

Progress made towards the Implementation of the Decade of Action for Road Safety 2011-2020 by Zambia and Botswana

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Abstract—Despite a call by the United Nations for the prioritisation of road safety, and the declared 2011-2020 Decade of Action for Road Safety, (DARS), road fatalities in Sub-Saharan Africa are likely to more than double from 243 000 in 2015 to 514 000 by 2030. This is despite the fact that road safety knowledge and good practice is readily available. Botswana and Zambia launched the DARS in 2011. As of the end of 2015 neither country had yet achieved the significant results of a) halting the increase in road crash fatalities or b) working to halve them by the end of the decade. This is arguably because the two countries have not successfully built the required institutes for leading on and managing road safety at a national level. This paper explores both countries' responses to DARS and considers what has been achieved, and what has not, in this time. It argues that, had the two countries succeeded in building robust Lead Agencies, significant road safety results would have been achieved. SADC has not provided necessary leadership on requirements for the implementation of the DARS in the region - the way the EU has done for its member states. The paper makes suggestions as to what actions are needed urgently in both countries.

Keywords—*Decade of Action for Road Safety. Road Safety Management, SADC*

1 INTRODUCTION

Many countries face the real challenge of the untimely loss of life on their roads and an increasing number of persons living with disability as a result of by road crashes every year. Neither Botswana nor Zambia have been spared from the challenge of the untimely loss of life to road crashes. Both countries became signatories to the United Nations decade of Action for Road Safety (DARS), in June 2011 and May 2011 respectively, to reduce road deaths in line with international goals. DARS is both a commitment to improving road safety practice within a country, and a package of recommendations to that end. This paper briefly presents some of the successes and challenges of implementing DARS in Botswana and Zambia. Research was carried out in both countries over the course of 2016 and 2017, and site observations, the collection and analysis of government documents as well as public surveys and key informant interviews (Zambia).

1.1 Background road safety situation in the two counties

In Zambia, the Auditor General's Report [1] confirmed that road crashes were the second leading cause of death for people aged between 5 years and 20 years in Zambia. The capital City of Zambia, Lusaka, accounted for 48% to 53% of road crashes from 2012 to 2015. According to the Zambia Road Safety Trust Report [2], the death toll from road crashes in Zambia was 2100 fatalities per year, 45% of which involved pedestrians. For every traffic death there are on average around 19 serious injuries, and a further 300 injures which require some level of medical treatment [2]. The cost of road crash injuries in Zambia is approximately 4% of the GDP on average. One of the reasons contributing to the rising trend of road crashes in Zambia is the increasing vehicle population, which is outgrowing the construction of new roads in the country, causing some roads to be congested. Since 2006, the number of vehicles on Zambia's roads has grown fairly consistently each year by an average of 13.6% per annum [3]. In 2015 the WHO estimated Zambia's traffic death rate per 100,000 to be 24.7. [4]: A study conducted by Lusaka City Council in 2009, suggested that the major risk factors in these crashes are largely human factors such as speeding, drink driving, disregard for pedestrians and for traffic rules and signs [5] cited within [6]. ZIPAR reports concern about the increasing age of the vehicle population – from 13 years on average in 2006 to 17 years average age by 2014, and getting older with each successive year [3].

In Botswana, road deaths are an equally significant problem for the country, even though the population size of Botswana is significantly smaller than that of Zambia (population estimate is 2.25 million compared with 16.6 million in Zambia [7]). The average fatality rate per 100 000 people was estimated by the WHO to be 23.6 in 2015. Speed and drunk-driving are the particular challenges to safety on Botswana's roads [8], [9]. The most affected group in road fatalities are economically active, aged between 21-45 years, and average 67% of the total recorded crashes in Botswana. Passengers were the class with the highest number of casualties, followed by pedestrians, then drivers. A presentation made by the then Permanent Secretary

from the Ministry of Transport and Communication (Neil Fitt) in 2015 estimated the resources lost because of road crashes at BWP 500 million per annum.

2 DECADE OF ACTION RECOMMENDATIONS

Many countries, especially in the developed world, have successfully reduced road fatalities and have, in the process, learnt many lessons about what steps are important to achieve lower death rates on the road [10]. The recommendations from DARS are based directly on these countries' experiences. As such countries still facing the challenging task of improving road safety have an opportunity to learn from others, thus reducing the time it would otherwise take to effectively manage road safety. Within Africa, these are crucial and imperative actions. Africa has only 2% of the world's vehicles and yet it has the highest number of road fatalities at 16% [4]. If Sub-Saharan Africa does not make a significant effort to control the crisis then, according to the World Bank Group projections, its road crash fatalities will more than double by 2030, from the projected 243 000 deaths in 2015 to 514 000 by 2030.

