



Mainstreaming road safety in the regional integration of the East African Community to reduce road traffic injuries

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ABSTRACT

The East African Community (EAC) comprising of five states: Burundi, Kenya, Rwanda, Tanzania and Uganda bear a disproportionate burden of the global public health burden for road traffic injuries (RTIs). In response to this, each state has devised its own road safety measures, but not at the EAC level. This paper aims to explore how differing road safety policies could be aligned as part of EAC regional integration so that they become one mainstream policy in the EAC. This is done after exploring the rate of RTIs; the existing road safety initiatives; and the impact of RTIs on the EAC integration in the four EAC states excluding Burundi. A desk-based review of data and information from different sources between 2009 and 2015 for Kenya, Rwanda, Tanzania and Uganda was conducted. This revealed that the rate of RTIs in the four EAC states significantly exceeds the African and global average rates. This is associated with large numbers of fatalities, debilitating injuries and economic costs which hamper the EAC integration—especially its main pillar of a common market. All the four states have independently adopted different road safety laws and policies in line with the United Nations Decade of Action for Road Safety initiative. A

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unified road safety policy and road safety lead agency for the EAC as a whole is urgently needed. This should be based on cooperation and commitment, and take into account the region's geopolitical dynamics.

Keywords: Road safety, road traffic injuries, regional integration, East African Community

INTRODUCTION

Road traffic injuries (RTIs) continue to receive a great deal of global attention due to the obvious public health burdens they create from deaths, injuries, morbidity and Years of Life Lost (YLL) (Peden et al., 2004, 2008, 2009). RTIs are currently estimated to be the ninth leading cause of death across all the age groups worldwide. According to the World Health Organization (WHO) RTIs are presently the ninth leading cause of deaths and are also predicted to become the fifth leading cause of death by 2030 (WHO, 2015a). The low- and middle-income countries (LMICs) significantly suffer the heaviest burden of the world's RTIs (Khorasani-Zavareh, Mohammadi, La amme, Naghavi, Zarei, & Haglund, 2008). The LMICs account for an estimated 85% of all the world's fatalities and 90% of YLL as opposed to the high-income countries (HICs) with only 15% of the global average of RTIs.

It is estimated that RTIs claim more than 1.25 million lives each year worldwide as well as having a huge impact on the health and development. They are the leading cause of death among the young people aged between 15 and 29 years, and cost governments especially in the LMICs approximately between 2% and 3% of their total gross domestic product (GDP) (WHO, 2009, 2013a, 2015a). The African (AFRO) and Eastern Mediterranean regions according to the WHO, lead with the highest global distribution of RTIs despite both regions having the lowest rates of the registered motorised vehicles which were estimated at 11% and 12% respectively (WHO, 2013a, 2013b). The East African Community (EAC), a Regional Economic Community (REC) located in the AFRO region suffers particularly from a high burden of RTIs. The EAC is a bloc of five member states: Burundi, Kenya, Rwanda, Tanzania and Uganda and the distribution of RTIs in the five partner countries is worryingly high even when compared to the AFRO region as a whole.

The EAC is an inter-governmental regional organisation established in July 2000 under the Treaty of the East African Community (EAC, 2010a). Its beginning can be traced back to 1967 when Kenya, Tanzania and Uganda set-out to enact a bold vision of unification (Nzioki & Tostensen, 2010). Unfortunately, this early effort was riddled by some political and socio-economic symbiotic conflicts, which subsequently precipitated the collapse of the EAC in 1977. However, the spirit of EAC did not die completely because on the 7th July 2000 the defunct EAC was revived, and Burundi and Rwanda joined it on the 1st July 2007. Thereafter, the EAC was committed to co-operation in the political, economic, social

and cultural arena with the purpose of achieving a customs union, a common market, a monetary union and ultimately the EAC federation (EAC, 2010). Since then the EAC has achieved some of its objectives, albeit facing many common hurdles. Aside from facing similar geopolitical challenges such as porous borders; security problems; transnational crimes; lack of funding; absence of specific sectoral councils for decision making and others (EAC, 2013), RTIs remain a serious public health burden in the five states. This in turn is likely to have a negative impact on the EAC regional integration.

