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RESEARCH NOTE

**Evaluation of the African road safety action plan:
a contribution for improving the situation**

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Abstract – The road safety challenges in African countries are enormous. Appropriate and proactive public policies are needed to prevent the situation from worsening and to save a significant number of lives. UNECA has developed an action plan based on several pillars and an assessment to determine whether certain road safety measures are being taken by African countries... The aim is to encourage the implementation of new measures. Halfway through the action plan, the expected results are not forthcoming and are even disappointing. The SaferAfrica research, which aims to contribute to the improvement of the road safety situation in Africa, included the definition of a framework for updating the evaluation of the UNECA Action Plan. Using a detailed questionnaire, respondents completed a large number of items allowing for an up-to-date assessment of the policies implemented. . This article describes in detail the used approach and methodology, and provides an analysis of the results and some recommendations.. The results show progress in some pillars, but little improvement in many others. Finally, the challenges remain unresolved and require the implementation of effective policies.

JEL Classification

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Key-words

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1. INTRODUCTION

According to the Global Status Report on Road Safety 2015 (WHO, 2018), “road traffic injuries claim more than 1.35 million lives each year and have a huge impact on health and development”. Africa is particularly affected by the current road safety situation, bearing an enormous burden characterised by high numbers of deaths and injuries. The picture is even worse when these figures are considered on a per capita or per vehicle basis. Using World Health Organization (WHO) regional classification, road traffic fatality rates in the WHO African Region continued to deteriorate from 24.1 deaths per 100000 population in 2010 to 26.6 deaths per 100 000 population in 2013. Over the same period, road traffic death rates in the WHO European Region have continued to improve. The road traffic injury situation in Africa is expected to worsen, with the number of deaths per capita projected to double between 2015 and 2030 (Small and Runji, 2014).

Table 1: Official Road Fatalities Data and WHO estimates (2016)

	Reported by the country	WHO estimated	Underestimate rate
<i>Benin</i>	637	2986	4,69
<i>Botswana</i>	450	535	1,19
<i>Burkina faso</i>	878	5 686	6,48
<i>Cameroon</i>	1 879	7 066	3,76
<i>Congo</i>	308	1 405	4,56
<i>Gambia</i>	139	605	4,35
<i>Guinea</i>	458	3 490	7,62
<i>Kenya</i>	2 965	13 463	4,54
<i>Lesotho</i>	318	638	2,01
<i>Malawi</i>	1 122	5 601	4,99
<i>Mali</i>	541	4 159	7,69
<i>Mauritius</i>	144	173	1,20
<i>Senegal</i>	604	3 609	5,98
<i>Sierra Leone (WHO, 2015)</i>	220	1 661	7,55
<i>South Africa</i>	14 071	14 507	1,03
<i>Swaziland (WHO, 2015)</i>	197	303	1,54
<i>Tanzania</i>	3 256	16 252	4,99
<i>Togo</i>	514	2 224	4,33
<i>Tunisia</i>	1 443	2 595	1,80

The road safety target in the 2015 United Nations (UN) Sustainable Development Goals (SDG) and African Road Safety Action Plan to reduce by 2020 the number of global deaths and injuries by 50%, was a major challenge, requiring some innovation and new public policy initiatives to make this ideal a reality. For Africa, this would mean a saving of more than 130,000 deaths per year and a reduction of millions of injuries per year. This is an ambitious goal. One of the main difficulties is how to estimate the number of casualties. There is great uncertainty about the official data on road deaths, which are assumed to be of better quality than those on road injuries. Table 1 shows the difference between official and WHO data, highlighting the main challenge of obtaining accurate data. Some official data need

to be multiplied by an average of 4 for the countries below in order to have correct estimated data according to WHO. The lack of a clear picture of the true figures for road traffic mortality and morbidity is a major obstacle to improving the current situation.

This paper proposes an evaluation of the United Nations Economic Commission for Africa (UNECA) Action Plan, focusing on the different pillars of road safety. The findings presented in this paper are the result of a European research project, SaferAfrica, in which the authors participated. The aim of this research was to better characterise the current road safety situation and to provide an overall assessment of the road safety situation in African countries.

In this respect, the overall objective of the SaferAfrica project was also to create favourable conditions and opportunities for effective implementation of road safety actions in African countries by establishing a platform for dialogue between Africa and Europe.

This paper addresses road safety management and policy issues. Its main objective is to present the results of the evaluation of the implementation of the Action Plan 2011-2020 and to contribute to the final evaluation of the Action Plan by UNECA. UNECA has carried out a mid-term evaluation of this plan (AU-UNECA, 2015a, 2015b). It does not aim to assess the impact of road safety policies of some African countries on road fatalities and injuries or to establish a benchmark between some countries.

Section 2 presents the road safety context and the current approach of the UNECA action plan. Section 3 provides an overview of the methodology used to evaluate the Action Plan. Section 4 presents the data in detail. The final sections provide analysis and recommendations.

2. CONTEXT AND CURRENT ROAD SAFETY ACTIONS IN AFRICA

The general road safety situation in Africa is not well known (ARSO, 2021). More generally, there is a wide gap in knowledge of road safety figures (map 1), road safety measures adopted and public policies in place.