DARS recommends five 'pillars' for the achievement of its goal [11], which is to halt and then halve road fatalities by 2020. If countries could implement the pillars successfully, the expectation is that traffic fatalities will first be halted and then be reduced by half. The recommended pillars are named as follows:

2.1 Pillar 1 Road Safety Management

Although all five pillars are important, the pillar of road safety management appears to be the most fundamental. This is because countries need to have detailed knowledge of road safety challenges in order for counter-interventions to be developed, and as such they should be able to collect and analyse road traffic crash data. A central and effective crash database is a key prerequisite for the development of road safety solutions. More important, however, is for a country to assume full responsibility for reducing crash deaths and for actively leading towards their reduction. To this end this pillar calls for countries to form an adequately funded Lead Agency that should be held accountable for managing and improving road safety. Once a lead agency is in place, a national strategy and action plan can then follow.

2.2 Safer Roads and Mobility

The intention of this pillar is to promote safety for all road users. Planners and transport engineers should not only focus on moving vehicles safely, but should also make provision for pedestrians and cyclists. DARS recommends that speed limits are determined on the basis of safety, in line with the Safe Systems approach [10]. Where speed limits cannot be reduced, for example, the road designers should consider separating vulnerable road users from vehicle traffic by providing pedestrian bridges or tunnels. This pillar argues that mobility should not come at the cost of life and calls for all system providers to take the responsibility of providing a Safe System.

2.3 Safer Vehicles

This pillar calls for the harmonisation of relevant global safety standards by member states. It encourages them to implement the 'New Car Assessment Programmes, (NCAP)'. This programme calls for vehicles to have a minimum of three star rating. Basic safety equipment such as seat belts, air bags and an ABS (automatic breaking system) should be installed in all vehicles. The pillar recommends that seat belts, child seats and helmets should be mandatory requirements that must be enforced. Managers of fleet vehicles in private companies are encouraged to purchase, operate and maintain safe vehicles.

2.4 Safer Road Users

This pillar focuses on developing comprehensive programmes to improve the behaviour of road users through introducing legislation, education and enforcement that actively addresses the key areas of poor road user behaviour. This pillar focuses on, among other things, reducing the number of people who are drinking and driving; increasing the utilization rates of seat belts and helmets; reducing the incidence of speeding; and generally improving the public's understanding of the factors that increase their risks of dying on the roads.

2.5 Post-Crash Response

This pillar, recognising that humans make mistakes and that some will always be involved in a crash, promotes the improvement of health care and other systems to provide treatment for crash victims, through the development of pre-hospital care systems; the establishment of a single telephone number for emergencies; providing early patient rehabilitation and family support; establishing insurance schemes to fund activities; and encouraging investigation of crashes and the use of an appropriate legal response. The intention is to reduce the time it takes for crash victims to be stabilised, admitted to suitable medical facilities, and subsequently rehabilitated.

3 THE PROGRESS OF BOTSWANA AND ZAMBIA TOWARDS DARS OBJECTIVES

3.1 Road Safety Management

Following the recommendations under Pillar 1, Botswana has produced a Road Safety Strategy: "*Road safety management.*" Botswana has also made some progress in forming a Lead Agency - the National Road Safety Committee, (NRSC). The Secretary of the NRSC confirmed in an interview that the recommendations from the Safety Strategy document, in regard to the road safety management structure, have not been fully implemented. Further, there has not been any institutional capacity building since the launch of DARS in Botswana, and there is still no database in place for the tracking or monitoring of progress for the activities recommended in Pillar One. The road safety strategy document has been the only local tool available in Botswana for guiding road safety efforts to achieve the goal of the DARS 2011-2020. No reports have been produced to monitor the progress of the implementation of the Road Safety

Strategy for Botswana. The research data for this research paper had to be obtained from various sources, instead of from one office. It is therefore safe to say that Botswana has not been successful at building the fundamental pillar of road safety management, to deliver on the required results.