That's because RTAs contribute to loss of human life, injury, disability and this in turn results in a great deal of economic losses and costs. Evidence shows that the four partner states of EAC from time to time have been experiencing a significant burden of RTIs and their associated impacts. Between 2000 and 2009, estimated deaths due to RTIs in Burundi amounted to 20 per 100,000 (WHO, 2008). Before 2003, over 3,000 people aged between 15 and 44 years were reported to be killed in RTIs annually in Kenya (Peden et al., 2004). In Rwanda, there was an increase in RTIs from 15 433 to 16 407 in 2002 and 2003, and a decline in 2004 and 2005 which was reported at 15 628 and 13 353 respectively (Twagirayezu, Teteli, Bonane, & Rugwizangoga, 2008). Between 1990 and 2000 the number of RTIs in Tanzania was reported to have risen from 10 107 to 14 548 – which was an increase of almost 44% (Museru, Mcharo, & Leshabari, 2002). Similarly, Uganda was reported to experience RTIs at 28.9 per 100 000 population in 2013 (Balikuddembe, Ardalan, Khorasani, Nejati, & Kasiima, 2016). Despite these trends, there is not enough attention at the EAC regional level being directed towards tackling the burden of RTIs. To help address the problem, this paper attempts to explore how road safety could be mainstreamed as a part of EAC regional integration. It also establishes the rate of RTIs in the four EAC states (Burundi excluded); identifies the existing road safety initiatives in the four EAC states and how RTIs impact the EAC regional integration.

METHODS

INFORMATION AND DATA SEARCH

This paper's findings are based on a desk-based review of both qualitative and quantitative statistical data and information which was drawn from different authentic sources between 2009 and 2015. At first, based on the paper's keywords the data and information were extracted online using this search strategy: "road safety" OR "road traffic injur*" OR "traffic accident" AND "East African Community" AND ("regional integration" OR "Kenya" OR "Rwanda" OR "Tanzania" OR "Uganda") AND ("road safety" OR "Kenya" OR "Rwanda" OR "Tanzania" OR "Uganda" AND "laws" OR "regulation"). Similarly, these keywords were also interchanged to search for further data and information which was freely downloaded through the Google search engine. The search results were also corroborated by visiting

and exploring the official websites of relevant institutions which posted and published the data and information related to this paper's objectives.

INFORMATION AND DATA SELECTION

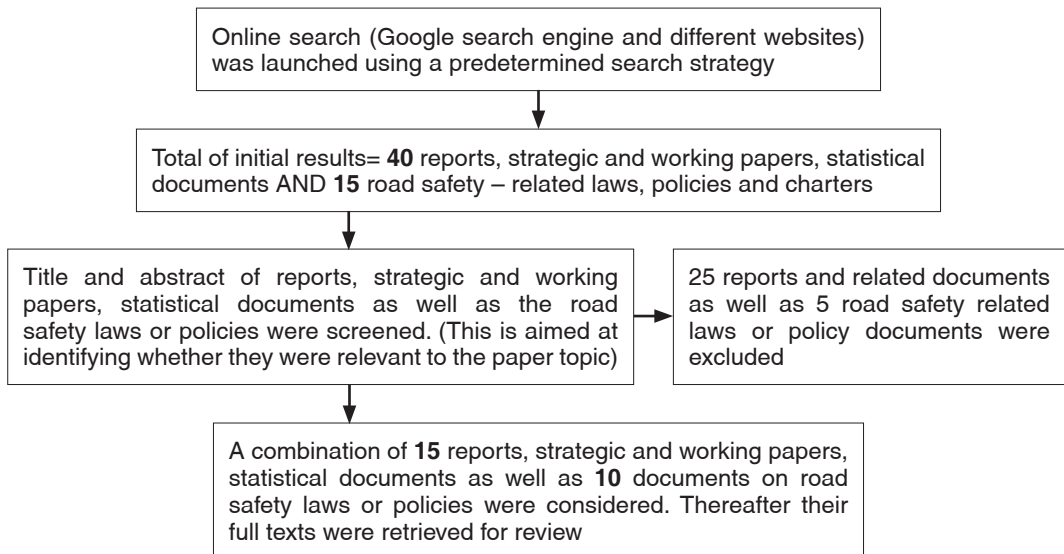
Using the above search strategy, the searched data and information had to have at least one context-specific keyword (synonym of) or have one topic related word. It had also to be published by an authentic source. Burundi was excluded because it perennially had missing data and its participation in the activities of EAC was rare. This is why we only focused on four EAC states. A period between 2009 and 2015 was considered to be the most appropriate timeframe to establish the rate of RTIs and assess the progress of the existing road safety initiatives within the four EAC countries. This is because the preparations and onset of the United Nations Decade of Action of Road Safety 2010–2020 happened in 2009, whereas its mid-point ever since its promulgation in 2010 took place in 2015. All the information and data had to be officially published and documented in English despite the EAC being a multilingual REC where both local and international languages like French, Swahili, Arabic and others are spoken.

