



# Review of Road Traffic Accident Burdens in Transportation Sector of Ethiopia

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## ABSTRACT

*The transportation sector has a very immense role in the economic development of a given country. Because, human beings' day-to-day activities are highly depends on the transport service. But this sector has its own drawbacks, like road traffic crashes and environmental pollution. In Ethiopia, the road transport sector is poor in terms of quality and service delivery systems. Due to this, the frequent occurrence of road traffic crashes has been recorded in the country continuously. To that end, mainly this paper was intended to review road traffic accident burdens in the transportation sector of Ethiopia. In detail, reviewing the costs of road traffic accidents, the causing factors of road traffic accidents, the types of vehicles highly involved in road traffic accidents, and the victim groups of communities affected by road traffic accidents at the national level were the specific objectives of this paper. Meanwhile, all road traffic accident data found in Ethiopia from the federal police commission report papers, journal articles, and dissertation papers were used for analysis purposes. Besides, the collected data were presented in tables and figures. Furthermore, the data was analyzed and interpreted based on a descriptive research design. Finally, the result of this review shows that trends of road traffic accidents in Ethiopia have been increasing over time by killing, injuring people and damaging resources. Drivers' bad behaviors, low know-how of road users, poor road infrastructure, old vehicle conditions, and environmental factors are aggravating the occurrence of road traffic accidents in the country. Thus, to tackle this problem, educating people, enforcing traffic laws, enhancing engineering measures, and giving emergency responses were the recommendations given in this paper.*

**KEYWORDS:** traffic, traffic accidents, fatality, injury

## BACKGROUND OF THE STUDY

Transportation is a major generator of employment as well; it plays a vital role in the distribution of goods and services from place to place, both nationally and internationally (Herbert, 1979). Road transportation facilitates the movement of goods and people from origin to destination. But road traffic crashes have been a challenging issue in its operations (WHO, 2009). Globally, 1.35 million people in the 5–29 years old (active age groups) were killed and more than 50 million of them were injured. Also, the road traffic accidents will be a cause for 13 million deaths and 500 million injuries in the coming ten years globally (WHO, 2021). Unfortunately, in low- and middle-income countries, the rate, scale, and other impacts of the problem are worse, where more than 90 percent of the world's road deaths are recorded. In Africa, the rate of road traffic deaths is highest (26.6/100,000 people), followed by South-East Asia 20.7/100,000 people (Raffo and Bliss, 2020). Every day, thousands of the people are killed and injured on the roads. Men, women, or children who are walking, biking,

or riding to school or work, playing in the streets, or setting out on long trips will never return home, leaving behind shattered families and communities (Kwdso, 2014). In Africa, Nigeria and Ethiopia contributed to a high proportion (23%) of road accident-related deaths on the continent, and the level of road crashes is increasing over time in Ethiopia with the growth in the number of vehicles, the population, the road network, and the vehicle kilometers driven. Citizens die on the roads at an average rate of 4,732 per year; or, every day, approximately 13 Ethiopians do not return home due to being victims of road traffic crashes (UNECFA, 2020). Past studies have indicated that Ethiopia has one of the highest fatality rates per vehicle in the world. Emergency medical systems are often poor, and injury prevention programs are rarely available (WHO, 2002). It is exceeding 100 fatalities per 10,000 vehicles. This should be compared with the Kenya and the United Kingdom, where the figures are about 19 and 2 per 10,000 vehicles, respectively. This figure can also be even bigger when considering the number of accidents that go unregistered. Ethiopia loses about €50 million annually



due to traffic accidents. In addition, the victims are mainly public transport travelers in the working age group between 18 and 30 years old (Make Road safe, 2006). Also, the rapid growth of motorization (without appropriate regulation), rapid population growth, and increase in the road network, coupled with the poor attitude and safety culture of road users, were increasing the risks (UNECFA, 2009). Thus, this paper was intended to review the road traffic accident burdens in the transport sector of Ethiopia.

