

Road Accidents in Kerala: An Assessment

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Abstract: Road transportation is one of the most preferred modes for passenger and freight movement. It possesses certain advantages compared to other modes of transportation such as easy availability, door to door services, possibility for motorised and non-motorised transportation etc. Due to these advantages, there is a high dependence on this particular mode for both passenger and freight transportation. This mode creates serious ill effects such as air pollution, noise pollution, congestion and road accidents. Of all these problems, road accidents have become the most threatening. This problem is not confined within the boundaries of a particular state or nation but is a problem world-wide. This decade (2011 to 2020) is marked as the Decade of Action For Road Safety by the United Nations with the objective of achieving zero accidents rate by 2020. In line with this, India has also set the objective of zero accidents rate by 2020. Will Kerala, which contributes heavily to the national road accident figures, be able to achieve the same is a serious question that needs an answer. It is in this context that this paper tries to assess the road accidents problem in Kerala.

Keywords: Road accidents, Kerala roads, Kerala accidents.

I. INTRODUCTION

Kerala state is known for its paradoxical development index as it maintains a high Human Development Index with low economic growth, which has become a much sought after area of research among academicians and scholars. The geographical position of the state causes many natural and unnatural tragedies in the state. Natural disasters such as landslides, lightning and floods claim many human lives yearly in the state. However, the tragic fact is that the state has been witnessing loss of lives of its people especially youngsters in the productive age group of 15 to 45 and disability because of un-natural factors or human errors, such as through the mounting number of road accidents in the state. Kerala witnesses a very high rate of road accidents among the Indian states. In road accidents, the state loses nearly 4,000 human lives yearly and more than forty thousand people get permanently disabled or injured. Even though loss of life by any means is a loss no less, the number of incidents and related loss of lives are very high for road accidents when compared to natural and other disasters. There are approximately 108 road accidents claiming approximately one death in every two minutes and injuring nearly 121 people on Kerala's roads every day which makes the problem very relevant for in-depth study and understanding (Kerala State Disaster Management Plan, 2016). The years 2014 and 2015 saw Kerala claim the fifth position among all Indian states in terms of the number of road accidents. But the actual numbers had actually decreased in the state. In the light of this reality, this paper tries to assess the trend of road accidents based on the total number of registered road accidents and number of fatalities and injured and analyze this problem based on the different road stretches in Kerala.

II. DATA SOURCES FOR THE PAPER

This study uses secondary data. The data is collected from the various official agencies of Government of Kerala such as National Transportation Planning and Research Centre (NATPAC), Kerala Road Safety Authority, State Crime Record Bureau, Motor Vehicles Department, and also from Government of India such as Ministry of Road Transport and Highways and Ministry of Surface Transport.

III. OBJECTIVES

The objectives of this study are:

1. To assess the trend of road accidents in Kerala from 2000 to 2015
2. To assess the road accidents based on the different types of road stretches in the state

IV. THE TREND OF ROAD ACCIDENTS IN KERALA

A road accident is defined as, “an incident occurring in a place open to public movements where at least one moving vehicle and a human are involved”. Kerala registers a high rate of road accidents among the Indian states. As per the reports of government of India (MoRTH, 2015), Kerala comes fifth in the total number of road accidents registered in the country. From 2014 onwards, Kerala moved to the fifth position replacing Andhra Pradesh with 7.8 percentage share in the all India statistic of road accident cases, which demands serious attention as the state is known for a better human development index.

TABLE I: ROAD ACCIDENTS IN KERALA FROM 2000 TO 2015

Years	Number of Road Accidents	Assuming Base Year Index as 100	Number of Fatalities	Assuming Base Year Index as 100	Number of Injured	Assuming Base Year Index as 100
2000	34387	100	2590	100	47860	100
2001	38361	111	2674	103	49675	104
2002	38762	112	2792	108	49459	103
2003	39496	114	2905	112	48640	102
2004	41124	119	3059	118	51228	107
2005	42363	123	3203	124	51124	107
2006	41647	121	3589	139	49881	104
2007	39917	116	3778	146	48246	101
2008	37263	108	3810	147	43473	91
2009	35388	102	3831	148	41455	87
2010	35013	101	3942	152	40997	86
2011	35309	102	3990	154	40709	85
2012	36137	105	4133	160	41287	86
2013	35230	102	4151	160	40208	84
2014	36318	105	3964	153	40752	85
2015	39040	113	4052	156	43562	91

