managed by civil servants and permanent agents who oversee the various services and comprise the direct link between the institution and citizens. They are also subject to political management provided by the Municipal Council whose main role is to manage local affairs and rule on municipal questions. They intervene on the local level for road safety issues concerning equipment, road maintenance and discussions on layout in cooperation with the police.

<table>
<thead>
<tr>
<th>Sectoral</th>
<th>Sectors (Imadas) (2,073)</th>
<th>Sector Head (Omda in Arabic) Rural councils</th>
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- **Sector Head:**
The Sector Head provides support to the various administrations, as well as overseeing the interests of the citizens. He serves under the authority of the delegate.

- **Rural councils:**
These councils are set up in urban areas that are not organized into municipalities. Their members are appointed by the governor for 3 years, with one member for one thousand residents and a minimum of five members and a maximum of ten.

*Source: Béchir R. et al., 2011 Data updated in 2017 (Bouhamed, 2017-2018)*
2.2 Geographical considerations

With a total area of 163,610 km², Tunisia is the smallest country in the Arab Maghreb Union (AMU). Tunisia has contrasted relief between a mountainous northwest, an eastern plain and a desert south. Concerning weather features, the climate in the north is Mediterranean, whereas the south has a desert climate subject to the arid Saharan climate (Tunisian Ministry of the Environment; 2013). This climate heterogeneity distinguishes one region from another, creating a very wide economic variety in agricultural products. Food production is distributed quite unevenly around the country, leading to exchanges and unbalanced road logistics between regions, which must be taken into account when analyzing road safety challenges (Béchir R. et al.; 2011).

The North-West region of Tunisia is mountainous, with risks of snowfall and slippery terrain due to heavy rains. Major infrastructure projects have facilitated traffic movements and improved road safety. In the south, there are risks of sand encroachment due to the sirocco winds. Global warming is pushing this problem to the north and now central Tunisia is starting to be affected by this phenomenon. The consequences of weather on infrastructure is one of the WHO’s areas of strategic focus: harsh weather attacks infrastructure, destabilizes it and increases the risk of accidents.

**Conclusion:** it could be fairly accepted that geographical and climate characteristics of the country influence in some ways the road safety issue with framing effects related to relief, temperature and induced economic activity specialization of the different regions.

2.3 Demographic considerations

There has been a constant increase in the Tunisian population since independence, but the rate of demographic growth has slowed down from 2.35% between 1984 and 1994 to 1.21% between 1994 and 2004 and 1.03% from 2004 to 2014 (date of the last census). The urban municipal population has continued to grow quite rapidly, if we compare it with the rural population (Ben Brahim A.; 2007).

The decline in the fertility rate has led to and continues to cause a reduction in the base of the age pyramid. The median age of the Tunisian population rose from 28.8 in 2008 to approximately 32 in 2015. There are some challenges related to aging in Tunisia. Indeed, older people are required to contribute to economic development, which entails major efforts in terms of education and healthcare (Ben Brahim A., 2007).

Moreover, the evolution of population has undergone a phenomenon of intense pressure along the coasts. This concentration is a natural result of territorial planning and the development approach adopted since independence and which has favoured the coastline at the expense of inland areas. Indeed, over 70% of the Tunisian population live in these areas and approximately three-quarters of the road, industrial and tourist infrastructures are concentrated there (Figure 7). These elements, in the same way as mentioned for agriculture and livestock breeding, contribute to the regional imbalance in domestic transport and have direct consequences on road safety.

Furthermore, demographic disparities can also be seen within regions between the urban and rural environments. Since 1984, urban municipal areas have been attracting more and more people. This can be explained by the attractiveness of these environments, which provide more favourable living conditions than rural areas. The latter, for the most part, lack the minimum public services necessary.
Conclusion: the dynamic growth of the population, its aging, the concentration of population towards the coasts and the urbanization process have some impacts on road safety challenges and performance by influencing the importance of mobility, its modalities and the characteristics of road accidents.

2.4 Economic considerations

Since independence, the Tunisian economy has undergone in-depth changes. The choice of a more liberal policy and opening up to the outside world starting in the first half of the 1970s has enabled it to play the card of diversifying its activities – given its limited natural resource potential – by mainly relying on summer tourism and an expanding industrial sector (processing industries) producing for the local market as well as targeting external markets (essentially markets on the north side of the Mediterranean). Domestic production, initially dominated by agriculture and raw materials (phosphate, oil and gas), is now oriented toward services (public administration services, trade, transports and, to a lesser degree, manufacturing industries) (Castel V. et al., 2014). There are plans to strengthen regional and local development and reinforce Euro-Tunisian cooperation in the media and civil society sectors (Durey E. et al.; 2013).

Certain macroeconomic indicators have improved since 2011, such as the reduction in inflation and the budget deficit through increasing revenues and controlling expenditures. However, the unemployment rate remains high (above 15% in 2016 and superior to 30 % for the young). It is the result of weak growth, a poor business climate and unequal quality in the jobs available, ill-suited to the real needs of businesses. On the other hand, public debt (foreign and domestic), at approximately 51.7% of GDP in 2014, is estimated at 53% of GDP in 2015. It has increased regularly since 2011 due to the government’s policy of stimulating the economy by boosting demand that means also tight constraints for road safety public policy.
Tunisia has regional disparities in terms of the standard of living between the advanced regions and in those whose development is lagging, which can be problematic (World Bank Group, 2014; World Bank, 2015). Nationwide, regional disparities are the result of economic policies adopted since independence. Approximately 56% of the population and 92% of all industrial businesses in Tunisia are concentrated within a one-hour’s drive of the three largest cities in the country: Tunis (the Capital), Sfax and Sousse. These three coastal cities are at the heart of economic activity, accounting for 85% the country’s GDP. At the opposite, the poorest “regional development zones” (especially those located inland in the country) only account for 13% of all foreign companies in Tunisia and only generate 16% of the jobs created in these regions. This economic policy reinforced the isolation of all the hinterland and exacerbated regional imbalances rather than easing them. This concentration of populations and economic activities around the major urban centres thus shapes mobility, but also affects road accidents in the country.

Conclusion: economic specialisation of the country, the current macroeconomic situation (post 2011), the concentration of the economic activity, which fuels the migration of population to large urban centres shapes in depth the mobility of freight and people and affect the road safety issue.

2.5 Road safety institutions and management

2.5.1 Road safety bodies

Several ministries deal with road safety. The Ministry of the Interior has a strong presence with the National Observatory for Information, Training, Documentation and Studies on Road Safety (ONSRL), (whose missions are presented in detail in the following sub-chapter) and carries out financial studies with the African Development Bank (AfDB). The Ministry of Infrastructure deals with road safety using studies financed by the EIB (European Investment Bank). The Ministry of Transport carries out its own studies. The WHO finances fragmented studies. But there is no real coordination between the ministries and the various studies.

The National Road Safety Council (CNSR - Conseil national de sécurité routière) includes the Ministry of the Interior, which manages the Observatory, the Ministry of Health and the Ministry of Infrastructure. It has a mandate to collaborate with NGOs. The main NGO is the Tunisian Road Safety Association (Association Tunisiëne de la Prévention Routière – ATPR). It is the standard organization for the United Nations’ Decade of Action for Road Safety. It guides national policy. It works with the Ministry of Infrastructure in detecting black spots. It presents recommendations and draws up projects.

There are Regional Road Safety Commissions presided over by the governor and which serve as an interface between the ministries and the municipalities. They implement the policies drawn up by the CNSR and provide feedback to the ministry on any problems. The governors have leeway to initiate local actions. There are regional observatories that relay national actions.

The CNSR should define road safety strategies, but cannot do so in practice due to the lack of means. Furthermore, the CNSR is a consultative body whose decisions are not necessarily applied or followed.

Moreover, there is no systematic and important academic research on road safety in Tunisia.

A budgeted framework contract for road safety at the Observatory targets three actions: work with associations, individual equipment and awareness. The Observatory’s awareness actions are based on statistical data. The Observatory is the leading body in the invitation to tender for the “2018-2025 national road safety strategy”.

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From a formal point of view, the politico-administrative organization today and for the future (decentralization) must give rise to “local responsibility for road safety”. But one might think that, given all the issues that need solving (ecology, security, economics, etc.), road safety will have a hard time becoming a priority.

Conclusion

The Ministry of Interior plays an important role for the road safety issues, especially with issues related to legislation and enforcement, the data collection and analysis. The National Road Safety Council is also a key organization for assisting the Ministry in its different interventions.

The CNSR is the important national body in charge of the road safety policy. It associates different ministries. However, its means of action for implementing a road safety policy are quite limited.

The regional observatories relay the national interventions.

Recommendations

Create a leading agency dedicated to road safety issues (similar to CNSR), which should be attached to the Prime Minister. This agency should be allocated appropriate means for operating (budget and trained staff).

Academic programs should integrate road safety training in order to have experts with required skills for assisting the authorities in implementing and assessing the road safety policies.

Integrate the road safety policies in the local government priorities is crucial for having an effective policy, especially with the further movement of political decentralization.

2.5.2 Road safety education, information and awareness

The National Observatory for Information, Training, Documentation and Studies on Road Safety (ONSR Observatoire national de sécurité routière) (created by decree 2003-2666 of 29 December 2003) is under the authority of the Ministry of the Interior. It is in charge of the following missions:

- observing the road safety situation and collecting data and information nationally and internationally, analyzing them and listing them in databanks or databases;
- performing research and studies to assess the state of road safety nationwide and searching for future improvements;
- publishing reviews in the road safety field periodically and as the need arises;
- cooperating with the various parties intervening in the road safety field;
- designing programs and policies aimed at developing the road safety sector, proposing adequate preventive measures and developing communication and awareness strategies;
- organizing educational training seminars, colloquia, study days and similar events.

On the regional level, this observatory is not represented by local structures. Neither the governorates nor the delegations or municipalities intervene in the road safety information and education programs. Road safety is strictly reserved to the Ministry of the Interior.

However, the ATPR, with branches in nearly all regions, organizes awareness campaigns and training courses for road users of all categories and all ages. This is a longstanding association and has been activated under the different Tunisian governments. It organized the 2017 International Conference of the International Organization for the Prevention of Road Accidents (PRI) in Tunis at
in May 2017. It organized also a national conference in Gammarth in January 2018 for proposing some reforms for promoting a new road safety policy.

Conclusion

The National Observatory for Information, Training, Documentation and Studies on Road Safety has no representative at the local level.

The local government (governorate, delegation, municipalities) has not the same prerogatives for influencing the programs related to road safety information and education.

The influence of associations, especially ATPR, is quite important concerning awareness campaign, road safety education as well as the national level than the local ones.

Recommendations

The movement of decentralization appears as a crucial opportunity for giving a chance to the local governments of influencing and intervening with actions related to awareness and education (school programs, extracurricular activities, information, continuing education, etc.) inside their own territories and included in the fields of competences. They can be backed by associations.

2.5.3. Traffic police and safety

Legally, the traffic police come under the national security structures (fig. No. 8).

The Directorate General of national security is notably in charge of different missions (Maintaining public order; Controlling the borders and foreigners; Gathering information and investigations in all fields of national, political, economic, social and cultural life; Its mission includes ensuring the safety of persons, protection of property and traffic police services, notably in the areas under their jurisdiction; It acts as the judicial police force).

Concerning road safety, the traffic police ensure the fluidity of road traffic, notably at intersections during rush hours when congestion builds up and accident risks increase. The traffic police ensure also controls and the application of safe behavior by individuals (wearing seatbelts, drunk driving, non-compliance with road signs, speeding, etc.), as well as regulations concerning vehicles such as payment for insurance policies, roadworthiness tests, road taxes, (the road tax or “vignette” is a tax paid by private individuals as well as by legal entities), etc.

The police manage road traffic in municipalities under the supervision of the National Guard, which handles traffic in non-municipal areas. The General Directorate of the National Guard is in charge of maintaining public order, protecting land and sea borders, second-degree interventions throughout the Republic, intelligence in the political field and investigations and searches in the economic and social fields. Furthermore, they serve as the judicial police. Their mission notably includes ensuring the safety of persons, protection of property and traffic police services in the areas under their jurisdiction. It should be pointed out that neither the governorate nor the delegations or municipalities intervene in how police powers operate. The Ministry of the Interior, represented by its different structures, is the sole “supervisor” of the various roles of the traffic police.
Figure No. 8. Ministry of the Interior Organization Chart

Source: https://www.interieur.gov.tn/article/organisation-du-ministere
Conclusion

The traffic police insure the enforcement and the application of regulations in order to influence the road user for adopting a safe behavior. The traffic police missions cover the whole territory, the local roads included. The National Guard intervenes on the non-local road network.

Recommendations

Traffic safety regulation exists and appropriate means for enforcing road rules are available. However, corruption issue has to be investigated.

2.5.4. Urban planning, land-use management and road networks

The Ministry of Infrastructure lays down the new national guidelines for land use management and urban planning for the country every 10 years. The Ministry’s main attributions in this field include:

- Carrying out studies and research for understanding the natural and economic particularities of the country’s different regions.
- Drawing up and implementing orientations concerning land use management both nationally and regionally.
- Mastering urban planning tools and methods and preserving the country’s architectural particularities.
- Overseeing implementation of the government’s policy in the field of urban planning and architecture in coordination with the concerned services and structures.
- Contributing, with the local authorities, to defining and revising urban layout plans in accordance with urban regulations.