DATA EXTRACTION

A combination of 40 reports, strategic and working papers, statistical documents as well as 15 road safety documents related to laws, policies or charters were retrieved in the first initial search. They were obtained from the EAC secretariat documents; the road safety lead agencies in the four partner states; police departments and different ministries/departments within the four EAC states like transport and infrastructure and road traffic. Other external sources utilised included: the African Development Bank (AfDB, 2013), World Health Organization reports (WHO, 2008 -2015) and the United Nation Decade of Action for Road Safety (UN, 2010) and African Union (AU, 2010). The search process took three months in 2015. Within the references of some publications that were considered, additional information and data sources were also identified for further search and extraction. The titles and abstracts of the reports, strategic and working papers, statistical documents as well as the road safety laws or policies were screened and read first by two reviewers to determine whether they were relevant to the paper's objectives. Thereafter only 15 reports and related documents, and 10 road safety laws or policies (Figure 1) were considered to be relevant and their complete/ full texts were retrieved for a detailed review.

This review was entirely desk-based and inspired by authors' philanthropic motivation. It therefore did not warrant an ethical sanctioning from any institution.

Figure 1: A flow diagram indicating how the data and information search for this study's review was conducted in 2015



RESULTS

The statistical data about the four EAC states is presented as follows:

Table 1 presents the total number of RTIs and fatalities in 2009 and 2015

- (1) Table 2 presents the ranking of RTIs as the leading cause of deaths and YLL
- (2) Table 3 classifies the victims according to their vulnerability to RTIs
- (3) Table 4 presents the road safety lead agencies and denotes whether they have a road safety budget
- (4) Table 5 presents the existing road safety laws and related initiatives

INJURY DISTRIBUTION

Both minor and life-threatening injuries were reported to be sustained by the victims involved in RTIs in the four EAC states. They included: head, neck, thorax, spinal, abdominal, limbs and soft tissue injuries.

AGE AND GENDER

Although road users of all ages are prone to RTIs, the victims aged between 18 and 35 years suffer most from RTIs. Males also suffer far more RTIs than females.

ECONOMIC COST

Only the official estimate of the economic cost of RTIs in terms of GDP was reported in Tanzania and Uganda respectively at 3.4% and 2.9% in 2015. The estimated annual cost expenditure for the whole of the EAC (Burundi excluded) due to RTIs was U.S \$1.7-billion which equates to 3% of Gross National Income (GNI). This total cost in U.S \$ million is made up of 765 million for Kenya, 93 million for Rwanda, 499 million for Tanzania and 315 million for Uganda.

Table 1: Distribution of the total number of road traffic injuries and fatalities in the four East African Community states between 2009 and 2015

Country	Total number of RTIs (90% C.I.)		Fatalities			
	2009	2015	2009		2015	
			Per 100, 000 population	%	Per 100, 000 population	%
Kenya	12,369	12,891	3,760	34.4	3,191	29.1
Rwanda	2,766	3,782	308	31.6	526	32.1
Tanzania	22,748	16,211	2,595	34.3	4,002	32.9
Uganda	22,699	10,280	2,838	24.7	2,937	27.4

C.I—Confidence Interval, NB: RTI deaths were calculated from the death registration and population data that was reported by WHO (Source: WHO, 2009; WHO, 2015)

Tanzania records the highest number of RTIs compared to other three EAC countries in 2009 and 2015. Apart from Rwanda where the total number of RTIs increased, the other three countries saw their RTIs decline between 2009 and 2015. This can be attributed to the measures which were adopted from the Decade of Action for road safety. On the other hand, apart from Kenya, fatalities per 100 000 of the population in other countries increased from 2009 to 2015.

Table 2: Ranking of road traffic injuries as the leading cause of death and Years of Life Lost in the four East African Community states between 2009 and 2015

	Leading cause of death		YLL per 100, 000 population
	2009	2014	2015
Kenya	10 th	10 th	5,271
Rwanda	10 th	15 th	5,642
Tanzania	9 th	12 th	5,956
Uganda	10 th	12 th	8,098

YLL refers to an estimated average years a person would have lived if he or she had not died prematurely. Only data for RTIs as the leading cause of deaths for 2009 and 2014 was obtained as was 2015 data for YLL. (Source: Kavi et al, 2014; WHO, 2015).

Apart from Kenya, RTIs dropped out of the rankings of the top ten leading cause of deaths in the other states. This was a positive sign in terms of reducing the avoidable deaths caused by RTIs. However, YLL per 100 000 of the population was still high and this showed how the four countries were losing valuable labour force contributors.