In the case of Zambia, the country has established a Lead Agency - the Road Transport and Safety Agency (RTSA). Its responsibility is to develop Government policy on road transport, traffic management, road safety and enforcement of road transport and safety laws in Zambia. RTSA has its own corporate plan based on the five pillars of the DARS 2011-2020. In addition a Memorandum of Understanding (MOU) was signed in 2014 spearheaded by RTSA, among all road safety key stakeholders in the country. The signatories involved agreed on and prepared a joint road safety action plan with associated costs of all the planned road safety activities for implementation. However, the action plan did not clearly outline measurable Road Safety Activities for monitoring purposes. A study conducted in Lusaka [12], showed that RTSA had not yet put up a monitoring and evaluation mechanism to help in holding the agency accountable for their performance. Coordination among key stakeholders appears to be one of the major challenges experienced in Zambia under this pillar. In a survey of 55 Lusaka residents in 2017, close to 80% of the respondents were of the view that coordination in implementing road safety activities in the country remained poor.

3.2 Safer Roads and Mobility

No official confirmations were available from the NRSC in Botswana to establish whether anything has been achieved on the second pillar. An examination of Botswana's national road network showed that the majority of Botswana's dual carriageway roads that have been constructed since the launch of the Decade had no forgiving roadsides or central medians. Speed limits remain unchanged and under-managed. Little to no infrastructure has been provided for non-motorised transport users, and very often the space available is poorly maintained. Oftentimes these spaces are also occupied by street vendors.

A number of proposed measures to improve road safety were identified by the NRSC in 2015, which include:

- The development of a revised Botswana Road Design Manual including a section on Road Types and Geometric Design (Chapter on Road Safety) – this was finalised in 2016 but does not yet appear to be fully implemented as yet.
- Improvement of traffic lights and junctions
- Replacement of traffic circles along KT Motsete road with junctions
- Modernisation of Public Transport in Greater Gaborone and
- Development of the National Multi Modal Transport Master Plan and the Greater Gaborone Master Plan.

While these are encouraging plans not one appears to have been achieved at the time of writing of this paper.

Speed limits in Botswana have not been altered or re-evaluated, as is recommended by the SARS documentation, though Botswana is known through the region for rigorous enforcement of speed limits, especially on tourist routes.

In Zambia, and in collaboration with the Lead Agency, Zambia embarked on major road projects in the country which included projects with over 400 km (the so-called L400 project) in Lusaka which were earmarked for rehabilitation and upgrading through the Road Development Agency. In addition, another major contract was signed, involving the construction of ring roads, or by-passes; the improvement of various road sections and intersections; and provision of dedicated bus lanes aimed at decongesting Lusaka City.

Road Safety audits have sometimes been carried out by RTSA, even though many of their recommendations were not implemented by executing agencies (as outlined by the Auditor General's Report (AG 2015)).

Zambia had also passed a law through a Statutory Instrument in 2016 which allowed local authorities to reduce speed limits up to 40 km/h within their locality. This is in line with the recommendations of DARS on speed. The reduction of speed to 40 km/h under statutory instrument No. 90 of 2016 agrees with World Health (2009) report which showed that speed on urban roads should not exceed 50km/h for effective speed management. At the higher end, the maximum speed limit in Zambia is 100km/hour.

3.3 Safer Vehicles

There have been on-going campaigns for the use of seat belts and child restraints in Botswana. There is, however, no formal law for passengers who ride in the back of open vans, which is very common on Botswana's roads. The vehicle inspection in Botswana is not in line with the recommended G-NCAP, and the minimum recommended star rating for vehicles in Botswana is not enforced. For instance, there are still many vehicles being sold with no air bags. Though there are laws on the use of helmets, they are, in most cases not enforced, particularly for cyclists.

In Zambia, and despite the RTSA engaging in various motor vehicle examination activities to ensure that vehicles are roadworthy, the required vehicle safety standards have remained unchanged and do not meet the international standards for G-NCAP.

3.4 Safer Road Users

Botswana has put significant effort into implementing activities for this pillar. Various campaigns have been run, targeting the reduction of drunken driving, speed reduction and the use of seat belts. The Police have been visible on the roads for enforcing the law.