Regionally and locally, non-municipal land-use management is a mission handled by the governorate. On the other hand, drawing up municipal PAUs (Plans d’Aménagement Urbains – Urban Development Plans) is the responsibility of the municipalities. The latter have to draw up a plan (by a concerned service within each municipality) under the supervision and with the support of the delegation and the Ministry of Infrastructure and Habitat, represented by its Regional Directorate. The decision to execute the PAU must be approved by the governorate.

The capacity for planning and the multitude of levels, however, raise the question of coordinating those involved and the final choices made for land use management: urban planning, transports, road safety, equipment, etc.

Building permits

The construction of buildings that do not comply with urban standards constitutes a factor that is a handicap to the road network’s effectiveness; this refers to buildings that are built anarchically (inappropriate location, little or no parking, etc.).

Building permits come under the authority of the Ministry of Infrastructure which, nationally, is in charge of organizing guidelines for building locations throughout the country when drawing up and following the characteristics and recommendations of the pre-established PAU.

In municipal areas, the municipalities grant building permits in accordance with the PAU adopted (approved by the governorate). Regular controls are carried out on these buildings to make sure that they comply with the urban planning laws. This is the municipal police’s role.
Political power is exercised by the government and its representatives through the wide range of prerogatives given to the governor, who approves the development plan and controls the municipalities through the bureau of municipal affairs.

Urban municipalities are mainly in charge of drawing up and implementing Traffic Plans and Urban Mobility Plans after approval by the municipal councils, and drawing up and implementing the PAU after approval by the governorate. These elements take into account questions of the connections between urban planning/transport and road safety on the municipal level. They also have the power to issue building permits, to check construction compliance and to build municipal roads and ensure their maintenance. These interventions affect one-off items or itineraries in the network and directly concern road safety on the level of individual accidents.

**Mobility and infrastructure management**

Strategically, growth in the transport sector in Tunisia is slowed by insufficient, obsolete infrastructures. The sector has been marked by the deterioration of its infrastructures in recent years. Between 2007 and 2014, Tunisia's score for the World Bank's logistics performance index fell from 2.8 to 2.6 and the country fell from the 60th to the 118th position.

"Development of the transport sector – dominated by the public sector – remains handicapped by insufficient, obsolete infrastructures, an insufficient capacity to absorb funding and deficient governance. The development of infrastructure in the sector is still a major social challenge for finding a new balance between regions and opening up the regions of the interior, which has been a demand since the Revolution" (MEFF, 2015).

Road transport is key to the transportation of goods and people around the country. With a network of approximately 22,000 km of roads, nearly 75% of which are paved (close to the OECD average), and approximately 400 km of motorways from the capital, road transport represents 85% of land transport for goods and 95% of passenger transport.

Furthermore, the transportation network suffers from growing imbalances: there has been an imbalance in the development of infrastructures between the coast and the interior of the country (MEFF, 2015), (World Bank, 2014; World Bank, 2015; World Bank Group, 2014).

Nationally, the strategic planning mission for transports and designing road infrastructures (such as building roads and bridges, programming roundabouts, etc.) is under the Ministry of Transport's authority. More precisely, it is in charge of establishing, maintaining and developing a comprehensive, integrated and coordinated transport system that contributes to promoting sustainable economic and social development and ensures that transport needs are met for people under the best possible conditions, notably in terms of safety, security, cost, quality and environmental protection.

On the regional level, the Ministry of Transport is represented in all the governorates through the regional directorates that oversee compliance with the national road mobility targets. The governorate draws up the Governorate's Development Scheme in which it lays down planning for the road network and the organization of regional infrastructures. This plan must be approved by the regional council.

On the municipal level, the municipalities are asked to design Traffic Plans consistent with the regional and national plans and in harmony with the delegation's targets. These traffic plans translate the municipal mobility policy and the measures for intervention by the municipalities for
infrastructures. The Urban Mobility Plans and Traffic Plans must be approved by the municipal council.

**Maintenance of the road network and sidewalks**

On the national level, responsibility for this task lies with the Ministry of Equipment and Habitat (MEH – Ministère de l'Equipement et de l'Habitat), and more precisely with the Directorate of Operations and Road Maintenance (DEER – Direction de l'Exploitation et l'Entretien Routier) and the Directorate of Equipment (DM – Direction du Matériel). The DEER draws up the general framework for maintenance and updates the road data collection and traffic statistics.

Represented throughout Tunisia by the Regional Directorate of Infrastructure and Habitat (DREH) and their Ponts et Chaussées (Roads and Bridges) services, the Ministry has the mission to plan and carry out road maintenance on national and regional roads in collaboration with the governorate. Maintenance of extra-municipal and rural dirt roads also comes under the responsibility of the Ministry, which distributes the maintenance budget allocated among the DREHs, ensures its analytical surveillance and verifies the work undertaken. The DM manages the equipment fleet necessary for performing maintenance through its central workshop in Tunis, which is designed for major repairs on equipment and other orders, the regional workshops being for everyday maintenance (African Development Bank, 2001).

Municipalities have authority over work and maintenance on local roads and sidewalks. Cooperation may be necessary between urban municipalities and the Ministry when the maintenance concerns a road of shared interest. The weakness of the financial resources available and the lack of coordination can pose problems in terms of the quality of road repairs. Information for citizens when there is road work is a municipal responsibility to ensure preventive road safety measures.

The question of “anarchical” speed bumps is also important in Tunisia both for the Ministry of the Interior and for local authorities, as was pointed out during the “Road Development and International Speed Bump Standards” day organized jointly by Prévention Routière Tunisienne (Tunisian Road Safety) and the Ministry of Infrastructure in Tunis on 26 January 2017.

**Installing road signs and signals**

Road signs and signals include signs, ground markings and traffic lights. Installing these signs and signals, like road maintenance, is entrusted to the Ministry of Equipment and Habitat on the national level.

On the regional level, road signs and signals are handled by the DREH and its specialized services, which intervene on national, regional and extra-municipal local roads.

On the local municipal level, road signs and signals are considered to be under the territorial authority of the municipality. Each urban municipality, with its traffic department, is in charge of installing and repairing vertical signals and ensuring horizontal signals.

**Public lighting and clean streets**

On the regional non-municipal level, each delegate (local public officer who represents the State works with the governorate to meet its responsibilities for street lighting and regular cleaning.

In urban municipalities, public lighting and street cleaning tasks are municipal missions, independent of the governorate or delegation. In order to provide these services and to meet the needs of the citizenry, each municipality can plan budgets and implement action plans in view of
installing public lampposts and their maintenance. Likewise, they make decisions on the resources needed and the personnel in charge of cleaning. Specialized services exist in each municipality to implement these action and intervention plans.

Conclusion

The Ministry of Equipment plans every 10 years the great orientations for land management at the national level, while the governorate deals with it at the local level. Municipality is in charge of PAU. With such numerous actors, coordination tools and transversality for associating urbanism, land management and transport road safety issues included are required. However it is seldom the case.

Recommendations

The local prerogatives have to be strengthened, especially for land management issues: road, urbanism, equipment. The current decentralization could help in taking that orientation.

The creation of urbanism and land management police is needed for avoiding anarchist and uncontrolled decisions.

To improve the coordination between the different actors is also a fruitful solution that could permit to take into consideration some issues related to road safety linked with land management. The creation of a leading agency could be the answer for that purpose.

2.5.5 Land transport

At the end of 2015, Tunisia had nearly 1,922,000 vehicles on the road. 60% of vehicles in circulation were private cars and 22% vans. The rest was divided between farm machinery and vehicles, mixed cars, trucks and motorcycles (Fig. No.9).

Figure 9: Distribution of the fleet in circulation by mode in 2015

Currently, nearly 100,000 vehicles are registered or re-registered in Tunisia every year.
In 2015, more than 29,000 vehicles of all types were re-registered in Tunisia. This figure has been relatively constant over the past 4 years. Furthermore, Tunisia has some 1.2 million motorcycles, only 10% of which are insured, according to the Tunisian Federation of Insurance Companies (FTUSA).

Figure No. 10. Vehicle registrations by category between 1991 and 2015

Source: Statistiques Tunisie (INS Ministry of the Interior)

Over the last 4 years, the number of new vehicles imported has remained relatively steady at around 59,000 vehicles. According to the statistics from the ATTT (Agence Technique des Transports Terrestres – Technical Agency for Land Transport), the fleet of cars in Tunisia is growing annually at a rate of approximately 70 to 80,000 vehicles.

The motorization rate in Tunisia is 9.1% (or one vehicle per 11 residents) vs. 11% in Turkey, 20.3% in Rumania and 48.2% in France.

The light vehicle (LV) segment accounts for the largest share of the automobile market in Tunisia, with approximately 96% of total sales, so the official LV market alone comprises about two-thirds of annual sales. Demand for light vehicles has always been much greater than supply despite the increase in the price of imported vehicles and the constant rise in fuel prices. Despite the gloomy economic situation, sales of new vehicles have progressed continuously over the last three years.
The number of vehicles and driver’s licenses increases by approximately 5% a year. The figure to keep in mind is 2 million vehicles for 11 million residents.

In 2004, the government launched the “economical vehicle” operation. The aim is to enable households to buy a low-priced vehicle with easy payment terms. It is a measure that has benefited the middle classes enormously and has strongly increased the fleet of vehicles in circulation. There are currently three or four vehicles per household in the large cities. Two problems have come up with this situation: a delay in policies for developing public transport and infrastructures that are “unprepared” for accommodating these excess. And yet, this growth in “inexpensive vehicle” purchases to renew the fleet of “small cars for small families” initiated by the government reduced the effects of the grey market for a limited period of time.

There are major differences between the kinds of fleets in the urban governorates and in the agricultural governorates. We observe a large number of cars per household in fairly good condition in the coastal governorates. The governorate of Sfax stands out with a high number of motorcycles, even though it is not an underprivileged governorate. The explanation appears to be “cultural”. The fleet is older in the inland governorates, with vans in poor condition due to the structure of the agricultural population in the lower socio-professional categories. We also see animal-drawn vehicles. In the poorer regions, there is a high level of moped purchases on the official and parallel markets. The number of vehicles over 15 years old is estimated at approximately 30 to 40% of the entire fleet in circulation.

It is very hard to estimate the powered two-wheeler fleet in Tunisia. A large share of the PTWs is not identified because they are stolen, without identification and enter Tunisia illegally. Insurance is mandatory for PTWs, but it is estimated that no more than 10% of them are insured.

**Conclusion**

There is a dynamic market for cars and powered two-wheelers that suggests the increasing of vehicle equipment of Tunisian population would imply a higher road risk exposure. The poor

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**Table No. 2. Evolution of the vehicle fleet between 2011 and 2015**

<table>
<thead>
<tr>
<th>Type</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>VOITURE PARTICULIERE</strong></td>
<td>884,187</td>
<td>928,530</td>
<td>983,535</td>
<td>1,038,233</td>
<td>1,094,445</td>
<td>1,153,877</td>
<td>1,215,312</td>
<td>1,280,040</td>
</tr>
<tr>
<td><strong>CAMIOUROTE</strong></td>
<td>325,070</td>
<td>347,959</td>
<td>364,914</td>
<td>383,051</td>
<td>404,037</td>
<td>428,567</td>
<td>455,338</td>
<td>485,312</td>
</tr>
<tr>
<td><strong>TRACTEUR AGRICOLE</strong></td>
<td>75,652</td>
<td>79,063</td>
<td>81,197</td>
<td>85,204</td>
<td>89,267</td>
<td>93,495</td>
<td>97,770</td>
<td>102,086</td>
</tr>
<tr>
<td><strong>MINIBUS/BUS UTLEAS</strong></td>
<td>1,917,158</td>
<td>1,950,057</td>
<td>1,983,437</td>
<td>2,019,545</td>
<td>2,057,362</td>
<td>2,096,736</td>
<td>2,137,718</td>
<td>2,180,204</td>
</tr>
<tr>
<td><strong>BOAT</strong></td>
<td>77,760</td>
<td>80,946</td>
<td>83,115</td>
<td>85,384</td>
<td>87,653</td>
<td>90,922</td>
<td>94,203</td>
<td>97,500</td>
</tr>
<tr>
<td><strong>TRUCK</strong></td>
<td>345,201</td>
<td>378,539</td>
<td>413,862</td>
<td>449,237</td>
<td>486,612</td>
<td>525,087</td>
<td>564,673</td>
<td>606,360</td>
</tr>
<tr>
<td><strong>DENIM TRUCKS/TRACTOR</strong></td>
<td>58,281</td>
<td>60,451</td>
<td>62,621</td>
<td>64,891</td>
<td>67,161</td>
<td>69,431</td>
<td>71,702</td>
<td>74,003</td>
</tr>
<tr>
<td><strong>ECONOMIC VEHICLE</strong></td>
<td>1,917,158</td>
<td>1,950,057</td>
<td>1,983,437</td>
<td>2,019,545</td>
<td>2,057,362</td>
<td>2,096,736</td>
<td>2,137,718</td>
<td>2,180,204</td>
</tr>
<tr>
<td><strong>HIP</strong></td>
<td>1,945,489</td>
<td>2,004,055</td>
<td>2,063,437</td>
<td>2,122,862</td>
<td>2,182,377</td>
<td>2,243,923</td>
<td>2,307,718</td>
<td>2,372,204</td>
</tr>
<tr>
<td><strong>TRUCK</strong></td>
<td>31,705</td>
<td>34,343</td>
<td>37,000</td>
<td>39,657</td>
<td>42,314</td>
<td>45,000</td>
<td>47,702</td>
<td>50,403</td>
</tr>
<tr>
<td><strong>SEMI-TRUCK/TRACTOR</strong></td>
<td>17,759</td>
<td>18,164</td>
<td>18,761</td>
<td>19,368</td>
<td>19,981</td>
<td>20,602</td>
<td>21,232</td>
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<td>2,182,377</td>
<td>2,243,923</td>
<td>2,307,718</td>
<td>2,372,204</td>
</tr>
<tr>
<td><strong>FULLY-TRUCK</strong></td>
<td>31,705</td>
<td>34,343</td>
<td>37,000</td>
<td>39,657</td>
<td>42,314</td>
<td>45,000</td>
<td>47,702</td>
<td>50,403</td>
</tr>
<tr>
<td><strong>CP</strong></td>
<td>143,635</td>
<td>153,292</td>
<td>157,763</td>
<td>162,234</td>
<td>166,702</td>
<td>171,170</td>
<td>175,668</td>
<td>180,156</td>
</tr>
<tr>
<td><strong>ECONOMIC VEHICLE</strong></td>
<td>1,945,489</td>
<td>2,004,055</td>
<td>2,063,437</td>
<td>2,122,862</td>
<td>2,182,377</td>
<td>2,243,923</td>
<td>2,307,718</td>
<td>2,372,204</td>
</tr>
<tr>
<td><strong>FULLY-TRUCK</strong></td>
<td>31,705</td>
<td>34,343</td>
<td>37,000</td>
<td>39,657</td>
<td>42,314</td>
<td>45,000</td>
<td>47,702</td>
<td>50,403</td>
</tr>
</tbody>
</table>

