

An Inter-State Comparison of Road Accidental Deaths in India A Case for Police Intervention (2004 - 2013)

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Abstract

In the last two decades India has emerged as a vibrant economy, witnessing rapid urbanization, migration of people and changing pattern of consumption, readily adopting mechanization and experiencing revolution in technology in all spheres of life. The intensity of motorized vehicles has risen by many folds without a matching investment in infrastructure development. Road safety has figured as a sensitive and vital issue. Road accidents being part of un-natural deaths constitute the highest proportion in total accidental deaths. The present study examines the nature, composition and rate of road accidents in India. State-wise density of vehicular traffic, density of road network and intensity of road accidental deaths has been ascertained to have a microscopic view of acute problem in India and the results are presented using Histograms and Pie charts. Over the period of analysis, magnitude of vehicular traffic has risen, which is the cause of high intensity of road accidents. Rise in earnings of middle class clubbed with easy availability of automobile loan from financial institutions was the primary cause of substantial increase in number of vehicles on roads. The total number of road accidental deaths in India during the time period of ten years (2004-2013) was quite high to the extent of 1202366, which has risen at an average annual growth rate of 4.93 percent. The state of Uttar Pradesh has the highest share in total road accidental deaths in India to the extent of 11.4% followed by Tamil Nadu (11.3%), Andhra Pradesh (10.7%), Maharashtra (9.6%) and Rajasthan (7.1%).

KEYWORDS: Average Annual Compound Growth Rate, Accidental Deaths, Road Accident

In the last two decades India has emerged as a vibrant economy, witnessing alterations in the socio-demographic, economic and political way of life. There has been rising income trend especially among the middle income classes. This has led to rapid urbanization, migration of people and changing pattern of consumption. They are readily adopting mechanization and experiencing revolution in technology in all spheres of life. The intensity of motorized vehicles has risen by many folds without a matching investment in infrastructure development. Road safety has figured as the most sensitive and crucial issue while addressing to the problem of accidental deaths in the country. Road accidents form the highest proportion of accidental deaths. There are both natural and un-natural causes of accidental deaths. The natural causes (Avalanche, Cold and Exposure, Cyclone/Tornado, Starvation/Thirst, Earthquake, Epidemic, Flood, Heat Stroke, Landslide, Lightning, Torrential Rains etc.) constitute a meager part to the extent of 5 to 6 percent of total accidental deaths. The different causes of unnatural deaths are Air-Crash, Collapse of Structure (House Building, Dam, Bridge), Drowning Boat,

Electrocution, Explosion, Falls (Fall from Height, Fall into Pit/Manhole), Factory/Machine Accidents, Fire (Fireworks/Crackers, Short-Circuit, Gas Cylinder/Stove Burst), Fire-Arms, Sudden Deaths (Heart Attacks, Epileptic Fits/Giddiness, Abortions/Child Birth, Influence of Alcohol), Killed by Mines or quarry disaster, Poisoning (Food Poisoning/Accidental Intake of Insecticide, Spurious/poisonous liquor, Leakage of poisonous gases, Snake Bite/Animal Bite), Stampede, Suffocation, Traffic Accidents (Road, Rail-Road Accidents, Other Railway Accidents).

Road accidents (figuring among the unnatural causes of accidental deaths) usually refer to traffic accidents in which there is a motor vehicle collision with another vehicle, person, animal, obstruction like trees or poles etc. Such an accident leads to injury, death, disability, vehicle damage and property damage. It is a worldwide phenomenon which causes human and financial loss and the cost has to be borne by the society and the individuals involved. The World Health Organization (WHO) uses the term road traffic injury to describe the vehicle collisions. A 2004 report by WHO states that road traffic injuries are a major problem which needs effective and sustainable efforts for prevention. The report forecasts that if new initiatives are not taken to combat this problem worldwide road traffic injuries would rise by 65 percent by 2020 and by 80 percent in low-income and middle- income countries.

There is an urgent need to take appropriate actions to put a check on the deteriorating road safety measures. In India the problem is unique and catastrophic with little precedence of such a situation in highly motorized countries. Here the road space is jointly shared by cars, buses, three-wheelers, rickshaws, animal carts, scooters, bicycles and pedestrians. Highways pass through rural areas with high density of population and there is an absence of parallel road links for slow and non-motorized traffic. Illegal encroachments on the road spaces are a further nuisance which causes many road accidents. Driving licenses are issued without effective scrutiny and examination. India's road traffic injuries pose a huge public health and development problem killing almost around 1.4 lakh people, injuring or disabling about 4.7 lakh persons and damaging 1.6 crore vehicles a year (NCRB, 2013).