As shown by Carnis (2022), most of the African countries are in the low-income range, representing 9% of the population but only 1% of vehicles and 13% of fatalities. The same assessment could be made for middle-income countries. The African context is characterised by a disproportionate number of fatalities and injuries compared with the level of motorisation or population. It is expected that the overall road situation could worsen with the development of motorised mobility and population, unless important measures are taken to address this issue (WHO, 2015b). In addition, these countries are generally facing unfavourable conditions in terms of political stability and economic situation.

The overall picture also shows that African countries remain poorly organised in terms of policy formulation and implementation, due to scarce financial resources and a lack of trained staff and skills. The road infrastructure is mostly characterised by some deficiencies in terms of maintenance and design. The vehicle fleet is quite old and poorly maintained, while vehicle inspection is mostly ineffective. With regard to drivers, considerable efforts need to be made to train drivers and to promote the use of seat belts and helmets, which are the most effective means of protection. Although some standards and regulations have been adopted by public authorities, such as speed limits, they are poorly enforced by the police and authorities. Speed, drink-driving and lack of awareness are also important issues that need to be addressed urgently. Bouhamed and Carnis (2020) provide a detailed analysis for the case of Tunisia, which cannot be generalised to all African countries, but is an illustrative example.

This picture of the current situation in Africa remains general. This underlines the difficulty of obtaining accurate information on road safety figures and measures in general in the different countries. It also explains why the various studies are based on a sample of countries that were willing to cooperate and be associated with the project (ARSO, 2021). Indeed, there is a real difficulty in obtaining concrete information and access to official data.

One consequence of this is the impossibility of making a general assessment of African public policies and the need to proceed by interviewing stakeholders in each country, which explains both the methodology used for the interviews and for the scoring and the size of the sample.

This general road safety context explains why a number of international organisations and some African countries have decided to draft important policy documents that set out a strategic road safety framework for African countries. Road safety is an important health issue that could not remain without a strong response. Consequently, the African Union (AU) and the United Nations Economic Commission for Africa (UNECA), on the basis of the UN Decade of Action for Road Safety 2011-2020, defined the African Road Safety Action Plan 2011-2020 (ARSAP), which is organised around five pillars with specific targets. These pillars are in line with the WHO approach and are considered to be an effective way of addressing road traffic deaths and injuries. The pillars are as follows:

Pillar 1: Road safety management, to build institutional capacity, improve local government capacity building at level and to develop local research and road safety monitoring.

Pillar 2: Safer roads and mobility, to ensure that road safety is properly considered in infrastructure development and to introduce or improve facilities for pedestrians and other vulnerable road users.

Pillar 3: Safer vehicles, to review safety standards for vehicles and safety equipment.

Pillar 4: Safer road users, to review standards and rules for the provision of license to private, commercial and public transport drivers and strengthen the law enforcement.

Pillar 5: Post-crash response, to improve capacities in term of on-site care, transport of the injured to appropriate medical facilities, and trauma care.

The mid-term evaluation of the UNECA Action Plan comprises 15 items and 79 sub-items. It is based on responses from 16 countries.

The main findings show poor road safety management, some major deficiencies and lack of regulation in the construction and maintenance of road infrastructure, some major problems with the quality of the vehicle fleet and its maintenance. Some regulations are in place, but most of the time they are poorly enforced and adhered to by road users. Some important regulations are missing. The post-crash response also shows some shortcomings in terms of capacity and capability to ensure the care and rehabilitation of road accident victims.

These results are in line with the general assessment presented in section 1. However, this document also shows some improvements based on the adoption and implementation of some measures. However, the improvement remains both limited and slow in its implementation.

3. METHODOLOGY FOR EVALUATING THE IMPLEMENTATION OF THE ACTION PLAN

In 2015, UNECA conducted a mid-term review of the Action Plan to assess the progress made by countries in road safety. Instead of conducting a new and different assessment, we decided to take into account the recommendations of this Mid-term Review and to proceed with their assessment through a questionnaire. This meant going through the five pillars of road safety proposed by the UNECA Action Plan and its main items. The main advantage of following the same framework is to be able to share a common reading grid. Indeed, it is necessary to assess the efforts made by the countries and to consider the evolution at different levels since the last review.

This contribution is aligned with the UNECA ARSAP by focusing on the same pillars of road safety. Although the results of our research can help to assess the ARSAP, our research findings cannot be directly compared with those of the ARSAP mid-term review. Firstly, the countries surveyed are not exactly the same. Second, the items used for assessment may also be different. Third, the list of items and sub-items collected in this research is more detailed and complete (Tables 2 and 3). Fourthly, the timing of the two assessments is also different. In fact, the ARSAP evaluation is a mid-term work, while the present paper collected data 2-3 years after the publication of the ARSAP results. Fifth, the lack of access to the detailed ARSAP data makes a direct comparison impossible. Finally, our contribution has to be understood as a contribution to assessing the main evolution of the ARSAP

objectives with a sample of countries that were willing to cooperate. The results obtained are discussed using a pillar approach, detailed in the next sections, and systematically compared with the ARSAP results.