**Source:** Technical Agency for Land Transport (ATTT)

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More precisely 2,017,110 vehicles in 2016.
conditions of the fleet, the uninsured vehicles and the inappropriate use of motor vehicle are important issues.

Recommendations

A better control of the characteristics and safety devices of vehicles is important. A specific intervention is also required concerning the insured vehicle.

### 2.5.6 The insurance market in Tunisia and its effects on road safety

Despite rising economic risks, the Tunisian insurance sector continues to hold up under the difficulties. Indeed, in 2015 this sector had overall sales amounting to 1,679.012 MD (million dinars) vs.1,556.069 MD in 2014 and 1,412.670 MD in 2013, for a growth rate of 7.90% in 2015 vs. 10.15% in 2014 and 9.90% in 2013. Thus, the Tunisian insurance industry’s penetration rate in the economy (total of premiums written compared to GDP) rose from 1.85% in 2013 and 1.88% in 2014 to 1.96 % in 2015 (FTUSA; 2015). With this rate, Tunisia ranks 2\textsuperscript{nd} in the Arab Maghreb, just behind Morocco and ahead of Algeria, but still relatively modest compared to the other countries in the MENA region.

The General Insurance Committee is the “higher” body governing the insurance market in Tunisia. It handles all administrative tasks – accreditations for the companies’ agents, coordination between the Tunisian Federation of Insurance Companies (FTUSA), off-shore insurance and reinsurance companies and the service structures supporting the insurance sector.

There are 22 insurance companies in Tunisia. They are private, except for STAR, which is semi-state owned. These companies are overseen by the FTUSA, the Tunisian Federation of Insurance Companies, which has many missions.

Concerning civil liability insurance for the use of motorized land vehicles, the compensation systems for personal injuries resulting from traffic accidents was modified in 2005 (Law No. 2005-86 of 15 August 2005, title five, insurance code).

Since 2013, automobile insurance has covered claims exceeding 50% of the total compensation paid out (504,346,063 TND in 2015). These figures demonstrate the weight of accident costs in terms of the financial expenses covered by insurance companies. Automobile insurance premiums represent 45% of the total collected (Fig. No. 11). Moreover the car insurance market is characterized by a high concentration: only 3 insurance companies collect more than 50% of the total premiums.
Figure No. 11. Automobile insurance: the leading branch in terms of insurance premiums in Tunisia

Source: FTUSA, 2015

Contributions by insurers

Insurance companies increasingly contribute to improving awareness of road risks among their policyholders. They play an informational role (detailed instructions for filling in an amicable accident report, etc.) and a motivational role (encouraging accident victims to take photos of the accident site and the vehicle involved). Many companies encourage their policyholders to drive more safely. The example of "AMI" Assurances deserves mentioning, as they took the initiative in 2011 of rewarding 150 of their most attentive policyholders by presenting them with free insurance certificates. This initiative is part of their contribution to the fight against traffic accidents.

The FTUSA has set up an Agency to fight against fraud. Insurance frauds currently concern between 10 and 25% of the compensations paid out and 80% of these frauds concern road safety. It is estimated that approximately 10% of the private vehicle fleet is uninsured.

Conclusion

The insurance sector is an important economic actor in the road safety field. The Tunisian Federation of Insurance Companies (FTUSA) undertakes regular awareness and information campaigns towards its adherents. FTUSA benefits from a strong experience in that field. It can also use important data basis related to its insured customers, which are available through its website.

Recommendations

It is highly important to associate the insurance sector and its representatives with the future leading road safety agency.

Again decentralization process appears as an important opportunity for spreading FTUSA interventions at the local level.
2.5.7 Legislation

For many stakeholders, there are enough road safety regulations (seatbelts (2017), helmets (2008), speeding, alcohol (increased penalties in 2009), etc.). The main problem remains their application. It is a question of culture (are Tunisians capable of taking up the fight against road insecurity?), corruption (have recent political events worsened the situation?) and organization (for example, why hasn’t legislation been implemented for a point-based system for driving licenses?).

Conclusion

There in an important legislation related to road safety. It covers the vehicle, the road safety equipment and the user behaviour. However, the main issue remains its effective implementation.

Recommendations

A strong effort has to be done towards the effective implementation of regulation.

Corruption has to be fought.

Awareness campaigns have to be continued by the authorities.

2.5.8 Funding and resource allocation

Law no. 2005-86 of 15 August 2005 promotes a mechanism for financing preventive actions against traffic accidents. The most interesting of these is the creation of an accident prevention fund that works in cooperation with the various prevention organizations (insurance companies, associations, ministries, observatories, etc.) to enable those who invest in safety to benefit from financial assistance under program contracts.

The Ministry of Interior is in charge of the management of this accident prevention fund. Resources come from different origins:

- Contribution from insurance companies certified for insuring civil liability related to the use of a land motor vehicle;
- Contribution from the insured;
- Contribution related to the payment of traffic fines
- Donation, heritage and financial product

Conclusion

The accident prevention fund, managed by the Ministry of Interior, associates numerous actors.

Recommendations

It is recommended that the resources of the accident prevention fund could be managed by the future leading agency.

2.5.9 Monitoring and evaluation

Our investigation concludes that there is no systematic monitoring of performance and evaluation practices for the road safety public policy.
Recommendations

The authorities have to conceive appropriate monitoring tools for checking performance and potential defects. It means also to hire a skilled staff.

Evaluation of road safety interventions is required to adapt, correct and extend some of them.

The development of monitoring tool and evaluation practice would help the authorities in piloting their intervention and in structuring the road safety governance framework.

The creation of a leading agency would help in defining and creating those new processes for piloting public policy. The leading agency has to be in charge of those duties.

2.5.10 Research and development and knowledge transfer

With all the accident reports, the Observatory can carry out research/studies with medical schools. For example, we can point out a study on the connection between injuries and motorcycle accidents carried out by the University of Monastir. Accident reports are studied on site for reasons of confidentiality. They have not yet been computerized. The Observatory does not have any researchers on its staff. Implementation and exploitation of a GIS (Geographic information system) is not yet operational due to a lack of personnel. The Ministry of the Interior refers to its exchanges with the Institute of Geography in Tunis.

Insurance companies plan to equip the police and National Guard with geolocated tablets. When accidents occur, police representatives would be able to send information to the insurance companies in real time. The interest is economic and, using the information transmitted, a suitable financial provision can be allocated for an accident.

The insurance companies are key players in road safety. They work with associations such as the Tunisian Road Safety Association (ATPR) and the Association of Road Safety Ambassadors (ASR). ASR association was created in 2013. Its activities mainly focused upon awareness campaigns related to the safety belt wearing, speed limit obedience and road safety education interventions. This NGO played a crucial role for the promotion of the bill related to the wearing of the safety belt in urban areas in April 2017.

The goal of the insurance companies is to rely on the associations to take charge, as a priority, of the "youth" target and instilling "respect for the road" among the younger generations. It is a question of convincing the Ministry of Education to include road safety training in middle school/high school programs along the lines of the educational continuum applied in France. The difficulty lies in the fact that the Ministry is in high demand to include additional modules in the curriculum (health, the environment, etc.), so road safety is less of a priority. The problem for how the ministry manages priorities, given that there is a maximum number of courses that have to be managed annually.

Conclusion

The National Observatory for Information, Training, Documentation and Studies on Road Safety has no researcher among its staff. The Observatory achieves some studies with the assistance of colleges of medicine.

The national observatory and the insurance companies wish to improve the data collection process in order to produce more detailed analysis and to have a better picture of economic consequences related to the road crashes.
The insurance companies collaborate with associations for educating the young people towards a better respect of road safety rules.

However the road safety issue is strongly in competition with other societal issues for being integrated in school programs.

Recommendations

The development of academic research dealing with road safety issues is a necessity. Engineer sciences, human and social sciences perspectives could be very helpful for the public decision maker.

Further road safety improvements will require the definition of standards for data collection and the use of digital technology.

The integration of road safety issues in the school and high school programs implies first to convince the Ministry of Education.

III. Key findings of the Road Safety Management Capacity Review: Interventions

3.1 Safe Roads

3.1.1 Black spots and speed enforcement

Currently, there is only about a dozen speed enforcement radars set up along the main arteries and at some black spots. A project for installing nearly 1,000 radars is planned for 2018. The Ministry of the Interior, in cooperation with the FTUSA, publishes a Mobility/Black Spots report and a Mobility/Accidents report.

Roads have been improved in recent years, black spots have been corrected and projects are regularly undertaken. But the definition of a black spot poses a problem – it only refers to a number of accidents divided by the length of road. The Ministry of the Interior determines the list of black spots. This definition does not take the traffic mix into account and thus leads to a bias in information.

3.1.2 Audits and standards

A safety audit has been set up for new projects. While still in the draft stage, safety audit training sessions have been taught by experts from the European Investment Bank (EIB). The Ministry of Transport has proposed road safety training on the Master’s degree level. Discussions with the Engineering School of Tunis have not given any results.

A study by the European Investment Bank was carried out on road infrastructures. It proposes standardized layouts and infrastructures. Those solutions can miss the target, because in Tunisia, there is little compliance with road signage and layout. For example, Tunisians do not pay attention to median strips dividing dual two-lane roads and make U-turns over the medians. Consequently, when a standardized layout requires separating the traffic lanes, a continuous obstacle must be installed to forbid this maneuver in Tunisia. Consequently, the standards have to be adapted to the country and there is no solution ready to go.
Moreover it appears that it has been difficult to organize coordination between the various services at the different ministries since the Revolution. It used to be that, when major accidents occurred, there was a more precise analysis of the accident. Closer connections between the police and the Ministry of Infrastructure made it possible to intervene more effectively when damages occurred in the road layout and infrastructure. The police contacted the infrastructure services to inform them of the damages.

**Urban development**

Already common before the 200s, weekly markets that set up on major roads running through communities has been an increasing phenomenon since the Revolution. This situation has created road safety problems that often give rise to serious accidents. The economic and social context is not favorable to a change in this situation; indeed, it is hard to intervene given the economic interests at stake in these local exchanges.

Parking regulations are not complied with. Triple parking often occurs. This is a question of obeying the rules – a cultural question.

Urban development actions are being implemented; pedestrian footbridges are being built, speed bumps are being installed around schools and schools are being reorganized to avoid having the exits open out directly onto streets with heavy traffic.

**Conclusion**

Road infrastructure is underdeveloped and obsolete, because of the lacking of financial resources and defective governance.

A black spot program has been set up during the last years to overcome the main deficiencies.

A safety audit has been also set up for new projects.

Expert training related to road safety audit faces some difficulties to be effective.

The enforcement of international standards for road equipment and development has to deal with cultural local constraints.

There are also some main issues with the illegal use of the urban road network (urban market locations, parking, etc.), which concern road safety, but also culture of the country and economics aspects.

**Recommendations**

The road network and urban roads have to be developed and maintained to face the country needs for mobility and safety.

It is also important de develop in depth knowledge concerning black spot by mobilizing international knowledge and to give priority to interventions for overcoming black spots.