Dedicated traffic police force is vital for patrolling and managing traffic in cities and towns. Enforcement of traffic rules and regulations is of paramount importance as intense supervision (using modern techniques of surveillance) by traffic police department can certainly create a dent on the rising menace of road accidental deaths.

The present study is an attempt

1. To examine the magnitude, proportion, rate and growth of road accidental deaths in different states of India during the last decade (2004-2013).
2. To ascertain the intensity of deaths in road accidents by different types of vehicles in different states of India.

METHODOLOGY

The data on total accidental deaths, road accidental deaths, in different states in India from 2004 to 2013 is subjected to primary and graphical analysis. To examine nature of road accidents during the period of analysis, the different type of vehicles and their ownership (whether private or government) is scrutinized. Pie chart is used

to express the share of different categories of vehicles in road accidental deaths. To study the composition of road accidents, the proportion of road accidents in total accidents is reckoned and expressed through histogram. Further in order to ascertain rate of road accidental deaths, magnitude of road accidental deaths per lakh of population in the years 2004 and 2013 in different states of India is computed. The rate of accidental deaths defined as the number of deaths per lakh inhabitants is universally taken as a realistic indicator since it balances the effect of growth in population. To analyse the growth of road accidental deaths under various types of vehicles, average annual compound growth rates were computed using the following formula.

$$Y = a b^t e^u$$

Y = Yearly expenditure on Police
 t = Time period
 u = Stochastic term

a and b are constants which were estimated by principle of least square using following formula

$$\log b = \frac{n \sum t \log y - (\sum t) (\log y)}{n \sum t^2 - (\sum t)^2}$$

$$\log a = \frac{\sum \log y}{n} - (\log b) \frac{\sum t}{n}$$

$$\text{Average C.G.R.} = (b - 1) 100$$

Sources of Data

	Type of Data	Source
i)	Number of accidental deaths and road accidental deaths in different states of India in 2004 and 2013.	Annual issues of Accidental Deaths and Suicides in India, National Crime Records Bureau, G.O.I. (2004 and 2013).
ii)	Mid-year population in different states of India in 2004 and 2013.	Directorate Census Operation, G.O.I. (2001 and 2011).
iii)	Vehicle-wise road accidental deaths in different states of India in 2013.	Annual issue of Accidental Deaths and Suicides in India, National Crime Records Bureau, G.O.I. 2013.

DISCUSSION

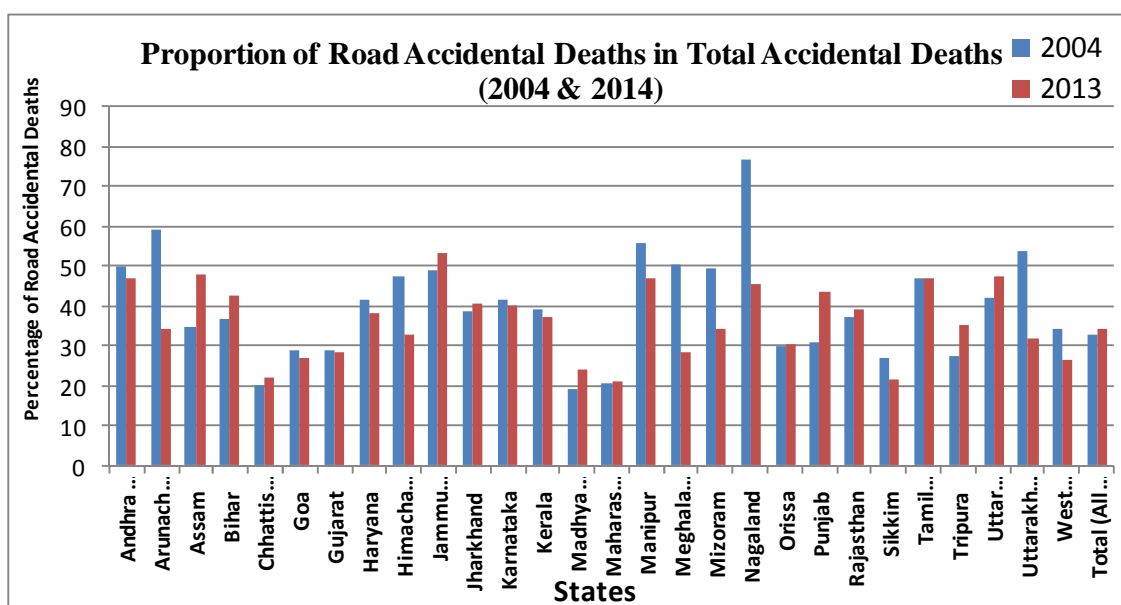
Clearly shown in Table 1 given in Appendix that the total number of road accidental deaths in India during the time period of ten years (2004-2013) was quite high to the extent of 1202366, which has risen at an average annual growth rate of 4.93 percent.