Table 2: UNECA Matrix for evaluating the ARSAP

Pillar	Management	Safer roads	Safer Vehicles	Safer road user behaviour	Post-crash	Cross-Cutting Issues	Total
Items	3	2	1	6	1	1	15
Sub-items	23	8	5	27	14	2	79

This paper proposes a complete assessment of the road safety situation inspired by a SWOT¹ and PESTEL²(Bougueroua and Carnis, 2016; FME, 2013a, 2013b) , carried out at different geopolitical levels (continental, regional economic communities/corridors and country). This analysis makes it possible to identify a country's Strengths, Weaknesses, assets and dynamics for the different levels of intervention in the field of road safety, according to the Political, Economic, Social, Technical, Environment and Legal (PESTEL) dimensions.

The SaferAfrica approach to assessing the application of the Action Plan and regional instruments could be undertaken at three different levels: institutional, organisational and operational. This approach in terms of layers is based on a wide scientific literature and some applications to road safety issues (Hill and Hupe, 2009; Carnis, 2017). The first layer can be defined as the institutional layer; this concerns the systemic considerations and constraints that road safety issues have to deal with (e.g. economic development, social and demographic constraints, geographical issues, etc.). The second level deals with the organisational dimension: how road safety is organised, which organisations are involved, etc. The last level deals with the operational dimension: how road safety measures are actually implemented, how they work at the local level. Each level benefits from certain interactions with the other two. For example, the adoption of a new regulation is not limited to the definition of new enforcement obligations; it can also specify the body responsible for enforcement and the conditions of enforcement, etc.

The approach through the layer must be completed with some other characteristics of the country's environment or some interventions. Indeed, their nature and the impact they contribute must be considered. Consequently, each layer has to be linked to the SWOT and PESTEL elements of these strategic models (FME, 2013a, 2013b). The SWOT matrix makes it possible to identify the contributory effect of the measure or phenomenon, while the PESTEL matrix characterises the nature of the latter, i.e. whether it belongs to the legal dimension or the economic field, etc. More specifically, the aim of this contribution is not to provide a SWOT or

¹ The SWOT matrix represents the strengths, weaknesses, opportunities and threats. The last two elements are seen as assets in this approach, positive when they enable a positive dynamic and negative when they create an unfavourable context.

² Both models are used to formulate a strategy for an organisation.

PESTEL approach, but to develop some tables (matrix) inspired by these two models. In fact, the scoring approach is based on the idea of identifying the positive elements and the negative dimensions. The SWOT and PESTEL were also used to categorise the different items evaluated. For example, the existence of road safety standards refers to the legal dimension, while some information related to the management side refers to the political dimension, such as the coordination efforts between the different departments or the association of NGOs for the formulation of road safety policy.

This framework makes it possible to assess the functioning of road safety subsystems and facilitates the identification of shortcomings. The aim is to assess the effectiveness and consistency of road safety solutions adopted by countries committed to the Action Plan. The assessment of other instruments will provide inputs to complete the analysis, to understand whether and how different instruments relate to the Action Plan and to address standards (e.g. on vehicles, road design, traffic, public transport, overloading, hazardous materials, etc.).

Due to space limitations, this paper will focus only on the main findings related to the UNECA assessment framework, which consists of an updated assessment of the UNECA Action Plan. This methodological framework will then be applied to each pillar of the ARSAP (road safety management, road users, roads, vehicles and post-crash response).

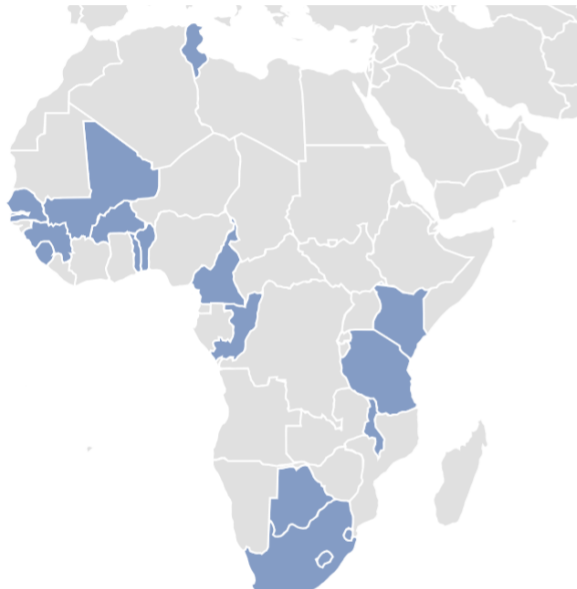
4. DATA COLLECTION

The data are based on a questionnaire distributed to persons responsible for road safety or familiar with road safety issues in the various African countries (Thomas et al., 2017; Folla et al., 2018) and international databases (mainly WHO data). The data collected are mainly based on material provided through questionnaires sent to local contacts in African countries (Map 1).