Table 3: Classification of victims according to their vulnerability to road traffic injuries in the four East African Community states between 2009 and 2015

Category of victim	Kenya		Rwanda	Tanzania		Uganda	
	2009 (%)	2015 (%)	2009 (%)	2009 (%)	2015 (%)	2009 (%)	2015 (%)
Pedestrians	47	47	40	37	31	35	40
Passengers ^a	33	34	12	33	28	43	4
Drivers ^b	9	–	4	6	7	4	4
Cyclists ^c	9	14	18	17	11	10	8
2/3 wheeler riders ^d	1	5	16	7	22	7	30
Others ^e	–	–	10	–	1	–	14

^a Combines all passengers in the 2-wheeled, light and heavy truck vehicles; ^b Combines drivers of all vehicles – 4 wheeled, light and heavy trucks; ^c Cyclists refers to users of 2 – or 3 – wheeled pedal cycles but does not include motorcycles or E-bikes; ^d Combines riders of motorized 2 or 3 wheelers and ^e includes the victims whose details of RTI were not clearly established (Source: WHO, 2009, 2015) **NB:** Only 2009 data for Rwanda was available.

The pedestrians and passengers were the most vulnerable road users to RTIs in the four EAC states. However, apart from Rwanda the victims of 2/3 wheeler riders who were involved in the RTIs increased in the three other EAC countries from 2009 to 2015.

Table 4: Road safety lead agencies and the existing road safety budget in the four East African Community states between 2009 and 2015

Country	Road Safety Lead Agency		Road Safety Budget	
	2009	2015	2009	2015
Kenya	Ministry of Transport	National Road Safety Council	Yes	Yes
Rwanda	National Road Safety Commission	National Road Safety Committee	Yes	Yes
Tanzania	National Road Safety Council	–	No	No
Uganda	National Road Safety Council	National Road Safety Council	Yes	Yes

NB: The paper also established whether the road safety lead agencies in each specific country had in place a road safety budget (**Source:** WHO, 2009, 2015)

With the exception of Tanzania, the four EAC states in 2015 had designated their own lead agencies with budgets to oversee the implementation of road safety.

Table 5: Existing road safety Laws and initiatives in the four East African Community between 2009 and 2015

Road Safety Laws or Policies	Kenya		Rwanda		Tanzania		Uganda	
	2009	2015	2009	2015	2009	2015	2009	2015
	1. The Traffic Act Cap 403 2. National Transport and Safety Authority Act 2012	1. The Presidential Decree Regulating Traffic Police and Road Traffic	1. The National Road Safety Policy 2009 2. The Road Traffic Act 1973	1. The Traffic and Road Safety Act 1998 2. National Transport and Safety Authority Act, 2012 3. National Road Safety Policy, 2009				
Road Safety Initiatives								
Speed Limit	Yes	Yes	Yes	Yes	Yes	Subnational	Yes	Yes
Drink-drive	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Seat-belt	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Motorcycle helmet use	No	Yes	No	Yes	Yes	Yes	Yes	Yes
Child restraints	No	No	No	No	No	No	No	No
Mobile use while driving	-	Yes	-	No	-	No	Subnational	Yes
National drug-driving law	No	Yes	No	No	No	Yes	No	Yes

NB: Subnational indicates that some initiatives were not implemented national-wide in a given country. **(Source:** National Road Safety Councils in the four EAC; WHO, 2009, 2015)

Various road safety laws and initiatives were enacted and adopted in different years within the four states although they all lacked child restraint measures between 2009 and 2015

DISCUSSION

ROAD TRAFFIC INCIDENTS IN THE EAST AFRICAN COMMUNITY

Firstly, the average 2015 rate of RTIs among the four EAC states (30.3% per 100 000 population) is far above the global average rate of 17.4% per 100 000 population in 2015. It is also well above the WHO–Africa region average rate of 24.1% per 100 000 population. Apart from Rwanda the total number of RTIs in Kenya, Tanzania and Uganda remained worryingly far too high when the period between 2009 and 2015 was compared. This fact, is largely corroborated by other evidence that estimated that Kenya, Tanzania, Uganda, The Democratic Republic of Congo, Ethiopia and South Africa contributed to 64% (two-thirds) of all the road deaths occurring in Africa (WHO, 2013a, 2013b). In Kenya RTIs has been one of the ten leading causes of deaths in the three EAC states between 2009 and 2015. This indicates that much more concerted road safety efforts are needed not only in Kenya but also in all four of the EAC states in order to avoid RTIs becoming ranked as the second and seventh leading cause of death in 2020 and 2030 respectively as was predicted in most LMICs (Khorasani-Zavareh 2009; WHO, 2009, 2015b).