**OBJECTIVE**

This article was aimed to review the burden of road traffic accidents in Ethiopia’s transportation sector. More specifically, the paper was meant to

- Examining the costs associated with vehicular incidents,
- To determine what contributes to road traffic accidents
- To identify which vehicle models are most frequently involved in traffic incidents
- To identify more victim groups in Ethiopian communities affected by traffic accidents

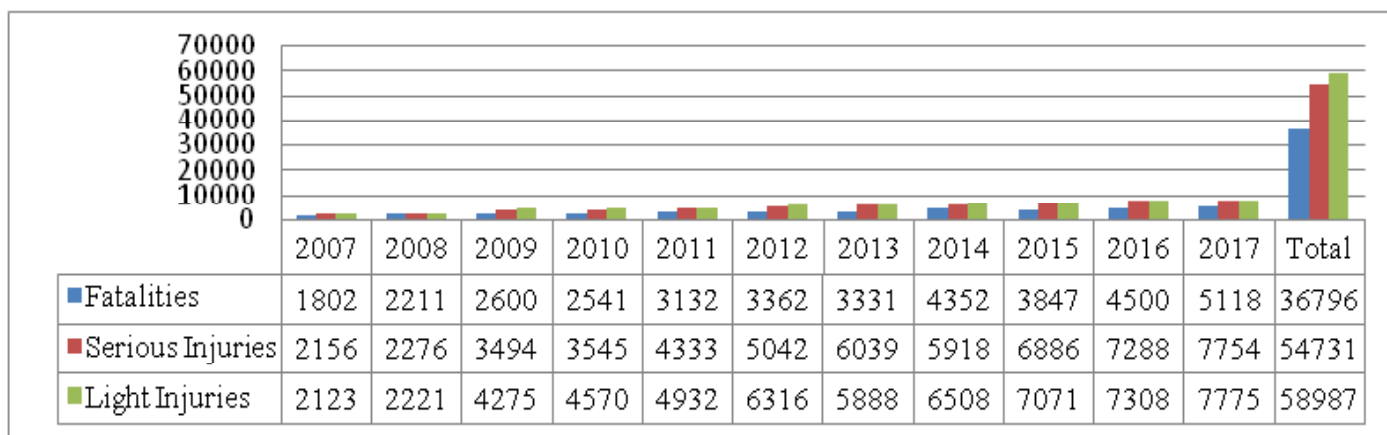
**METHODOLOGY**

Reviewing the burdens of road traffic accidents in transportation sector and giving scientific recommendations is one of fundamental step used to curb the problem that has been losing the life, causing physical injuries; and damaging the properties at all. In case; this paper basically emphasized on reviewing the burdens of road traffic accidents in Ethiopia. To make this paper significant the reviewed paper has used all road traffic accidents data found in Ethiopia for analysis purposes. Here, entire information presented in this paper is extracted from federal police commission report of Ethiopia, journal articles and dissertation paper sources. Finally, the collected data were presented in tables; figures and analyzed and interpreted accordingly.

**RESULTS AND DISCUSSION**

**Costs of Road Traffic Accidents**

Due to poor management and policy road traffic accidents are a serious issue that ranked Ethiopia among the worst countries in the world. Annually total of thousands of people are killed, the majority of whom are members of the working class (Micheal et.al, 2023).



**Figure 1.** Number of Road Traffic Accidents in Ethiopia from 2007/8 -2017/18

Source: Ethiopia Federal Police Commission Report, 2019

The number of the traffic accidents in Ethiopia during the eleven years that have passed, from 2007–2008 to 2017–2018, is shown in figure 1 above. Accordingly, in the contry 36796 deaths, 54731 serious injuries, and 58987 light injuries had recorded. Along with this, the data in the above figure indicates that although the number of road traffic accidents tends to fluctuate from year to year, the number of fatalities and injuries were rising.

**Table 1.** Road Traffic Injury distribution among the Regional States (2016–2018)

Region	2018			2017			2016		
	Deaths	Serious Injuries	Light Injuries	Deaths	Serious Injuries	Light Injuries	Deaths	Serious Injuries	Light Injuries
Tigray	386	854	381	374	858	584	371	664	356
Afar	56	73	20	72	49	31	131	164	79
Amhara	1104	1032	1252	1152	1181	1924	1035	1190	1990
Oromia	1478	1448	1386	1882	1710	1586	1541	1459	1485
Somalia	132	127	134	204	533	447	157	408	396
BG	191	136	266	36	126	215	33	224	395