For some countries, no response was collected, while many contacts were made. For some countries, two or more responses were collected in order to check the validity of the information. For others, only one response was collected. To strengthen the quality of the information, a specific data validation process was proposed and implemented by the partners. First, the information was cross-checked with WHO databases. If the information was not available from these sources, local experts completed the information. Secondly, anomalous responses were detected by careful analysis of the consistency of responses (only no or yes responses for instance). Thirdly, if the response rate was too low, the data could not be taken into account (another country was excluded from the analysis for this reason). Finally, all the questionnaires were reviewed by an expert to check the validity and quality of the answers, which could lead to minor corrections (some items could have been misinterpreted by the respondent).

The issue of data reliability is a very difficult one for all countries in the world, and particularly in Africa, because it requires financial and human resources and, of course, priority on the political agenda of governments. Even in the main international databases (IRTAD (international road traffic data base), WHO), some information should be treated with caution. Data also vary depending on the source. For example, in a few countries, national data and international database information for the same country may differ. Our material, even when supplemented by data from international databases, was still questionable in a few cases.

Map 1: SaferAfrica Countries

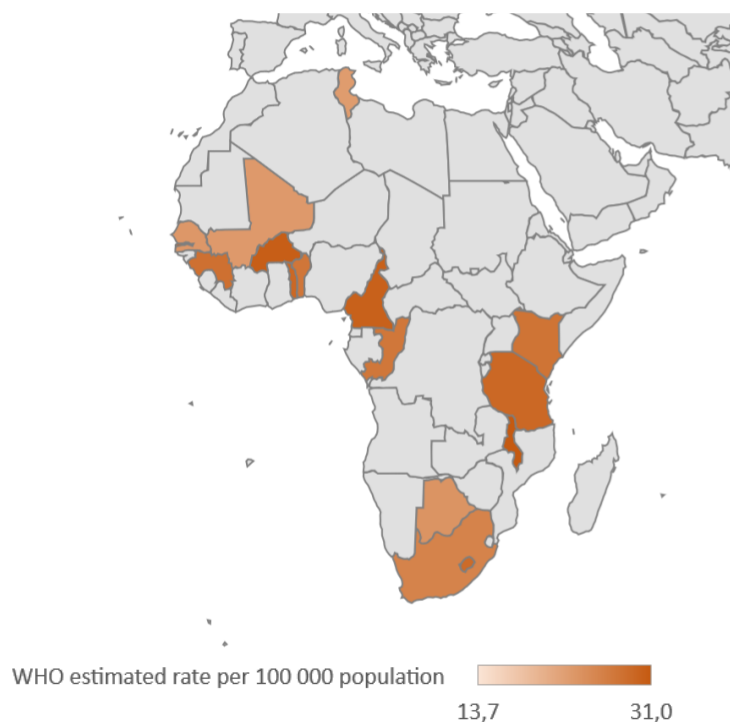


Based on these choices, the matrix per pillar was then completed for 21 countries. Results are presented here for 19 countries only. Two countries were excluded due to unreliable data. The limited number of countries underlines the huge problem of data availability and consideration of road safety issues in African countries. A key feature of the countries studied is the high level of road traffic fatalities compared with the best performing countries in terms of road safety. Sweden, one of the best performing countries, has a rate of 2.5, while France has a rate of 5. This means that the best performing countries have a rate between 3 and 5 times higher and the worst performing countries a rate between 6 and 12 times higher.

Data are then extracted for the analysis of each pillar in order to assess the mid-term recommendations of the ARSAP. The analysis is based on 21 items for which 230 sub-items were collected through the questionnaire (Table 3). Specifically, an item refers to a general dimension for a particular pillar. For example, for the

management pillar, an item could refer to institutional organisation and coordination. A sub-item is a question related to a specific item. For example, for institutional organisation and coordination, a sub-item could refer to the existence and functioning of a lead agency.

Map 2: Road Safety Performance for SaferAfrica Countries



Finally, it has been possible to create some scores per pillar, which makes it possible to calculate a score for each item and each pillar in relation to the ARSAP recommendations. Each sub-item is worth 1 point for a full application and 0.5 point for a partial application. Some sub-items are worth 0.5 point, especially for very specific measures. All details are available in the full report (Mignot et al., 2018).

Table 3: Global Performance Outcomes for the 5 pillars

Pillar	Management	Safer roads	Safer Vehicles	Safer road user behaviour	Post-crash	Total
Items	6	4	4	3	4	21
Sub-items	57	60	45	46	22	230

5. ANALYSIS PER PILLAR AND RECOMMENDATIONS

5.1. General evaluation

The overall analysis was realized through the five pillars of the ARSAP identifying main items of road safety governance and evaluating main recommendations issued from the ARSAP mid-term review (AU-UNECA, 2015a, 2015b).

The pillar-by-pillar analysis can be complemented by a broader approach combining all five pillars for the 19 countries, so that it is possible to show performance per country across all dimensions. Table 4 shows the global performance scores for the 5 pillars.

