1. Road accidents is a negative externality associated with expansion in road network, motorization and urbanization in the country. Road traffic injuries are recognized, globally, as a major public health problem, for being one of the leading causes of deaths, disabilities and hospitalization, imposing huge socio-economic costs. In case of India, road injuries is one of the top four leading causes of death and health loss among persons of age group 15-49 years.

2. During the calendar year 2016, the total number of road accidents is reported at 4,80,652 causing injuries to 4,94,624 persons and claiming 1,50,785 lives in the country. This would translate, on an average, into 1317 accidents and 413 accident deaths taking place on Indian roads every day; or 55 accidents and 17 deaths every hour.

3. As compared to 2015, the numbers of road accidents and injured victims have declined in 2016 by 4.1 per cent and 1.1 per cent respectively. However, the number of persons killed in road crash has increased by 3.2 per cent over the previous year, i.e, 2015.

4. The number of fatal accidents, i.e., accident in which at least one victim dies, has increased consistently since 2005 and seen a sharp rise from 1,31,726 in 2015 to 1,36,071 in 2016. Consequently, accident severity expressed in terms of number of persons killed per 100 accidents, has gone up from 29.1 in 2015 to 31.4 in 2016.

5. Age profile of road accident victims for the calendar year 2016 reveals that the youth of age group 18 - 35 years accounted for 46.3 per cent (69,851 persons) and age group of 18-45 accounted for a share of 68.6% (1,03,409 persons) in the total road accident fatalities.

6. The number of road accidents relative to population, registered vehicles and road length are on a general declining trend from 2010, but the number of persons killed per lakh population has not undergone similar decline in recent years, as it has climbed up to 11.9 in 2016, after an initial decline from 11.8 in 2011 to 11.2 in 2013.

7. The National Highways constitute about 2 per cent of the total road network of India, but they accounted for 29.6 per cent of total road accidents and 34.5 per cent of total number of persons killed. The State Highways accounted for 25.3 per cent of total accidents and 27.9 per cent of the total number of persons killed in road accident in 2016.

8. Traffic junctions are points of conflict and hence, are prone to road accidents. About 37 per cent of total accidents took place on junctions itself during the calendar year 2016. Within traffic junctions, uncontrolled ones contributed to a major portion of road accidents underscoring the importance of traffic control mechanism at junctions.

9. Among the vehicle categories, two wheelers accounted for the highest share in total number of road accidents (33.8 per cent) in 2016, followed by cars, jeeps and taxis (23.6 per cent), trucks, tempos, tractors and other articulated vehicles (21.0 per cent), Buses (7.8 per cent), Auto-Rickshaws (6.5 per cent) and other motor vehicles (2.8 per cent). The share of two wheelers in total road accidents has increased from 28.8 per cent in 2015 to 33.8 per cent in 2016.

10. Out of total of 52,500 two wheeler riders killed in road accidents during the calendar year 2016, 10,135 two-wheeler riders (19.3 per cent) were reported to be not wearing helmets. Non-wearing of seat belts were also reported in 5,638 accident deaths during 2016.

11. Road users on two-wheelers are the most vulnerable; constituting 34.8 per cent of total persons killed in 2016. The share of this category of road users in accident killings has gone up from 31.5 per cent in 2015 to 34.8 per cent 2016. The other road users killed in road accidents are cars, taxies, vans and other light and medium motor vehicles - 17.9 per cent; trucks - 11.2 per cent; pedestrians - 10.5 per cent; buses - 6.6 per cent; auto rickshaws - 4.7 per cent; and others motor vehicles - 10.6 per cent (Details in Section V).

12. Any road accident is multi-causal. Ideally the factors responsible should be established through objective assessment of the circumstance under which the road accident occurred. Based on the extant data reporting system on which this report is based, drivers' fault is single most important factor responsible for road accidents (84 per cent), killings (80.3 per cent) and injuries (83.9) on all roads in the country during 2016. Within drivers' fault category, exceeding lawful speed accounted for a highest share of 66.5 per cent in accidents and 61.0 per cent of accident deaths. However, in the total road accidents and total road accident killings, the share of over speeding accounted for 55.9 per cent and 49.0 per cent respectively (Section VI).

13. Intake of alcohol/drugs by drivers resulted in 14,894 road accidents (3.7 per cent) and 6,131 fatalities (5.1 per cent) in 2016. In the total road accidents and total road accident killings, the share of intake of alcohol/drugs by drivers comes to 3.1 per cent and 4.1 per cent respectively.

14. The act of talking on mobile phones while driving has become one of the causes of road accidents. It has resulted in 4, 976 road accidents, 2,138 road accident deaths and injuries to 4,746 number of persons during the calendar year 2016.

15. Overloaded vehicles caused 61,325 (12.8 per cent) road accidents and 21,302 (14.1 per cent) deaths in 2016.

16. The total number of Hit and Run cases were reported as 55,942 (11.6 per cent) of the total road accidents in 2016 as against 57,083 cases (10.9 per cent) in 2015. The total number of persons killed in Hit and Run cases in 2016 is reported at 22,962, which is 15.2 per cent of total persons killed.

17. Tamil Nadu topped the number of road accidents in the entire country with a percentage share of 14.9 per cent followed by Madhya Pradesh (11.2 per cent) and Karnataka (9.2 per cent). In case of road accident deaths, Uttar Pradesh topped the list with a percentage share of 12.8 per cent followed by Tamil Nadu (11.4 per cent) and Maharashtra (8.6 per cent). Tamil Nadu reported maximum number of persons injured in road accidents in the entire country with a percentage share of 16.6 per cent followed by Madhya Pradesh (11.7 per cent) and Karnataka (11.0 per cent) respectively. Inter-state comparisons reveal that over the last four years only marginal changes have taken place in the rankings of bigger 13 States (details in Section VII). These States account for more than 86 per cent of number of road accidents and persons injured and about 84 per cent of persons killed in road accidents.

18. In 2016, the fifty Million-Plus Cities accounted for 18.7 per cent in total road accidents in the country, 11.8 per cent in total persons killed in road accidents and 16.7 per cent in total persons injured in road accidents. Chennai had the highest number of road accidents (7,486) while Delhi had the highest number of deaths (1,591)) due to road accidents. Accident severity for the combined 50 Million Cities was 19.8 in 2016 as against 14.9 per cent in 2015.

19. Month-wise distribution of road accidents during the calendar year 2016 reveals that the highest number of accidents occurred in the month of May (43,368) followed by March (42,843), thus contributing 9.0 per cent and 8.9 per cent respectively. Higher accident rates are observed during the hours, 15:00 to 18:00 (17.9 per cent) and 18:00 to 21:00 (17.6 per cent) of the day.

20. The Government has been implementing multi-pronged road safety programmes and initiatives which encompasses mass awareness/education programmes, engineering measures (both road and vehicle), enforcement of safety laws and emergency care to road accident victims. Recent road safety initiatives by Government of India are detailed in Section XI of the report.

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Section I: Road Transport & Accidents on Indian Roads

1. Introduction

Road transport is the dominant mode of transport in India, both in terms of traffic share and in terms of contribution to the national economy. To meet the demand for road transport, the number of vehicles and the length of road network have increased over the years. A negative externality associated with expansion in road network, motorization and urbanization in the country is the increase in road accidents and road crash fatalities. Today, road traffic injuries are one of the leading causes of death, disabilities and hospitalization in the country imposing huge soicio-economic costs.

2. An overview of Road Length, Motor Vehicles and Accidents on Indian Roads

A long term trend of increase in road length and motor vehicles along with changes in total number of fatal accidents, total number of road accidents, number of persons killed in road accident and severity of accidents over the last decade (2005-15) and 2016 are given at **Table 1.1.**

Table 1.1: Road Length, Motors Vehicles and Road Accidents (2005-2016)

Year	Road Length (in kms)	Total Number of Registered Motor Vehicles (in thousands)	Total Number of Fatal Accidents (in numbers)	Total Number of Road Accidents (in numbers)	Total Number of Persons Killed (in numbers)	Accident Severity (Number of persons killed by 100 accidents)
1	2	3	4	5	6	7
2005	38,09,156	81,502	83,491	4,39,255	94,968	21.6
2006	38,80,651	89,618	93,917	4,60,920	1,05,749	22.9
2007	40,16,401	96,707	1,01,161	4,79,216	1,14,444	23.9
2008	41,09,592	1,05,353	1,06,591	4,84,704	1,19,860	24.7
2009	44,71,510	1,14,951	1,10,993	4,86,384	1,25,660	25.8
2010	45,82,439	1,27,746	1,19,558	4,99,628	1,34,513	26.9
2011	46,76,838	1,41,866	1,21,618	4,97,686	1,42,485	28.6
2012	48,65,394	1,59,491	1,23,093	4,90,383	1,38,258	28.2
2013	52,31,922	1,81,508	1,22,589	4,86,476	1,37,572	28.3
2014	54,02,486	1,90,704	1,25,828	4,89,400	1,39,671	28.5
2015	54,72,144	2,10,023	1,31,726	5,01,423	1,46,133	29.1
2016	-	-	1,36,071	4,80,652	1,50,785	31.4

Sources:

1. Accidents – State Police Authorities
2. Road Length – Basic Road Statistics, M/o Road Transport & Highways
3. Vehicles – Road Transport Year Book, M/o Road Transport & Highways
4. Data for Road Length and Registered Motor Vehicles is for the financial year upto 2015 & not available for 2016

Note: Road Length is inclusive of all roads constructed under Pradhan Mantri Gram Sadak Yojana and the erstwhile Jawahar Rozgar Yojana.

2.1 Road Length:

Road network in India, of about 55 lakh km as of March 2015 is one of the largest in the world. The country's road network consists of National Highways, State Highways, Districts roads, Rural and Village roads. Over the years, there has been consistent improvement in accessibility and mobility of passengers and freight across the country through the construction of new roads and upgradation of the existing roads. During the last decade (2005-2015), the total road length of the country increased at a Compound Annual Growth Rate(CGAR) of 3.7 per cent. As on 31st March 2015, India's road density at 1.66 kms/sq.km of area was higher than that of many developed countries. The surfaced road length in India was 61.05 per cent of the total road length which was much lower as compared to many developed countries . National Highways , which accounted for 1.79 per cent of the total length in our country as on 31st March 2015 was also much lower than that of some of the developed countries. It is important to mention here that the largest share in the road network were that of rural roads (61 per cent), whereas the share of urban road remained only 8.5 per cent as on March 2015.

2.2 Motor Vehicles :

Sustained economic growth have led to rapidly increasing motorized vehicles in India. There were 210 million registered vehicles in India as on 31st march 2015. The total number of registered motor vehicles in the country grew at a CAGR of 9.8 per cent between 2005 and 2015. There has been a continuous increase in the number of registered motor vehicles in India over the years. During the period 2005 to 2015, the highest CAGR were recorded by cars, jeeps and taxis (10.7%), followed by two-wheelers (10.1%), good vehicles (8.8%) and buses (8.2%). Composition of vehicular population during 2015 shows the highest share of two wheelers (73.5 %) followed by cars, jeeps and taxis (13.6 %), other vehicles (7.5 %), goods vehicle (4.4%) and buses(1.0 %) . Vehicular composition and pattern of category wise growth rates have revealed the preference of road users for personalized means of transport (cars and two wheelers) over the public road transport. Vehicular penetration in India, measured by the number of vehicles per 1000 persons, has seen substantially increased from 1980s; from 8 in 1981 to 167 by 2015. The increase in personalized means of transport and decline in share of public transport have significant implications on traffic congestion and safety.

While the number of vehicles has increased at a CAGR of 9.8 per cent, the total length of roads increased at a CAGR of 3.7 per cent over the period 2005 to 2015, implying a worsening vehicular congestion on the roads. Traffic density expressed in terms of member of vehicles per km of road has increased from 24 in 2005 to 38 in 2015.

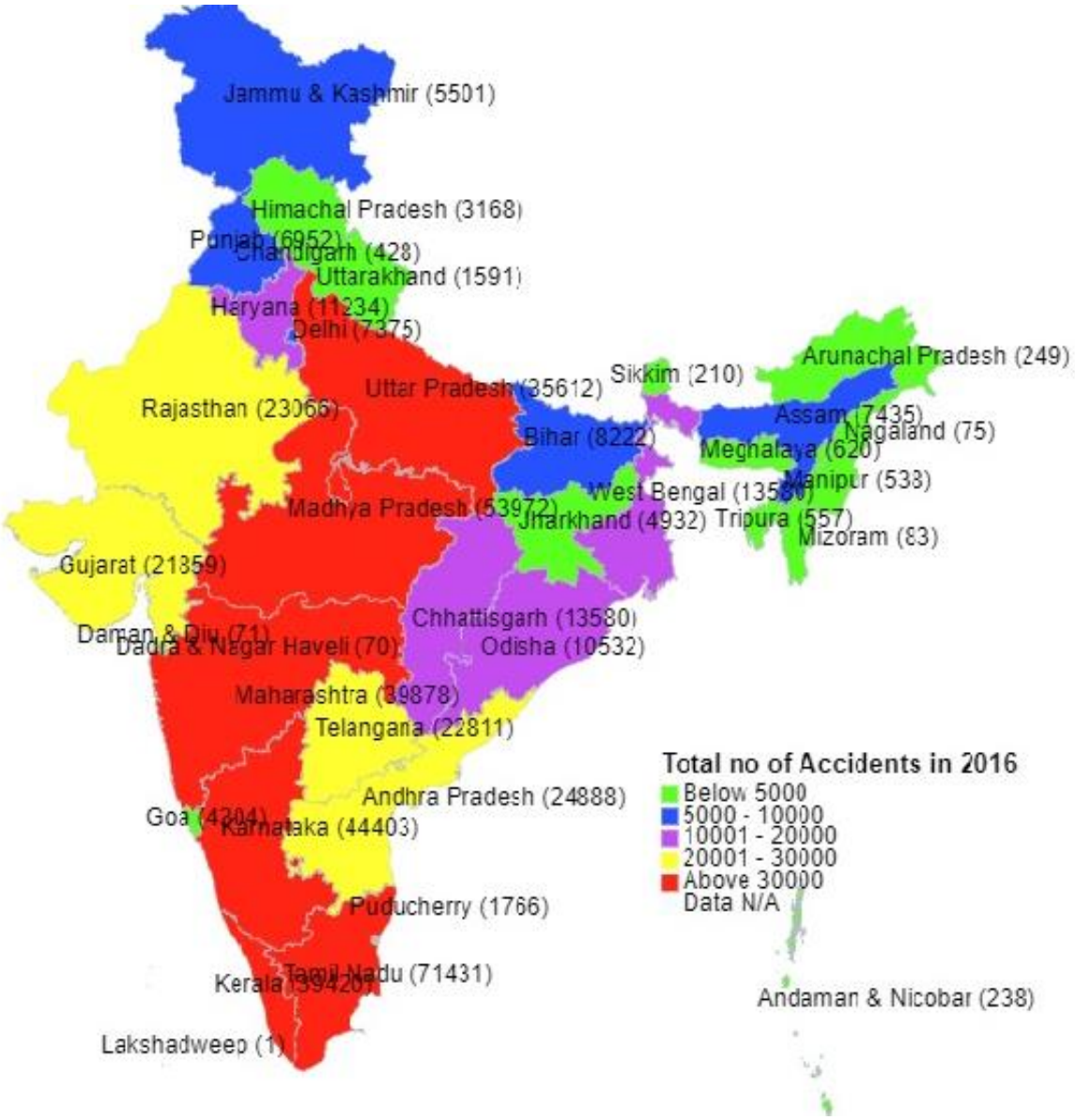
2.3 Road Accidents – 2016 :

During 2016, a total of 4,80,652 road accidents were reported by all the States /Union Territories. Of these 1,36,071 (28.3 per cent) were fatal accidents. The number of persons killed in road accidents were 1,50,785 i.e an average of one fatality per 3.2 accidents. The total number of persons injured in road accidents were 4,94,624. State wise distribution of number of road accidents, number of persons killed and injured in road accidents and number of fatal accidents are given in **Annexures- II to V**. Distribution of number of accidents amongst all States/U.Ts is depicted in Map (**Fig 1.1**). The analysis of road accident data 2016 reveals that on an average 1317 accidents and 413 deaths take place every day on Indian roads which further translates into 55 accidents and loss of 17 lives every hour in our country.

Road accident severity measured by the member of persons killed per 100 accident has become more severe in 2016 over the previous years.

Though the total number of road accidents has been lower in 2016 over the previous eight years, the number of persons killed has seen sharp increase in 2016 over 2015. Road accidents being the result of inter-play of multiple factors, multi-prong measures are needed to reduce the number of accidents and fatalities. The Ministry has formulated road safety strategy based on 4-Es, namely Education, Engineering (of both roads and vehicles), Enforcement and Emergency care. The strategy is under implementation and substantial progress have been made towards putting in place necessary resources, programmes and legislation for improving road safety scenario in the country.