SN	712	1152	725	720	1121	922	634	990	937
Gambela	19	43	81	18	20	48	16	38	101
Hareri	55	203	188	34	224	507	53	123	284
AA	528	2210	1274	585	1804	1232	477	2085	1232
DD	36	129	242	41	128	279	31	141	180
Total	4597	7407	5949	5118	7754	7775	4479	7486	7435

Source: Federal Police Commission of Ethiopia, 2019

Table 1 above shown the distribution of road traffic accidents in different regions of Ethiopia. The presented data revealed as the distribution of road traffic crashes in different region is uneven, with road fatalities and injuries concentrated on roads in the central part of the country. From out of 12 Regional States, namely the Oromia Regional State, Amhara Regional State, South Nation Regional state and the Addis Ababa City Administration accounted for almost 85% of the fatalities in the country.

**Budget lose due to road traffic accident in Ethiopia**

Due to Road traffic accident Ethiopia loses around 36.3 billion birr. From the total lost birr; where 15 billion birr for fatality, 12.7 billion birr for serious injuries, 5 billion birr for light injuries, and 3.7 billion birr for property damage in the past eleven (11) year in Ethiopia. In average annually Ethiopia loses around 0.9% of budget due to traffic accident in the past eleven year from 2007-2018(Debela, 2019).

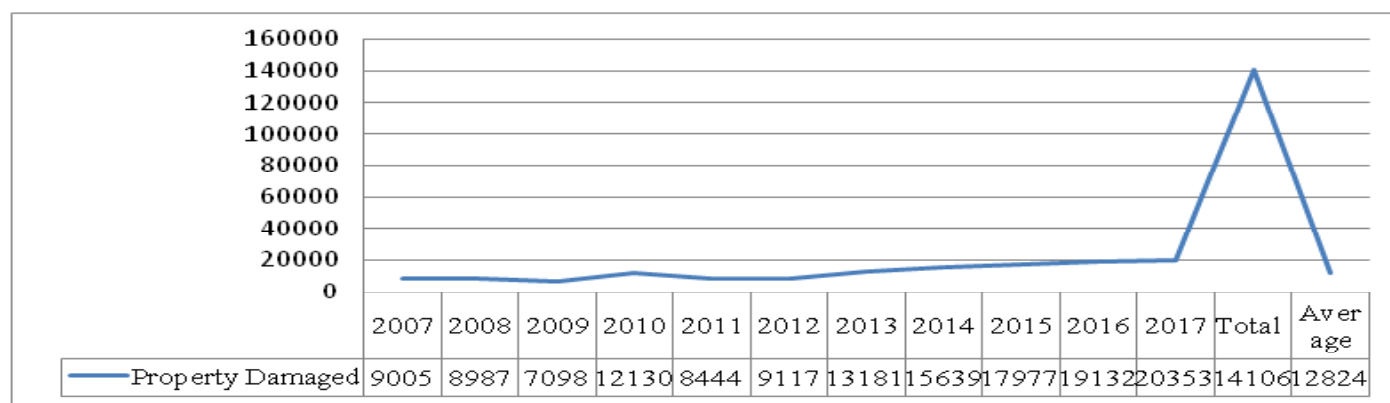


Figure 2. Budget lose due to road traffic accident in Ethiopia from 2007/07-2017/18

Source: Ministry of Finance and Economic Cooperation, 2019

The figure2 above depicts that budget of Ethiopia from 2007/08-2017/18 and economic lose due to road traffic accident. From the above figure Ethiopia lost 36.3 billion birr in 11 consecutive years due to traffic accidents which equals with loss of 9.8% of total budget of the country. Annually, in the past eleven year in average Ethiopia losedaround 0.9 % of budget due to road traffic accident.

**Damage of Property by Traffic Accidents**

Previous study results shown that road traffic accident has been a cause of damage for a large number of properties.