Table 4: Global Performance Outcomes for the 5 pillars

GLOBAL SCORE	Benin	Botswana	Burkina Faso	Cameroon	Congo	Gambia	Guinea	Kenya	Lesotho	Malawi	Mali	Mauritius	Senegal	Sierra Leone	South Africa	Swaziland	Tanzania	Togo	Tunisia
Pillar 1 : Road safety management (max 57)	29,5	19	44,5	12,5	35	9	10	21	27	30	38	30	22	27	43	21	21	22	31
Pillar 2 : Safer roads and mobility (max 28)	11,2	4,4	21,5	9,6	17,4	2,1	4,4	2,6	11,4	7,5	14,3	12,6	3,4	2,4	11,9	2,5	4,5	3,4	8,5
Pillar 3 : Safer vehicles (max 25)	9,8	5,8	18,8	13,3	12,6	2,3	5,8	4,2	11,5	8,9	12,7	12,3	8,7	6,4	15,3	6,5	6,5	8,8	12,8
Pillar 4 : Safer road users (max 28,5)	10,8	12	23,5	17,7	19,8	8,7	6	10,5	15,5	13	17,7	16,5	8,5	11,5	16,3	7,5	9,5	7,3	16,8
Pillar 5 : Post crash response (max 17)	3,2	11,2	4,3	7,9	13,7	4,2	1,1	3,4	10,0	5,2	10,1	8,4	5,1	3,2	4,4	3,3	2,9	3,2	8
Total score pillar evaluation (max 155,5)	64,5	41,2	108,3	53,1	84,8	26,3	26,2	38,3	65,4	59,4	82,7	71,4	42,6	47,3	86,5	37,5	41,5	41,5	77,1

Table 4 shows that:

- Five countries (Burkina-Faso, Congo, Mali and South Africa) are associated with relatively good results at the global level and for all pillars. Burkina-Faso performs well. The relatively good performance of each country can be explained by the adoption of formal recommendations considered as good practices. At this stage, this should not be interpreted as meaning that the countries have a good road safety record, but that they are able to meet the formal requirements for effective road safety;

- The majority of countries do not perform well (less than 50% of the good performances on items) and clearly need to make progress. For these countries, the main efforts need to be focused first on Pillars 2 and 5 and then on Pillars 3, 1 and 4;

- Four countries have the lowest scores (Gambia, Guinea, Kenya and Swaziland). These four countries have very low scores for all pillars and for most of the items in each pillar.

It is also possible to highlight the items where efforts need to be made. Table 4 shows the overall performance scores and items for the five pillars and the 19 countries. This overall view clearly highlights the best or worst performance per item.

Table 5: Global Performance Outcomes and Items for five Pillars and 19 countries

	Benin	Botswana	Burkina Faso	Cameroun	Congo	Gambia	Guinea	Kenya	Lesotho	Malawi	Mali	Mauritius	Senegal	Sierra Leone	South Africa	Swaziland	Tanzania	Togo	Tunisia	
Pillar 1: Institutional organization and coordination																				
Pillar 1: Policy formulation and adaptation																				
Pillar 1: Policy implementation and funding																				
Pillar 1: Monitoring and Evaluation																				
Pillar 1: Scientific support, knowledge, capacity building																				
Pillar 1: Key road safety resources																				
Pillar 2: Institutional dimension																				
Pillar 2: Organizational dimension and monitoring																				
Pillar 2: Key road safety resources																				
Pillar 2: Road Safety Data & Measures																				
Pillar 3: Institutional dimension																				
Pillar 3: Organizational dimension and monitoring																				
Pillar 3: Key road safety resources																				
Pillar 3: Regulation																				
Pillar 4: Institutional dimension																				
Pillar 4: Organizational dimension and monitoring																				
Pillar 4: Key road safety resources																				
Pillar 4: Regulation																				
Pillar 5: Institutional dimension																				
Pillar 5: Organizational dimension and monitoring																				
Pillar 5: Key road safety resources																				
Pillar 5: Regulation																				

Table 5 shows a synthesis of the results by pillar. For Pillar 1, the overall performance, measured by the sum of the different items and for all countries, is below average. It shows an average performance in the area of "Evaluation of the established/strengthened lead agencies" and a weak performance in the area of "Improved data management". The analysis of the item "Developing/strengthening partnership and cooperation" focuses only on the involvement of NGOs (non-governmental organisations) and the involvement of the private sector in road safety policy. Two items are not reported due to limitations of the sources used (questionnaire). The overall performance could be considered as quite good.

For Pillar 2, based on the data collected for the 19 countries surveyed, the implementation process of the ARSAP recommendations is quite slow. With the exception of Benin, Burkina Faso, Mali and South Africa, the level of implementation appears to be poor or very poor.

For Pillar 3, the way to assess whether African countries are incentivising the import of safer vehicles is based on the application of standards. Those countries that apply one or more standards are considered to have "incentives to import safer

vehicles". However, the analysis cannot distinguish whether the standards are applied to new and/or used vehicles. Therefore, there may still be some room for improvement in the countries with some standards.