Map 1.1 Distribution of Total Number of Road Accidents amongst all States/U.Ts



Section II: Profile and Trends of Road Accidents

1. Current Profile

During the calendar year 2016, number of accidents reported at 4,80,652 is lower by 4.1 per cent as compared with 5,01,423 in 2015. Number of persons injured as a result of road accidents at 4,94,624 in 2016 is also marginally lower by 1.1 per cent from 5,00,279 in 2015. However, the total number of persons killed in accidents increased by 3.2 per cent from 1,46,133 in 2015 to 1,50,785 in 2016. Accident severity (number of persons killed per 100 accidents) has gone up from 29.1 in 2015 to 31.4 in 2016. A comparative scenario of 2015 and 2016 is depicted in **Table 2.1**.

Table 2.1: Road Accident Parameters: 2015 and 2016

Parameter	2016	2015	% change over previous year
Total Accidents in the country	4,80,652	5,01,423	-4.1
Total number of Persons Killed in the country	1,50,785	1,46,133	3.2
Total number of Persons Injured in the country	4,94,624	5,00,279	-1.1
Accident Severity(No. of persons killed per 100 accidents)	31.4	29.1	7.9

2. Long term profile

The long term profile of road accident covering the period from 2005 to 2016 is presented in **Table 2.2 below:**

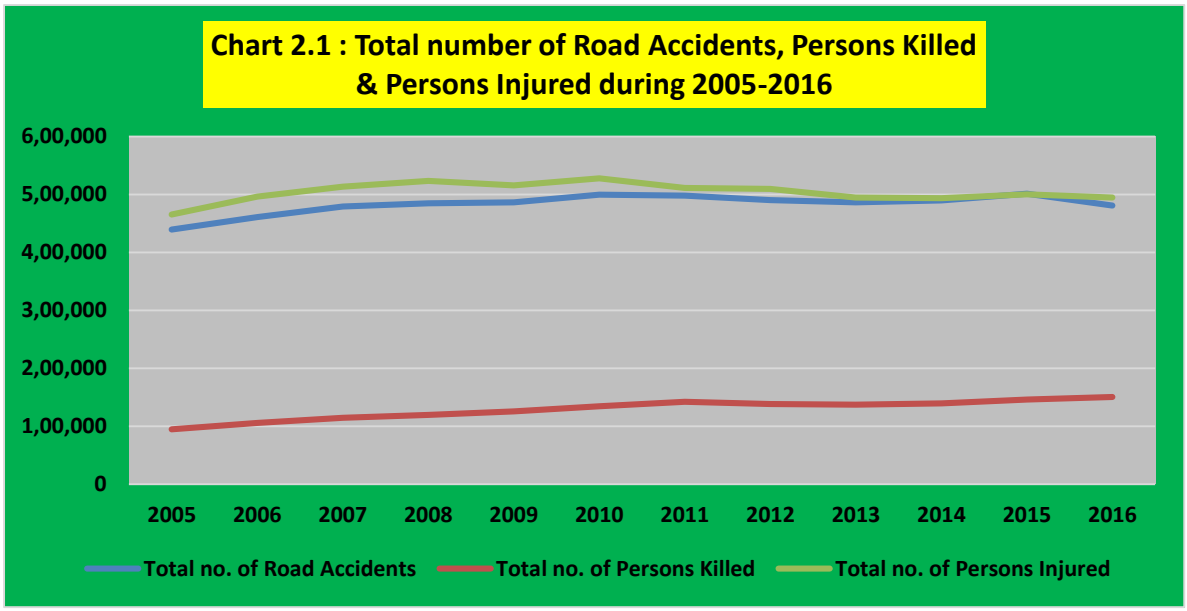
Table 2.2: Profile of Road Accidents: 2005-2016

Year	Number of Accidents		Number of Persons		Accident Severity*
	Total	Fatal	Killed	Injured	
2005	4,39,255	83,491 (19.0)	94,968	465282	21.6
2006	4,60,920	93,917 (20.4)	105,749	496,481	22.9
2007	4,79,216	1,01,161 (21.1)	114,444	513,340	23.9
2008	4,84,704	1,06,591 (22.0)	119,860	523,193	24.7
2009	4,86,384	1,10,993 (22.8)	125,660	515,458	25.8
2010	4,99,628	1,19,558 (23.9)	134,513	527,512	26.9
2011	4,97,686	1,21,618 (24.4)	1,42,485	5,11,394	28.6
2012	4,90,383	1,23,093 (25.1)	1,38,258	5,09,667	28.2
2013	4,86,476	1,22,589(25.2)	1,37,572	4,94,893	28.3
2014	4,89,400	1,25,828(25.7)	1,39,671	4,93,474	28.5
2015	5,01,423	1,31,726(26.3)	1,46,133	5,00,279	29.1
2016	4,80,652	1,36,071 (28.3)	1,50,785	4,94,624	31.4

Source: Information supplied by States/UTs (Police Departments).
Figures within parentheses indicate share of fatal accidents in total accidents.
* Number of persons killed per 100 accidents

It is clear from the above table, that over the years **2005 to 2016, number of road accidents, persons killed and injured have increased by 9.4 per cent, 58.8 per cent and 6.3 per cent respectively**. It is a matter of concern that the number of road accident deaths have been increasing alarmingly over the years 2005 to 2016 **. The proportion of fatal accidents in total road accidents has consistently increased since 2005 from 19.0 per cent to 28.3 per cent in 2016. The severity of road accidents, measured in terms of persons killed per 100 accidents has also increased from 21.6 in 2005 to 31.4 in 2016.**

Total number of road accidents, persons killed and injured have been depicted in **Chart 2.1**



A detailed State/UT wise analysis of (a) number of accidents, number of persons killed and injured; (b) number of fatal accidents ; (c) share of each State in total number of road accidents; (d) number of accidents per lakh population; (e) number of accidents per ten thousand motor vehicles and (f) per ten thousand kilometers of road length are given at **Annexures II, III, IV and V** respectively**.**

3. Severity of Road Accidents

A very important indicator to monitor road accidents is the extent of road accident severity (road accident deaths per 100 accidents). It has gone up to 31.4 in 2016 from 29.1 during 2015. During the year 2016, it varies from a low of 7.1 in A &N Islands to a high of 84.3 in Mizoram. The extreme case of high of 100 in Lashadweep due to one road accident with one fatality. The State/UT–wise severity of road accidents in India is at **Annexure**-VI

4. Long run Trends

Year wise percentage change in the total number of road accidents, total number of persons killed and injured over the previous year during the last two decades (1997 to 2006 & 2007 to 2016) are depicted in **Table 2.3 and Chart 2.2(a), Chart 2.2(b) & Chart 2.2(c).**

Table 2.3 Annual percentage change of total number of road accidents, total number of persons killed and injured during 1997- 2016			
Years	Percentage change in total number of Road Accidents	Percentage change in total number of persons Killed	Percentage change in Total number of persons Injured
1997	0.66	3.10	2.40
1998	3.04	3.82	3.25
1999	0.37	2.56	-4.00
2000	1.29	-3.73	6.46
2001	3.62	2.51	1.49
2002	0.46	4.68	0.86
2003	-0.19	1.56	6.46
2004	5.70	7.70	6.76
2005	2.17	2.54	0.16
2006	4.93	11.35	6.71
2007	3.97	8.22	3.40
2008	1.15	4.73	1.92
2009	0.35	4.84	-1.48
2010	2.72	7.05	2.34
2011	-0.39	5.93	-3.06
2012	-1.47	-2.97	-0.34
2013	-0.80	-0.50	-2.90
2014	0.60	1.53	-0.29
2015	2.46	4.63	1.38
2016	-4.14	3.18	-1.13

The percentage changes in the number of road accidents, number of persons killed and injured shown in the above **Table 2.3,** which indicate wide variations. However, higher increase in all the three parameters viz road accidents, number of persons killed and injured were taken place in the years 1998, 2004 and 2006 during the period 1997-2006.

Higher increase in all three parameters were also taken place in the years of 2007, 2010 and 2015 during the period 2007-2016 For the first time, in the two consecutive years 2012 and 2013, there were decline in all the three parameters i.e the number of road accidents , number persons killed and injured . The long term scenario at national level indicating number of road accidents, persons killed and injured and other details are depicted in **Annexure-I**.

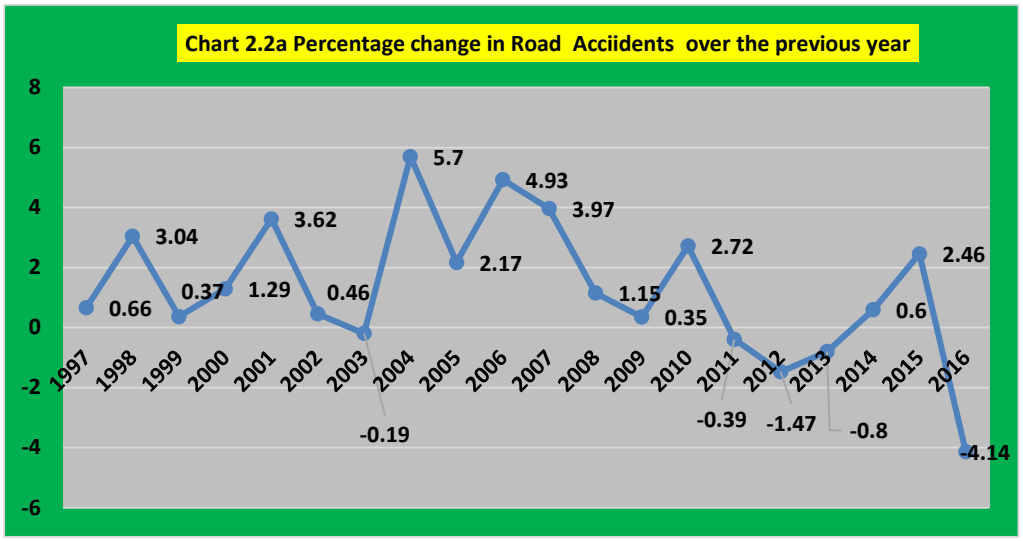


Chart 2.2a Percentage change in Road Acciidents over the previous year
8
6
4
2
0
-2
-4
-6
1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016
0.66
3.04
0.37
1.29
3.62
0.46
-0.19
5.7
2.17
4.93
3.97
1.15
0.35
2.72
-0.39
-1.47
-0.8
0.6
2.46
-4.14

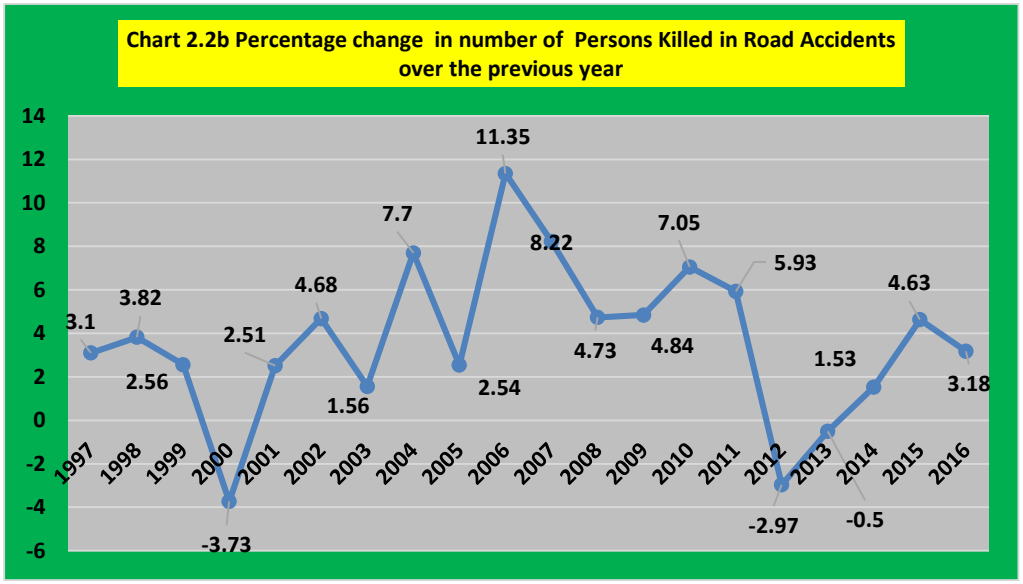


Chart 2.2b Percentage change in number of Persons Killed in Road Accidents over the previous year
14
12
10
8
6
4
2
0
-2
-4
-6
1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016
3.1
3.82
2.56
-3.73
2.51
4.68
1.56
7.7
2.54
11.35
8.22
4.73
4.84
7.05
5.93
-2.97
1.53
-0.5
4.63
3.18

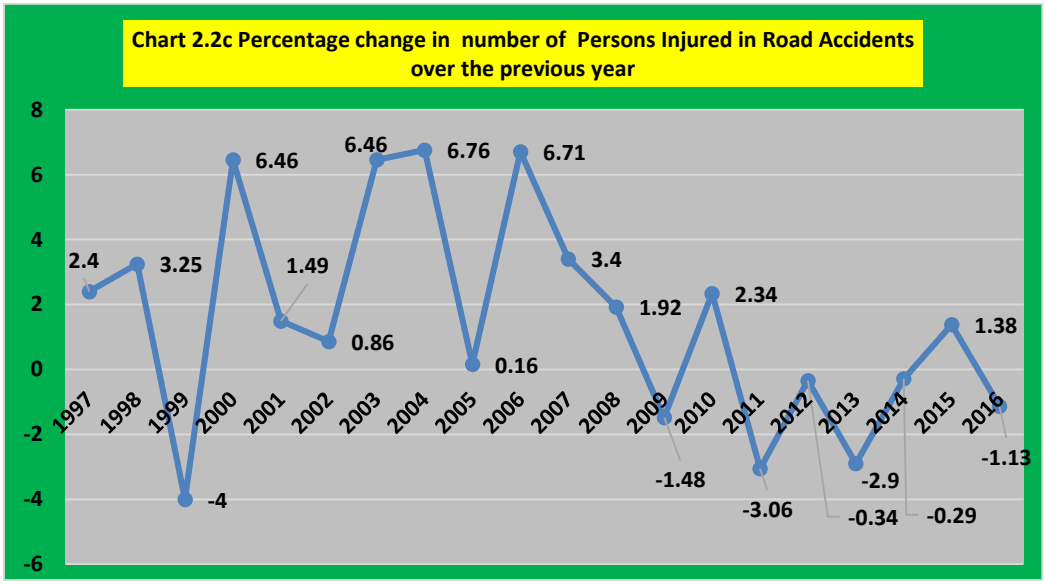


Chart 2.2c Percentage change in number of Persons Injured in Road Accidents over the previous year
8
6
4
2
0
-2
-4
-6
1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016
2.4
3.25
-4
6.46
1.49
0.86
6.46
6.76
0.16
6.71
3.4
1.92
-1.48
2.34
-3.06
-0.34
-2.9
-0.29
1.38
-1.13

5. Accidents classified according to Type of Injuries (Grievous Injury and Minor Injury)

Road accident injuries are the leading causes of deaths and disabilities. The number of fatal accidents, greviously injured, minor injured, non-injured accidents and number of total accidents over the period 2005 to 2016 is shown in **Table 2.4**. Over the period 2005-2016 minor injured accidents shows a stable situation with slight variations and it declined by 2.6 per cent from 1,92,634 in 2015 to 1,87,642 in 2016. Non-injured accidents declined by 37.1 per cent from 57,395 in 2015 to 36,091 in 2016. Matter of concern is that both fatal and greviously injured accidents have gone up by 63.0 per cent and 17.6 per cent respectively over 2005 to 2016. The share of fatal accidents and greviously injured accidents were 28.3 per cent and 25.1 per cent of total number of road accidents during 2016 against 26.3 per cent and 23.9per cent respectively during 2015.