It should be noted that the needless loss of lives due to RTIs will cost the four EAC states dearly—especially economically. This is because the lives lost often represent a loss of considerable talent, knowledge, skills, experience and physical manpower that add up to a significant economic productive capability. Due to RTIs, it is evident that the four EAC states are not only needlessly robbed of human lives, but also valuable productive manpower which represents a fundamental driver of the EAC regional integration pillar of the common market that is meant to enhance the free flow of factors of production, labour and capital (EAC, 2010). It has been argued that the people lost to RTIs occurring all over the EAC would more than likely have lived long lives which could have resulted in an estimated \$5 billion USD worth of lifetime productivity from each year’s RTI fatalities (Ross & Mandler, 2016).

VULNERABILITY OF ROAD USERS TO ROAD TRAFFIC INCIDENTS

Similar to the prior findings of Balikuddembe et al (2016), Museru et al. (2002), Peden et al (2004), Twagirayezu et al, (2008), WHO (2009, 2015) and others, the pedestrians and passengers are found to be the most vulnerable groups at risk of RTIs in the four EAC states. This can be largely attributed to the inadequate attention, planning and resources that has been devoted to the construction of pedestrian road infrastructure. In fact, this problem was identified as exposing both the pedestrians and passengers to RTIs in many LMICs including some of the EAC states (Balikuddembe et al., 2016; Khorasani-Zavareh, Mohammadi, et al., 2009; Ogendi et al., 2013).

This highlights a vital need for urgently prioritising the design of non-motorised and pedestrian road infrastructure. Similarly, the enforcement of the use of vehicle occupant protective equipment has been inadequate and noted still to be a serious problem in road safety implementation in EAC states and other LIMCs (Khorasani-Zavareh, Khankeh, et al., 2009; Small & Runji, 2014; Tanzania Police Force [TPF], 2014; Uganda Police Force [UPF], 2013). Enforcing road safety regulation and building adequate safety considerations into the road infrastructure sector which is accelerating at a considerable pace all over the EAC (EAC, 2010a; EAC, 2013) is vital. Otherwise the four EAC states will continue to lose salvageable lives due to RTIs as well as the invaluable contribution they could have made to economic growth and the full realisation of the EAC political federation.

As noted above, the victims aged between 18 and 35 years are more prone to die or be injured in the RTIs (Peden et al., 2004; WHO, 2009, 2015b). This is also the case with the EAC where the distribution of ages between 15 and 59 makes up 53.6% of the populations of Kenya, 54.4% of Rwanda, 50% of Tanzania and 48.1% of Uganda (UN, 2015). Given that the majority of victims involved in RTIs in the EAC states were aged between 18 and 35 years, the EAC stands to lose more of its economically productive population which was recently reported to consist of 11,275,483 (males) and 11, 046,441 (females) in 2014 (EAC, 2015). Similar findings were reported in some studies whose scope also involved some EAC states (Balikuddembe et al. 2016; Chalya et al., 2012; Tumwesigye, Atuyambe, & Kobusingye, 2015; Twagirayezu et al., 2008). In the same regard, the male exposure to RTIs is far greater than the exposure of females to RTIs which can be attributed to the fact that women drive less compared to men and are thus less exposed to RTIs (Khorasani-Zavareh, Khankeh, et al., 2009; Peden et al., 2004). It can therefore be reasonably deduced that unless some urgent actions are taken the EAC is at risk of continuing to lose some of its most valuable economic components of productive manpower, whose potential contribution to EAC integration pillar of the labour market cannot be replaced.

ECONOMIC IMPACT OF ROAD TRAFFIC INCIDENTS

RTIs are associated with both the direct and indirect losses which are summed-up in the GDP or GNI per capita. The injuries reported to be sustained due to RTIs (head, neck, thorax, abdominal, spinal and limbs) are life threatening and can cause a long-term malady and permanent disability or physiological morbidity (Chalya et al., 2012; WHO, 2009, 2015a). This combined with other socioeconomic effects of RTIs contribute to often unforeseen public health costs and expenditures (Kavi et al., 2014). The costs may include: the costs of administrative, legal, insurance claims; road safety promotion; vehicle and property damages; medical, emergency care services and the treatment of victims especially when that involves long periods of rehabilitation and disability (Peden et al., 2004).