For Pillar 4, the interim review resulted in two recommendations where, at the time of the review, little action had been taken in this area by the countries included in the interim review. More needs to be done on child restraints, in particular to promote the use of child restraints. Although progress has been made in educating children in safe road user behaviour, this should still be considered a priority given the vulnerability of children as road users, especially as pedestrians and cyclists.

Table 6: Mid-term recommendations outcomes (indicators for Pillars 1 and 2, recommendations for pillars 3, 4 and 5)

	Benin	Botswana	Burkina Faso	Cameroun	Congo	Gambia	Guinea	Kenya	Lesotho	Malawi	Mali	Mauritius	Nigeria	Senegal	Sierra Leone	South Africa	Swaziland	Tanzania	Togo	Tunisia
Pillar 1																				
Established/strengthened lead agencies	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Improved management of data outcomes	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Develop/strengthen partnership and collaboration	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Pillar 2																				
ARSSAP mid-term review indicators	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Pillar 3																				
Introduce incentives for importation of safer vehicles	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Pillar 4																				
Promote the use of child restraints - regulation	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Promote the use of child restraints - campaigning	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Establish or strengthen Road Safety Clubs in Schools	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Pillar 5																				
Introducing emergency medical services coordination centres at strategic locations	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Providing fully equipped ambulances with medical supplies, and crash extraction and rescue equipment	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Developing capacity for long term hospital trauma care and rehabilitation	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Health facilities along main highways with emergency medical system supplies and facilities	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

For Pillar 5, "Universal 3-digit emergency telephone" is still available in most countries, but is not used in seven countries. For "Emergency medical services coordination centres at strategic locations", the item "Designated trauma care centres" of our questionnaire is used and 10 countries are aligned with this item. For "Long-term hospital trauma care and rehabilitation", it is approached with hospital beds per 1000 inhabitants (WHO), the coverage of hospital should be strengthened in African countries.

5.2. Evaluation of the Mid-term Review and recommendations for Pillar 1

Global performance, measured by the sum of the different items, is below average for all countries. Only 15% of countries perform quite well, such as South Africa. Burkina, Cameroon, Lesotho, have a good score and the results need to be consolidated. 40% of countries perform above average. Benin, Gambia, Guinea and Kenya have a very low score, suggesting that a complete and general administrative and institutional capacity building is necessary to achieve the first steps of progress in road safety. Finally, Malawi, Mauritius, Senegal, Sierra Leone, Swaziland, Tanzania, Togo and Tunisia have an insufficient performance, suggesting that a voluntary policy is needed to achieve positive performance.

As regards the evaluation of the established/reinforced lead agencies, the overall picture for this item is one of medium performance. There is also considerable heterogeneity between countries. Burkina Faso, Lesotho, Mali, Malawi, South Africa and Tanzania score well. 65% of the countries are above average, while 35% are weak. Cameroon, Congo, Sierra Leone and Mauritius score below average. Finally, Benin, Botswana, Gambia, Guinea, Kenya, Swaziland and Togo are poor performers. For other countries, the assessment is inconclusive.

Communication, better knowledge of road safety issues and appropriate funding mechanisms could be improved. Dedicated and adequate funding remains the most problematic issue.

As regards the evaluation of the established/strengthened lead agencies, the overall performance of the countries in this area is rather weak. Only 30% of countries are above average. Burkina Faso and South Africa perform quite well, while Togo, Tunisia, Mali, Malawi and Sierra Leone need to improve their performance. This represents 20% of the countries surveyed. 40% of them have very low scores, such as Benin, Botswana, Guinea, Gambia, Kenya, Mauritius and Senegal. 15% of our data is inconclusive. It appears that countries are managing the national road safety data base and are able to harmonise the data base, define a baseline for road safety performance and associate research centres. However, there seems to be a real difficulty in having systematic and detailed statistical information, especially for vehicle registration. There are also some difficulties in the systematic reporting of data.

The analysis of development/strengthen partnership and cooperation focuses on the involvement of NGOs and the association of the private sector with road safety policy. Two items are not reported due to limitations of the sources used (questionnaire). The overall performance is quite good. Again, there is some heterogeneity between countries.

A number of recommendations can be drawn from the above findings. Firstly, African countries need to strengthen the institutional framework by consolidating the current position and prerogatives of the lead agency, where it exists, and by

developing and completing its areas of operation. A special effort must be made in terms of communication and, above all, the allocation of adequate resources for the promotion and enforcement of road safety policy.

These countries need to develop consistent and systematic data collection. This requires the establishment of a robust and efficient data system. It would also involve developing new data collection, enabling detailed analysis and evaluation, and ultimately helping public authorities to design their public policies.

Finally, it is important that these countries continue their cooperation with NGOs and representatives of the private sector where this is already in place, and that they continue their efforts to develop further cooperation where this is only partially in place or is non-existent.

5.3. Evaluation of the Mid-term Review and recommendations for Pillar 2

The Pillar 2 ARSAP focuses in particular on Road Safety Audits (RSA) and Road Safety Inspections (RSI). It states that Member States should carry out safety audits on the most heavily used parts of the network during the planning, design, construction and operation phases - and implement corrective improvement programmes. Based on this and the (poor) results of this measure in the mid-term review, the main recommendation is to "develop guidelines for road safety audits and inspections". The data we have collected shows that the process of implementing the ARSAP recommendations seems to be progressing rather slowly. The worst performers are Benin, Burkina Faso, Mali and South Africa.