Table 2.4 : Type of Road Accidents : 2005 to 2016

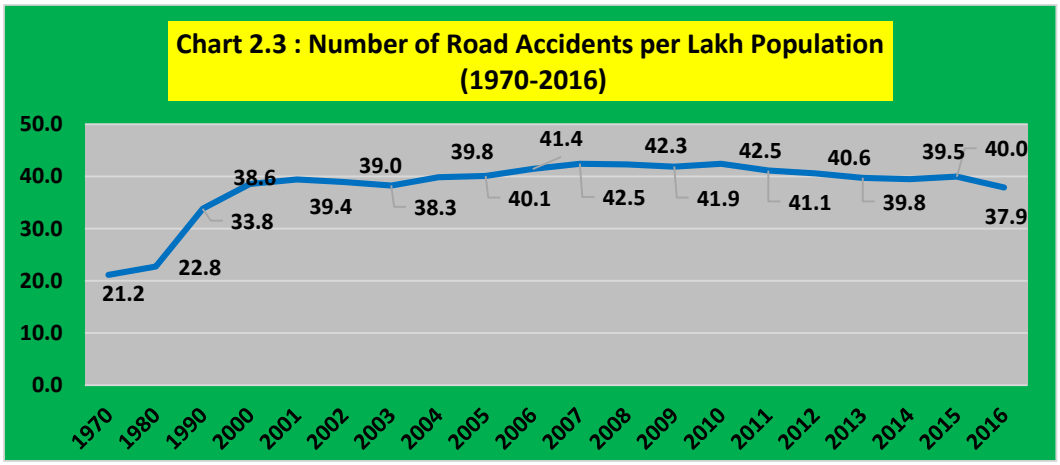
Year	Fatal	Greviously Injured	Minor Injured	Non-Injured	Total Accidents
1	2	3	4	5	
2005	83,491	1,02,723	1,90,235	62,806	4,39,255
2006	93,917	1,05,477	1,98,151	63,375	4,60,920
2007	1,01,161	1,10,074	2,03,148	64,833	4,79,216
2008	1,06,591	1,13,376	2,00,023	64,714	4,84,704
2009	1,10,993	1,11,892	2,01,693	61,806	4,86,384
2010	1,19,558	1,15,845	2,01,692	62,533	4,99,628
2011	1,21,618	1,14,201	1,97,757	64,110	4,97,686
2012	1,23,093	1,16,857	1,90,437	59,996	4,90,383
2013	1,22,589	1,16,089	1,89,982	57,816	4,86,476
2014	1,25,828	1,15,454	1,92,310	55,808	4,89,400
2015	1,31,726	1,19,668	1,92,634	57,395	5,01,423
2016	1,36,071	1,20,848	1,87,642	36,091	4,80,652

The States/UT wise distribution of type of road accidents and total number of grevious and minor injured persons are given at **Annexures-VII and VIII** respectively.

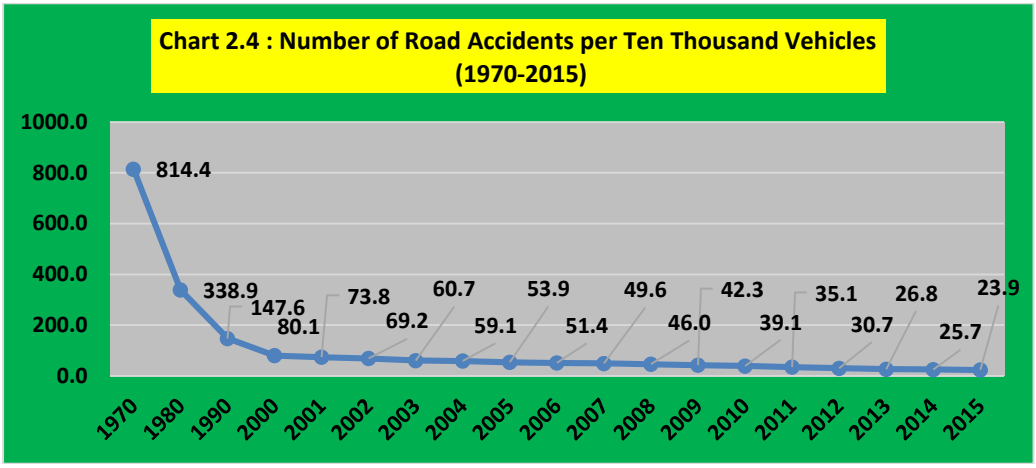
6. Normalised Indicators of Road Accidents, Injuries & Fatalities (All India Averages)

To get an appropriate measure of incidence of accidents, normalized/standardized accident rates for India have been worked out in terms of number of road accidents, killings and injuries (a) per lakh persons, (b) per ten thousand motor vehicles and (c) per ten thousand kilometers of the road length. Some of the broad trends at the all-India level are summarized below.

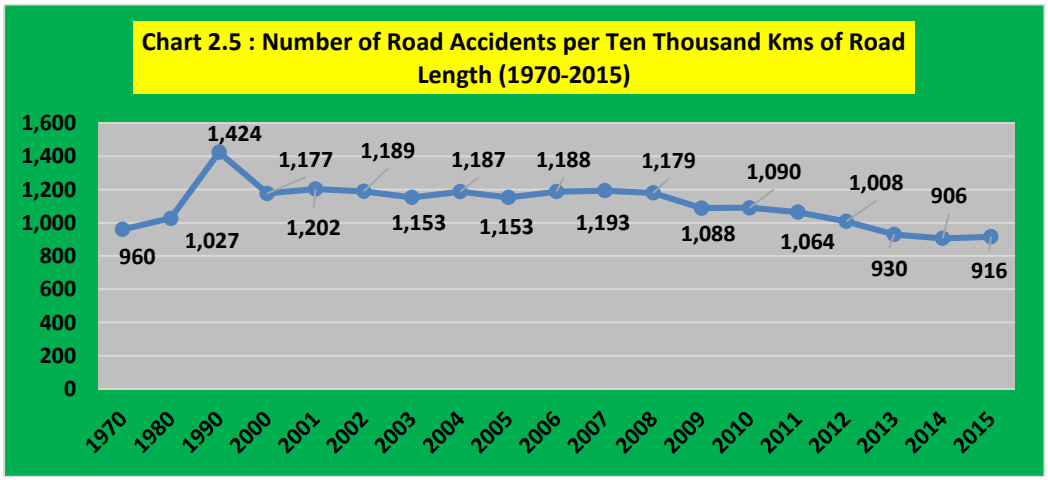
a. **Chart 2.3** indicates the increase in the number of accidents per lakh population from 21.2 in 1970 to 22.8 in 1980 followed by a sharp increase in 1990 to 33.8. It further increased to 38.6 in 2000. Between 1970 and 2010,number of accidents per lakh population increased by more than 2 times . However, between 2010 to 2016 there was a decline from 42.5 in 2010 to 37.9 in 2016 (details at **Annexure**-I).



b. A significant decline in the number of accidents per ten thousand motor vehicles is discernible from 814.4 in 1970 to 35.1 in 2011 and further declined to 23.9 during 2015 . This is depicted in **Chart 2.4**.

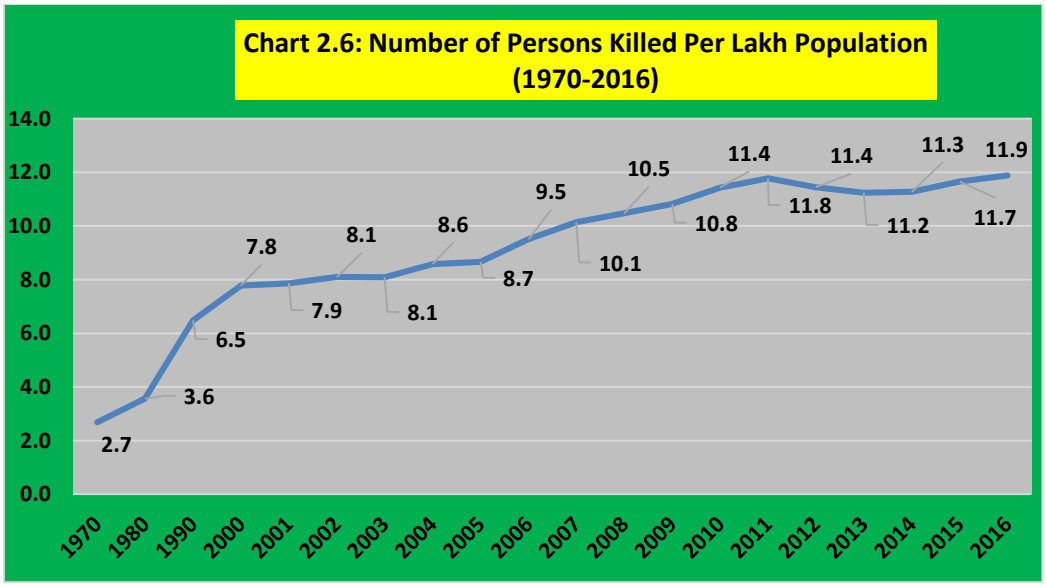


c. The trend in the number of accidents per ten thousand kilometers of the road length shows that the number of accidents increased from about 960 in 1970 to 1,027 in 1980; peaked to 1,424 in 1990; but declined thereafter and reached a figure of 1064 in 2011and further declined to 916 in 2015. This is shown in **Chart 2.5**.

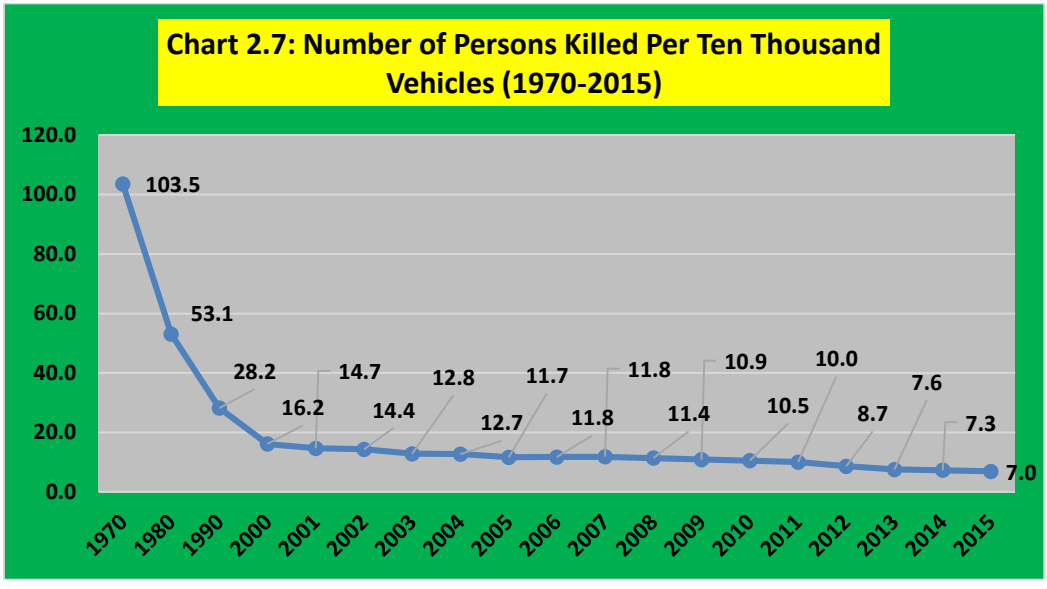


d. The number of persons killed per lakh population increased four fold from 2.7 in 1970 to 11.8 in 2011 and therafter with marginal fluctuations reached a figure of 11.9 in 2016. This is depicted in **Chart 2.6.** Exposure of population to road accidents leading to deaths and injuries largely depend on the amount of travel undertaken, number of trips, the distance travelled, or time in the road environment, number of motor vehicles and the amount of motorized traffic, etc. These factors are associated with development and income levels.

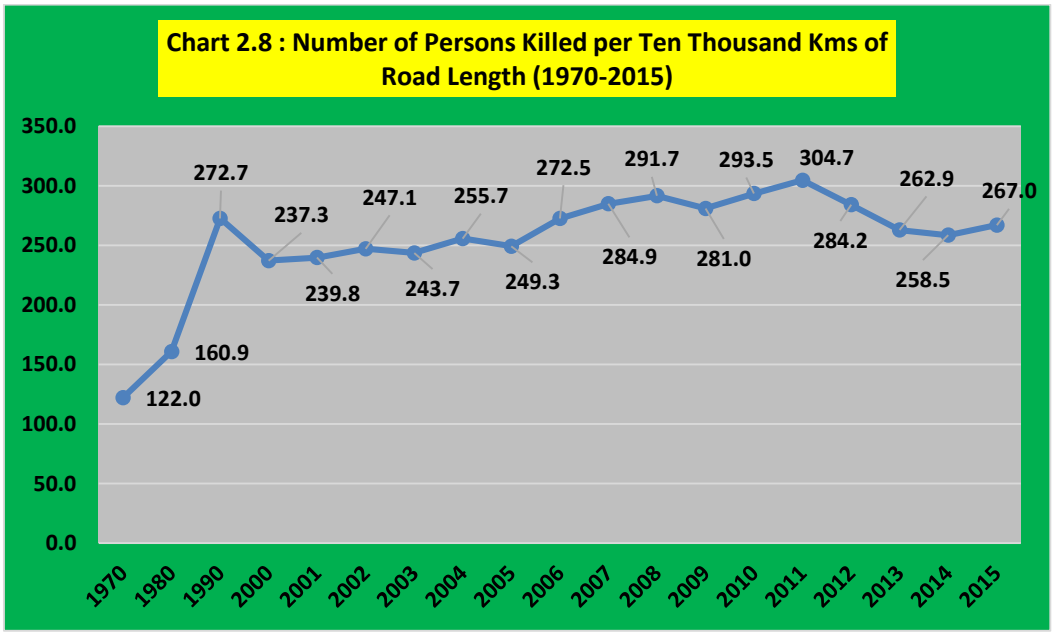
e. The number of persons injured per lakh population increased more than three fold from 13.0 in 1970 to 42.3 in 2011 and therafter further declined to 39.0 in 2016.



f. There has been a dramatic decline in the number of persons injured and killed per 10,000 vehicles. The number of persons injured per 10,000 vehicles plummeted from 500 in 1970 to about 24 in 2015. It is noteworthy that this parameter has consistently declined since 1996 despite sustained high growth in vehicle population. Similarly, the number of persons killed per 10,000 vehicles in the country also fell from about 104 in 1970 to 7.0 in 2015 as shown in **Chart 2.7**.



g. The number of persons killed per ten thousand km of road length has more than doubled since 1970. It increased to all time high of about 305 in 2011 and thereafter declined to 267 in 2015 as shown in **Chart 2.8** The design of modern road systemexposes vulnerable road users to greater risk of accidents. Lack of foot-paths, cycle tracks, traffic calming measures to reduce speed where non motorized mode of transport blend with motorized traffic, increases the risk of accidents and its severity. These factors have contributed towards increase in road related accidents, injuries and deaths in relation to rise in terms of road length. The numbers of persons injured per ten thousand km of road length rose from about 590 in 1970 to about 1,283 in 2004, declined from 1,279 in 2006 to 914 in 2015. Both these parameters have undergone ups and downs over the last decade.



Section III: Accidents by Road category and Road Feature

1. Current Scenario

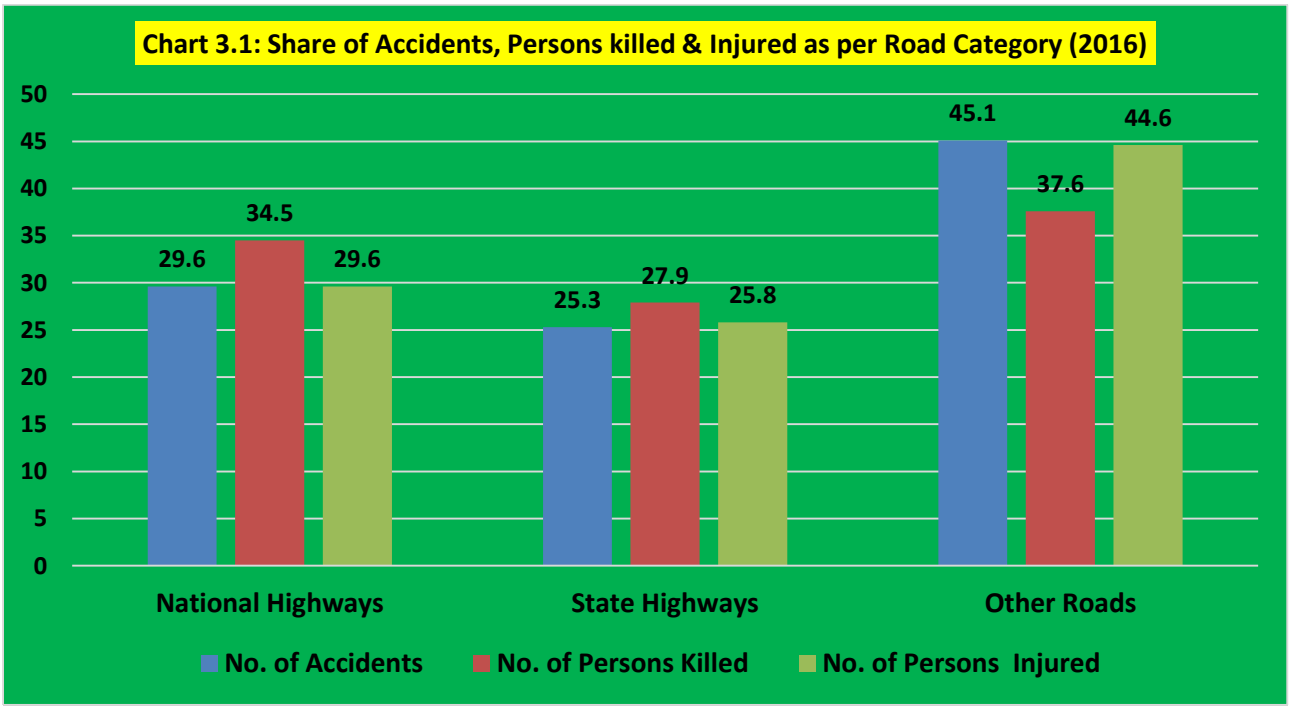
Road accidents on National Highways accounted for a 29.6 per cent of the total road accidents and 34.5 per cent of the total number of persons killed during 2016. The State Highways accounted for 25.3 per cent of total accidents and 27.9 per cent in the total number of persons killed in road accidents during same period of time .The balance 45.1 per cent of total road accidents and 37.6 per cent of total number of persons killed in 2016 were on Other Roads. The detailed share of accidents, deaths and injury by category of Roads are illustrated in **Table 3.1 and Chart 3.1**.