The training of road safety expects is crucial for reducing black spot location, for providing expertise and realizing some road safety audits.

The road infrastructure development standards have to be adapted to the country specificities to insure its implementation.
The development of territorial analysis with a multidisciplinary scope related to the use of space is required.

3.2. Safe Vehicles

3.2.1 Vehicle roadworthiness testing

This mission lies with the ATTT (Technical Agency for Land Transport), which reports to the Ministry of Transport. It is a non-administrative public establishment considered as a public enterprise. (Governed by law No. 98-108 of 28 December 1998, the ATTT took over from the Agency of Vehicle Roadworthiness Visits created in 1995 under law No. 95-61 of 3 July 1995). The agency is in charge of the following missions:

- Carrying out formalities and technical operations concerning the vehicles in accordance with the applicable legislation and regulations.
- Carrying out formalities and operations concerning driving licenses.
- Creating, laying out, providing maintenance, equipping and operating bus stations.

The ATTT is represented by regional sub-agencies independent of the governorate and delegations. The urban municipalities do not play any role in vehicle roadworthiness testing.

Vehicle roadworthiness tests are mandatory. In 2016, the frequency of testing was changed – vehicles undergo their first roadworthiness tests starting in the fourth year after being put into circulation. After the fourth year, roadworthiness tests are performed every two years and annually starting in the tenth year.

3.2.2 Official and parallel markets

The car market in Tunisia is subject to a set of authorizations (standards, dealer authorization issued by the Ministry of Commerce) and a quota system.

Light vehicles (LVs) driving in Tunisia come from the official and parallel markets, the latter concerning vehicle re-registration.

The reduction in new vehicle import quotas (first registrations) in 2011 benefited the parallel market. According to the ATTT’s figures, re-registrations increased by 10.2% of the same 2011-2015 period to reach 27,808 vehicles in 2015 vs. 18,850 vehicles in 2011. This parallel market hit a historic peak during the 2012-2013 period, concern nearly 36% of the vehicles put into circulation in the Tunisian market for the period. It should be pointed out that the liberalization of industrial vehicle imports has been in place since 2012.

"The growth in the parallel circuit’s market share can be explained by the restrictions on new vehicle imports, the limited supply at authorized dealers that cannot meet all the demand, and the increase in the number of Tunisians looking for the perfect combination of "good opportunities" and "good prices". "The change in consumer habits among Europeans looking for more ecological automobiles and therefore getting rid of older, more polluting vehicles at reasonable prices" is also driving the used car market. (Huffpostmaghreb, 2016)

The parallel market accounts for 40% of car sales and the increase has been continuous. This figure will no doubt reach 50% very quickly. There are other questions on the deteriorated conditions of vehicles from illegal exchanges between Tunisia and Libya or Algeria. Informal exchanges in Tunisia account for 50% of GDP.
The vehicle fleet is aging. The repair methods used make the situation worse; there is an informal market for counterfeit spare parts that are cheaper but of poor quality. These elements worsen the condition of the fleet and cause road safety concerns, which in part explain the decision taken by insurers to no longer insure the oldest vehicles.

In fact, insurance companies have decided to no longer insure utility vehicles over 15 years of age, as well as private cars over 20. Thanks to this decision, the insurance companies are contributing to the reduction in the age of the automobile fleet and are therefore participating in the reduction of the number of accidents due to dilapidated vehicle conditions. But this situation raises the question of social inequality in terms of mobility.

Conclusion

Roughly 100,000 vehicles are registered each year in Tunisia. The vehicle fleet shows an increase of 70-80,000 vehicles per year. There is roughly 1.2 million of motorcycles, but only 10% of them are insured. Between 30 and 40% of vehicles have above 15 year old.

The rural governorates are characterized by a very old fleet which is not renewed and of poor quality.

In 2016 the vehicle roadworthiness test modalities have evolved. They were less constraining for the vehicle owner. Such an evolution was justified for reducing the waiting time for the realization of the test.

In Tunisia, the parallel market of vehicles (second registration) explains the aging fleet. Moreover the insurance companies do not more insure utility vehicles over 15 years of age and private cars over 20.

Recommendations

It is crucial that authorities could be able to track the origin of motorcycles and their ownership in order to have a better registration and insurance rate for those vehicles.

The rapid increase of the vehicle fleet raises some issues related to the equipment and the development of road network and parking facilities in relation with PAUs.

3.3. Safe Road Use

3.3.1 Enforcement

For 10 years, important legal evolutions could be noted concerning regulation related to road safety, especially with the Highway Code, Insurance Code and Town Planning Code. However, since the 2011 revolution, the political situation has been quite unstable with social protests and trade union demonstrations. The present situation is also strongly characterized by corruption, which impacts the enforcement of road safety regulations. It drives to a kind of laxity in the enforcement of laws. The policeman has to enforce the law in a precautious manner and a soft way to avoid any kinds of conflict or oppositions with the road user who shows a higher spirit of protest.

The ministry of Interior is in charge of the enforcement of road safety laws. It enforces the Highway Code and insures the legal treatment of the different offences. The ministry has to deal with severe limitations concerning its budget and material resources.
The enforcement of the helmet law for the PTWs and its punishment is seldom considered by the police organisations.

The traffic accidents related to illegal drugs are not well-recorded and not really followed-up. Few information is available on this issue.

The demerit point system is considered as inefficient. The driver has a capital of 25 points. If the driver is found liable, he could lose 6 points. For drink driving offense, the loss is 4 points.

In December 2016, a new law requires the presentation of the technical visit certification for having the possibility of insuring the vehicle. Such a regulation was decided because it was stated that more than 300,000 vehicles circulated while not passing the technical visit. The objective of this regulation aims at providing some incentives to the vehicle owner for maintaining correctly their vehicle.

The safety belt law has been enforced since April 2017; it is strongly criticized because of legal exemptions for taxi, truck and bus drivers.

Since 2016, the technical control visit regulation has been relaxed. Indeed it is obligatory for the new vehicle 4 years after the first registration. Then, the technical visit is required each two years and becomes annually when the vehicle reaches the age of 10 years. The objective of ATTT consisted in reducing the waiting time at the technical control centres.

Conclusion

The socio-political context, the lack of resources and some regulations not well-understood by the laymen could explain the impaired situation concerning the enforcement dimensions.

Recommendations

Communication campaign about the objective of the law enforcement policy is required.

The setting-up of a leading agency could help in implementing a global approach to road safety for establishing diagnostic (defining of priorities), legislation (objective of regulation), effective law enforcement (allocation of resources)

3.3.2. Education

The ministry of Interior manages the Road Safety Prevention National Fund (Fonds National de la Prévention Routière). This fund is financed mostly by the insurance companies (90 % representing 4 billion of DTN). The fund pays for road safety awareness campaigns, which are realized by ONSR, NGOs and other civil organization.

Awareness messages are really classical ones and seem not very efficient (useless distribution of flyers, media campaigns badly conceived, etc.). Awareness campaigns remain few in number and infrequent (Aïd, holiday periods, etc.) The planning of TV spots is not well-chosen and reaches few people.

The strategy of the Ministry of Education is not really concerned with road safety, which is not taught to the pupils. Some road safety educative and preventive days are irregularly organized in some schools and reach only few of them. Generally, they are at the initiative of the school direction. However, high school and university do not benefit from such interventions.
Conclusion

Although there are some financial resources available, interventions are not very original and do not associate the ministries.

Recommendations

The educative and preventive approach has to be more innovative using the social networks to reach a larger public.

It is really important that the ministry of Education could be associated to educative policy and for building an educational continuum.

3.3.3 Safety equipment

Wearing seatbelts has been required since the end of April 2017. There have been many awareness campaigns on the mandatory character of wearing seatbelts and the results lived up to expectations – in the first days, the rate of seatbelt use in equipped cars was 80 to 90%. But within a few months, the rate had dropped sharply. Beyond the curiosity of a novelty, two explanations are possible: a reduction in inspections and local behaviors given that there is little awareness among Tunisians at to the interest of wearing seatbelts. In 2018, this regulation is scheduled to apply to back seats as well.

Helmets are required for powered two-wheelers. The heat is a problem in the north and in the south of Tunisia, but this is not a decisive factor behind not wearing a helmet. According to the insurers, motorcycle riders are not convinced that helmets are effective because most of the people who use motorcycles are from the working class or lower middle class with little awareness about safety issues. Furthermore, they have to live on limited resources. They ride motorcycles because they cannot afford a car or to take public transportation. They cannot afford an approved helmet that costs 200 dinars. An additional 200 dinars is needed for insurance. One insurance company bought 500 helmets for its policyholders to increase awareness among them as to the utility of wearing a helmet.

Conclusion

Road safety legislation related to equipment (safety belt, helmet) exists. However, they are seldom used by the people.

Recommendations

Awareness campaigns towards the road users concerning the use of road safety equipment need to be strengthened.

Awareness campaigns and training of police forces have to be improved and developed.

The fight against corruption is required.

3.3.4 Recovery and Rehabilitation of Crash Victims (Post-Crash Care)

The insurance companies use their “Road Safety Observatory” budgets to finance studies carried out in collaboration with hospitals. The Observatory also works with the Universities (medical schools) for end-of-studies thesis work. Access to hospital data is harder to obtain. These are sensitive data. The Observatory’s contributions are crucial to developing reflections.
The Ministry of Health is interested in the connections between accidents and injuries, and the degree of use of safety equipment such as seatbelts or helmets. The assessment of serious injuries and their care at emergency services after an accident involve the emergency response system in Tunisia, which is under the authority of the Ministry of Health. The ministry collaborates with the civil protection services. Furthermore, it organizes training sessions (firefighters) and collaborates in setting up new SMURs (Service Mobile d’Urgence et de Réanimation – Mobile Emergency and Resuscitation Units).

Historically, based on a political desire from the late 1990s, the Conseil Supérieur de la Santé (High Council for Health) has sought to develop the pre-hospitalization sector and emergency services (up to the dispensary level). As of 2005, emergency medicine has been taught at the University Hospital Centers (CHUs) and has become a specialty. Before then, there were only 2 Emergency Medical Aid Services (SAMUs): one in Tunis and the other in Sousse. Today, 6 SAMUs cover the country. In the mid-90s, the sector had no “continuity” and no identified services. Waiting times at emergency rooms were catastrophic. At the end of 1998, a comprehensive study of the situation gave rise to a diagnosis. In 2016, 184 emergency services took in nearly 6.5 million consultations a year. This figure grows by 5 to 7% each year.

When a “distant” accident occurs, the civil protection services intervene on site. They transport the victims to the nearest healthcare center, where there is at least one nurse and one ambulance. Transportation to the nearest hospital comes later. This is the plan for organizing the healthcare network throughout the country.

Since 2004, accidents involving multiple victims (definition: more than 8 people injured) have been reported to a centralized unit at the Ministry of Health, where the database is cross-checked with data from the Ministry of the Interior. The number of multiple-victim accidents is on the rise requiring the implementation of procedures (Conventions) to define who does what during an intervention (status sheets, transfers, coordination, dispatching by hospitals, organization between regional general hospitals and emergency services, local hospitals and ambulances on call 24/7).

At the emergency room, casualties from accidents on public roads have priority. They pay and gain priority access. The most serious victims are taken directly. Fatalities (counted as such if death occurs within one month following the accident) are required to pass through the emergency services before being directed to a forensic medical service.

The emergency service fills in a form for each person injured or killed. This information is grouped together with the accident data at the Ministry of the Interior every week. Information is cross-checked at the Ministry of Health with data from the Ministry of the Interior every month. If there are dissensions, more detailed checks are made by telephone.

Conclusion

The development of emergency services is the outcome of voluntary policy from the 90s.

Since 2004, the collaboration between the Ministry of Health and the Ministry of Interior has permitted in-depth road accident analysis with multiple victims.

Since 2005, urgency medicine is taught in the CHUs.

Hospitals and the Ministry of Health have detailed data concerning road accident victims.

Recommendations
Open hospital data related to road accident is crucial for research.

Research and PhD in medicine concerning road fatality and injury has to be supported, while the promotion of multidisciplinary research is crucial.

The development of emergency services and car on the whole territory is a priority, and especially for the rural areas.

3.3.5 Data Collection System and Management

Collecting bodily injury accident data in Tunisia

Since independence, the collection of bodily injury accident data in Tunisia has always been the exclusive domain of the Ministry of the Interior. The collection is systematically updated every week. The traffic police handle urban accidents, drawing up weekly summary reports on accident reports. These reports contain information on the number of accidents, injuries and fatalities, characteristics of the users involved, accident locations, factors, etc. Once the reports are completed, they are transmitted to the regional police district that brings together all the figures received from the various traffic police centers and a monthly report is sent to the ONSR.

At the same time, National Guard traffic centers carry out the same task. They gather the bodily injury accident data recorded in suburban environments and on motorways. They transfer weekly reports to the National Guard district which transmits them to the ONSR.

The ONSR gathers together all the monthly data from the different governorates and draws up national traffic accident statistics. This work is usually delegated to former National Guard agents who take responsibility for gathering data, making the necessary calculations, drawing up tables and figures and bringing out the official statistics for publication.