In Zambia the RTSA implemented this pillar through education and publicity programmes. However, a survey conducted in Lusaka City showed that programmes conducted by the RTSA in the country had limited coverage and did not address the illiterate but favoured the educated. Zambia has continued with enforcement of traffic laws and promulgated five new regulations through passed through an Act of Parliament in 2016. These were made in an effort to address the crash risk factors in Zambia involving speed reduction in local authority areas; the restriction of the importation of old vehicles; and seat belt regulations, among others (the restriction of vehicle age on importation into the country falls as much into the Safer Vehicles Pillar as it does Safer Road Users). The Government, through RTSA, had also introduced the Fast Track court, which was aimed at instituting express judgement and penalties on Road Traffic offenders and included weekend imprisonment if found guilty. With the introduction of these laws it was expected that the crash rate would be reduced in the country. However, it is not clear whether enforcement practices themselves have improved since these courts were established, and there is no record of how well they are working.

3.5 Post-Crash Response

This is a pillar which has seen Botswana make some advances toward achieving the DARS objectives through activities such as the implementation of the Emergency Medical Services and the related skills training. Other success areas include the treatment of road crash victims at government cost, including the counselling of victims. In the event of a road crash victim who dies leaving behind dependants, such dependants become the responsibility of the government until such a time the victim would have reached retirement age. More action is needed for creating only one emergency number and getting the buy-in of various companies to purchase cars with a minimum star rating of three and to come up with initiatives that can reduce the time it takes for the Emergency Medical Services to attend to a crash.

In Zambia, in contrast, it appears that the country has not yet done enough to address this pillar. During the background research for this paper, it was established that the only step to have been taken to this end was the procurement of additional ambulances. No reports were available to ascertain what other measures had been put in place to address this pillar. However, the survey conducted in Lusaka showed that there is inadequate emergency communication equipment, as well as resources (both human and financial), which could handle pre-hospital care. The country uses multiple emergency lines as opposed to the recommended single line for emergencies.

4 GAPS THAT THE ROAD SAFETY ACTIVITIES IMPLEMENTED HAVE NOT ADDRESSED

A number of gaps have been identified, which may act as barriers for achieving the desired road safety goals in

Botswana and Zambia. Although the absence of reliable and up to date crash systems in both countries make it impossible to assess the state of traffic safety with any certainty, it seems unlikely that the efforts implemented to date have had a measureable reduction in fatal crashes since the DARS was put into place. In this section some of the key challenges in both countries are highlighted.

4.1 Crash data remains poor

The first is the absence of reliable crash data that persists in both of the study countries.

In Zambia, the RTSA had commenced the procurement of the Accident information System (AIS) in 2013/14, intended to assist the country in effective monitoring and evaluation of road safety activities. However, at the time of writing this paper in 2018, RTSA had still not finalized the procurement of the information system. The official source of road crashes in Zambia is the Zambia Police (ZP). RTSA collects all its road crash statistics from the police for further analysis. ZP has not yet adopted the internationally recommended definition of road crash fatality, i.e. those occurring within 30 days of the crash. ZP currently uses 365 days for road crash fatality.

In Botswana, the Lead Agency is not active in the implementation of the data-related recommendations of the Decade of Action. At the end of 2015, the NRSC, as Lead Agency, still had not invested in any database to monitor road safety activities and the progress being made towards the DARS objectives. No resources – human or financial – have as yet been made available to improve the crash recording systems within the country.

4.2 Speed limits

Many high speed roads in Botswana are single lane roads. Information released in Botswana for recorded road crashes that resulted in serious injuries, indicated that multiple fractures and multiple organ injuries accounted for 78% of serious injuries, 15% of serious injuries are brain related, 5% of serious injuries involved the spinal cord, while 2% resulted in amputations [13]. These injuries suggest strongly that a major factor may be excessive speed, possibly combined with insufficient use of vehicle restraints and/or the lack of protective vehicle equipment. In spite of the dominance of speed as a factor in serious and fatal crashes, the public in Botswana remain largely unaware of the dangers of speed. Across Botswana, the posted speed limits are much higher than those recommended by the DARS. Single lane roads have speed limits of 120 km/h, with no protection for head-on collisions - and in some cases, no shoulder lane. In some instances, the roads have a reduced lane width as a result of potholes on the road. The speed limit on urban roads in Botswana remains 60 km/h, in spite of a significant presence of pedestrians on some roads. Some efforts have been made to put speed humps on roads in front of schools, but this has not been consistent, as some roads passing in front of schools still do not have speed humps.

Zambia has reduced its urban speed limits to 40km/h, and speed limits on rural and national routes to 100 km/h, and increased enforcement activity has been in place since 2016. A recent appointment of an Austrian firm (Kapsch TrafficCom) to provide automated speed enforcement technologies suggests that Zambia is looking to ensure compliance with the new speed limits in a centralised and coordinated fashion. That said, speeding in Zambia may be encouraged by the fact that the penalties for speeding are not severe. A driver caught doing 160 km/h will pay the same fine as the one caught doing 115 km/h on a 100 km/h road.