State- wise break up of accidents, injuries and fatalities due to road accidents on different stretches of National Highways, State Highways and Other Roads in India are given in **Annexures – IX to XV.**

Table 3.1 : Number of Road Accidents, Persons Killed & Injured as per Road Category (2016)

Road Classification	National Highways	State Highways	Other Roads
No. of Accidents	1,42,359 (29.6)	1,21,655 (25.3)	2,16, 638 (45.1)
No. of Persons Killed	52,075 (34.5)	42,067 (27.9)	56,643 (37.6)
No. of Persons Injured	1,46,286 (29.6)	1,27,470 (25.8)	2,20,868 (44.6)

Note: Figures within parentheses indicate share in total accidents, killed and injured in the respective road categories.



2. Trend Analysis 2005 – 2016

Table-3.2 depicts the percentage share of accidents, persons killed and injured as per road categories over the period 2005-2016.

Table 3.2 : Percentage Share of National Highways, State Highways and Other Roads in Total Road Accidents, Persons Killed and Injured: 2005 to 2016

Year	National Highways			State Highways			Other Roads		
	Road Accidents	Persons Killed	Persons Injured	Road Accidents	Persons Killed	Persons Injured	Road Accidents	Persons Killed	Persons Injured
2005	29.6	37.3	31.3	23.6	27.2	25.7	46.8	35.5	43.0
2006	30.4	37.7	30.8	18.5	26.8	24.9	51.1	35.5	44.3
2007	29.0	35.5	30.2	24.4	27.7	26.2	46.6	36.8	43.6
2008	28.5	35.6	28.6	25.6	28.4	27.5	45.9	36	43.9
2009	29.3	36.0	29.6	23.8	27.1	25.5	46.9	36.9	44.9
2010	30.0	36.1	31.3	24.5	27.3	26.0	45.5	36.6	42.7
2011	30.1	37.1	30.5	24.6	27.4	26.1	45.3	35.5	43.4
2012	29.1	35.3	30.1	24.2	27.3	25.9	46.7	37.4	44.0
2013	28.1	33.2	28.9	25.6	29.6	27.6	46.3	37.2	43.5
2014	28.2	34.1	29.9	25.2	29.1	26.8	46.6	36.8	43.3
2015	28.4	35.0	29.1	24.0	28.0	26.3	47.6	37.0	44.6
2016	29.6	34.5	29.6	25.3	27.9	25.8	45.1	37.6	44.6

The above table reveals that the share of different categories of roads in the number of accidents persons killed and injured had remained largely stable over the years. As compared with the previous year i.e2015 , road accident has gone up on National Highways from 28.4 per cent in 2015 to 29.6 per cent in 2016. It is a matter of concern that persons killed on National Highways is still very high and remains close to 35 per cent in 2016. The share of road accident injuries has marginally increased from 29.1 per cent in 2015 to 29.6 per cent in 2016.

Over the years, 2005 to 2016 only marginal changes have taken place in terms of percentage share in number of road accidents, number of persons killed and injured within the various categories of roads. The share of National Highways is very high in terms of all the three parameters, keeping in view its share of about 2 per cent in total road length of the country. Data reveals that National Highways are more accident prone perhaps due to more movement of commercial as well as other vehicles and overspeeding etc.

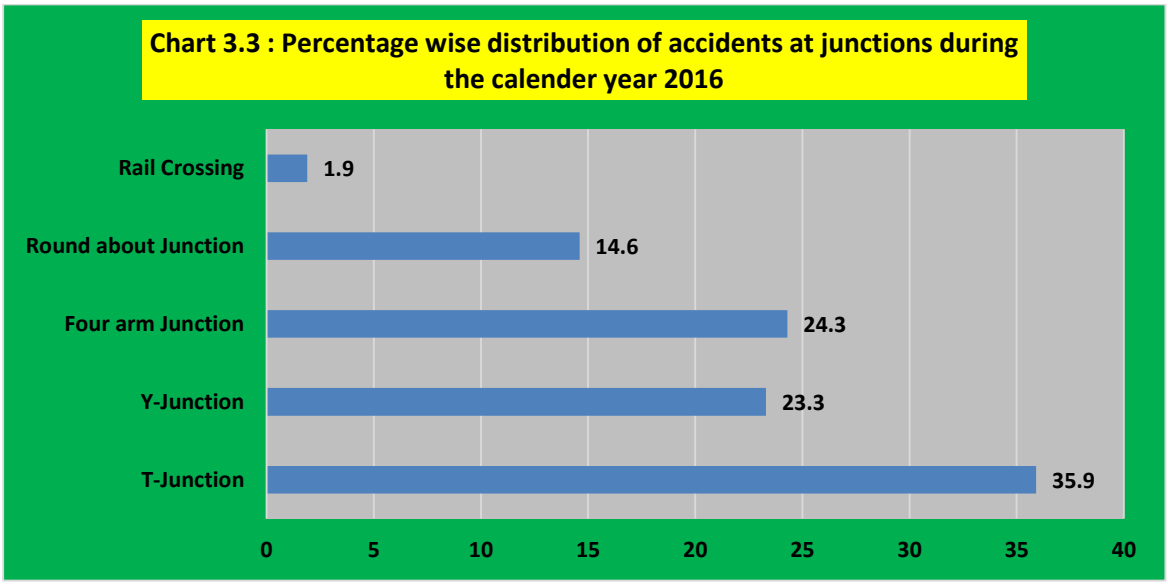
4. Accidents on Road Junctions

Road junctions are points of traffic merging and hence are prone to accidents. **Table 3.3** gives the number of accidents, persons killed and injured at traffic junctions.

Table 3.3 Total number of Road Accidents,Number of persons killed and injured based on Junction Type (2016)			
	Accidents	**Killed**	**Injured**
T-Junction	63,243 (35.9)	19,884 (36.8)	59,923 (35.2)
Y-Junction	41,006 (23.3)	12,706 (23.5)	40,048 (23.5)
Four arm Junction	42,829 (24.3)	12,342 (22.8)	40,704 (23.9)
Round about Junction	25,612 (14.6)	7,771 (14.4)	26,797 (15.7)
Rail Crossing	3,314 (1.9)	1,326 (2.5)	2,915 (1.7)

About 37 per cent of total accidents took place on the junctions itself during the calendar year 2016 as against 49 per cent reported during 2015. The highest number of accidents occurred at T-Junctions during the calendar year 2016 causing 63,243 accidents with a share of 35.9 percent of the total road accidents on Junctions.

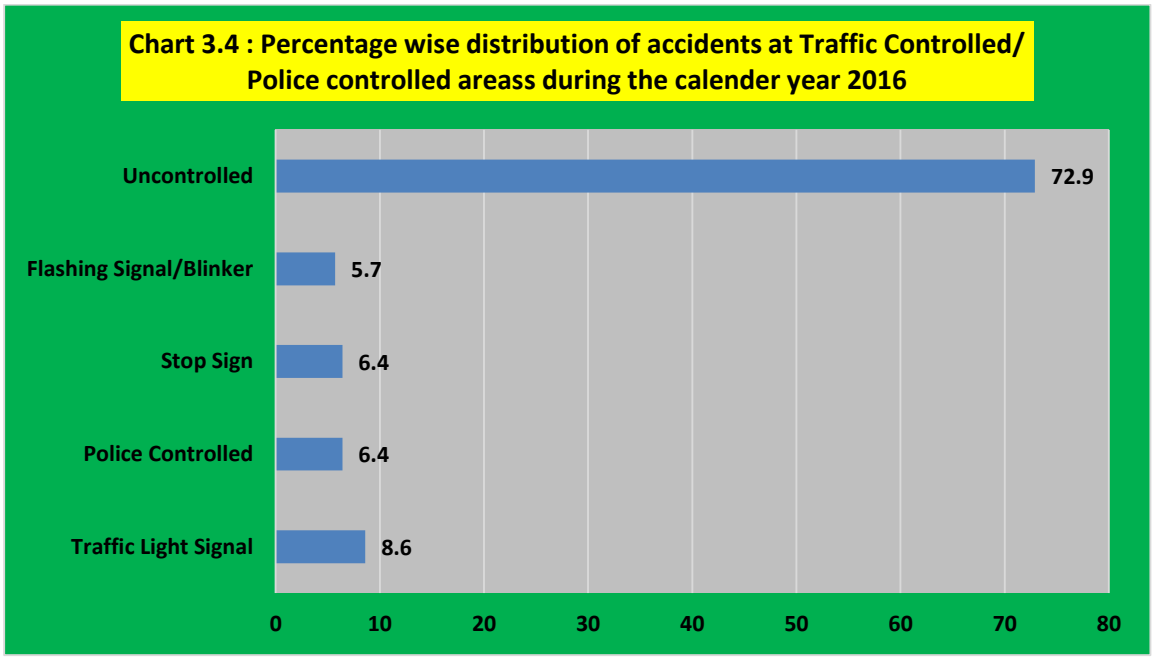
The details regarding total accidents, persons killed and injured at above junctions are given in **Table 3.3**. The percentage wise distribution of accidents at junctions is depicted at **Chart 3.3**. The States/UT wise distribution is given at **Annexure-XVI.**



4. Accidents at Traffic/ Police Controlled Areas

It may be seen that the maximum number of accidents occurred at uncontrolled areas during the calendar year 2016 which caused 128,263 accidents with a share of 72.9 percent in road accidents at Traffic controlled/Police Controlled areas as against 1,66,158 number of accidents (67.6 per cent) reported in 2015. The details regarding road accidents at Traffic Controlled/ Police controlled areas indicating the number of accidents; persons killed and injured are given in T**able 3.4**. **Chart 3.4** depicts the percentage distribution of accidents at Traffic Controlled/ Police controlled areas. The States/UT wise distribution is given at **Annexure-. XVII.**

Table 3.4 : Total Number of Road Accidents at various Traffic Controlled Areas/Junctions			
	Accident	Killed	Injured
Traffic Light Signal	15,125(8.6)	4,322(8.0)	12,995(7.6)
Police Controlled	11,386(6.4)	3,076(5.7)	11,761(6.9)
Stop Sign	11,221(6.4)	3,609(6.7)	11,002(6.5)
Flashing Signal/Blinker	10,009(5.7)	3,012(5.6)	10,138(6.0)
Uncontrolled	1,28,263(72.9)	40,010(74.0)	1,24,491(73.0)



5. Accidents according to Road Conditions

All States/U.Ts have reported 3,31,246 accidents and 1,00,166 people killed on pucca roads and 44,535 accidents and 13,532 people killed on Kutcha roads in the calendar year 2016,

As reported by all States/U.Ts, 9,583 accidents occurred and resultantly 3, 396 people killed on speed breakers during the calendar year 2016 .

Potholes accounted for 6,424 road accidents and as a result 2,324 people killed during the calendar year 2016.

The State/U.T –wise distribution is shown at Annexures - XVIII (A)

6. Accidents according to Road Features

Maximum number of road accidents(1,90,800) occurred on two lane roads followed by single lane roads (1,77,067) , four lanes with median (67,179) and more than two lanes road without median (35,290) in the calendar year 2016. The State/U.T –wise distribution is shown at **Annexures - XVIII (B).**

Section IV: Road Accidents by Vehicle Type

1. Based on Accidents classified in terms of Involved Vehicle Type

Motorized vehicles accounted for 94.4 per cent of fatal accidents and 95.5 per cent of the total road accidents during the calendar year 2016. Amongst the motorized vehicle categories, two-wheelers accounted for the highest share in total road accidents (33.8 per cent) in 2016 followed by cars, jeeps and taxis (23.6 per cent), trucks, tempos, tractors and other articulated vehicles (21.0 per cent), Buses(7.8 per cent), Auto-Rickshaws (6.5 per cent) and Other motor vehicles (2.8 per cent). Share of two wheelers in total road accidents has increased 28.8 per cent in 2015 and 33.8 per cent in 2016. Next to two wheelers, share of cars, jeeps and taxis whose share was 23.6 per cent in 2015, remained same in 2016. Two wheelers also accounted for the highest proportion of persons killed (29.4 per cent) out of the total number of persons killed in the country during the calendar year 2016 followed by the category of trucks, tempos, tractors and other Articulated vehicles which accounted for the share of 26. 2 per cent.

Non-motorised vehicles & other objects have a share of 4.5 per cent of total road accidents and 6.4 per cent of persons killed diuring 2016.

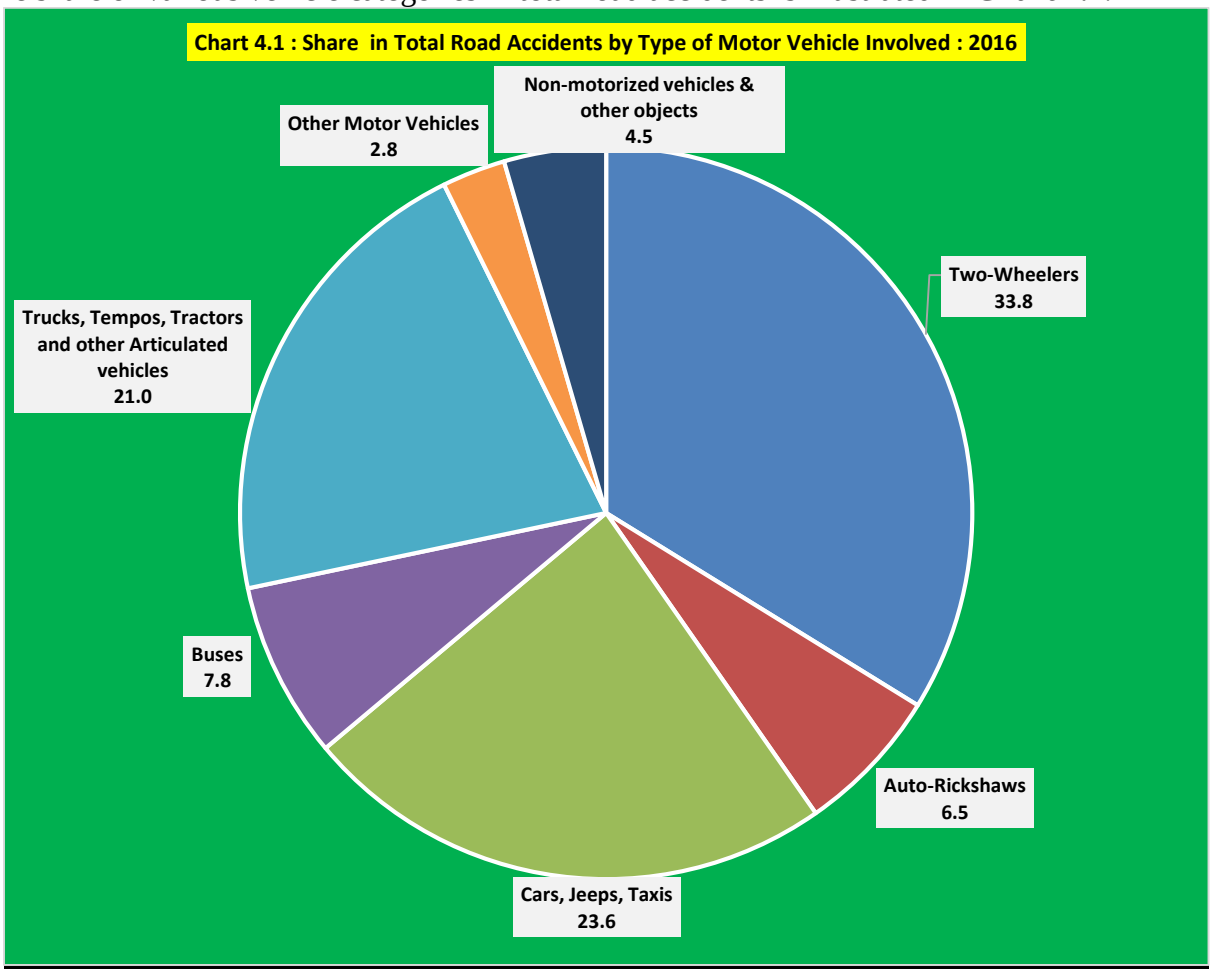
The total number and percentage share of accidents, persons killed and injured during 2016 based on the involvement by vehicle type is indicated in **Table 4.1**. Details of accidents in terms of vehicle typology are given in **Annexure- XIX.**