National bodily injury accident data are posted on the official website of the Tunisian Ministry of the Interior [open data] (Fig. 12).

Figure No. 12. Open data website of the Tunisian Ministry of the Interior

Source: opendata.interieur.gov.tn
Content of the national files

The bodily injury accident file in Tunisia comes in the form of national statistics. The data available include 14 points (Table No. 3).

Table No. 3. Content of the Tunisian national accident statistics

<table>
<thead>
<tr>
<th>Summary of road accidents in Tunisia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comparison of accidents and their consequences</td>
</tr>
<tr>
<td>Daily average of accidents and their consequences</td>
</tr>
<tr>
<td>Evolution of the automobile fleet and driving licenses</td>
</tr>
<tr>
<td>Distribution of accidents by governorate</td>
</tr>
<tr>
<td>Distribution of accidents by month of the year</td>
</tr>
<tr>
<td>Distribution of accidents by days of the week</td>
</tr>
<tr>
<td>Distribution of accidents by times of day</td>
</tr>
<tr>
<td>Distribution of accidents by factors</td>
</tr>
<tr>
<td>Number of accident victims by age</td>
</tr>
<tr>
<td>Distribution of accidents by users involved</td>
</tr>
<tr>
<td>Road accidents on motorways</td>
</tr>
<tr>
<td>Distribution of accidents and their consequences by non-urban roads in the governorates (National Guard data)</td>
</tr>
<tr>
<td>Annual comparison of the number of accidents</td>
</tr>
</tbody>
</table>

Source: Bouhamed 2017-2018, in opendata.interieur.gov.tn

Other than the data that are accessible and grouped together by period (annual, quarterly, monthly, etc.) or particular periods (Ramadan, Eid al-Fitr, “safe vacations” program), the annual report constitutes the only official publication taking an inventory of traffic accidents in Tunisia. This document is available to the public and stakeholders working in road safety to gain an understanding of the accident situation in the country.

Thanks to a certain level of exhaustiveness, these figures provide an understanding of the key point of accidentology in the country. For the decision-makers, these figures can be used to define the different challenges and to guide the decision-making process. The regular character of these statistics makes it possible to follow developments in the situation chronologically by year, month, day and time.

Insofar as the figures are available by governorate, it is possible to refine actions according to the specific features of the different geographical areas.

Stylistically, the statistics presented in this report are easy to read and process (color figures, tables, diagrams, etc.). This database nonetheless has some weak points:

The first lies in the lack of availability of the source file to enable third parties to produce specific analyses from these data. This flaw is due to the fact that the Ministry of the Interior is the only body to have the right to set up and manage databases on bodily injury accidents occurring in Tunisia.

The second concerns the quality of the data, notably for accident locations. In order to be able to locate all the accidents that occur, one needs the codes for the detailed geographical areas by street and avenue name. Accident data are based on records produced by the traffic police and the National Guard; their reliability in terms of geolocation is often called in to question due to a lack of local resources.
The third concerns “under-reporting” of the number of accidents and victims involved because not all accidents and not all victims are known to the responsible authorities. Road safety local experts advance a rate around 15%. This is mainly due to the fact that the people involved in bodily injury accidents do not always inform the police, even though they are legally required to do so. The consequences of this under-reporting is the production of official accident statistics that give an incomplete, distorted picture of the frequency, the relative share and the evolution of certain types of accidents. The insurance companies estimate that 50% of the accidents occurring in isolated governorates are not recorded. To find a solution to this issue, the FTUSA plans to provide computers to improve the collection of accident data.

Lastly, the content of the annual publication is presented as a simple inventory listing figures without any interpretation other than the short summary put forward at the start of the report.

Data from the Ministry of the Interior differ from those at WHO (a difference of roughly 80%). The police forces may draw up an accident report but not report the accident or those involved may not file a complaint. But the injured parties may go to a hospital a few days later without informing the police. Investigations with hospitals show excess numbers compared to the police figures. Another reason is that the police only take note of two or three people involved in the accident and neglect other injured parties. There is real under-reporting. This is a recurring problem in many countries. WHO reports use the official figures that are statistically corrected. Indeed, for the World Bank, “Tunisia is a country without eligible death registration data” (WHO, 2015). For example, the official figures for 2013 gave 1,505 fatalities, whereas the World Bank estimated the number of deaths at 2,679.

**Accident reports**

The mission of monitoring accidents in cities and urban environments lies with the traffic police. Accidentology on motorways, in the countryside and in interurban environments are the National Guard’s responsibility.

When the police forces are informed that an accident has occurred, a team goes to the accident site. Their first action is to set up signage and warnings to protect the rest of the road users, then they draw a map of the accident, record the identities of those involved and undertake interviews. No photos are taken.

Depending on the type of accident and the procedure, they are saved by the police, at the Observatory, the prosecutor’s office, the insurance company and/or the FTUSA.

In cases of accidents with injuries, the police transmit the accident report to the prosecutor, who then transmits it to the Observatory. If no legal proceedings are undertaken, the accident report is transmitted to the insurance company.

This procedure is not always followed, notably when the injuries are superficial, and the police are not always notified. Sometimes one of the people involved in the accident shows up at the police department or at the National Guard to report an accident. The police officer or National Guard agent must then draw up an accident report and hear out the person. In the second phase, he/she contacts the other party involved in the accident to complete the investigation. Once the accident report has been drawn up, it is transmitted to the Prosecutor of the Republic if legal action is taken. Otherwise, it remains in the police archives. The report collection procedure completes the national statistics. The accident report is only shared with the legal authorities or with the insurance company if a request is made.
The report mainly contains the date, location, a general description of the accident and an illustrative diagram of the collision (Table No. 4). It basically contains 2 pages.

Table No. 4. Principal content of accident reports in Tunisia (translation by the author)

| General information (location, date and time of the accident; type of accident, condition of the roadway, number of fatalities / injuries, etc.) |
| Identities of the parties involved in the accident |
| Theoretical description of the accident scenario |
| Bodily injuries caused by the accident |
| Accident factors (very briefly) |
| Information on the appendixes to the report |

*Source: Bouhamed (2017-2018)*

The main accident report is standardized. It is commonly accompanied by appendixes. Accident reports come with insurance certificates, registrations and roadworthiness test certificates for the vehicles involved in the accident. If one of the people involved was injured, a medical certificate describing the seriousness of the bodily injury is requested, along with the rest period required by the forensic medical expert. The accident reports include simplified descriptive diagrams illustrating the accident scenario.

The insurance companies seek to better explain accidents. A project is underway based on the analysis of accident reports. They use cross-checking of the various data such as age/uses/vehicles/urban area/tax horsepower/socio-professional category. The aim is to produce an economic model that explains the variables in order to develop a better-suited rates policy and to define a “behavior-based” rate. Today, rates are calculated based on the vehicles horsepower and use only.

**Procedure for collecting accident data by insurance companies**

When a traffic accident occurs (with or without physical injuries), each party must fill in a joint accident report to trigger the insurance procedure. This document's content is the same for all insurance companies in Tunisia. It “complies” with the model accepted by Insurance Europe. The completed joint accident report is transmitted to the insurance companies. If one of the two parties involved in the accident refuses to sign the joint accident report, the party who feels wronged can declare it to the police who will contact the adverse party as quickly as possible. In this case, the latter is required to sign the joint accident report and an accident report is issued.

If there are injuries and if there is a disagreement as to the content of the completed report, the person who feels wronged can declare this to the police. An accident report must be opened to pursue legal action.

The insurance companies then decided upon each party’s liabilities in accordance with a scale set by the FTUSA that lays down 25 illustrative cases that the accident scenario is assimilated with (Lahmer, 2008).

Compensation to the accident victim is usually paid within 15 days. In case of collision between two motor vehicles, this Direct Policyholder Compensation requires each insurance company to compensate its policyholder directly for damages caused to his/her vehicle (under certain terms and conditions).
The FTUSA gathers all the data from the insurance market in Tunisia and publishes its own report describing elements in the accident loss records and the costs generated for the economy. This report is the only official document from the insurance sector in Tunisia.

Insurance companies are a very important institution and a defining player in the field of road safety and notably accidentology. The annual report contributes to enriching the road safety knowledge base.

Conclusion

The Ministry of Interior is in charge of the collection of road accident data. FTUSA, the insurance companies’ federation manages its own data related to road accidents.

ONSR collects the data issuing by the different governorates and produce yearly statistics. It publicizes the different outcomes through the Ministry of Interior website. Moreover, the Ministry yields its own annual report.

The data produced by the Ministry of Interior shows some defects especially concerning the information related to the geolocation of accidents.

In field practices (road user and police) explain why there is under-reporting of recorded roads accidents.

The FTUSA gathers all the data from the insurance market in Tunisia and publishes its own report.

Recommendations

Road accident data have to be provided to researcher and academics. It concerns Ministry and FTUSA data files.

The geolocation of road accidents would make possible a better analysis, would help in improving diagnostic and determining road accident factors.

Awareness campaigns have to focus on the road users and the police forces for improving the recording of road accidents.

Accident reports have to be available for engineers in order to design operational solutions.

Accident reports have to be available for academics for research purpose.

Accident report content has to be improved.

The leading agency (to be created) would integrate the different data sources concerning the road accidents.
III. Key findings of the Road Safety Management Capacity Review: Results

3.1. Social cost

No element was found concerning the evaluation for the social costs of road accident.

3.2 Final outcome – Deaths and Serious Injuries

General elements concerning mortality, morbidity and crashes

Except for an increase in 2012, the official figures from the Tunisian Ministry of the Interior have shown a constant decrease in accidents and injuries since 2000, despite a regular increase in the fleet of cars on the roads. Figure 13a shows the evolution of the number of fatalities on a more readable scale. (Fig. 13 and 13a) Other than during the period of the Revolution, the number of traffic fatalities increased regularly up until the 2000s and then remained constant at around 1,500 deaths. The sharp drop in accidents during the Revolution (around 2010) can no doubt be explained by the curfew put in place by the authorities and a disturbance in keeping accident records.

Figures 13 and 13a. Evolution of the number of accidents, injuries and deaths

Source: Ministry of the Interior (INS)

The decrease in accidents and injuries since the 2000s deserves special attention because no road safety measures are able to explain it. Furthermore, the number of accidents increases in the first years after the Revolution, then decreases from 2012 to 2015. According to a report by the WHO (World Health Organization) in 2015, the mortality rate due to traffic accidents per 100,000 residents
in Tunisia was estimated at 24.4% in 2013. With this rate, Tunisia is considered to be a dangerous country in terms of road risks (Souleimen Ouannes, 2016).

The evolution of road safety figures shows that the number of accidents has been decreasing, but the number of deaths has remained stable. The rise in the number of deaths in the 2000s can be explained by the reduction in the age for obtaining a license from 20 to 18 years of age, notably during the summer or festive periods when young people are particularly over-represented in accident figures. Many accidents involving pedestrians are also observed.

The drop in accidents after the 2000s, with a fairly constant number or even a slight decrease in the number of deaths, is due, according to the Ministry of the Interior, to multiple vehicles accidents. The accidents mainly involve long-distance taxis or farm transport vehicles, leading to many fatalities. The increase of accidents with several victims is a social phenomenon that is due to the increase in public transport and the clandestine transport of farm workers (twelve workers on a truck bed, for example). This phenomenon is observed in the farming governorates. Furthermore, these accidents are more serious insofar as these governorates are equipped with less safety resources and services than others.

**Evolution of crashes by cause**

**Figure 14: Evolution of the number of accidents by cause**

The reduction in accident rate concerns all the causes recorded by police in their accident reports (Fig. No. 14). The first cause of accidents is speeding (approximately 450-500 fatalities). Awareness campaigns have not produced the desired results. It would no doubt be a good idea to develop radars with automated speed control/fines, but there has been a major problem with vandalism against these devices. Tunisia is developing in-vehicle radars with a view to setting up more thorough police surveillance. Speed surveillance campaigns are regularly undertaken in urban and rural environments. For some experts, speed is the main cause of accidents in Tunisia because there are no real sanctions anymore. This is a problem related to the political context. Priorities lay elsewhere from around 2011, with the state of emergency pushing road safety far from the center of the country’s concerns.
A large number of accidents involve pedestrians crossing the roadway. Pedestrians often cross outside the dedicated crosswalks. Sidewalks are in poor condition in some cities and neighborhoods, which discourages their use. Even when people use the crosswalks, vehicles do not yield their right-of-way.

**Evolution of crashes by environment**

**Figure 15. Evolution in the number of accidents by environment**

Urban environments account for more than 60% of all accidents. Most accidents occurred in the country's big cities, including 19% in Tunis, 7.5% in Ben Arous, 7.4% in Sfax and 6.8% in Nabeul. Since the year 1996, however, the decrease in the number of accidents has been significantly larger in urban areas (-34% vs. -19% (rural areas)) (Fig. No. 15). This can be explained by a more systematic application (speed controls and fines) of road safety measures compared to the rural governorates, which remains globally low.

**Specific issues**

The imbalances between regions can be observed in road safety figures. As an illustration; the following table presents a focus on the distribution of traffic accidents and victims by governorate. The more urban among them, on the coast, have a concentration of the most accidents.
Table No. 5. Distribution of traffic accidents and victims by governorate during the month of August 2014.