Source: State Crime Record Bureau, Kerala, 2015

It is usually perceived that road safety simply means no accidents but if the number of road accidents could reduce at least by fifty percent from the base year it could be considered as a commendable achievement. From Fig. 1, it is seen that the number of accidents has been fluctuating. The fatalities had steadily increased up to 2012 from the base year and after that it has been shown a mixed trend with decrease and slight increase. The number of injured had also decreased from 2006, but from 2014, it has been showing an upward trend.

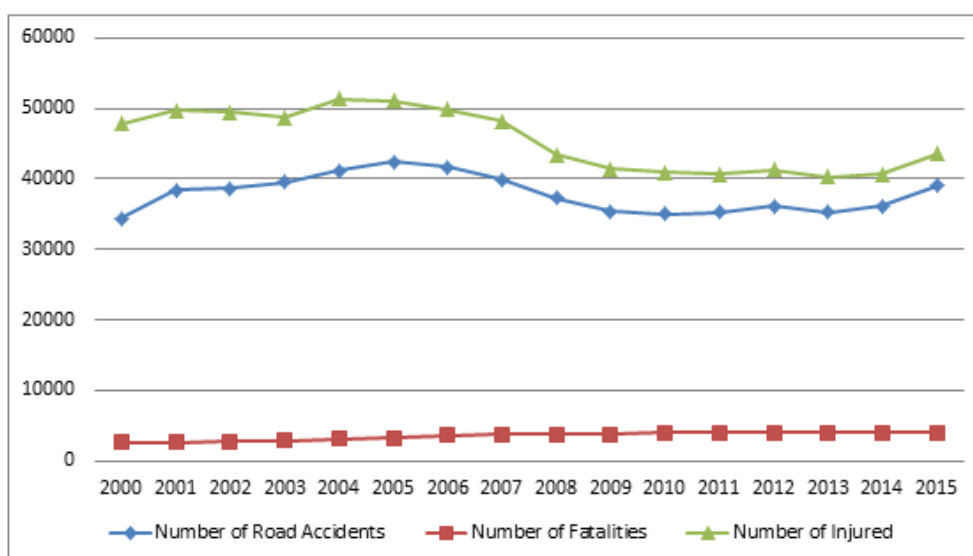


Fig 1: Trend of road accidents in Kerala from 2000 to 2015

As the graph shows, the number of road accidents has shown a decreasing trend since 2006 but there is no consistency in the decrease of the road accidents. During the same year the total number of injured persons (minor & major) from the reported accident cases has been showing a declining trend though that decline is a volatile one. Since 2008 the number of injured persons from the road accidents in Kerala state has been decreasing. In the category of persons killed, it has been showing an increasing trend which is a serious matter to be considered. In the analysis of fifteen years data, the number of persons killed compared to injured has been increasing. This situation questions the emergency response systems and safety precautions for the users.

This assessment of road accidents in the state of Kerala using statistics from 2000 to 2015 shows that Kerala couldn't achieve a commendable control in reducing this human tragedy. In all the three categories of data - accident numbers, fatalities and injured - it has shown a volatile trend without having a drastic decline. The category of persons killed in the road accidents has been showing an upward trend from 2000 onwards in Kerala. This is a matter of serious concern and calls for the review of the existing policy programmes for road safety in the state. An immediate reduction in this problem may not be possible but slowing the pace of growth, then stabilizing that slow growth and gradually turning that trend downwards may be possible.

V. ACCIDENT DETAILS OF KERALA ACCORDING TO TYPE OF ROADS DURING 2005-2015

Kerala has 2,05,545 km of total road network, almost five percentage of the national road network. Of this, the state possesses 1,781 km of national highways, and 4,342 km of state highways. Kerala predominantly depends on roads for the movement of materials and passengers through 11 National Highways, 72 State Highways and Major District Roads and Village Roads. The road density of the state is higher than the national average. Kerala has 528.8 km/100 sq km whereas the national average is 387 km/100 sq km. The length of road network per lakh population in the state is 615.5 km. The road length of Kerala based on who maintains it is given in Table II.