Table 4.1: Total number of Road Accidents, Persons Killed and Injured based on the involvement of vehicle type during 2016

	Number of Road Accidents		Number of Persons	
	Fatal	**Total**	**Killed**	**Injured**
A. Motorized Vehicles				
Two-Wheelers	41,608 (30.6)	1,62,280 (33.8)	44,366 (29.4)	1,53,060 (30.9)
Auto-Rickshaws	6,095 (4.5)	31,440 (6.5)	6,767 (4.5)	39,680 (8.0)
Cars, Jeeps, Taxis	28,746 (21.1)	1,13,267 (23.6)	32,599 (21.6)	1,25,773 (25.4)
Buses	10,394 (7.6)	37,487 (7.8)	12,088 (8.0)	50,686 (10.3)
Trucks, Tempos, Tractors and other Articulated vehicles	36,147 (26.6)	1,01,085 (21.0)	39,504 (26.2)	91,784 (18.6)
Other Motor Vehicles (including e-Rickshaw)	5,495 (4.0)	13,255 (2.8)	5,886 (3.9)	11,607 (2.3)
Total of (A)	1,28,485 (94.4)	4,58,814 (95.5)	1,41,210 (93.6)	4,72,590 (95.5)
B. Non-motorized vehicles	1446 (1.1)	4255 (0.9)	1728 (1.2)	3799 (0.8)
C. Other Objects(includes pedestrian, animal, tree, level crossings & other fixed objects)	6140 (4.5)	17583 (3.6)	7847 (5.2)	18235 (3.7)
Total (A+B+C)	**1,36,071**	**4,80,652**	**1,50,785**	**4,94624**
Note: Two-Wheelers include motor cycles, scooters and mopeds & scooty.				
Non-Motorized Vehicles include cycles, cycle rickshaws, hand-drawn vehicles, animal drawn vehicle				
Figures in parenthesis are the percentage share				

2. Share in Total Road Accidents by Vehicle Type

The share of various vehicle categories in total road accidents is illustrated in **Chart 4.1**.

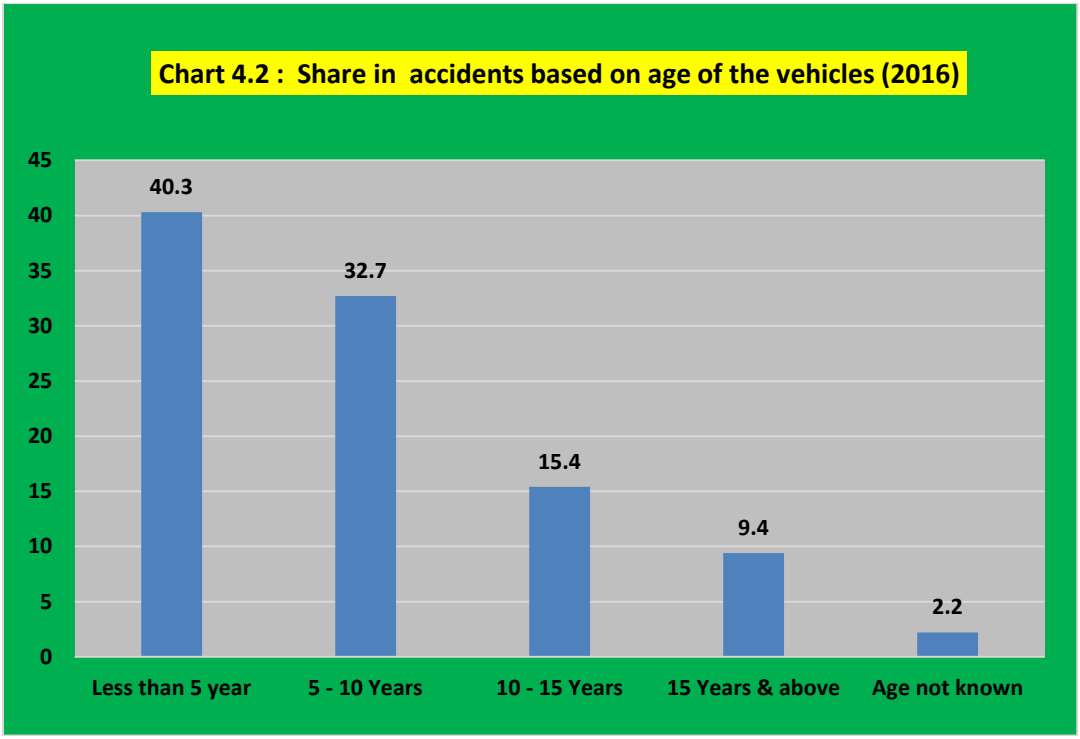


The share of accidents, persons killed and injured in total accidents in the country caused by non-motorized vehicles such as cycles, cycle rickshaws, hand-drawn and animal drawn vehicles are 0.9 per cent, 1.2 per cent and 0.8 per cent respectively**.** The States/UT wise distribution of total number of accidents/ persons killed and injured caused only by non-motorized vehicle (excluding other objects) is given at **Annexure-XX.**

3. Accidents based on the Age of Vehicles

During the calendar year 2016, vehicles less than 5 years old recorded the highest number of accidents(1,94,198) in the country, accounting for a share of 40.3 per cent in total road accident) with 56,329 deaths and 2,03,042 injuries. The State/UT wise distribution is given at **Annexure** - XXI. **Table 4.2** indicates the total number of accidents, persons killed and injured in the country. **Chart 4.2** indicates the percentage share in accidents based on age of the vehicles.

Table 4.2 Total Number of Road Accidents and Number of Persons Killed and Injured based on Age of Vehicles (2016)			
Age of Primary responsible vehicle	**Accidents**	**Killed**	**Injured**
Less than 5 year	1,94,198 (40.3)	56,329 (37.4)	2,03,042 (41.1)
5 - 10 Years	1,57,370 (32.7)	49,536 (32.9)	16,0642 (32.5)
10 - 15 Years	74,149 (15.4)	23,775 (15.8)	72,982 (14.8)
15 Years & above	45,358 (9.4)	17,073 (11.3)	47,391 (9.6)
Age not known	10,598 (2.2)	3,921 (2.6)	10,238 (2.0)
Note: Total no. of accidents may not tally with the total no. of road accidents as HP reported for all the vehicles involved instead of the vehicle primarily responsible and non-reporting by Chandigarh.			
Figures in parenthesis are the percentage share			



Section V: Road Accidents by Road User Category

1. Persons killed in Road Accidents in terms of Road User Categories

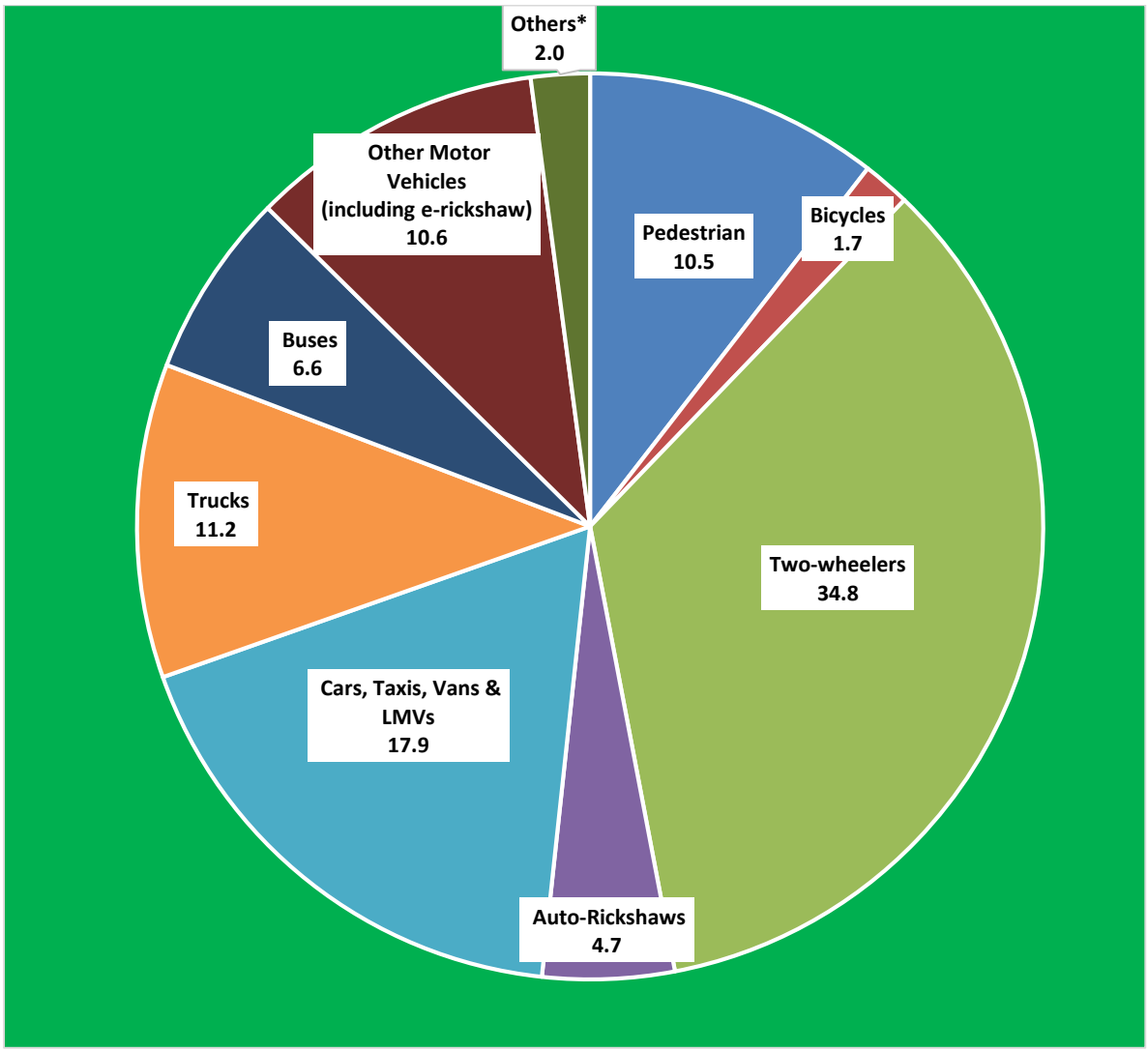
Two-wheelers are the most vulnerable and unprotected road users killed in road accidents in the country every year. The share of two wheeler user killed in accidents increased from 31.5 per cent in 2015 and to 34.8 per cent in 2016. During 2016, other road users killed in road accidents are cars, taxies, vans and other light and medium motor vehicles (17.9 per cent), trucks (11.2 per cent), pedestrians (10.5 per cent), buses (6.6 per cent), auto rickshaws (4.7 per cent) and others motor vehicles (10.6 per cent). Road users of non motorized vehicles like animal drawn vehicles, cycle rickshaws ,hand carts,and other persons killed in road accidents acconted for 2.0% of total persons killed during 2016. A comparative table of deaths in road accidents by road user type in 2015 and 2016 is given below . **Chart 5.1**. depicts the share of road accident deaths by user type in 2016. State/UT-wise data in respect of number of persons killed in road accidents in term of road user categories during 2016 is given in **Annexure-XXII.**

Table 5.1: Total Nuber of Persons killed in Road Accidents in terms of Road Use Categories in 2015 & 2016

Road Users	No. of persons killed during 2016	No. of persons killed during 2015
1. Pedestrian	15,746 (10.5)	13,894 (9.5)
2. Bicycles	2,585 (1.7)	3,125 (2.1)
3. Two-wheelers *	52,500 (34.8)	46,070 (31.5)
4. Auto-Rickshaws	7,150 (4.7)	7,265 (5.0)
5. Cars, Taxis, Vans & LMVs	26,923 (17.9)	25,184 (17.2)
6. Trucks	16,876 (11.2)	16,611 (11.4)
7. Buses	9,969 (6.6)	10,743 (7.4)
8. Other Motor Vehicles (including e-rickshaw)	15,988 (10.6)	18,557 (12.7)**
9. Others (Animals drawn vehicle, cycle rickshaws, hand carts, - & other persons)	3,048 (2.0)	4,684 (3.2)
10. Total	**1,50,785 (100.0)**	**1,46,133 (100.0)**

*Two Wheelers include motor cycles, scooters ,mopeds and scooty.
**Excluding e-rickshaw.

Chart 5.1 : Share of Total Number of Persons Killed in Road Accidents in terms of Road User Categories: 2016



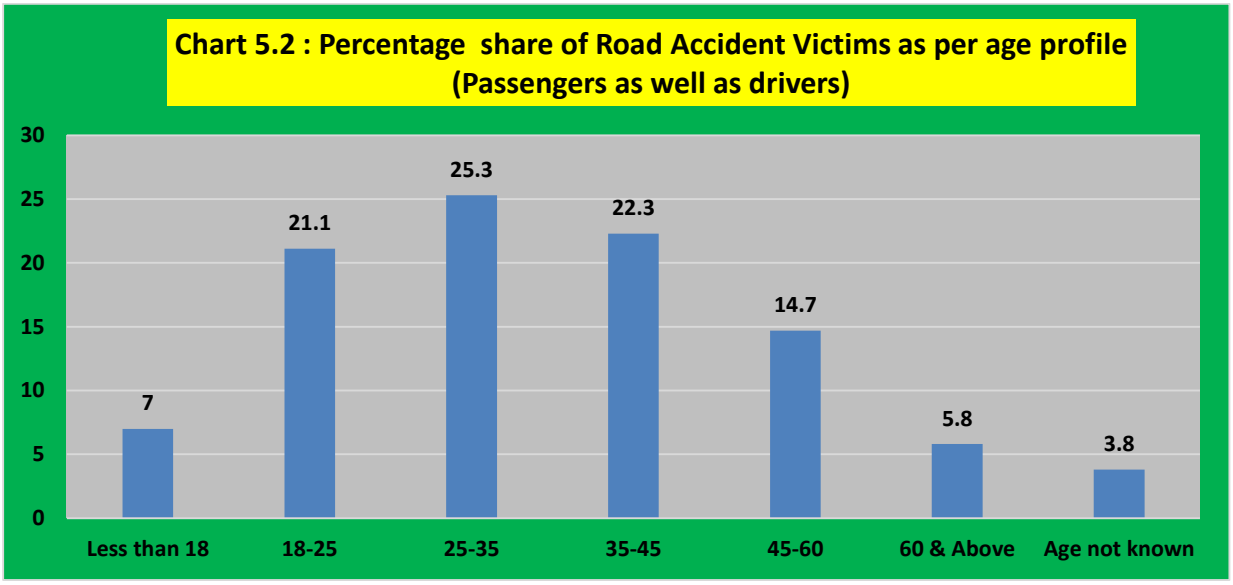
***** Includes: Animal Drawn Vehicles, Cycle Rickshaws, Hand Carts, Rickshaws and Other Persons

2. Age Profile of Road Accident Victims

Young people in the productive age group lose their lives in road accidents every year. Premature deaths of such young people cause substantial loss of productivity to the nation. The detailed age profile of road accidents victims for the calendar year 2016 reveals that the productive age group of 18 to 35 years accounted for the high share of 46.3 per cent (69,851 persons) and the age group of 18-45 accounted for a share of 68.6% (1,03,409 persons) in the total road accident fatalities. The details of other age profiles are indicated in **Table 5.2 and Chart 5.2** respectively. The details of fatalities in respect of Passengers and drivers by their age is at **Annexure** XXIII.

Table 5.2 : Age profile of Road Accident victims (Passengers as well as drivers) during 2016	
Age - group	**Number of Persons Killed**
Less than 18	**10,622 (7.0)**
18-25	**31,775 (21.1)**
25-35	**38,076 (25.3)**
35-45	**33,558 (22.3)**
45-60	**22,174 (14.7)**
60 & Above	**8,814 (5.8)**
Age not known	**5,766 (3.8)**
Total	**1,50,785**

*Figures in parenthesis are percentage of persons killed in total road accidents



3. Age of Persons Killed (Gender wise)in Road Accidents

The gender wise comparison in respect of male and female in road accident accident deaths revealed that the total number of males and females killed during the calendar year 2016 were 1,27,453 (84.5 per cent) and 23,332 (15.5 per cent) respectively in total road accidents. During the last calendar year the share of males and females in number accident deaths were 82.5 per cent and 17.5 per cent respectively. This is depicted in **Table- 5.3 and Chart 5.3**.The States/UTs wise distribution of male and female category are at **Annexure**- XXIV.