<table>
<thead>
<tr>
<th>Governorate</th>
<th>Accidents</th>
<th>Deaths</th>
<th>Injuries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tunis</td>
<td>99</td>
<td>13</td>
<td>171</td>
</tr>
<tr>
<td>Nabeul</td>
<td>69</td>
<td>14</td>
<td>162</td>
</tr>
<tr>
<td>Sfax</td>
<td>45</td>
<td>12</td>
<td>66</td>
</tr>
<tr>
<td>Ben Arous</td>
<td>36</td>
<td>10</td>
<td>50</td>
</tr>
<tr>
<td>Sousse</td>
<td>34</td>
<td>8</td>
<td>60</td>
</tr>
<tr>
<td>Medenine</td>
<td>32</td>
<td>17</td>
<td>52</td>
</tr>
<tr>
<td>Gabès</td>
<td>32</td>
<td>9</td>
<td>48</td>
</tr>
<tr>
<td>Gafsa</td>
<td>28</td>
<td>3</td>
<td>49</td>
</tr>
<tr>
<td>Mahdia</td>
<td>28</td>
<td>10</td>
<td>42</td>
</tr>
<tr>
<td>Kasserine</td>
<td>26</td>
<td>10</td>
<td>40</td>
</tr>
<tr>
<td>Silana</td>
<td>25</td>
<td>4</td>
<td>46</td>
</tr>
<tr>
<td>Kairouan</td>
<td>25</td>
<td>8</td>
<td>50</td>
</tr>
<tr>
<td>Bizerte</td>
<td>23</td>
<td>5</td>
<td>42</td>
</tr>
<tr>
<td>Monastir</td>
<td>22</td>
<td>14</td>
<td>34</td>
</tr>
<tr>
<td>Sidi Bouzid</td>
<td>22</td>
<td>4</td>
<td>36</td>
</tr>
<tr>
<td>Béja</td>
<td>20</td>
<td>4</td>
<td>33</td>
</tr>
<tr>
<td>Jendouba</td>
<td>20</td>
<td>3</td>
<td>28</td>
</tr>
<tr>
<td>La Manouba</td>
<td>19</td>
<td>5</td>
<td>22</td>
</tr>
<tr>
<td>Ariana</td>
<td>15</td>
<td>1</td>
<td>27</td>
</tr>
<tr>
<td>Le Kef</td>
<td>14</td>
<td>6</td>
<td>25</td>
</tr>
<tr>
<td>Tataouine</td>
<td>13</td>
<td>2</td>
<td>21</td>
</tr>
<tr>
<td>Kébili</td>
<td>9</td>
<td>3</td>
<td>13</td>
</tr>
<tr>
<td>Tozeur</td>
<td>8</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Zaghouan</td>
<td>7</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>671</strong></td>
<td><strong>170</strong></td>
<td><strong>1146</strong></td>
</tr>
</tbody>
</table>

Source: Ministry of the Interior

There is a connection between the number of accidents and certain urban governorates along the touristic seaside, where greater, more diverse populations and exchanges lead to more exchanges and therefore more accidents. Furthermore, the infrastructure in some urban seaside governorates may be of poor quality due to a lack of maintenance. The Ministry of Health, moreover, plans to better deploy its emergency facilities in the areas with highest populations.

In terms of transport infrastructure, there are also disparities between the various governorates; there is a major social imbalance between the urban seaside governorates and the isolated governorates in the center. Since the Revolution, some areas have been disregarded concerning the road infrastructure development and maintenance and other public services, notably agricultural areas. These areas are highly exposed, with farm vehicle traffic on infrastructures that highly isolated. The government wants to open up these areas, including in the field of healthcare infrastructure, developing medical equipment, emergency vehicles, hospitals, etc. Exposure to accidents is also due to a psychological state of revolt among the population that can be explained by the poverty in these regions and feelings of injustice that gives rise to aggressive driving habits.
IV Strategic priorities for long-term investment strategy

4.1 Institutional management functions

4.2.1 Road Safety Management

An overview of the structure of the organizations in charge of managing road safety databases and actions needs to be undertaken by creating an interministerial body that encourages contributions and a cross-disciplinary approach by all road safety stakeholders.

The National Road Safety Council of Tunisia lays down national policy and draws up projects, but it is only consultative and has limited resources for defining a real road safety strategy. Its decisions are not necessarily applied. It would take greater political commitment for road safety to become a real priority. An interministerial body should therefore be created under the authority of the Prime Minister, and represented in the governorates by a Road Safety Deputy or Delegate.

This priority needs to be backed up by lobbying on this project supported by all stakeholders involved in the question of road safety in Tunisia, including the Ministries of the Interior, Infrastructure and Health, insurance companies, and associations.

4.2.2 Develop information on the local level

Under the future decentralization, the local authorities should be granted the autonomy they need to create, manage and exploit a common and homogeneous (through the whole territory) accident file combining detailed alphanumerical and geographical data from the police accident reports and territorial data enabling local elected officials to prioritize their actions.

At the governorate level, an active “center” should be organized in the road safety field for data, territorial analyses, analysis of specific features, local actions, feedback, etc.

4.2.3 Training

Customized accidentology training programs for police agents should be developed so as to enable them to make a better analysis of the origins and progression of accidents and to understand the usefulness of updating databases.

The Ministry of Education needs to be encouraged to support road risk awareness actions for young people in Tunisia by including road safety training in the middle school/high school curricula, as educational continuum developed in France.

Training for experts in the higher education sector should be developed at Engineering Schools and Universities. The analysis shed light on a need for high-level technicians in the area of road audits and layouts and the need to integrate reflections from the human and social sciences in accident analyses.

Tunisia needs to train road safety specialists. New disciplines in the area of accidentology and road safety in general should be integrated into Tunisia’s higher education system in order to train experts in this area for the country. Monopolize such diverse disciplines as anthropology, sociology, etc., in order to bring the country’s culture into perspective. Engineering, land use and legal sciences should be integrated to provide a better understanding of road safety in the Tunisian national environment.
The data (raw data from the Observatory, insurance companies and hospitals) must be open and made available to students, teacher and researchers, first for use in teaching and later for diagnostic purposes.

Institutional communication should be developed through innovation in producing and broadcasting road safety awareness advertising.

4.2. Interventions

4.2.1 Infrastructure

Infrastructure characteristics and conception needs to take into account climate consideration and constraints. This is a strategic focus for the WHO – a difficult climate attacks the infrastructure, fragilizes it and increases the risk of accidents.

A study should be undertaken to understand how international layout and infrastructure equipment standards are adapted to the country.

4.2.2 Vehicle

An organization should be set up to identify PTWs in order to improve their traceability (theft, illegal entry into the country, etc.) so as to regularize (increase the 10% insured vehicle score) or to be able to tow them away to immobilize them for safety reasons.

4.2.3 Controls

Veritable controls and the application of the rules and laws need to be implemented. The regulations appear to be sufficient, in absolute terms – helmets, insurance policies, seatbelts in the front and back seats, point-based system for driving licenses, speed radars, etc. – they just need to be enforced. Two lines of action need to be developed: awareness among police and the fight against corruption.

Develop automatic radars with automated speed control/fines; set up radars to deal with speeding, which appears to be a major factor in accidents. Speed control/fine system deals with non-compliance with the rules, which according to the analysis appears a well-established – or even cultural – situation. Automation of speed control/fines would eliminate corruption.

4.2.4 Post-crash

The number of multiple-victim accidents is on the rise (defined as involving more than eight injured people per accident), requiring the implementation of procedures (Conventions) to define everyone’s role during an intervention (status sheets, transfers, coordination, dispatching by hospitals, organization between regional general hospitals and emergency services, local hospitals and ambulances on call 24/7).

The emergency care and services has to cover adequately the whole territory, and especially the rural areas.

4.3 Results

4.3.1 Data files and exploitation
Tunisian accident reports contain a standard minimum of information to provide a general idea of the accident and what caused it. But there is still a great deal of room for improvement. Despite the improvements made in recent years, consisting in drawing up a diagram of the accident, there is still a lack of information on declarations by witnesses. For example, there are no blood alcohol files in cases of obvious drunkenness. There are also no computer systems or software for multi-criteria and geolocation analyses of accidents.

In the short term, improving the structure and computerization of accident reports would be desirable in order to improve their quality. Enriching the amount of information in this database might be possible by requiring a minimum amount of data through the institutionalization of a standard form. Improving the content of police accident reports through digitization, adding maps and opening up the data to various stakeholders (researchers, engineers, etc.) would make it possible to perform spatiotemporal analyses of accidents, much to the benefit of local and national stakeholders. One initiative put forward by the FTUSA that deserves support is the development of geo-locatable tablets for entering accident data.

Improving data collection and quality for accident reports would, in the long run, optimize the national statistical file.

Statistical accidentology data provide a comprehensive view and can be used to define challenges, but they only shed light on one aspect of the question. Three levels of analysis are considered complementary when analyzing road safety phenomena to develop the appropriate policies – statistical analysis of current accident files, accident mapping and a more detailed analysis of accident cases (Fleury D. and Brenac T., 1999). The current context in Tunisia places the country at the first level of analysis.

Processing software for the source data should be implemented in the national statistics file. A file such as the BAAC (Bulletin d'Analyse des Accidents Corpsels de la Circulation – Bodily Injury Accident Analysis Bulletin) from France’s ONISR (Observatoire National Interministériel de la Sécurité Routière – National Interministerial Road Safety Observatory) (ONISR, 2017) can, be used to analyze accidentology along the lines of certain accident typologies, characteristics of the road infrastructure, human behavior and the vehicle’s condition. This kind of file can therefore help in determining the different accident-causing factors, thus providing a more analytical and multifactorial approach to the causes of accidents in Tunisia.

This software could also include a mapping system based on digital maps unique to the country, which would enable the user to represent a certain number of data items on a map at various scales. It could be used to pinpoint accident-prone areas, to zoom in, to identify black spots, display indicators, draw up statistics, etc.

This kind of software has been installed in several African countries such as Senegal, Guinea, Mali, Niger, Burkina Faso, Benin, Togo, Gabon and Madagascar. These countries’ decision to adopt this software was the result of the regional support program for the definition and implementation of road safety policies in French-speaking sub-Saharan Africa, initiated by the French Ministry of Foreign Affairs in 1992. Morocco is the only country of the Maghreb region to have adopted this data collection system.

The annual official accident data summary document should be supplemented with analyses, reports and bibliographic “scientific” references that would help to complete the statistics and bring developments in the Tunisian road safety issues into perspective, both regionally and worldwide. Expanding international cooperation helps to take advantage of the experiences in other countries that have succeeded in improving their accident databases.
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VI Acronyms

AfDB: African Development Bank
AMU: Arab Maghreb Union
ASR: Association of Road Safety Ambassadors
ATPR: Tunisian Road Safety Association
ATTT: Tunisian Agency for Land Transport
AU: Africa Union
BAAC: Bodily Injury Accident Analysis Bulletin
CHU: University Hospital Center
CNSR: National Road Safety Council
DEER: Directorate of Operations and Road Maintenance
DM: Directorate of Equipment
DREH: Regional Directorate of Infrastructure and Habitat
EIB: European Investment Bank
EU: European Union
ERSO: European Road Safety Observatory
FTUSA: Tunisian Federation of Insurance Companies
GDP: Gross Domestic Product
GIS: (Geographic information system)
HIV/AIDS: Human immunodeficiency virus infection and acquired immune deficiency syndrome
INS: National Institute of Statistics (Ministry of the Interior)
ITF: international transport Forum
KPI: Key Performance Indicator
MD: Million dinars
MEH: Ministry of Equipment and Habitat
MENA: Middle East and North Africa
NGO: Non-governmental organizations
OECD: Organisation for Economic Co-operation and Development
ONISR: National Interministerial Road Safety Observatory
ONSR: National Road Safety Observatory (Ministry of the Interior)
PAU: Urban Development Plan
PTW: Powered two-wheeler
RSMCR: Road Safety Management Capacity Review
RSMS: Road Safety Management System.
SAMU: Emergency Medical Aid Service
SMUR: Mobile Emergency and Resuscitation Unit
SSATP: Africa Transport Policy Program
TND: Tunisian Dinar
UNECA: United Nations Economic Commission for Africa
UNRSC: United Nations Road Safety Collaboration
WHO: World Health Organization
VII References


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VII ANNEX

Annex 1: Experts consulted and organizations

Mourad Hamrouni, Regional Director of the Equipment of Tunis

Kamel Chibani, Executive Director of Tunisian Federation of Insurance Companies

Fayçal Khmíri, President of the Road Safety Observatory. Ministry of the Interior

Hichem Khmíri, Colonel-Major, ex-President of the Road Safety Observatory. Ministry of the Interior, high official at the Road Safety Observatory

Henda Chebi, Emergency doctor, responsible at the crisis unit Ministry of Health
Annex 2: Review method

Proposed approach

For the actual capacity reviews the procedures described by the World Bank Guidelines (Bliss and Breen 2009) and in accordance the assessment framework described in this report have been followed. This chapter provides some detail as to the followed approach. The starting point for that is a common assessment framework (see Annex 5) is applied in each of the five countries to be reviewed by SaferAfrica research project. This framework has been discussed within the SaferAfrica project team who all have a common understanding of the approach and methodology to be followed.