4.3 Drinking alcohol and driving

Drinking and driving is a challenge in both countries that road safety activities have not managed to deal with. In both countries the role of alcohol among pedestrian crashes has not been formally investigated, let alone prioritised, but there is a common theme (indeed among all SADC countries) that inebriated pedestrians can be a serious road safety risk.

4.4 Addressing the problem of young drivers

Crash statistics from both Botswana and Zambia confirm that, in line with most SADC countries, young people are overrepresented in traffic deaths. Internationally the risks of young people in traffic are found to be elevated, which is a result of their growing exposure to traffic as well as problems such as risk-taking behaviours that are more commonly seen in young people than in older populations. Inexperience in traffic and problems associated with acquiring the new skills of drivers (for novice drivers) are problems identified in much international research, but for which no interventions appear to have been highlighted by the road safety lead authorities in either country.

4.5 Mixed road users, inappropriate speeds and lack of maintenance of roads

Separation of road users, in areas where speeds cannot be adjusted, has not been consistent on roads in either country. Pedestrians are still not being taken into account in the planning of roads. New high speed roads being built are not being designed to protect pedestrians. As an example, the new dual carriage-way passing through the town of Tonota in Botswana, with a speed limit of 60 km/h, has a high number of pedestrians crossing the road. However, no provisions, such as pedestrian bridges, have been made for protecting these pedestrians while crossing, except at the signalized intersection, which is also not pedestrian friendly.

5 CONCLUSION AND RECOMMENDATIONS

Although both Zambia and Botswana have made some effort to improve road safety since becoming signatories of the DARS, little real improvements are apparent on the ground in either country. The one exception is the move to change speed limits in Zambia which reflects a bold and clear commitment to providing safer roads, and which should be applauded. Many of the gaps in implementation can be traced back to weak or ineffective road safety management, brought about in

both cases (and indeed as is common across the region) by lacklustre central leadership on road safety. The political leadership of the countries should play a leading role of ensuring that road safety results are achieved – this included providing budget allocations for road safety interventions encompassing all pillars of action. While DARS is still active under the United Nations, Botswana and Zambia should take the opportunity to learn from and implement the successes of those countries that have succeeded in bringing down the road fatalities.

A second recommendation is that SADC leadership should be playing the leading role in the region, as the EU is doing with their member states, in guiding their member states how to transition to a safe road system instead of being stuck at the level of targeting road user behaviour. Botswana and Zambia are working independently in implementing the recommendations of DARS. This is also the case of other SADC member states, which makes the implementation a challenge as no experiences are shared between member states. SADC should increase collaboration of its member states and make sharing of knowledge and skills transfer easier. More focus should be placed on Pillar 1, Road Safety Management, as it is foundational and therefore increases the chances of countries reducing their road crashes even though their vehicle population continues to increase.

Under this recommendation SADC should consider investing in a vehicle testing centre with internationally recommended G-NCAP standards. All new vehicle models should be crash tested for member states, and results disseminated across the region. In this way, people will have informed choices on which vehicles to purchase.

The third recommendation relates to speed limits and excessive speed by drivers. The Safe Systems approach to speed limits is that they need to be low enough so that, in the event of a crash, the impact forces are survivable. That means systematically examining and reducing speed limits across each participating country. There is huge public resistance to dropping speed limits across many member states – a strong Road Safety Lead Agency, and the support from a central SADC oversight committee, should help local authorities make these changes. In terms of speed enforcement the police activities on both countries need to be more transparent, more intelligence based, and should take advantage of some of the new technologies that facilitate better and more reliable speed enforcement (e.g. time over distance speed cameras) to increase the chances of speeding drivers being identified.

A further recommendation is that driver training programmes in both countries be standardised and regulated, with the introduction of graduated driver licensing programmes. This will assist in reducing the deaths of the many young drivers who are dying each year in both countries.

A final recommendation is that both countries begin the long-term process of investing in good public transport alternatives. The long distances travelled, and the reliance on unreliable and often dangerous minibus taxis in both countries, would both be addressed with the introduction of a modern, state sponsored public transport system. This has been found to be critical in the reduction of road deaths among many countries elsewhere.

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