Table 5.3 : Age of Persons Killed in Road Accidents (Gender wise) during 2016		
Age - group	**Male**	**Female**
Less than 18	8,347	2,275
18-25	27,417	4,358
25-35	32,609	5,467
35-45	28,564	4,994
45-60	18,592	3,582
60 & Above	6,964	1,850
Age not known	4,960	806
Total	1,27,453 (84.5)	23,332 (15.5)
*Figures in parenthesis are percentage of persons killed in total accidents		

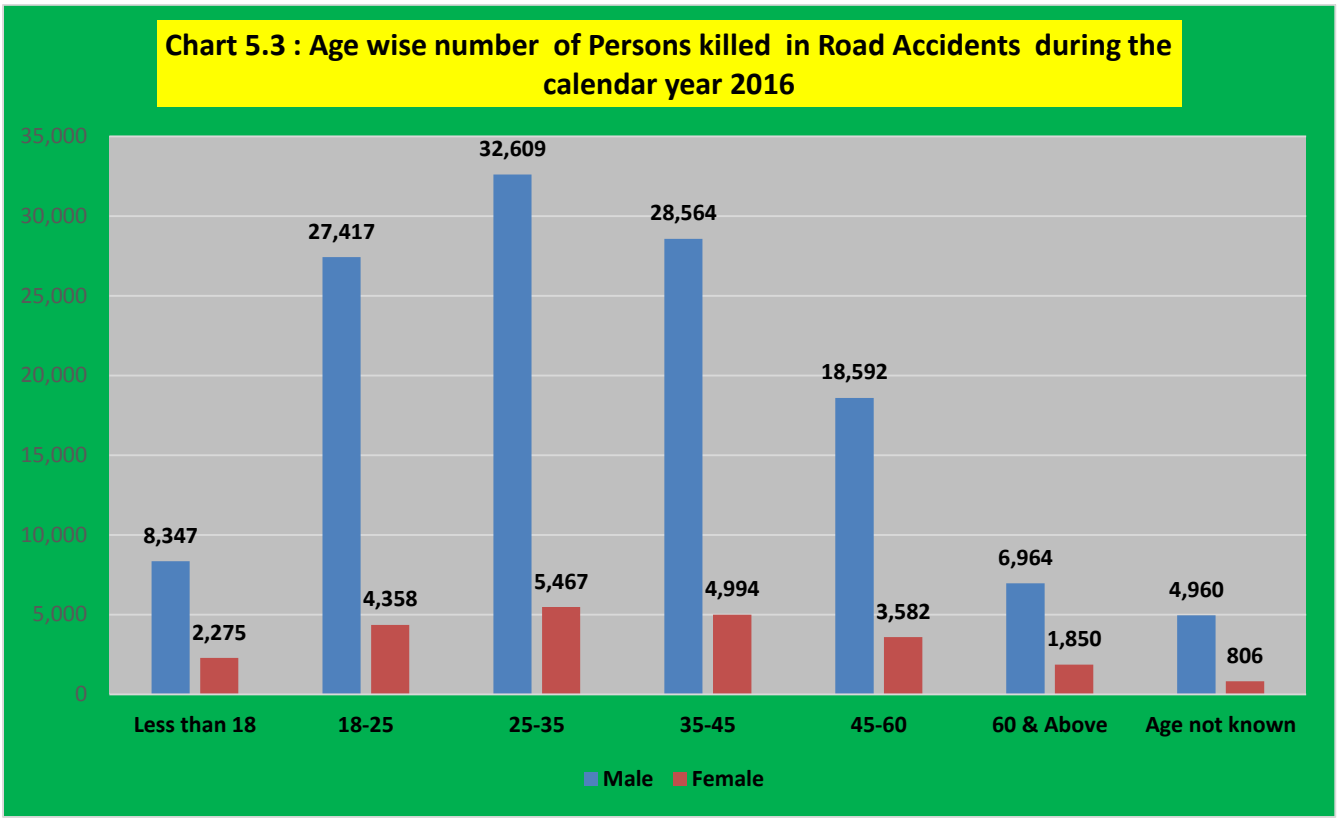


Chart 5.3 : Age wise number of Persons killed in Road Accidents during the calendar year 2016
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
8,347
2,275
27,417
4,358
32,609
5,467
28,564
4,994
18,592
3,582
6,964
1,850
4,960
806
Less than 18
18-25
25-35
35-45
45-60
60 & Above
Age not known
Male
Female

Section VI: Causes of Road Accidents

1. Multi - causal nature of Road Accident

Road accidents are multi-causal and an accident is the result of a combination of factors such as human error, road defects, engineering defects of the vehicle , non-availability of pedestrian facility, cyclist facility, circumstantial factors such as weather condition, visibility etc**. The factors responsible for road accident should, ideally, be established objectively from the circumstance under which it has occurred rather than on a subjective judgement. In this regard, definite transition towards objective recording of the causes of accidents has been initiated in the Ministry, so that this Section in the subsequent report would be in a different format.**

Based on the extant data reporting system wherein the factor responsible for accidents are reported on the basis of subjective judgment of the reporter, drivers' fault is single most important factor responsible for road accidents (84 per cent), killings (80.3 per cent) and injuries (83.9) on all roads in the country during 2016. These are higher than the figures reported in this category for 2015. Whereas, during 2015, drivers' fault reported to be accounted for 77.1 per cent of total accidents, 72.6 per cent of persons killed and 80.3 per cent of total number of persons injured. This is shown in **Table 6.1**. Factors responsible for road accidents across the States/UTs are provided in **Annexure- XXV.**

Table 6.1: Factors responsible for Road Accidents : 2016

	Accidents	Killed	Injured
Fault of Driver of motor vehicle	4,03,598 (84.0)	1,21,126 (80.3)	4,14,785 (83.9)
Fault of Driver of non-motorized vehicle	6,546 (1.4)	2,250 (1.5)	7,620 (1.5)
Fault of Pedestrian	8,298 (1.7)	3,091 (2.0)	7,465 (1.5)
Fault of Passenger	5,200 (1.1)	2,181 (1.4)	4,535 (0.9)
Mechanical Defect in motor vehicle	6,688 (1.4)	2,823 (1.9)	6,956 (1.4)
Engineering/ Designing fault of Roads	1,289 (0.3)	589 (0.4)	1,217 (0.2)
Defect in road condition (surface of roads/surface condition of roads)	7,158 (1.5)	2,983 (2.0)	6,579 (1.3)
Stray Animal	1,604 (0.3)	629 (0.5)	1,307 (0.3)
Poor light condition	3,833 (0.8)	1,631 (1.1)	4,477 (1.0)
Other causes	20,858 (4.3)	7,312 (4.8)	23,380 (4.7)
Causes not known	15,580 (3.2)	6,170 (4.1)	16,303 (3.3)
Total	4,80,652	1,50,785	4,94,624

Figures in parenthesis are the percentage share

The following factors explain the responsibilty of drivers, which accounted for about 84 per cent of total road accidents, 80.3 per cent of killings and 83.9 of injuries on indian roads during 2016. This is shown in **Table 6.2**.

Table 6.2: Responsibilities of Drivers: 2016			
Responsibilities of Drivers	**Accidents**	**Killed**	**Injured**
Exceeding lawful speed	2,68,341 (66.5)	73,896 (61.0)	2,82,870 (68.2)
Intake of Alcohol	14,894 (3.7)	6,131 (5.1)	11,648 (2.9)
Jumping Red Light	4,491 (1.1)	1,260 (1.0)	4,636 (1.1)
Driving on Wrong Side	17,654 (4.4)	5,705 (4.7)	17,908 (4.3)
Jumping/ Changing lanes	8,513 (2.1)	2,795 (2.3)	8,177 (2.0)
Overtaking	29,647 (7.3)	9,462 (7.8)	29,171 (7.0)
Using of Mobile phones during driving	4,976 (1.2)	2,138 (1.8)	4,746 (1.1)
Asleep or fatigued or sick	4,552 (1.1)	1,796 (1.5)	4,685 (1.1)
Other improper actions	50,530 (12.6)	17,943 (14.8)	50,944 (12.3)

6.1 Most of the fatal accidents occur due to **over speeding**. A vehicle moving on high speed will have greater impact during the accident and hence may cause more injuries. During 2016, within the category of drivers' fault, accidents caused and persons killed due to 'Exceeding lawful speed', accounted for a high share of 66.5 per cent (2,68341 out of 4,03,598 accidents) and 61.0 per cent (73,896 out of 1,21,126 deaths), respectively. However taking into account the total road accidents and total road accident killings, the share of over speeding comes to 55.9 per cent (2,68,341 out of 4,80,652 accidents) and 49.0 per cent (73,896 out of 1,50,785 deaths) respectively.

6.2 **Overtaking** as a fault of the driver, resulted in 7.3 per cent (29,647 out of 4,03, 598) of road accidents and 7.8 per cent (9,462 out of 1,21,126) of killings during 2016. However, taking into account the total road accidents and total road accident killings, the share of overtaking comes to 6.2 per cent (29,647 out of 4,80,652 accidents) and 6.3 per cent (9,462 out of 1,50,785 deaths) respectively.

6.3 **Intake of alcohol & drugs** by drivers reduces concentration and cause accidents and many times it proves fatal. Intake of alcohol / drugs by drivers resulted in 14,894 road accidents and 6,131 fatalitites in 2016. Within the category of drivers' fault, intake of alcohol/drugs accounted for 3.7 per cent and 5.1 per cent respectively. However taking into account the total road accidents and total road accident killings, the share of intake of alcohol/drugs comes to 3.1 per cent (14,894 out of 4,80,652 accidents) and 4.1 per cent (6,131 out of 1,50,785 deaths) respectively.

6.4 Distraction while driving may cause road major accidents. **Act of talking over mobile phones while driving** has become a cause of road accidents. This has resulted in 4976 number of road accidents, deaths of 2138 number of persons and injuries to 4746 number of persons during the calendar year 2016.

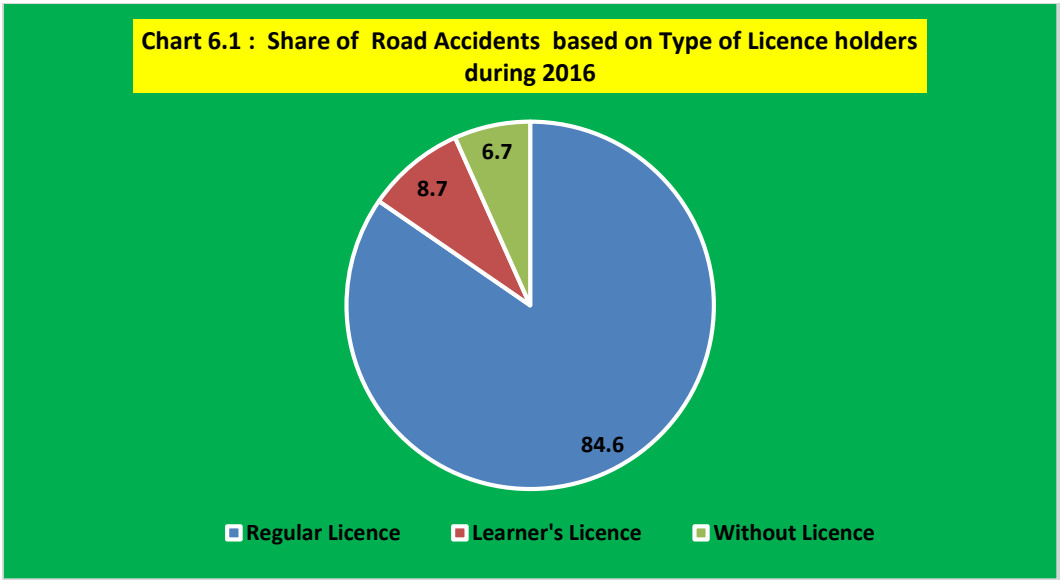
6.5 Other improper actions and driving on wrong side are among important factors for road accidents as a result of fault driving during 2016.
State/UT-wise details are given at **Annexure-XXVII.**

2. Type of Licence & Road Accidents

The holder of regular licence were involved in more number of accidents (4,05,079) followed by holder of learners licence (41,405) and persons without licence (32,088) This is depicted in the **Table 6.3 and Chart 6.1**.

During 2016, regular licence holder were involved in 4,05,079 accidents, i.e, 84.6 per cent of the total accidents. The share of regular licence holders involved in road accidents in the previous years were also high; 3,89,974 (81.2 per cent) in 2014 and 3,96,381 (79.1 per cent) in 2015. This implies requirement of proper evaluation/testing of driving skill before the issue of licence. The State/U.T wise distribution is shown at **Annexure**- XXXV.

Table 6.3 : Total Number of Road Accidents Classified based on Type of Licence during 2016	
Type of Licence	**Accidents**
Regular Licence	**4,05,079 (84.6)**
Learner's Licence	**41,405 (8.7)**
Without Licence	**32,088 (6.7)**
Note: 1. Total no. of accidents may not tally due to not reporting Chandigarh. 2. Information pertains to Drivers only	



3. Use of Safety Devices & Road Accidents (Helmet and Seat belts)

Non-wearing of **helmets** by two wheeler riders caused 10,135 deaths (6.7 per cent) of total road accident deaths in the country during 2016. Non-wearing of **seat belts** also caused 5,638 deaths (3.7 per cent) of total road acc ident deaths in the country during 2016. Wearing of seat belts and helmets increases the chances of survival in a serious accident. The State/U.T wise distribution is shown at **Annexure**- XXX.

4. Other Parameters of Road Accidents:

Vehicular load condition, be it passengers or goods, is also responsible for road accidents in our country. During the year 2016, overloaded vehicles accounted for 61,325 (12.8 per cent) road accidents as compared to77,116 (15.4 per cent) road accidents during 2015. Road accident deaths due to overloaded vehicles reported as 21,302 (14.1 per cent) in 2016 as compared to 25,199 (17.2 per cent) during 2015. The States/UT wise distribution is given at **Annexure**-XXXIV.

During the calendar year 2016 , the total number of **Hit and Run cases** were 55,942 which is 11.6 per cent of the total road accidents as compared to 57,083 which was 10.9 per cent of total road accidents in 2015. The number of persons killed due to hit and run cases were reported as 22,962

which is 15.2 per cent of total persons killed in total road accidents in 2016 (this is higher than the comparative percentage of 14.2 in 2015). State/U.Ts wise details are given in **Annexure** – XXXI.

Accidents due to **Head On Collision** was as high as 96,466 during 2016 resulting in 27,446 deaths accounting for a share of 20.1 per cent and 18.2 per cent respectively in total road accidents and fatalities in the country. Hit from back, Overturning, cases are also high next to Head on Collision cases. The States/UT wise distribution is given at **Annexure**-XXXI

It has been observed that 3,45,568 accidents occurred during fine weather conditions which constituted a share of 71.2 per cent of the total road accidents in the country during 2016. Some of the other accidents based on weather conditions are rain, Mist/fog, cloud etc. The State/UT wise distribution is given at **Annexure**- XXXII.

Some of the factors responsible for road accidents are also based on locations . Maximum number of accidents (1,88,196) and resultant deaths (62,508) deaths occurred at open area with a share of 39.2 per cent and 41.5 per cent respectively followed by residential area, market place, pedestrian crossing etc. State/U.T distribution is given at **Annexure**-XXVI.