It should be emphasised that the checklists are not a questionnaire or standard recipe that can be simply filled in. Underlying these broader issues is the inherent expertise and knowledge of the review team who need their road safety expertise to extract facts and separate these from unsubstantiated and fictitious statements. The idea of the review is to not only interview high level people in each country but also to as far as possible source evidence and supporting statements. The assessment framework/checklists only serve as a guide to help reviewers cover all relevant aspects.

As an initial point of departure structured interviews are carried out among a number of senior staff (Director level or higher) of typically the following organisations in each country:

1. The Ministry of Works and Transport (or related)
2. The Road Safety Council/Agency/Directorate
3. The Ministry of Safety and Security/Police
4. The Ministry of Mines and Energy
5. The Ministry of Health
6. The Ministry of Justice
7. The Ministry of Finance
8. The Roads Authority
9. City engineers and police
10. Universities/research institutes
11. Public transport operators
12. Ambulance services
13. Hospital first/emergency aid department
14. The insurance industry/Accident Fund
15. Relevant NGO’s
16. Any other organisation with a role in road safety (management) in that country

In order to gain a detailed perspective of the daily running of primary organisation/s responsible for road safety management, interviews was hold with selected staff members from some officials from in transport and road safety organisation to ascertain current work procedures and practices, skills and educational levels and views on future developments, prospects, threats and opportunities.

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7 That section is common for each capacity review and was written jointly by the different research teams (see table 6).
The review process paid specific attention to the systems deployed and used in the management of road safety. A review of current accident reporting and recording systems was 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 was also carried out:

i. Monitoring of critical offences
ii. Traffic violations and adjudication
iii. Traffic counting programmes and systems
iv. Traffic enforcement programmes and systems
v. Vehicle registration, roadworthiness systems (including vehicle safety standards)
vi. Driver testing, licensing and registration systems
vii. Road network data (specifically network classification, chainage, design elements, etc.)
viii. Ambulance and emergency service response time monitoring and evaluation.

Table 6: SaferAfrica capacity reviews; countries and teams

<table>
<thead>
<tr>
<th>Country to be reviewed</th>
<th>Principal reviewers</th>
<th>Organisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cameroon</td>
<td>Davide Usami</td>
<td>CTL (It)</td>
</tr>
<tr>
<td>South Africa</td>
<td>Jeanne Breen, Martin Small</td>
<td>Jeanne Breen (UK) Martin Small Consulting (Aus)</td>
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<td>Kenya</td>
<td>Govert Schermers</td>
<td>SWOV (NL)</td>
</tr>
<tr>
<td>Tunisia</td>
<td>Laurent Carnis, Joël Yerpez</td>
<td>IFSTTAR (Fra) IFSTTAR (Fra)</td>
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<tr>
<td>Burkina Faso</td>
<td>Ludo Kluppels</td>
<td>BIVV (Be)</td>
</tr>
</tbody>
</table>
Annex 3: Review team

Laurent CARNIS (Ifsttar)
Joël YERPEZ (Ifsttar)
Nesrine BOUHAMED (Université de Sfax)
Annex 4: Background note on Safe System approach

Work Package 5 of the SaferAfrica project has adopted the procedures described in the World bank guidelines (Bliss & Breen, 2009). The Road Safety Management System (RSMS, see Figure A-1) developed by the World Bank (Bliss and Breen, 2009) has many generic components that allow for it to be applied to all countries and irrespective of the status of development or road safety performance in that country. It has been used in many high middle and low income countries throughout the world.

![Figure 16: Road safety management system](image)

The RSMS deals with road safety as a production process in the same manner 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 claimed to be 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 World Bank guidelines provide implementation guidelines for road safety management capacity review projects. Since SaferAfrica has similar ambitions in reviewing road safety management in a number of African countries, this framework has been adopted as the state of the art and will be used as the basis for conducting these reviews.

During interactions between the project team and their specialist consultants on RSMCR (namely Jeanne Breen and Martin Small) it was decided to align the original RSMCS model (especially the interventions level) to the Pillars outlined in the UN DoA (United Nations, 2011) and the result is described below (Breen & Small, 2017). This results in a slightly adapted management model (see figures below), which better fits with the aspirations of most African countries which have adopted the UN DoA as the backbone of country specific road safety strategies.

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8 That section is common to each capacity review reports.
Figure 17 Adapted Safe System management system model
This road safety management model is based on Bliss and Breen (World Bank, 2009), and updated by Breen (2017) for use in the Loughborough University Design School/Jeanne Breen Consulting Safe System course to include revised “Safe System” intervention and results elements”.

An Assessment Framework (see Appendix 2) has been updated for the SaferAfrica Project to support discussion between the road safety and traffic management capacity review team and senior officials (Breen and Small, 2017).

**Appraising results at the system level**

An appraisal of results at a systems level makes use of the relevant good practice checklist described in Appendix 2. This checklist covers subject material that relates to the current performance of the road (safety) system as a whole. It hones in on matters related to road safety target setting, accountability, monitoring and reporting. It leads to an initial discussion regarding sources of data. Where these are not available, local experts are consulted to identify high risk user groups, dangerous road sections, critical offences etc.

**Assessing results focus at the institutional management level**

Following from the initial system level appraisal, the institutional management functions are assessed by using the relevant sections of the appraisal framework described in Appendix 2 to explore issues regarding the current institutional management functions and their linkage to the desired interventions and their focus.

In this assessment the questions serve to guide an in-depth review of the current status relating to the seven primary institutional management functions a Lead Agency should perform. The questions serve to measure the various dimensions of these functions and, as a collective, give a clear indication where a country is at when it comes to road safety management. These institutional functions are results orientated and driven by measurable targets and goals, and are summarised below (Bliss & Breen, 2009):

**Results focus**

In an ideal situation the strategic orientation is such that all actual and potential interventions are linked to results, analyses reveal targets, and sets out a performance driven management framework for the implementing interventions and attaining their intermediate and final outcomes. This strategic orientation is not merely a visionary statement or goal, but a measurable expression...
of where the country wants to be, how it plans to get there and how it plans to measure getting there. It is performance driven and goals and targets are monitored to assess the actual performance.

Coordination

This relates to how the country organises and manages its interventions and efforts aimed at redressing road safety problems across government and other organization.

Legislation

This defines the legal framework from within which the organisations and institutions responsible for road safety must function. It defines the responsibility, accountability, intervention and associated institutional management functions needed to achieve the desired result.

Funding and resource allocation

This relates to financing the operational budget/s of the organization/s responsible for road safety management and the associated interventions needed to achieve the intended results in a sustainable manner. It also pertains to the efficient allocation of resources based on a rational evaluation framework (i.e. based on quantitative assessment of cost and benefit in relation to stated objectives).

Promotion

This relates to the process of communicating with the public on road safety matters and should be a core business of government and society to emphasize the shared social responsibility to develop, implement and support road safety improvement initiatives and interventions that aim at meeting stated targets.

Monitoring and evaluation

Monitoring and evaluation deals with the on-going and systematic measurement of road safety performance measures and indicators in order to assess and evaluate the efficacy of introduced measures and interventions.

Research and development and technology transfer

This is an integral and essential component of any road safety management system and relates to the timely identification of changes in the system, the development of new techniques and methods, the application of new knowledge and the transfer and application of knowledge to continually improve the efficiency and effectiveness of the system in order to keep meeting the desired results.

Assessing results at the interventions level

Informed by the systems and institutional management level appraisals, the assessment turns to the results at the intervention level. The original WB framework (Bliss & Breen, 2009) distinguished three broad intervention areas namely planning, operation, design and use; vehicles and drivers; and recovery and rehabilitation of crash victims. For the purposes of this project, these intervention sets have been amended to focus on safe road use, safe roads and roadsides, safe speeds, safe vehicles and post-crash care.
Annex 5: The assessment framework

**Results:**

**Checklist 1: Results focus at system level: leadership, goal and target-setting**

<table>
<thead>
<tr>
<th>Questions to be addressed by capacity review team</th>
<th>Yes</th>
<th>Partial</th>
<th>Pending</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are data on the numbers of road deaths and serious injuries readily available from police and health sectors?</td>
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<tr>
<td>Have the risks for different motorised and non-motorised road user groups been identified?</td>
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<tr>
<td>Has a long-term, towards zero goal for the prevention for death and serious injury been formally adopted?</td>
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<tr>
<td>Have time-limited quantitative road safety targets been set in projects, national strategies, programmes and plans for:</td>
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<tr>
<td>1. Final outcomes:</td>
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<tr>
<td>Numbers of deaths and serious injuries.</td>
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<tr>
<td>Socio-economic costs of death and serious injuries.</td>
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<tr>
<td>2. Intermediate outcomes:</td>
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<tr>
<td>Indicators causally related to the prevention of death and serious injuries e.g. safety ratings of roads and vehicles, levels of crash helmet use, compliance with speed limits.</td>
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<tr>
<td>3. Intervention outputs:</td>
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<tr>
<td>Activities which contribute to improving intermediate outcomes e.g. hours of safety camera enforcement</td>
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<tr>
<td>Are regular performance reviews conducted to assess progress and make improvements to meet goals and targets?</td>
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</tr>
<tr>
<td>Have all agencies responsible for improved safety performance been identified and are they formally held to account for performance achieved to meet goals and targets: highways, police, transport, planning, justice, health, occupational health and safety, education?</td>
<td></td>
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<tr>
<td>Has a lead agency for road safety been formally established to direct and be held accountable for the national effort? (See lead agency checklist for how its delivery of key functions).</td>
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<tr>
<td>Is the lead agency role for road safety defined in legislation and/or policy documents and annual performance agreements?</td>
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<tr>
<td>Have all key agencies responsible for improved safety performance been identified and are they formally held to account for performance achieved to meet goals and targets e.g. Highways, Police, Transport, Health, Health &amp; Safety at Work, Others?</td>
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<tr>
<td>Is leadership for the delivery of road safety intervention evident across all key sectors?</td>
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<tr>
<td>Are road safety goals and targets of public sector agencies set out in their annual performance agreements?</td>
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<tr>
<td>Have agencies identified barriers to management for better road safety results and, if so, what are they?</td>
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<tr>
<td>Is there willingness to establish key capacity to improve performance?</td>
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</tbody>
</table>

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9 That section is common for each capacity review report.
Interventions:

Checklist 2: Safe Roads and Roadsides

<table>
<thead>
<tr>
<th>Questions to be addressed by capacity review team</th>
<th>Yes</th>
<th>Partial</th>
<th>Pending</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have comprehensive safety standards and rules and associated performance targets been set for the planning, design, operation and use of roads to meet goals and targets – national, regional, municipal roads.</td>
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<tr>
<td>Has a Safe System approach been adopted in the ongoing planning and classification of the road network?</td>
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<tr>
<td>Have speed limits been set for all roads and are they aligned with Safe System principles?</td>
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<tr>
<td>For each category of roads are compliance regimes in place to ensure adherence to specified safety standards and rules to achieve goals and targets?</td>
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<tr>
<td>Do the specified safety standards and rules and related compliance regimes clearly address the safety priorities of high-risk road user groups?</td>
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<tr>
<td>Are traffic and safety management instruments and tools deployed to ensure optimal levels of road safety are provided?</td>
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<tr>
<td>Do the specified safety standards and rules and related compliance regimes compare favourably with effective international practice?</td>
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<tr>
<td>Do existing human resources have the necessary skills and training to effectively manage road safety of the road network?</td>
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</table>

Checklist 3: Safe Speeds

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<thead>
<tr>
<th>Questions to be addressed by capacity review team</th>
<th>Yes</th>
<th>Partial</th>
<th>Pending</th>
<th>No</th>
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</thead>
<tbody>
<tr>
<td>Are speed limits and their enforcement aligned with Safe System principles?</td>
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<tr>
<td>Do national speed management policies clearly address pedestrian safety?</td>
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<tr>
<td>Are there speed limit reduction programmes in place?</td>
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<tr>
<td>Is the level of non-compliance with speed limits measured on different types of roads?</td>
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<tr>
<td>Are penalties for non-compliance with speed limits sufficient to deter offending?</td>
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<tr>
<td>Are speed limiting devices fitted to commercial and public transport?</td>
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<tr>
<td>Is there speed monitoring in commercial and public transport?</td>
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<tr>
<td>Does speed management compare favourably with effective international practice?</td>
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<tr>
<td>Do barriers to progress exists and, if so, what are they?</td>
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</tbody>
</table>
### Checklist 4: Safe Vehicles