TABLE II: TOTAL ROAD LENGTH IN KERALA BASED ON THE OWNING AUTHORITIES

Sl No	Name of Department	Length (Km)	Percentage
1	Panchayats (LSGDs)	1,39,380.41	67.81
2	Public Works Department (PWD)	31,812.09	15.48
3	Municipalities	18,411.87	8.96
4	Corporations	6,644.00	3.23
5	Forests	4,575.77	2.23
6	Irrigation	2,611.90	1.27
7	PWD (NH)	1,781.57	0.87
8	Others (Railways, KSEB)	328.00	0.16
	Total	2,05,545	100.00

Source: Kerala State Planning Board, 2016

Panchayat or the Local Self Government owns the major share of road network of 67.81 percentage followed by Public Works Department. The National Highways in the state constitutes only 0.87 percentage of the road network of the total.

Table III shows the road accidents in Kerala based on the road networks during the period 2005 to 2015.

TABLE III: ROAD CATEGORY WISE OCCURRENCE OF ROAD ACCIDENTS AND VICTIMS FROM 2005 TO 2015 IN KERALA

Year	National Highways (in %)			State Highways (in %)			Major District Roads (in %)		
	Road accidents	Persons killed	Persons injured	Road accidents	Persons killed	Persons injured	Road accidents	Persons killed	Persons injured
2005	24.0	39.2	26.9	15.0	14.6	13.1	61.0	46.2	60.0
2006	21.3	36.5	26.2	16.8	13.6	13.2	61.9	49.9	60.6
2007	26.3	36.9	27.7	21.5	18.9	16.1	52.2	44.2	56.1
2008	24.5	35.9	26.9	22.6	19.8	17.9	52.9	44.3	55.2
2009	26.6	35.9	26.9	22.3	20.2	19.3	51.1	43.9	53.8
2010	25.9	34.9	26.8	23.1	21.4	19.5	51.1	43.7	53.7
2011	27.7	34.7	27.0	22.1	20.1	18.8	50.2	45.2	54.2
2012	25.4	33.8	26.1	23.4	21.4	19.4	51.2	44.8	54.5

2013	24.3	31.5	25.1	25.1	20.7	19.5	50.6	47.8	55.4
2014	24.1	31.2	25.1	25.7	19.1	17.2	50.2	49.7	57.7
2015	23.1	32.6	24.2	25.4	20.1	17.9	51.5	47.3	57.9

Source: State Crime Records Bureau (SCRB), Kerala

The Major District Roads or the road network other than the National Highways or the State Highways witnessed the major share of road accidents that happened in the state from 2005 to 2015. The remaining percentage of the road accidents are shared by the National Highways and the State Highways almost equally. In the category of the number of people killed and injured in road accidents too, the Major District Roads have witnessed the major share, National Highways come second, and the State Highways come third. Though the National Highways has only 0.87 percentage of the total road network in Kerala, in the category of total number of people killed and injured in road accidents, this category witnesses the major share in the state.

Around 68 percentage of the road network in Kerala are owned by Local Government bodies. The official figures say that 45.45 percentage of it was black topped and 8.13 percentage has other types of paving such as concrete. This means that the quality of a major portion of the road network that comes under the Local Government's control has to be improved.

In Kerala, the quality of the road network, irrespective of the department that maintains and controls it, needs to be checked as it is seen that 90 percentage of the road networks in the state are single-lane or do not have acceptable standards (NATPAC, 2016). In Kerala, 40 percentage of traffic is being handled by the National Highways and the State Highways, which constitute only around 3 percentage of total road networks. The remaining portion of the road network is handled by Major District Roads and Village Roads.

VI. OBSERVATIONS

The fifteen years of road accidents data of the state (Table I) shows that the problem was displaying a reducing trend from 2007 to 2014 but shows an upward trend for 2014 and 2015. This is same in the case of the figures for the total number of injured in road accidents. Both categories show an upward trend since 2014 after a reduction period from 2007 to 2013. But the number of fatalities throughout the period shows indifference to change or remains almost constant with no major reduction having taken place in this category. One of the observations is that Kerala registered all time high road accidents in 2005 when the state's road accidents number crossed the national average. Since then the Government of Kerala has taken several measures to bring the problem under control. One of them was the setting up of Kerala Road Safety Authority as the apex body in the state. There were a lot of road safety education classes conducted in the state, particularly among all categories of drivers and users. Many research studies were carried out to identify the causes of road accidents and to find out the ways and methods to tackle them. As a result of all these coherent efforts, 2007 to 2013 period saw a reduction in the road accidents, which helped in bringing the number of road accidents below the forty thousand marks.