Section VII:Inter State Comparison

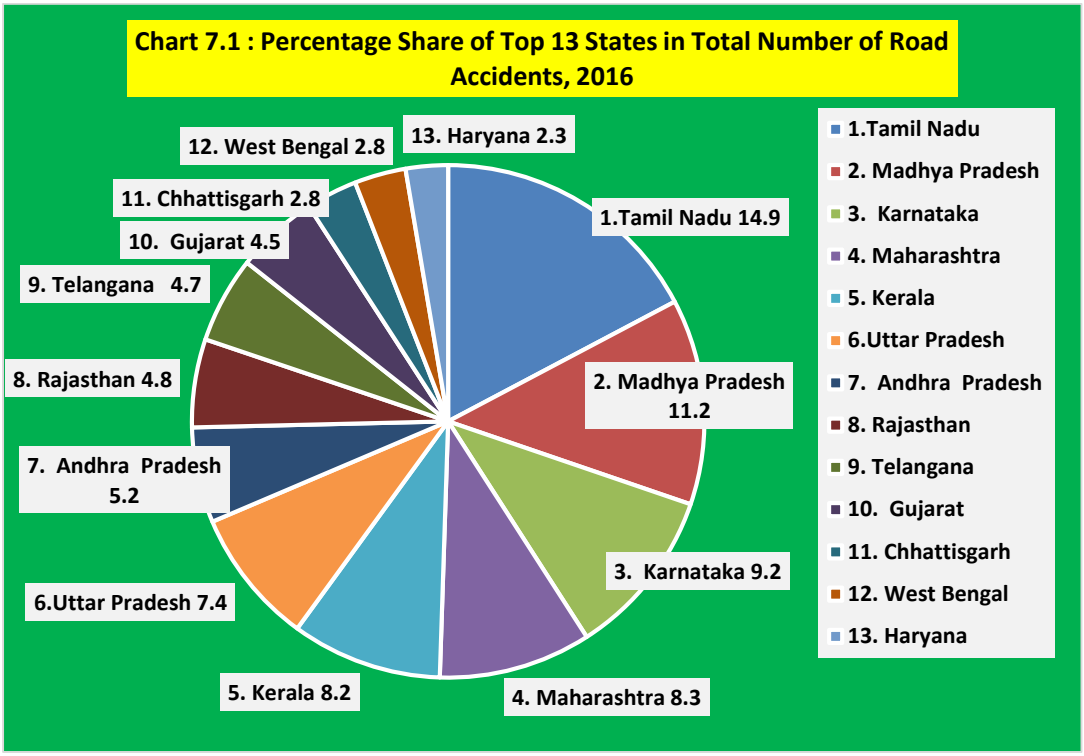
As stated in Section I the total number of road accidents and resultant persons killed and injured in the country during 2016 as reported by States/U.Ts were 4,80,652, 1,50,785, and 4,94,624 respectively. The share of top thirteen States in total number of road accidents, persons killed and persons injured in road accidents in the country are provided at **Tables 7.1, 7.2 & 7.3** below.

1. Number of Road Accidents

A comparison of States reveals that top 13 States accounted for 86.5 per cent of share in road accidents during the calendar year 2016 (**Table - 7.1**). Tamil Nadu stood on top in road accidents in the entire country with a percentage share of 14.9 per cent followed by Madhya Pradesh 11.2 per cent and Karnataka 9.2 per cent. A comparative view of top 13 States for the calendar year 2016 and and number of road accidents took place in these 13 States during 2015 are tabulated below **(Table 7.1)** and depicted in **Chart7.1**. The total number of road accidents in Maharashtra has significantly reduced in 2016 as against 2015 and correspondingly also in its share in the country.

Table 7.1: Top 13 States: Share in Total Number of Road Accidents (in percentage) during the calendar year 2015 & 2016

	2016		2015
	Percentage Share	**Number of Road Accidents**	**Number of Road Accidents**
Share of 13 States	**86.5**	**4,15,734**	**4,34,814**
1.Tamil Nadu	14.9	71,431	69,059
2. Madhya Pradesh	11.2	53,972	54,947
3. Karnataka	9.2	44,403	44,011
4. Maharashtra	8.3	39,878	63,805
5. Kerala	8.2	39,420	39,014
6.Uttar Pradesh	7.4	35612	32,385
7. Andhra Pradesh	5.2	24,888	24,258
8. Rajasthan	4.8	23,066	24,072
9. Telangana	4.7	22,811	21,252
10. Gujarat	4.5	21,859	23,183
11. Chhattisgarh	2.8	13,580	14,446
12. West Bengal	2.8	13,580	13,208
13. Haryana	2.3	11,234	11,174

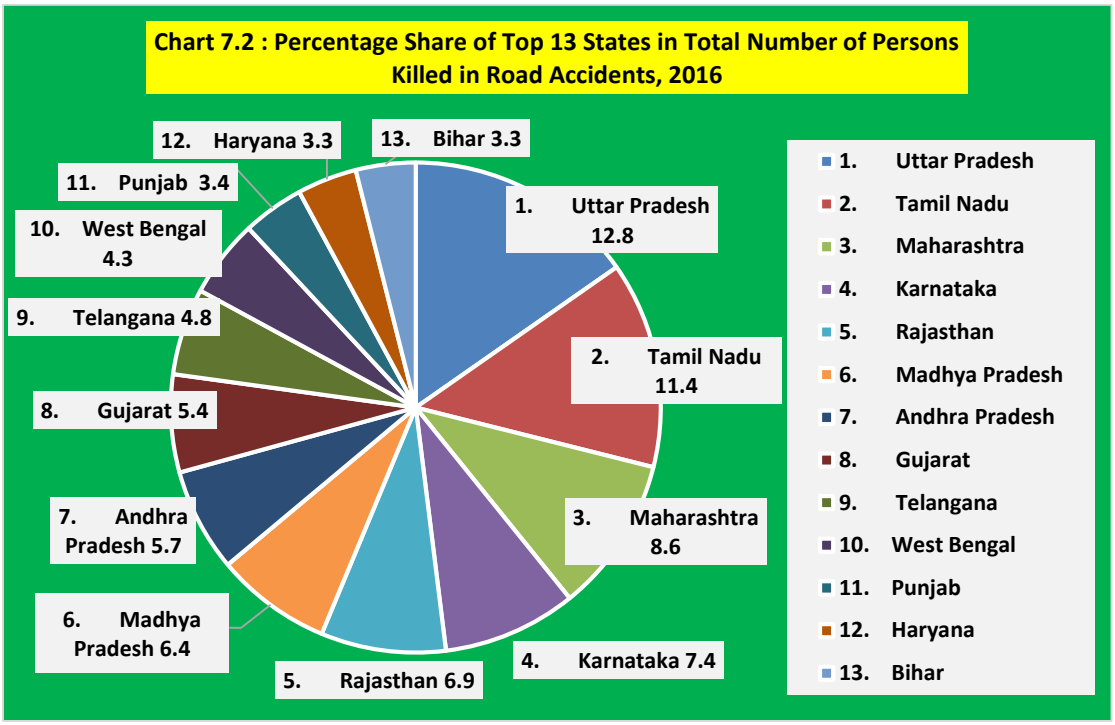


2. Number of Persons Killed in Road Accidents (Share of States)

A comparison of States reveals that top 13 States accounted for 83.7 per cent of share in road accident fatalities in the entire county during the calendar year 2016. Uttar Pradesh stood on top in road accident fatalities in the entire country with a percentage share of 12.8 per cent followed by Tamil Nadu 11.4 per cent and Maharashtra 8.6 per cent. A comparative view of top 13 States for the calendar year 2016 and number of accidents took place during 2015 are tabulated below **(Table 7.2)** and depicted in **Chart 7.2.**

Table 7.2: Top 13 States: Share in Total Number of Persons Killed in Road Accidents (in percentage) in 2015 & 2016

	2016		2015
	Percentage Share	**Number of Persons Killed in Road Accidents**	**Number of Persons Killed in Road Accidents**
Share of 13 States	**83.7**	**1,26,159**	**1,22,153**
1. Uttar Pradesh	12.8	19320	17,666
2. Tamil Nadu	11.4	17218	15,642
3. Maharashtra	8.6	12935	13,212
4. Karnataka	7.4	11133	10,856
5. Rajasthan	6.9	10465	10,510
6. Madhya Pradesh	6.4	9646	9,314
7. Andhra Pradesh	5.7	8541	8,297
8. Gujarat	5.4	8136	8,119
9. Telangana	4.8	7219	7,110
10. West Bengal	4.3	6544	6,234
11. Punjab	3.4	5077	4,893
12. Haryana	3.3	5024	4,879
13. Bihar	3.3	4,901	5,421

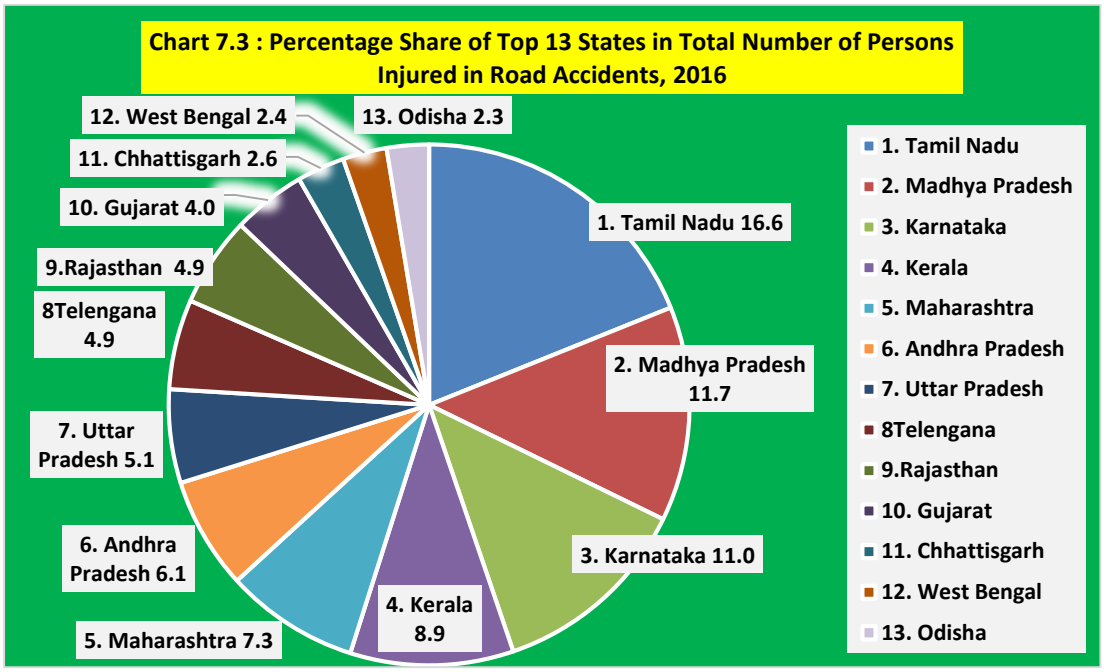


3. Number of Persons Injured in Road Accidents

A comparison of States reveals that 13 States accounted for 87.8 per cent of share in persons injured in road accident in the entire country during the calendar year 2016. Tamil Nadu stood on top in persons injured in road accidents in the entire country with a percentage share of 16.6 per cent followed by Madhya Pradesh 11.7 per cent and Karnataka 11.0 per cent respectively. A comparative view of top 13 States for the calendar year 2016 and number of road accidents took place duting 2015 are tabulated below **(Table 7.3)** and depicted in **Chart7.3**.

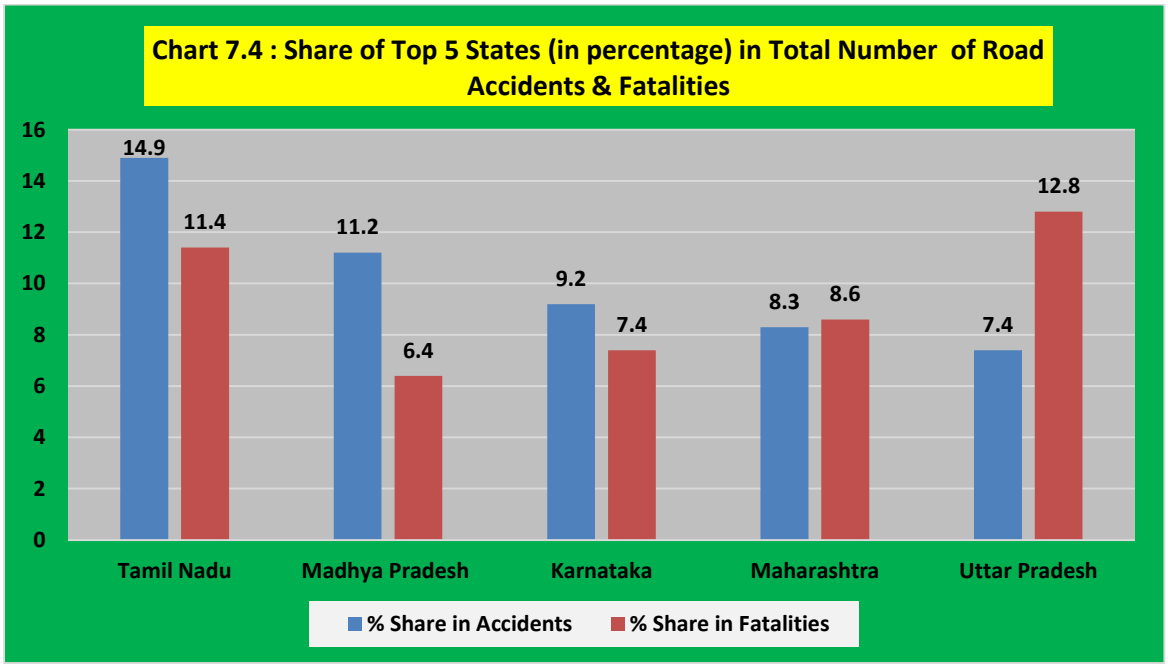
Table 7.3: Top 13 States: Share in Total Number of Persons Injured in Road Accidents (in percentage) in 2015 & 2016

	2016		2015
	Percentage Share	**Number of Persons Injured in Road Accidents**	**Number of Persons Injured in Road Accidents**
Share of 13 States	**87.8**	**4,34,126**	**4,36,111**
1. Tamil Nadu	16.6	82,163	79,746
2. Madhya Pradesh	11.7	57,873	55,815
3. Karnataka	11.0	54,556	56,971
4. Kerala	8.9	44,108	43,735
5. Maharashtra	7.3	35,884	39,606
6. Andhra Pradesh	6.1	30,051	29,439
7. Uttar Pradesh	5.1	25,096	23,205
8. Telengana	4.9	24,217	22,948
9. Rajasthan	4.9	24,103	26,153
10. Gujarat	4.0	19,949	21,448
11. Chhattisgarh	2.6	12,955	13,426
12. West Bengal	2.4	11,859	11,794
13. Odisha	2.3	11,312	11,825



4. Changing Scenario of Road Accidents among States/UTs

A comparison of road accident data as reported by States/U.Ts reveals that top 13 States accounted for a high proportion of road accidents, resultant fatalities and injuries as explained at para (1), (2) and (3) of the section. Over the last four years only marginal changes have taken place in the inter se rankings (**Annexures** II, III & IV) . Reduction in the road accidents and resultant fatalities and injuries in the top thirteen states will have a significant impact at national level. Five States with most accidents and fatalities as per data reported for the calendar year 2016 is depicted below. The share of Maharashtra in total number of road accidents in the country has fallen significally in 2016 as against 2015. **The situation in Uttar Pradesh is alarming, wherein its share in the number of total fatalities is much more than that of number of accidents. This is on account of high accident severity of 54.3 in Uttar Pradesh as against the national average of 31.4.**



SectionVIII: Road Accidents in Million plus Cities

Fifty Million Plus cities reported road accident data for 2016. These 50 Million Plus Cities accounted for a share of 18.7 per cent in total road accidents in the country during 2016 as against 22.1 percent in 2015. During 2016, in Million Plus Cities 11.8 per cent persons were killed in road accidents as against 11.3 percent in 2015.Whereas, 16.7 per cent persons were injured in road accidents in the country during 2016 as against 16.4 percent in 2015. The fatal accidents in terms of percentage was 12.5 during 2016 and 12.8 in 2015. This is indicated in **Table 8.1**.

Table 8.1 : Percentage Share of 50 Million Plus Cities in Road Accidents

S.No	Accidents/Deaths/Injuries	2016	2015
1	All Accidents	18.7	22.1
2	Fatal Accidents	12.5	12.8
3	Persons Killed	11.8	11.3
4	Persons Injured	16.7	16.4

An important accident related parameter is the extent of accident severity (road accident related deaths per 100 accidents). Accident severity in terms of percentage share of 50 Million Plus cities was 19.8 per cent in 2015 as against 14.9 per cent in 2015. It varies from a low of 6.6 per cent in Kochi to a high of 69.9 per cent in Ludhiana Table 5.2). The other cities which reported a very high accident severity included Amritsar (67.1 per cent), Asansol - Durgapur (58.4 per cent), Varanasi (49.6 per cent), and Agra (49.2 per cent). This is depicted in **Table 8.2**.

Details indicating the total number of accidents, persons killed and injured with accident severity in the 50 Million plus cities is illustrated at Table - 8.2. Out of these fifty Million plus Cities Chennai reported the highest number of road accidents (7486) during 2016 followed by Delhi (7375) . Delhi reported highest number of road accident deaths (1591) followed by Chennai (1183). Cities with highest reported accidents depicted in the following **Chart 8.1**.