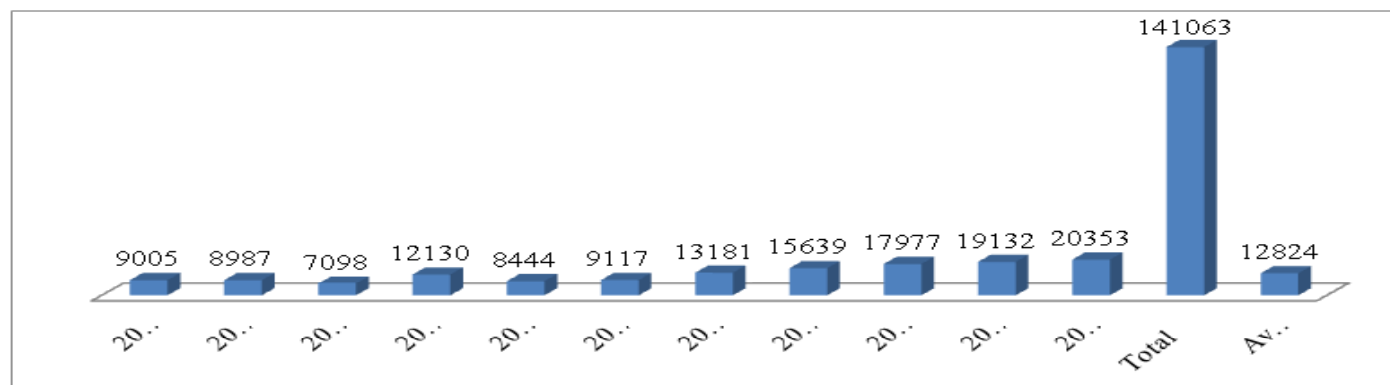


Figure 3. The Property damaged in Ethiopia due to Traffic Accidents (2007/8 -2017/18)

Source: Federal Police Commission, 2019



Figure 3 above shows properties damaged by road traffic accident in Ethiopia during 2007/8 to 2017/18. From the figure 3 it has seen as the number of property damages has been increased from year to year even-if some fluctuations are observed for little bit. These demonstrate that in Ethiopia road traffic accident is a heartbreaking event that not only takes precious and irreplaceable human life but also damages property in large numbers.

### Causing Factors of Road Traffic Accidents

In Ethiopia, the poor road network, absence of knowledge on road traffic safety, mixed traffic flow system, poor legislation and failure of enforcement, poor conditions of vehicles, poor emergency medical services, and absence of traffic accident compulsory insurance law have been identified as key determinants of road traffic accidents (Person, 2008). As well, the influence of alcohol or drugs, failure to respect the right hand rule, failure to give way for vehicles, failure to give way for pedestrians, following too closely, improper overtaking, improper turning, overtaking on curves, over speeding, failure to respect traffic signs, driving with fatigue, driving without attention, improper parking, overloading, pedestrian errors, failure to respect traffic police orders, and improper stopping were human factors that caused traffic crashes. Further, defective roads, failure in vehicles, and defective environments were causes for traffic crashes in addition to unidentified and other causes (Endalkachew et al., 2021). Similarly, another study finding shows that from 2011–2015 around Finfine, in 1407 traffic crashes, 1254 (89.12%) were human errors, 95 (6.75%) were road and environment factors, and 58 (4.12%) were vehicle factors, respectively. Besides, drink driving, driving opposite the right side, not giving priority to vehicles, not giving priority to pedestrians, driving over normal speed, reckless driving, improperly changing the direction, and starting to drive wrongly were human factors that caused road traffic crashes. Besides, vehicle breaks, old tire problems, steering problems, and tire blasts were vehicle-related factors that caused traffic crashes in addition to road and environmental problems (Yetimgeta, 2016). In general, these illustrations show that bad behavior by drivers, low know-how of road users, poor road infrastructure, weak traffic law enforcement, old vehicle conditions, and environmental factors (fog, forest, dust, mountain, and valley) were road traffic-causing factors in the country.

### Who are Victims of Road Traffic Accidents?

Most of the road deaths in developing countries involve vulnerable road users such as pedestrians and cyclists. In Ethiopia, pedestrian injuries account for 84% of all road traffic fatalities compared with 32% in Britain and 15% in the United States of America. In contrary, in the heavily motorized countries, drivers and passengers account for the majority of road deaths involving children (Bunn Collier et al. 2003). Of the total victims of road traffic accident who lost their lives, over half were pedestrians, out of whom 30%