Our results confirm that road safety audit and inspection guidelines are hardly available (only in South Africa) to technicians in the selected countries, although it must be noted that 65% of respondents did not give an answer. Therefore, the recommendation to adopt guidelines for RSA and RSI is still valid.

In addition, based on the highlighted findings, the following recommendations can be proposed:

- Establish or improve a technical structure with high capacity in road infrastructure safety management, with a statutory budget and the necessary training to be fully operational and capable;
- Improve the existing crash data collection system both in terms of coverage (rural road crashes appear to be severely under-reported), commitment and tools, starting with an assessment of the current data collection processes and defining the necessary steps to achieve a sustainable and reliable system;
- Develop the necessary expertise and conditions for the establishment of road safety audit and inspection procedures. This could be done, for example, by involving the national or a local road authority in a pilot phase. Based on the results of the pilot phase, a strategy for wider implementation could be developed and implemented. A further step would be to establish a national accreditation system

and agency for road safety auditors to ensure that skills and capacity are built up in the country and are regularly and transparently audited.

5.4. Evaluation of the Mid-term Review and recommendations for Pillar 3

While vehicle inspection is very widespread on the continent, the regional spread and quality of inspection is questionable. Our findings also highlight the issue of vehicle age in Africa, which makes the definition of technical criteria for the acceptance of used vehicles and their application essential.

Any activity related to new and used vehicle compliance requires skills and knowledge for the authorities to define, implement, manage and control the schemes. It is therefore highly likely that training and capacity building initiatives will be identified as steps forward.

In addition, African countries need to encourage the import of safer vehicles based on the application of standards (UNECE, 2017a, 2017b): such as frontal impact, side impact, electronic stability control, pedestrian protection. While countries applying one or more standards are considered to have "incentives to import safer vehicles", it has been taken into account that the responses do not differentiate whether the standards are applied to new and/or used vehicles. Therefore, there may still be some room for improvement in those countries with a positive response.

This intervention can be supplemented by limiting the age of imported vehicles. However, this information has not yet been collected and the side effects of this initiative on road safety need to be analysed.

In fact, the Third Pillar of the Global Plan for the Decade of Action for Road Safety 2011-2020 does not include any consideration of how to manage the existing vehicle fleet and how to ensure the roadworthiness of vehicles once they are registered and in use. However, governments in African countries and other parts of the world have already recognised this need and are defining and implementing regulations to ensure the roadworthiness of vehicles.

Finally, it is necessary to consider the safety of vehicles at all stages of their life: new vehicles, used vehicles in international trade, vehicle modification and maintenance.

We can also highlight other factors that need to be taken into account:

- Ensure the registration of all types of vehicles, especially two and three-wheelers, because of their great impact on deaths and injuries;
- Promote a qualified, equipped and nationwide network of repair and maintenance workshops;
- Ensure the availability of quality spare parts.

5.5. Evaluation of the Mid-term Review and recommendations for Pillar 4

Thirteen items related to safer road users were assessed in the mid-term review of progress on the African Road Safety Action Plan. The mid-term review resulted in two recommendations where, at the time of the review, little action had been taken in this area by the countries included in the mid-term review. The recommendations were:

- Promote the use of child restraints, divided into regulation and campaigning;
- Establish or strengthen road safety clubs in schools.

For the current assessment, the WHO Global Status Report on Road Safety (2015, 2018) provided information on the existence of national legislation on the use of child restraints, which was independently verified by expert assessment. This source indicates that of the 19 countries included in the current evaluation, 10 have no law. In terms of campaigns to promote the use of child restraints, this is only confirmed (by expert review) for Botswana and Tunisia, both of which also have a law on the use of child restraints.

Regarding the existence of 'compulsory/voluntary educational programmes in primary/secondary schools', the responses, combined with the subsequent literature review on educational programmes and the expert review, revealed that 63% of countries have some measures in place to promote road safety among young people.

Firstly, the recommendations of the mid-term review are still relevant. With regard to "promoting the use of child restraints, split into regulation and campaigning", more needs to be done on child restraints, both in terms of legislation and promotion. Clearly, it is difficult to promote the use of child restraints if there is no law on child restraints. This should also be complemented by the introduction of legislation on appropriate standardised anchorages for child restraints. With regard to "Establish or strengthen road safety clubs in schools", although there appears to be progress in educating children in safe road user behaviour, this should still be considered a priority due to the vulnerability of children as road users, particularly as pedestrians or cyclists. Based on the information available from the current review, the following new recommendations are made in relation to road user behaviour:

- Dedicate financial and human resources to the implementation of road user behaviour policies, in line with some of the Pillar 1 recommendations;
- Build capacity to monitor and evaluate road safety interventions;
- Promote monitoring of public acceptance of road safety measures to identify education and awareness campaigns to maximise impact;
- Identify training needs for those involved in the road safety implementation process;

- Seat belt laws should be extended to include all vehicle occupants. This should be done in conjunction with vehicle standards that require the installation of safety belts in all seating positions;
- Strengthen national helmet laws to include a requirement that helmets are worn and meet the required safety standards;
- Further action could be taken on road user education and campaigns, possibly starting with targeting vulnerable road user groups.