It should also be noted that a sizeable proportion of RTI survivors become economically unproductive (WHO, 2013). That means that survivors will often become dependent on the financial support from their immediate families, friends, government agencies or insurance compensation. This in turn creates a socioeconomic dependence syndrome. This is what adds-up to the significant GDP losses as observed in Tanzania and Uganda. As a consequence, the progress of vital economic sectors like agriculture, trade, transport, education and others is likely to be hampered. This is because vital and limited financial resources that would normally be expended on the productive sectors that play an important role in the EAC integration are instead diverted to pay for emergency costs and other costs incurred due to RTIs.

ROAD SAFETY IMPLEMENTATION IN THE EAST AFRICAN COMMUNITY

The establishment of a lead agency is an important factor that can improve road safety in LMICs (WHO 2013, 2015). The lead agencies undertake multi-sectoral measures which are stipulated in the existing road safety laws and policies, with the ultimate goal of halving RTIs by 50% in their respective states. This work is done in unison with the regional and international road safety frameworks enshrined in The African Road Safety Charter 2014, The African Road Safety Action Plan 2011-2020, and above all, with five pillars of the UN Decade of Action for Road Safety (AU, 2014; UN, 2010). Even though the three EAC states apart from Tanzania have road safety budgets, their financial support for effective implementation of road safety is still inadequate (Kavi et al., 2014; UPF, 2011). This needs to be urgently addressed if the road safety programmes are to be purposeful and capable of ushering in tangible interventions that make significant progress towards reducing the RTIs and their socio-economic costs.

Above all, there's also a great need for establishing a well-funded road safety lead agency for the EAC as a whole in order to meet the common road safety needs and challenges for all the four EAC states (EAC, 2011). This can take into account the existing road safety laws and policies in the four EAC states and streamline them. If this approach were adopted, in the long-run it would enhance the long-awaited idea of the political federation of the EAC (EAC, 2010). One of the EAC's ultimate goals is to have unified institutions for all the EAC partner states rather than for individual states. That would also help to address the often complicated and unnecessary task of understanding and complying with different road safety rules for different road users as they move between different EAC states.

Although different road safety laws and policies exist in the four EAC states, many are often not understood and enforced properly. This is often attributed to some laws being outmoded so they bear less relevancy to the present road safety conditions. Other reasons for this problem include corruption; lack of public awareness and sensitisation and inadequately

trained personnel (TPF, 2014; UPF, 2009, 2011). In Uganda, for instance, several calls have been made for the amendment of The Traffic and Road Safety Act of 1998 so that it can address and improve the road safety standards and support its effective enforcement (UPF, 2013). The EAC states being signatories to the Decade of Action for Road Safety have at least tailored road safety laws and policies in-line with the five pillars of the Decade of Action. These are: road safety management; safer roads and mobility; safer vehicles; safer road users and post-crash management (UN, 2010). This meant that after 2010 some partner states adopted road safety budgets and new laws like legislation outlawing driving under the influence of alcohol and drugs, setting speed limits and requiring helmet use. This is commendable in as much as it saves the EAC states from losing salvageable and productive lives which have a role to play in their quest of EAC integration.

However, there exists considerable divergences in some road safety initiatives adopted by the four EAC states. Speed limit laws in particular stand out in this regard. In Rwanda, the speed limits are regulated at 40 Km/h and 80 Km/h in urban and rural settings respectively, while in Kenya they have been set at 50 Km/h and 100 Km/h in urban and rural settings respectively. Drink driving laws are also another road safety concern. In Kenya, there is no limit on the level of Blood Alcohol Consumption (BAC) unlike Rwanda, Tanzania and Uganda which have a BAC limit of 0.08 g/dl for all drivers (WHO, 2009, 2015a). EAC regional integration has led to extensive cross-border transport activities, especially in terms of the haulage of exports and imports across partner states. Variances in the above laws only serve to hinder enforcing speed limits and discipline among the cross-border drivers—not only in their respective states but also across the entire EAC. It should be noted that these factors and others were noted to be exacerbating the risk of RTIs (Balikuddembe et al., 2016; Chalya et al., 2012; Ogendi et al., 2013; Twagirayezu et al., 2008).

Despite the fact that the mid-period for implementing the Decade of Action for Road Safety has passed, it's worth reporting that unfortunately some vital road safety initiatives such as requiring child restraints are still much needed. In fact, no single EAC state has child restraints laws in place (WHO, 2009, 2015a). Similarly, laws on mobile use while driving and drug-driving laws are still urgently needed in the majority of EAC states. Unless these road safety shortcomings are urgently remedied collectively then a priceless opportunity to significantly reduce EAC RTIs in unison with the ultimate vision of having the EAC political federation with common laws might be missed.