were children (Mekonnen, 2007). The Ethiopian traffic police commission report (2018) revealed that during 2009 to 2017 among 2977 traffic crashes occurred on Addis Ababa to Adama old roads about 1353 (45.45 %) were pedestrians, 1267 (42.57%) were passengers and 356 (11.97%) were drivers. Likewise, in 8458 road traffic incidences recorded in Addis Ababa during 2018–2020 the victim groups were 6766 (80%) pedestrians, 10159 (12%) passengers, 423 (5%) drivers and 254 (3%) others (Micheal et al., 2023). Besides, in 2018 in Ethiopia 4597 deaths, 7404 serious injuries and 5949 slight injuries were recorded. In these incidental cases 2372 (51.6%) passengers, 1513 (32.9%) pedestrians and 712 (15.5%) drivers were died. Besides, in 7404 serious injuries, 3887 (52.5%) were passengers, 2734 (36.9%) were pedestrians and 786 (10.6%) were drivers. Moreover, in 5949 slight injuries, 3786 (63.6%) were passengers, 1660 (27.9%) were pedestrians and 503 (8.5%) were drivers (Federal Police Commission of Ethiopia, 2019). These shows in Ethiopia vulnerable road users are more risk takers of road traffic accidents. Specifically, pedestrians, cyclists, passengers and drivers are highly involved in incidents.

### Types of Vehicles Involved in Road Traffic Accidents

The occurrence of traffic accidents in Ethiopia is increasing due to rapid motorization without appropriate regulation. During the year 2004/5 among 1801 fatal accidents recorded in the country trucks, cars, taxis, buses and others were vehicle types that involved in road traffic accidents. From these fatality records 859 (48%) were caused by trucks, 320 (20%) were caused by cars, 259 (14%) were caused by taxi, 204 (11%) were caused by buses and 117 (6%) were caused by other vehicles (UNECFA, 2009). Similarly, in 2012/13 there were 240 recorded traffic accidents in Hospital of Wolaita zone. Among these recorded traffic accidents 75 (31.2%) were caused by motor cycles, 52 (21.7%) were caused by Isuzu, 34 (14.2%) were caused by Bajaj and 30 (12.5%) of them were caused by other vehicle types (Feleke et al., 2015). By the same token, the study's conducted on magnitude and factors associated with road traffic accident among traumatized patients in Arba Minch general Hospital illustrates among 112 road traffic accidents, 45 (40%) were due to motor cycle, 37 (33%) were due to Bajaj three wheel motorcycle, 13 (11.6%) were due to public bus, 13 (11.6%) were by public bus, 6 (5.3%) were by Isuzu, 5 (4.4%) were by minibus and the remaining 6 (5.3%) were caused by other vehicles (Direslgne et al., 2017). These shows concerning types of vehicles that cause road traffic accidents are from two wheels to high freight trucks and public transport buses. Above all, the recent data shows two wheel motorcycles and bajajs are highly causing road traffic accidents in Ethiopia.

### CONCLUSION

In all parts of Ethiopia the road traffic accident is a factor that cost huge loss of life, physical injuries and property damage. Besides, the occurrence of road traffic accidents

are increasing through time by killing, injuring people and damaging resources that costs in million and billion birrs. Bad behavior of drivers, low know-how of road users, poor road and road side infrastructures, low capacity of traffic law enforcement, old age vehicle conditions and environmental factors (fog, forest, dust, mountain and valley) are road traffic accident causing factors in the country. Meanwhile, vulnerable road users specifically cyclists, motorcyclists, passengers, drivers and pedestrians were main risk takers in road traffic accident. Besides, motorcycle, three wheel Bajajs, mini buses, passenger midi buses, long trip public buses, high load freight trucks were vehicle types that were causing road traffic crashes in Ethiopia.

## RECOMMENDATIONS

In order to tackle road traffic crash problems of road transportation industry the government of Ethiopia should design and implement policies that ensures the safety of road users in all regions of the country by understanding the severity of road traffic accident and basic road safety education should be given to pedestrians, passengers, cyclists, motorcyclists and children in the schools and work areas. Besides, traffic rules that enforce seat belt uses, child restraint uses and helmet uses should be implemented properly. To minimize road related causes of traffic accidents road projects should be designed and constructed based on 'safety first' traffic rule and urban roads should be separated in pedestrian, cyclists and vehicle roads. Above all, transport authority of Ethiopia should follow up the driving license providing institutions. Since most of driving license providing institutions takes money and give license with out giving effective trainings to the driver trainees

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