Road wise assessment of road accidents shows that the National Highways in Kerala witnesses the major share of the road accidents. Even though it makes up for only .86 percent of the total road stretch of the state, it accounts for nearly 31 to 39 percent of fatalities, 24 percent of road accidents, and 26 injured percentage of injured. In the case of State Highway, the percentage of registered road accidents has increased from 15 to 25. This is a matter of serious concern. In short, the road wise assessment of road accidents in Kerala from 2005 to 2015 shows that the two stretches of road networks - National Highways and State Highways both together constitutes only nearly 3 percentage of total road stretch of Kerala but witnesses more than fifty percent of road accidents, fatalities and injured.

VII. CONCLUSION AND SUGGESTIONS

Kerala's road accidents data in all the three categories such as total number of road accidents, fatalities and injured shows a mixed trend with rise, reduction and sometimes remaining constant. Road safety simply means no road accidents in the road stretch, but even a fifty percent reduction from the base years can be considered as a successful road safety activity. Even by that assessment, Kerala's road safety activities over the period under study is not a completely successful one and Kerala has a long way to go in that direction. Roads need to be audited and deficiencies in road safety measures, especially on the National Highways and State Highways, have to be addressed.

The roads irrespective of who maintains it should be constructed scientifically. The construction based on the criterion or the codes prescribed by Indian Roads Congress (IRC) and Ministry of Road Transport and Highways will be useful in this direction. The design of the roads should be based on the concept of Forgiveness as the human factor is one of the most

important factors in the occurrence of road accidents. Road users may commit mistake while using the stretch but if the roads are constructed based on forgiving those mistakes then it can help to keep the users away from road accidents most of the time. Roads should be constructed by giving priority to the engineering aspects of road construction including the design of the roads (geometric aspects); by providing accurate carrying capacity based on the vehicle population, sufficient pedestrian facilities, road markings and traffic signs wherever it is required etc. The road safety aspects of the network must be incorporated from the time of design and planning of the road network.

The assessment of the road accidents, number of people killed and injured based on the road network classification given in Table II and Table III identified can be used for road safety policy formation. The types of road stretch that are more prone to crashes should be considered separately for identification and implementation of road safety measures. The identification of black spots and preventive measures such as the use of advanced technologies and traffic sign boards, especially warning boards and the deployment of traffic police persons at the accident prone area will go a long way in reducing the number of road accidents. The road accident assessment should take into consideration the authority's role and make them accountable for the same. Such kind of scrutiny will help to reduce the mistakes or the errors of the authorities in maintaining road network efficiently.

The reduction of road accidents requires long-term and short-term objectives to be set under Traffic Engineering, Traffic Education, Traffic Enforcement and Traffic Emergency Responsiveness system. Traffic Engineering requires long-term policies for widening roads, construction of Highways, bypass and feasibility studies for other modes of traffic. At the same time, there are short term programmes such as identification of black spots, installation of traffic control devices and removing obstacles for pedestrians from the roads etc. Traffic Education should set the target of inculcating safe traffic culture in the future generations and making them traffic aware users. For that, the government should make it a part of the academic curriculum. In the short run, traffic education classes should be imparted to all categories of road users. Traffic Enforcement also requires long term policies like recruiting and training qualified police personnel for all categories of disciplines such as technical and non-technical staff. In the short run, training to already working police personnel on how to reduce the road accidents through their scientific involvement and actions need to be carried out. Traffic Emergency Responsive system needs to be strengthened. The state still does not have an ambulance code to carry the victims. Any vehicle can be used for it. This is a serious drawback in the sector. The government should frame an ambulance code for carrying the victims and those vehicle should have at least one trained doctor to give first aid to the victims. To conclude, if Kerala does not give high priority to the problem of road accidents, the problem of road accidents will, in not so distant future, starting posing a serious challenge to the progress achieved by the state.

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