Among the states the highest number of road accidental deaths was in Andhra Pradesh (137109), followed by Tamil Nadu (135612), Uttar Pradesh (131853) and Maharashtra (126683) during the period of analysis with AACGR of 3.73 %, 4.95 %, 5.56% and 3.03% respectively. These four states constitutes about 44 percent of total accidental deaths in India. The states of Andhra Pradesh, Tamil Nadu and Maharashtra have comparatively made ample growth in secondary and tertiary sectors of economy. The rise in income earnings due to business activity and rise in landed property were reasons

responsible for voluminous increase in number of vehicles in the states. All other states had intensity of road accidental deaths less than ninety thousand.

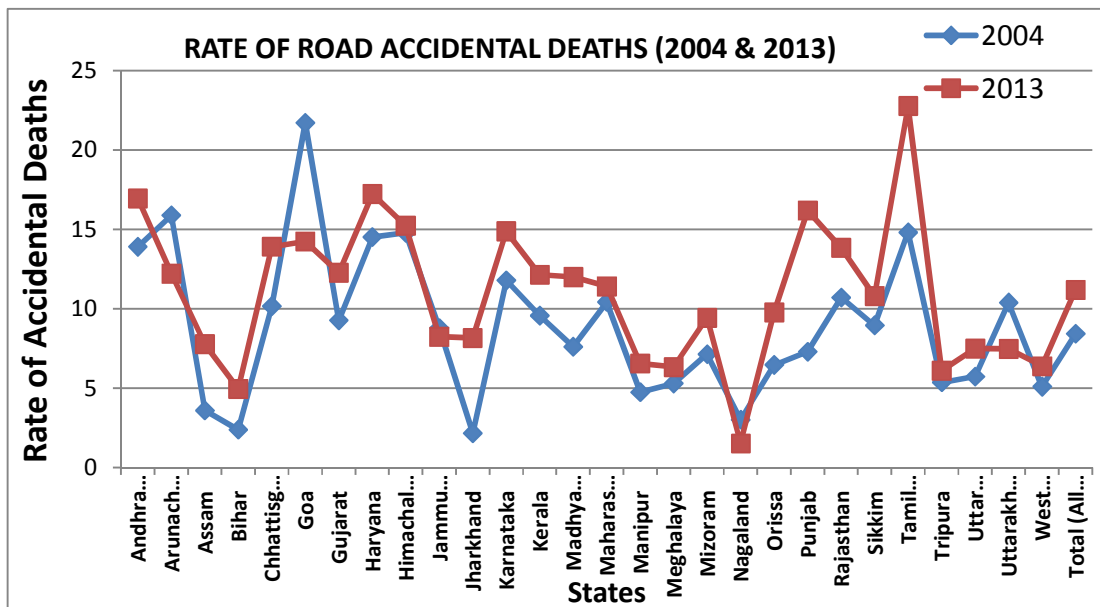
The highest AACGR was experienced by the state of Punjab to the extent of 13.03%. The highest spurt was in the year 2011 partly due increase in number of vehicles on the road and partly due to the absence of a coordinated official policy to control the problem. In the state of Punjab over a period of three decades magnitude of vehicular traffic has risen by about sixteen times, from 360154 in 1980 to 5711715 in 2010, which is the cause of high intensity of road accidents. Jharkhand, Bihar and Assam also have high AACGRs of 12.71%, 12.66% and 8.48% respectively. Deteriorating road infrastructure in terms of quality and management clubbed with lack of provision for health and hospital services account for high AACGR of road accidental deaths in these states. All other states had AACGR less than eight percent. Only three states (Nagaland, Uttarakhand and Goa) had negative AACGR during the period of analysis.

The proportion of road accidental deaths in total accidental deaths over the period of ten years (2004-2013) has risen in India from 32.96 % in 2004 to 34.31 % in 2013. It constitutes the highest proportion of deaths among all other causes of accidental deaths. It has risen irrespective of the awareness campaigns launched by the traffic police departments, efforts towards development and management of road infrastructure, provision for safer vehicles by automobile companies, provision of health and hospital services in most of the states etc. The states like Assam, Bihar, Chhattisgarh, Jammu & Kashmir, Jharkhand, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tripura, Uttar Pradesh have shown an increasing trend in road accidental deaths over the period of analysis. Some states had been successful in substantially reducing the proportion like Arunachal Pradesh, Himachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Uttarakhand and West Bengal. Most of these states are hilly states where National Highways Authority have invested heavily in improving the quality of roads and traffic sign boards for alerting the drivers about the immediate hurdles ahead.