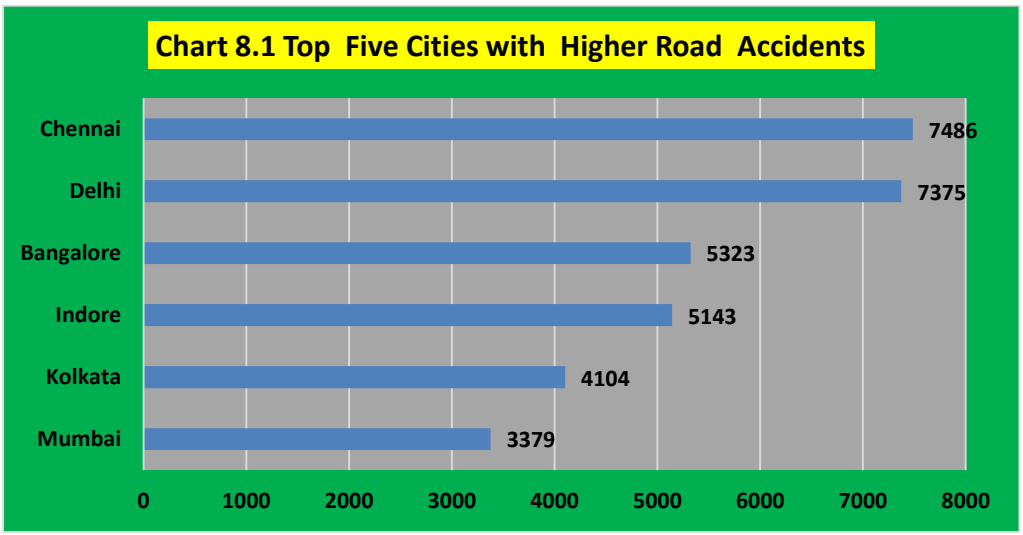


Table 8. 2: Total Number of Road Accidents, Number of persons Killed & Injured in Million Plus Cities in 2016							
S.no	**Cities**	**Fatal Accidents**	**Injury Accidents**	**Total Accidents**	**No. of Persons Killed**	**No. of Persons Injured**	**Severity of Accidents***
1	Agra	475	570	1062	522	811	49.2
2	Ahmedabad	422	1361	1783	428	1494	24
3	Allahabad	481	600	1100	488	758	44.4
4	Amritsar	97	49	152	102	103	67.1
5	Asansol-Durgapur	228	163	416	243	255	58.4
6	Aurangabad	136	433	666	143	681	21.5
7	Bengaluru	790	3471	5323	835	4264	15.7
8	Bhopal	237	2481	3571	248	2650	6.9
9	Chandigarh	144	220	428	151	329	35.3
10	Chennai	1155	6050	7486	1183	7349	15.8
11	Coimbatore	276	1002	1354	288	1199	21.3
12	Delhi	1548	5671	7375	1591	7154	21.6
13	Dhanbad	83	115	217	97	286	44.7
14	Faridabad	208	415	624	212	508	34
15	Ghaziabad	395	477	887	421	647	47.5
16	Gwalior	221	1506	1993	244	1599	12.2
17	Hyderabad	444	2148	2945	448	2469	15.2
18	Indore	404	3880	5143	431	4263	8.4
19	Jabalpur	337	2580	3256	352	5780	10.8
20	Jaipur	832	1827	3004	890	2625	29.6
21	Jamshedpur	77	103	188	77	186	41
22	Jodhpur	91	148	270	100	239	37
23	Kannur	47	436	504	52	660	10.3
24	Kanpur	620	813	1451	684	911	47.1
25	Khozikode	138	1230	1542	145	1681	9.4
26	Kochi	161	2157	2573	169	2595	6.6
27	Kolkata	388	2650	4104	407	3182	9.9
28	Kollam	194	1430	1677	207	1688	12.3
29	Kota	94	448	590	102	569	17.3
30	Lucknow	595	869	1639	631	990	38.5
31	Ludhiana	357	174	549	384	313	69.9
32	Madurai	217	685	946	222	926	23.5
33	Mallapuram	376	2115	2738	402	3264	14.7
34	Meerut	393	584	977	421	748	43.1
35	Mumbai	529	2772	3379	562	3517	16.6
36	Nagpur	291	1033	1373	307	1510	22.4
37	Nashik	203	425	1031	213	599	20.7
38	Patna	458	430	923	484	510	52.4
39	Pune	397	901	1376	410	1036	29.8
40	Raipur	401	1079	2240	415	1410	18.5
41	Rajkot	153	502	719	154	610	21.4
42	Srinagar	49	243	324	51	325	15.7
43	Surat	273	460	790	283	687	35.8
44	Thiruvanthapuram	177	2217	2453	180	2994	7.3
45	Thrissur	116	1154	1357	128	1585	9.4
46	Tiruchirapalli	141	484	657	144	732	21.9
47	Vadodra	203	654	1046	214	878	20.5
48	Varanasi	226	230	456	226	230	49.6
49	Vijaywada city	362	1188	1640	379	1571	23.1
50	Vishakapatnam	320	967	1538	327	1238	21.3
Total		**16960**	**63600**	**89835**	**17797**	**82608**	**19.8**

* Number of persons killed per 100 accidents.

Section IX: Spatial & Intertemporal Distribution of Road Accidents

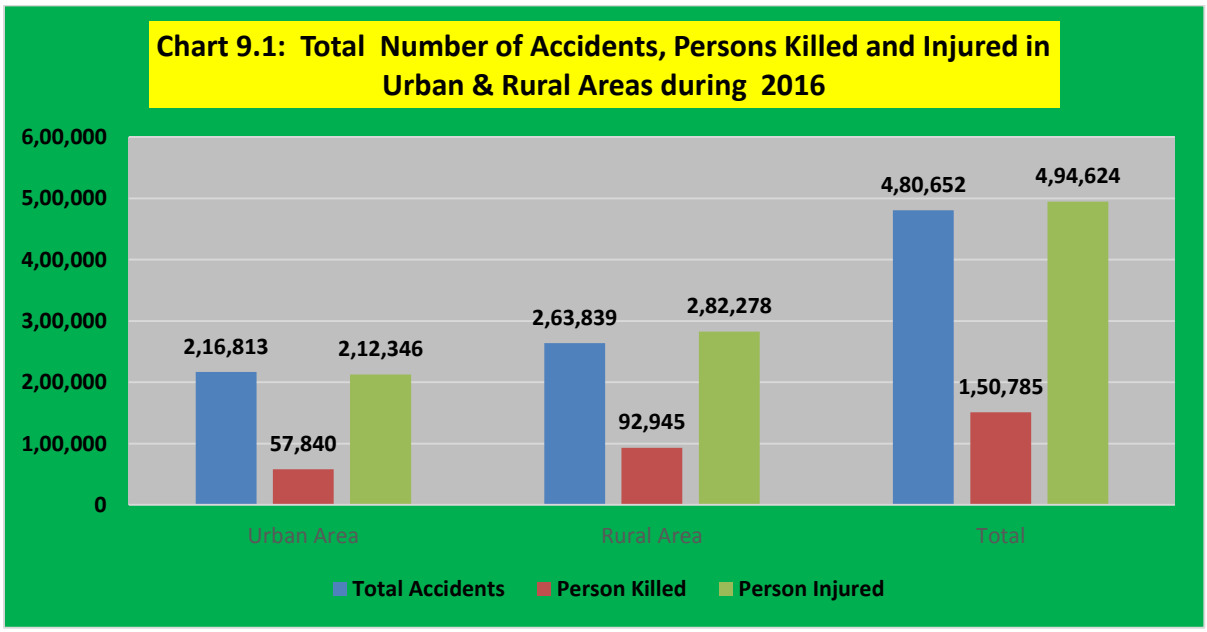
1. Urban Vis - a- Vis Rural

An analysis of road accidents in urban and rural areas for the calendar year 2016 reveals that rural areas are more prone to road accidents. The total number of road accidents in urban areas were lower (2,16,813) as compared to number of accidents in rural areas (2,63,839).The percentage share of accidents in rural areas and urban areas were54.9 and 45.1 respectively in total number of accidents in the country. A comparison of percentage share of fatal accidents, total accidents, persons killed and injured in rural vis-à-vis urban is illustrated in **Table 9.1**. The table indicates that significant investment & improvement in rural roads is required for reducing accidents in rural areas. Detailed State/UT-wise information on the spatial distribution of road accidents rural as well as urban is given in **Annexures** XXXVI and XXXVII. A comparative picture of road accidents, persons killed and injured in urban and rural areas is illustrated in **Chart 9.1**

Table 9.1 : Total Number of Road Accidents, Persons Killed and Injured in Rural & Urban Areas during 2016

Category	Total Accidents	Fatal Accidents	Person Killed	Person Injured
Urban Area	2,16,813 (45.1)	53,487 (39.3)	57,840 (38.4)	2,12,346 (42.9)
Rural Area	2,63,839 (54.9)	82,584 (60.7)	92,945 (61.6)	2,82,278 (57.1)
Total	4,80,652	1,36,071	1,50,785	4,94,624

Note: Figures in parentheses indicate share of the total.

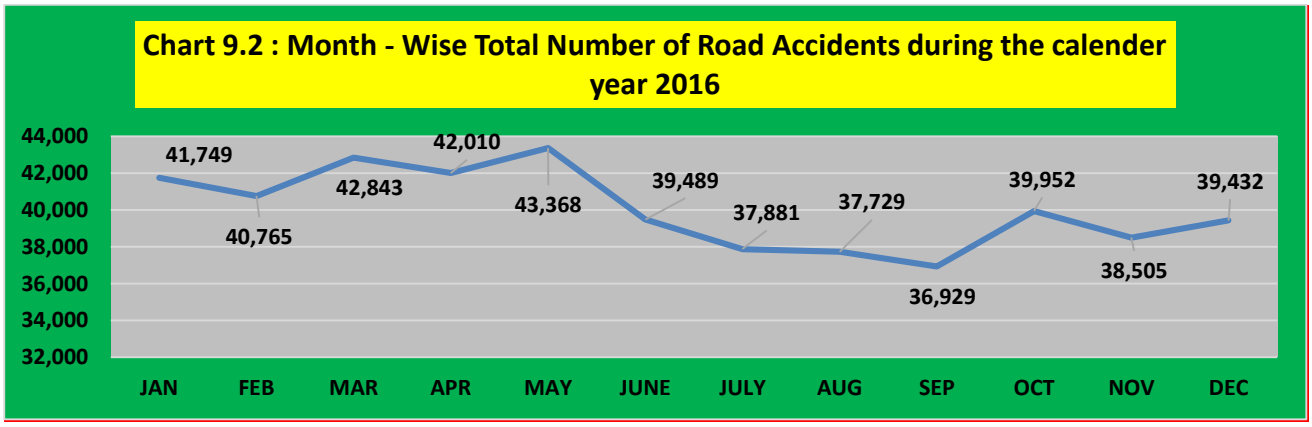


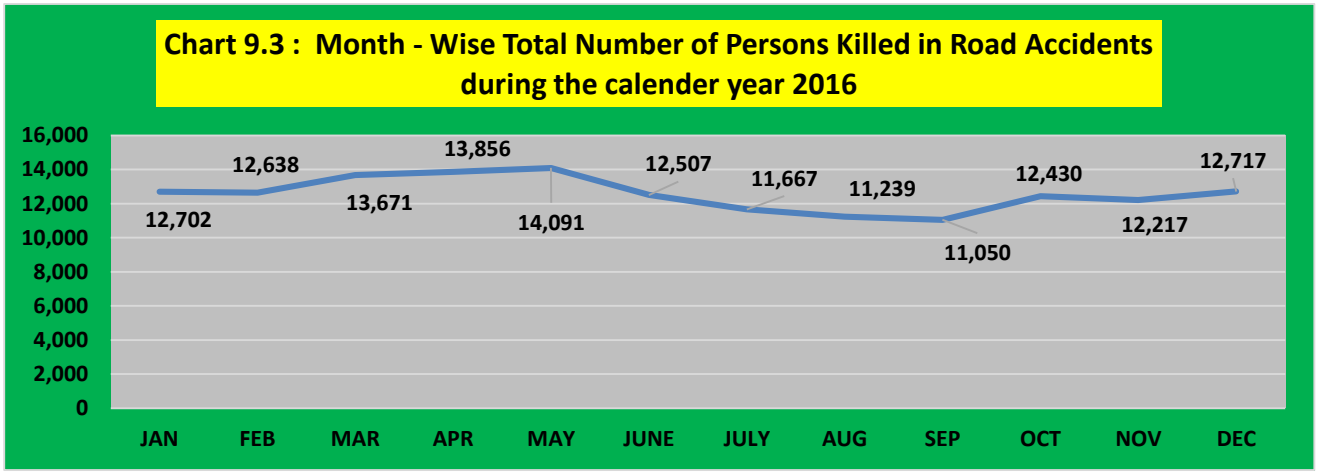
2. Month Wise Occurences of Road Accidents

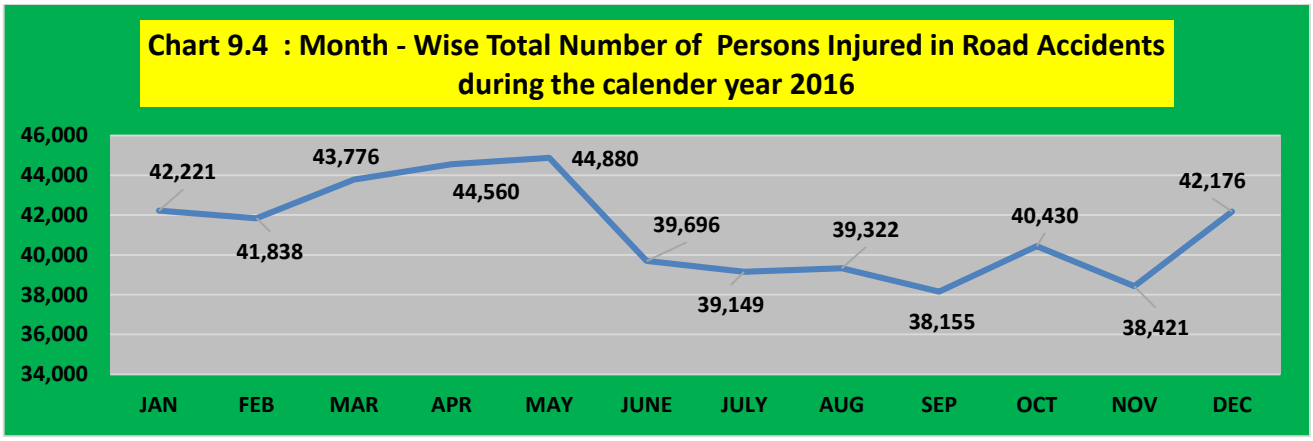
The month wise details of road accidents, persons killed and injured in respect of all states/UTs during 2015 are given below at **Table 9.2**:

Table 9.2: Month-Wise classification of Road Accidents

	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC	**Total**
Accidents	41,749	40,765	42,843	42,010	43,368	39,489	37,881	37,729	36,929	39,952	38,505	39,432	**4,80,652**
Killed	12,702	12,638	13,671	13,856	14,091	12,507	11,667	11,239	11,050	12,430	12,217	12,717	**1,50,785**
Injured	42,221	41,838	43,776	44,560	44,880	39,696	39,149	39,322	38,155	40,430	38,421	42,176	**4,94,624**







It is seen from **Charts 9.2, 9.3 and 9.4** that the total number of accidents during 2016 were highest in the month of May, (43,368) and followed by the month of March (42,843) and April (42,010). Similarly, the total number of persons killed were highest in the month of May (14,091) followed by month of April (13,856).The number of persons injured were highest in the month of May (44,880) followed by the month of April (44,560). The States/UT wise distribution is given in **Annexure**-XXXVIII.

3. Time Wise Occurences of Road Accidents

For framing strategies for prevention and provision of medical care for accident victims, timing of accidents is a relevant factor. During 2016 high rate of accidents took place between 15:00 to 18:00 hours (17.9 per cent) followed by 18:00 hours to 21:00 hours (17.6 per cent) This is depicted in **Tables 9.5 and Chart 9.5**. State/UT wise details are at **Annexure**-XXXIX.

Table 9.5 : Road Accidents as per the Time of Occurrence (2015)

Time	Number of Accidents	Per cent Share in Total Accidents
06:00 - 09:00 hrs (Day)	54,522	11.3
09:00 - 12:00 hrs (Day)	75,771	15.7
12:00 - 15:00 hrs (Day)	73,380	15.3
15:00 - 18:00 hrs (Day)	85,834	17.9
18:00 - 21:00 hrs (Night)	84,555	17.6
21:00 - 24:00 hrs (Night)	50,970	10.6
00:00 - 03:00 hrs (Night)	25,976	5.4
03:00 - 06:00 hrs (Night)	29,644	6.2
Total 24 hrs	4,80,652	100.0