5.6. Evaluation of the Mid-term Review and recommendations for Pillar 5

The mid-term evaluation of the African Road Safety Action Plan proposed four recommendations for post-crash response:

- Establish emergency medical services coordination centres at strategic locations;
- Provide fully equipped ambulances with medical supplies and crash extrication and rescue equipment;
- Develop capacity for long-term hospital trauma care and rehabilitation;
- Develop health facilities along major roads with emergency medical supplies and facilities.

No direct data are available for the item "Provision of fully equipped ambulances with medical supplies and crash extraction and rescue equipment". It has been assumed that the "estimated % of SI patients transported by ambulance" (WHO) is a proxy. However, while there are some equipped ambulances in most countries, the majority of casualties are transported by private vehicles, most of which are not equipped for casualty rescue.

In addition to the question of the distribution of equipped ambulances, the need to define a procedure for the transport of casualties from the scene of the accident to the first rescue station must be emphasised.

The following recommendations from the ARSAP mid-term evaluation are still relevant for African countries in the coming years:

- Universal 3-digit emergency telephone;
- Long-term trauma care and rehabilitation in hospitals;
- Emergency medical services coordination centres in strategic locations;
- Coverage of emergency assistance.

It is also recommended that some recommendations be adapted because they no longer seem appropriate or realistic for the African context. It is then proposed to replace the "provision of fully equipped ambulances with medical supplies and equipment for extrication and rescue" with the development of a protocol for the transport of casualties, irrespective of the location of the accident, and to provide

simple rules and information on first aid kits for persons responsible for or involved in rescue operations (taxi drivers, members of associations, health associations and institutions).

First aid training is clearly an important issue, particularly for professional drivers and all those taking their driving test.

Other recommendations include:

- Develop strategic relationships between the health sector and road safety authorities;
- Develop a culture of evaluation based on reporting procedures for fatalities and injuries in both the health and road safety sectors;
- Strengthen reporting of fatalities and injuries linked to crash databases that link police and hospital data.

6. CONCLUSION

This paper proposes a mid-term review of the ARSAP and proposes some new recommendations that are important to improve road safety in Africa. It is based on an information and data base that is analysed through an appropriate grid, linked to a pillar approach.

The question of data reliability is a crucial issue for all countries in the world and particularly for Africa. A specific data validation process has therefore been proposed and implemented by the partners in order to strengthen the quality of the information and the robustness of the analysis. Our analysis is therefore based on input from questionnaires, international databases and expert knowledge.

This evaluation clearly shows that the recommendations of the ARSAP mid-term evaluation are still relevant and need to be strengthened in most African countries in order to improve the road safety performance of African countries.

Although the ARSAP mid-term evaluation proposes few recommendations for Pillars 3 and 4, our analysis is able to propose some additional and innovative recommendations such as:

- Develop standards for the whole life cycle of vehicles (old and new);
- Promote the use of child restraints.

Two other important recommendations could be made:

- Develop consistent and systematic data collection to help public authorities design their public policies.
- Strengthen collaboration with NGOs and private sector representatives.

The main objective of the SaferAfrica project is to provide African countries with tools for their road safety policies. Obviously, these recommendations need to be discussed with national counterparts and authorities responsible for road safety in each country, as well as with UNECA. In addition, the analysis must take into account regional contingencies and the network logic at play, especially with regard to corridor issues and transnational flows of people and goods.

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Le plan d'action africain pour la sécurité routière : évaluation et recommandations

Résumé – Les défis en matière de sécurité routière dans les pays africains sont énormes. Des politiques publiques appropriées et proactives sont nécessaires pour éviter que la situation ne s'aggrave et pour sauver un nombre important de vies. L'UNECA a mis en place un plan d'action basé sur plusieurs piliers et une évaluation visant à déterminer si certaines mesures de sécurité routière sont prises par les pays africains. Il vise à encourager la mise en œuvre de nouvelles mesures. À mi-parcours du plan d'action, les résultats attendus ne sont pas au rendez-vous, voire décevants. La recherche SaferAfrica, qui vise à contribuer à l'amélioration de la situation de la sécurité routière en Afrique, comprenait la définition d'un cadre pour la mise à jour de l'évaluation du Plan d'action de l'UNECA. Au moyen d'un questionnaire détaillé, les répondants ont rempli un grand nombre d'items permettant une évaluation actualisée des politiques mises en œuvre. Cet article décrit en détail l'approche et la méthodologie suivies et fournit une analyse des résultats et quelques recommandations. Les résultats montrent des progrès dans certains domaines, mais peu d'amélioration dans de nombreux autres, qui nécessitent la mise en œuvre de politiques plus efficaces.

Mots-clés

Sécurité routière
Évaluation des politiques publiques
Afrique