STUDY LIMITATIONS

Every research study has shortcomings, and the present one was no exception. It was limited by a lack of information due to the lack of data uniformity within the different EAC

states, and the fact that often some of the available statistical data and information was recorded in French and Swahili. Therefore, some findings in this paper might either have been over or under reported and contextualised. Also, the information and data presented herein was not representative of all the five EAC states because Burundi was excluded as previously mentioned. Despite these limitations, this study should still offer invaluable insights necessary for successfully devising the remedies to reduce RTIs among EAC states. Above all, it should also make clear the urgent need for harmonising policies for the prospective EAC political federation.

CONCLUSION AND PREVENTION IMPLICATIONS

The path of regional integration, which was embarked on by the EAC states, is applauded since it offers new opportunities to optimise the economic growth and development among the partner states. EAC integration should also offer the opportunity to improve and optimise road safety effectively throughout the EAC. It is vital that this opportunity is not wasted as the rate at which the four states experience RTIs is alarming when compared to the global and AFRO levels. This matters economically and socially because the EAC as a whole presently has to pay a high price from the consequences of RTI related fatalities, injuries, morbidity, disability and YLL as do each of its member states. To respond to this, most efficiently and effectively a road safety lead agency for the EAC is urgently needed, that can create a unified road safety policy not only to save lives, but to aid the quest of ushering the EAC integration goals. This is especially important for the common market if it is to be served by a free flow of production resources, labour and capital as well as the anticipated political federation of EAC. The EAC stands to achieve all of this given the similar geopolitical dynamics of its partner states if it can thrive on continued cooperation and commitment which is vital to any successful regional integration.

REFERENCES

- African Development Bank. (2013). *Mortality in Africa: The share of road traffic fatalities*. Abidjan, Côte d'Ivoire: Market Brief Statistics Department.
- African Union. (2010). *The African Road Safety Action Plan 2011-2020*. Addis Ababa Ethiopia.
- African Union. (2014). *The African Road Safety Charter 2014, Addis Ababa Ethiopia*. Retrieved April 2016, from www.au.int/en/.../29736-wd-e_-_draft_african_road_safety_charter.pdf
- Balikuddembe, K. J, Ardalan, A., Khorasani, Z. D., Nejati, A., & Kasiima, M. S. (2016). Road traffic incidents in Uganda: A systematic review study of five years trend. *JIVR* 9(1), 1-9.
- Chalya, P. L., Mabula, J. B., Dass, M. R., Nkinda, M., Ngayomela, H. I., Chandika, B. A., & Gilyoma M. J. (2012). Injury characteristics and outcome of road traffic crash victims at Bugando Medical Centre in Northwestern Tanzania. *Journal of Trauma Management and Outcome*, 6(1), 1-8.

East African Community. (2010a). *The Charter of East African Community*. Arusha, Tanzania: East African Community.

East African Community. (2010b). *The East African Political Federation: Addressing East African's fears, concerns and challenges and consolidating its pillars*. Arusha, Tanzania: East African Community.

East African Community. (2011). *Harmonizing of road safety laws and regulations*. Working Paper No.4. Bureau for Industrial Cooperation. EAC, July 25, 2011.

EAC Development Strategy. (2010). *Deepening and accelerating integration (2006-2010)*. Arusha, Tanzania: EAC Secretariat.

EAC Development Strategy. (2011). *Deepening and accelerating integration: One people one destiny (2011/12-2015/16)*. Arusha, Tanzania: EAC Secretariat.

East African Community. (2013). *Towards political federation in the East African community: Achievements and challenges*. Arusha, Tanzania: EAC Secretariat.

East African Community. (2015). *The East African community facts and figures 2015*. Arusha, Tanzania. Retrieved September 7, 2015, from www.eac.int/statistics/index.php?option=com_docman&Itemid=153

Kavi, B., Harrison, J., Shahraz, S., Fingerhut, L. A. (2014). *Burden of road injuries in sub-Saharan Africa: Data sources, methods, and estimates of the national incidence of road traffic injuries*. Boston, MA: Harvard School of Public Health.

Khorasani-Zavareh, D. (2009). *Toward safety promotion among road users: Epidemiology and prevention of road traffic injuries in Iran*. (Unpublished doctoral thesis), Karolinska Institutet, Sweden.

Khorasani-Zavareh, D., Laflamme, L., Naghavi, M., Zarei, A., & Haglund, B. J. (2009). Traffic injury deaths in West Azarbaijan province of Iran: A cross-sectional interview-based study on victims' characteristics and pre-hospital care. *Int J Inj Contr Saf Promot* 16(3), 119-126.