<table>
<thead>
<tr>
<th>Questions to be addressed by capacity review team</th>
<th>Yes</th>
<th>Partial</th>
<th>Pending</th>
<th>No</th>
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</thead>
<tbody>
<tr>
<td>Have comprehensive vehicle safety standards and rules and associated performance targets been set to govern the construction and use of vehicles of all types and safety equipment (e.g. safety helmets) on public roads?</td>
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<td>- New vehicle type approval/certification?</td>
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<td>- Age of imported vehicles?</td>
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<tr>
<td>- Annual roadworthiness tests?</td>
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<tr>
<td>Is there a system to test the on-going compliance of private, commercial, public vehicles and safety equipment to specified safety standards and rules?</td>
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<tr>
<td>- Vehicle inspection?</td>
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<td>- Roadside checks?</td>
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<td>Is improved vehicle safety targeted in the public procurement of transport services?</td>
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<tr>
<td>Do the specified safety standards and rules and related compliance regimes compare favourably with effective international practice?</td>
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<tr>
<td>Do existing human resources have the necessary skills and training to effectively manage vehicle safety on the road network?</td>
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</table>

### Checklist 5: Safe Road Use

<table>
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<tr>
<th>Questions to be addressed by capacity review team</th>
<th>Yes</th>
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<th>Pending</th>
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<tbody>
<tr>
<td>Have comprehensive user safety standards and rules and associated performance targets been set for driver and rider licensing and testing on the public road network?</td>
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<tr>
<td>Do specified user licensing and testing standards and compliance regimes clearly address the safety priorities of high-risk road user groups?</td>
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<tr>
<td>Is a penalty points system in place to manage the disqualification of offenders from driving and riding?</td>
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<tr>
<td>Are compliance programmes in place to enforce key safety rules relating to:</td>
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<tr>
<td>- Speed limits on different road types?</td>
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<tr>
<td>- Seat-belt and child restraint use?</td>
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<td>- Helmet use?</td>
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<td>- Excess alcohol and drug use?</td>
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<td>- Fatigue management?</td>
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<td>- In-car telephone use by drivers?</td>
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<td>- Heavy vehicle and public passenger vehicle driver management?</td>
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<tr>
<td>- Safety on pedestrian crossings?</td>
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<td>Is police enforcement of key safety rules coordinated with publicity campaigns for a deterrent effect?</td>
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<td>Are enforcement programmes reviewed and data-led?</td>
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<tr>
<td>Is the equipment for the enforcement of key safety rules adequate and regularly calibrated?</td>
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<tr>
<td>Do the specified safety standards and rules and related compliance regimes compare favourably with international good practice?</td>
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<tr>
<td>Are police officers trained adequately trained to perform their duties?</td>
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<tr>
<td>Are targets set for reducing non-compliance with key safety rules?</td>
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</table>
**Checklist 6: Post-crash care**

<table>
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<tr>
<th>Questions to be addressed by capacity review team</th>
<th>Yes</th>
<th>Partial</th>
<th>Pending</th>
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</thead>
<tbody>
<tr>
<td>Is a single telephone number used for contacting emergency services?</td>
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<tr>
<td>Have comprehensive standards and compliance regimes for pre-hospital, hospital and long-term care?</td>
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<tr>
<td>Is emergency service provision available to serve high-risk/ high-volume sections of the road network and urban areas?</td>
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<td>Are emergency medical response times between crash notification and arrival at scene monitored?</td>
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<tr>
<td>Is first responder training provided for commercial and public transport drivers?</td>
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<tr>
<td>Have computerised trauma registries been established to monitor trauma care outcomes and is performance reviewed?</td>
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<tr>
<td>Do the specified safety standards and rules and related compliance regimes compare favourably with effective international practice?</td>
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**Institutional Management Functions:**

**Checklist 7: Coordination**

<table>
<thead>
<tr>
<th>Questions to be addressed by capacity review team</th>
<th>Yes</th>
<th>Partial</th>
<th>Pending</th>
<th>No</th>
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</thead>
<tbody>
<tr>
<td>Are interventions coordinated horizontally across agencies and departments in order to meet stated goals and safety targets?</td>
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<tr>
<td>Are interventions coordinated vertically between levels of government in order to meet stated goals and road safety targets?</td>
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<tr>
<td>Have robust intervention delivery partnerships between agencies, industry, communities and the business sector been established to meet goals and targets?</td>
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<tr>
<td>Has a parliamentary committee been formed covering road safety policy?</td>
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<tr>
<td>Is road safety being aligned with other governmental policies and SDGs to achieve co-benefits and build business cases e.g.:</td>
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<tr>
<td>▪ Public health and injury prevention policy</td>
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<tr>
<td>▪ Poverty reduction</td>
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<tr>
<td>▪ Occupational health and safety policy</td>
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<td>▪ Environmental and anti-pollution policy</td>
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<td>▪ Liveable Cities policy</td>
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<td>▪ Active travel policy</td>
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<tr>
<td>▪ Crime prevention policy</td>
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<tr>
<td>Is there coordination between international development financiers, donors etc. on results-focused, evidence-based approaches in projects and which also take account of available in-country capacity and its further development?</td>
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</table>
### Checklist 8: Legislation

<table>
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<tr>
<th>Questions to be addressed by capacity review team</th>
<th>Yes</th>
<th>Partial</th>
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<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are legislative instruments and procedures supporting interventions and government agency management functions sufficient to meet the road safety task and goals and targets?</td>
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<tr>
<td>Are legislation and associated procedures regularly reviewed and where necessary reformed to continue meeting stated objectives?</td>
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</table>

### Checklist 9: Funding and resource allocation

<table>
<thead>
<tr>
<th>Questions to be addressed by capacity review team</th>
<th>Yes</th>
<th>Partial</th>
<th>Pending</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are sustainable funding mechanisms supporting interventions and institutional management functions in place to meet the stated objectives (e.g. central budget, road trauma fund, fines, road fund, insurance etc.)</td>
<td></td>
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<tr>
<td>Are formal resource allocation procedures supporting interventions and institutional management functions in place to meet the stated objectives (e.g. Cost benefit analysis, cost-effectiveness, multi-criteria analysis).</td>
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<tr>
<td>Have road crash outcomes been economically appraised and is there an official value of a statistical life which forms the basis to make decisions regarding allocation of resources?</td>
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<tr>
<td>Are longer term safety benefits (e.g. over 20 years) of safety engineering investments taken into account in project appraisal methodologies?</td>
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<tr>
<td>Are the funding mechanisms and resource allocation procedures sufficient to achieve the stated objectives?</td>
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<tr>
<td>Are there mechanisms and controls in place to minimize the potential for corruption related to the awarding of transport contracts, issuing and processing of fines, etc.</td>
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<tr>
<td>Are tendering procedures open and transparent and are these publicly accessible?</td>
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<tr>
<td>Do funded highways improvement projects address fatal and serious injury prevention satisfactorily?</td>
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</table>

### Checklist 10: Promotion

<table>
<thead>
<tr>
<th>Questions to be addressed by capacity review team</th>
<th>Yes</th>
<th>Partial</th>
<th>Pending</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is road safety regularly promoted by government to achieve stated goals and targets?</td>
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<tr>
<td>• Overall goals and targets and the shared responsibility for delivery?</td>
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<tr>
<td>• Specific interventions?</td>
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<tr>
<td>• Specific target groups?</td>
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</tbody>
</table>
### Checklist 11: Monitoring and evaluation

<table>
<thead>
<tr>
<th>Questions to be addressed by capacity review team</th>
<th>Yes</th>
<th>Partial</th>
<th>Pending</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are systems in place to monitor and evaluate overall safety performance against targets regularly?</td>
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<tr>
<td>For all road categories, are sustainable systems in place to collect and manage data on road crashes (fatal and serious injury outcomes, related road/environment/vehicle/emergency medical system/road user factors) and mobility (traffic counts, road network length, modal split and vehicle use, etc.) to monitor and evaluate the set goals and targets?</td>
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<tr>
<td>For all categories of roads are there sustainable systems in place to monitor and manage data on road network traffic, vehicle speeds, seat belt usage, helmet wearing, etc.) to measure the performance against set targets.</td>
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<tr>
<td>Are all roads regularly inspected and checked for compliance against safety (design) standards and is there a programme of remedial engineering in place?</td>
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<tr>
<td>Are regular safety rating surveys undertaken on the core network for risk mapping and road protection scores?</td>
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<tr>
<td>For each category of post-crash service (pre-hospital, hospital or long-term care) are systematic and regular surveys undertaken to assess adherence to standards and set targets?</td>
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<tr>
<td>For each category of roads, are systems in place to collect and manage data on the output quantities of safety interventions implemented to achieve goals and targets?</td>
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<tr>
<td>- Safety engineering treatments?</td>
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<td>- Police operations?</td>
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<td>- Educational activities?</td>
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<td>- Promotional activities?</td>
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<tr>
<td>- Driver training?</td>
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<tr>
<td>- Vehicle testing?</td>
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<td>- Emergency medical services-?</td>
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<tr>
<td>Do all participating departments and agencies have open access to all data collected?</td>
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<tr>
<td>Are regular surveys in place to monitor and evaluate community attitudes to road safety interventions to achieve goals and targets?</td>
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</tbody>
</table>

### Checklist 12: Research and development and knowledge transfer

<table>
<thead>
<tr>
<th>Questions to be addressed by capacity review team</th>
<th>Yes</th>
<th>Partial</th>
<th>Pending</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does a national road safety research strategy addressing systemwide intervention and associated institutional delivery exist and does it have a budget?</td>
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<tr>
<td>Is there integration of national research with international road safety research networks?</td>
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<tr>
<td>Are capacity building demonstration and pilot programmes widely in use and are they conducted within a nationally-funded framework to address goals and targets?</td>
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<tr>
<td>Is there a range of national guidance on key road safety topics related to fatal and serious injury prevention?</td>
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<tr>
<td>Are mechanisms and media in place to disseminate the findings of road safety research and development to achieve goals and targets?</td>
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</tbody>
</table>
### Checklist 13: Lead agency role and institutional management functions

<table>
<thead>
<tr>
<th>Questions to be addressed by capacity review team</th>
<th>Yes</th>
<th>Partial</th>
<th>Pending</th>
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</thead>
<tbody>
<tr>
<td>Does the lead agency (or de facto lead agency/agencies) effectively contribute to the 'results focus' management function?</td>
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<tr>
<td>▪ Appraising current road safety performance through high-level strategic review?</td>
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<td>▪ Adopting a far-reaching road safety vision for the longer term?</td>
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<tr>
<td>▪ Analyzing what could be achieved in the medium term?</td>
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<td>▪ Setting quantitative targets by mutual consent across the road safety partnership?</td>
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<tr>
<td>▪ Establishing mechanisms to ensure stakeholder accountability for results?</td>
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<td>Does the lead agency (or de facto lead agency/agencies) effectively contribute to the 'coordination' management function?</td>
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<tr>
<td>▪ Horizontal coordination across central government?</td>
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<tr>
<td>▪ Vertical coordination from central to regional and local levels of government?</td>
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<tr>
<td>▪ Specific delivery partnerships between government, non-government, community and business at the central, regional and local levels?</td>
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<tr>
<td>▪ Parliamentary relations at central, regional and local levels?</td>
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<td>Does the lead agency (or de facto lead agency/agencies) effectively contribute to the 'legislation' management function?</td>
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<tr>
<td>▪ Reviewing the scope of the legislative framework?</td>
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<td>▪ Developing legislation needed for the road safety strategy?</td>
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<td>▪ needs to achieve results in relation to other</td>
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<td>▪ Consolidating legislation?</td>
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<tr>
<td>▪ Securing legislative resources for road safety?</td>
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<td>Does the lead agency (or de facto lead agency/agencies) effectively contribute to the 'funding and resource allocation' management function?</td>
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<tr>
<td>▪ Ensuring sustainable funding sources?</td>
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<tr>
<td>▪ Establishing procedures to guide the allocation of resources across safety programs?</td>
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<td>Does the lead agency (or de facto lead agency/agencies) effectively contribute to the 'promotion' management function?</td>
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<tr>
<td>▪ Promotion of a far-reaching road safety vision or goal?</td>
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<td>▪ Championing and promotion at high level?</td>
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<tr>
<td>▪ Multi-sectoral promotion of effective intervention and shared responsibility?</td>
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<tr>
<td>▪ Leading by example with in-house road safety policies?</td>
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<td>▪ Developing and supporting safety rating programs and the publication of their results?</td>
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<tr>
<td>▪ Carrying out national advertising?</td>
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<td>▪ Encouraging promotion at local level?</td>
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<tr>
<td>Does the lead agency (or de facto lead agency/agencies) effectively contribute to the 'monitoring and evaluation' management function?</td>
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<tr>
<td>▪ Establishing and supporting systems to set and monitor final and intermediate outcome and output targets?</td>
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<tr>
<td>▪ Transparent review of the national road safety strategy and its performance?</td>
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</tbody>
</table>
- Making any necessary adjustments to achieve the desired results?

<table>
<thead>
<tr>
<th>Does the lead agency (or de facto lead agency/agencies) effectively contribute to the ‘research and development and knowledge transfer’ management function?</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ Developing capacity for multi-disciplinary research and knowledge transfer?</td>
</tr>
<tr>
<td>▪ Creating a national road safety research strategy and annual program?</td>
</tr>
<tr>
<td>▪ Securing sources of sustainable funding for road safety research?</td>
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<tr>
<td>▪ Training and professional exchange?</td>
</tr>
<tr>
<td>▪ Establishing best practice guidelines?</td>
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<tr>
<td>▪ Setting up demonstration projects?</td>
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</tbody>
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