Khorasani-Zavareh, D., Khankeh, H. R., Mohammadi, R., Laflamme, L., Bikmoradi, A., & Haglund, B. J. (2009). Post-crash management of road traffic injury victims in Iran. Stakeholders' views on current barriers and potential. *BMC Emerg Med*, 9(8). doi: 10.1186/1471-227X-9-8

Khorasani-Zavareh, D., Mohammadi, R., Laflamme, L., Naghavi, M., Zarei, A., & Haglund, B. J. (2008). Estimating road traffic mortality more accurately: Use of the capture-recapture method in the West Azarbaijan Province of Iran. *International Journal of Injury Control & Safety Promotion* 15(1), 9-17.

Khorasani-Zavareh, D., Mohammadi, R., Khankeh, H. R., Laflamme, L., Bikmoradi, A., & Haglund, B. J. (2009). The requirements and challenges in preventing of road traffic injury in Iran. A qualitative study. *BMC Public Health*, 23(9), 486. doi:10.1186/1471-2458-9-486

Museru, L. M., Mcharo, C. N., & Leshabari, M. T. (2002). Road traffic accidents in Tanzania: A ten year epidemiological appraisal. *East and Central African Journal of Surgery*, 7(1), 23-26.

Nzioki, T., & Tostensen, A. (2010). *Fast tracking East African integration: Assessing the feasibility of a political federation by 2010*. Norway: CHR, Michelsen Institute.

- Ogendi, J., Odero, W., Mitullah, W., & Khayesi, M. (2013). Pattern of pedestrian injuries in the City of Nairobi: Implications for urban safety planning. *Journal of Urban Health: Bulletin of the New York Academy of Medicine*, 90(5), 849-856.
- Peden, M., Scurfield, R., Sleet, D., Mohan, D., Adnan, A. H., Jarawan, E., & Mathers, C. (2004). *World report on road traffic injury prevention*. Geneva: World Health Organization.
- Ross, D. L., & Mandler, C. (2016). *The economic impact of road traffic fatalities in East Africa*. Trade Mark East Africa. Retrieved September 23, 2015 from <https://www.trademarka.com/news/the-economic-impact-of-road-traffic-fatalities-in-east-africa/>
- Small, M., & Runji, J. (2014). *Managing road safety in Africa: A framework for national lead agencies*. Working Paper No.101. SSATP, Africa Transport Policy Program.
- Tanzania National Road Agency (TANROADS). (2014). Retrieved September 23, 2015, from www.tanroads.org
- The National Transport and Safety Authority Act 2012*. Government of Kenya.
- Tanzania Police Force (TPF). (2014). *Crime Statistics Report January – December 2014*. Retrieved September 23, 2015, from www.nbs.go.tz/nbs/.../CRIME_STATISTICS_REPORT_JAN%20-%20DEC_2014.pdf
- The Presidential Decree Regulating Traffic Police and Road Traffic 2012*. Government of Rwanda
- Traffic and Road Safety Act 1998*. Government of Uganda.
- Tumwesigye, M. N., Atuyambe, M. L., & Kobusingye, K. O. (2015). Factors associated with injuries among commercial motorcyclists: Evidence from a matched case control study in Kampala City, Uganda. *PLoS ONE* 11(2). doi:10.1371/journal.pone.0148511
- Twagirayezu, T., Teteli, R., Bonane, A., & Rugwizangoga, E. (2008). Road traffic injuries at Kigali University Central Teaching Hospital, Rwanda. *East and Central African Journal of Surgery*, 13(1), 73-76.
- Uganda Police Force (UPF). (2009). Annual crime and traffic/road safety reports.
- Uganda Police Force (UPF). (2011). Annual crime and traffic/road safety reports.
- Uganda Police Force (UPF). (2013). Annual crime and traffic/road safety reports.
- United Nations. (2010). *Global decade of action for road safety 2010 – 2020*. New York, NY: United Nations.
- United Nations. (2015). *World population prospects: The 2015 revision*. New York, NY: United Nations.
- World Health Organization. (2008). *Global burden of disease (GBD) 2004 update*. Geneva, Switzerland: World Health Organization.
- World Health Organization. (2009). *Global status report on road safety 2009: Time for Action*. Geneva, Switzerland, World Health Organization.

World Health Organization (2013a). *Road safety in the WHO African region: The facts 2013*. Geneva, Switzerland: World Health Organization

World Health Organization. (2013b). *Global status report on road safety 2013: Supporting a decade of action*. Geneva, Switzerland, World Health Organization

World Health Organization. (2015a). *Global status report on road safety 2015*. Geneva, Switzerland: World Health Organization.

World Health Organization. (2015b). *World health statistics 2015*. Geneva, Switzerland: World Health Organization.