The intensity of the problem can be judged from the rate of accidental deaths. The rate of accidental deaths indicates the number of deaths per lakh inhabitants, which is universally taken as a realistic indicator since it balances the effect of growth in population. The rate of accidental deaths in India has increased from 8.42 in 2004 to 11.18 in 2013. Though in most of the states, except some hilly states, the rate has risen indicating the intensity of the problem. The worst is in the case of Punjab and Tamil Nadu where the rate of road accidental deaths has risen from 7.29 and 14.80 in 2004 to 16.17 and 22.75 in 2013 respectively. Other states experiencing high rate are Haryana and Tamil Nadu to the extent of 17.22 and 16.94 in 2013.

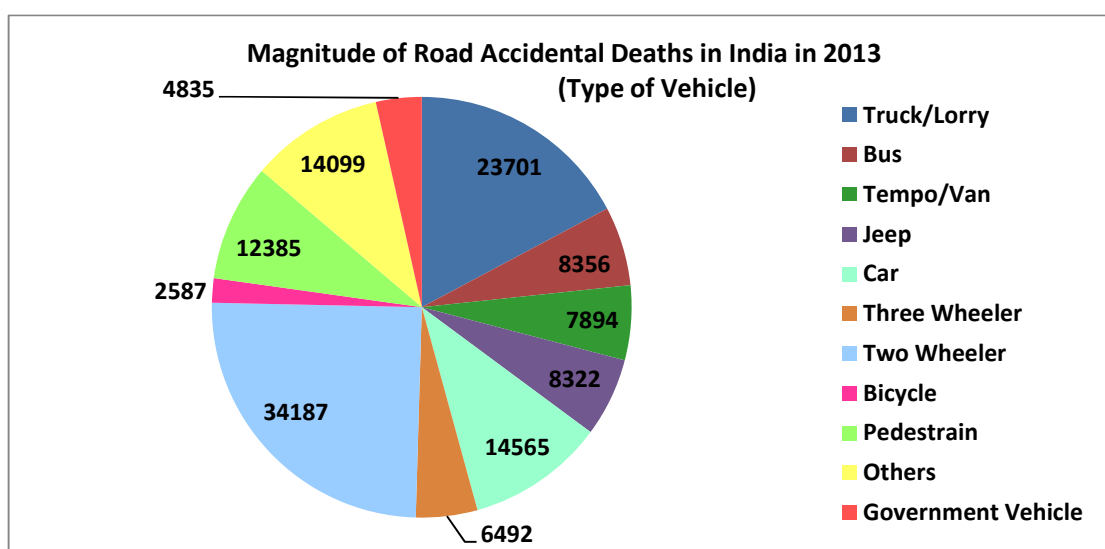
There is an urgent need to recognize the worsening road safety situation in order to take appropriate action. Road traffic injury prevention and mitigation should be given the same attention and scale of resources that are currently being channelized towards other predominant health issues, if increasing human loss and injury on the roads, with their devastating human impact and large economic cost to the society are to be avoided. (Report GOI, 2007)



Clearly shown in Table 3 given in Appendix, the state of Uttar Pradesh has the highest share in total road accidental deaths in India to the extent of 11.4% followed by Tamil Nadu (11.3%), Andhra Pradesh (10.7%), Maharashtra (9.6%) and Rajasthan (7.1%). These five states collectively constitute more than 50 percent share in total road accidents. These are the states which have experienced acute growth of business activity in the last decade, causing spurt in earning of the middle class. Moreover easy availability of automobile loan from financial institutions led to substantial increase in vehicular traffic on roads. Lack of investment in road infrastructure and easy accessibility of fast moving vehicles constitutes the primary reason for voluminous road accidents.

The proportion of road accidental deaths caused by governmental owned vehicles has been marginal to the extent of 3.52 percent in the year 2013. The highest proportion was in the state of Nagaland (42.86%) followed by Arunachal Pradesh (10.32%), Tamil Nadu

(8.42%) and Tripura (6.19%). All other states have less than six percent as proportion of road accidental deaths caused by governmental owned vehicles. Government busses accounts for most of the road accidental deaths (76.50%), among different types of government vehicles. Poor condition of buses and rash driving by drivers of state transport corporation are the main reasons responsible for this trouble. Regular medical examination of drivers and frequent vehicular checkups should be made mandatory.



Clearly shown in Table 3 given in Appendix, among the different types of vehicles, Two Wheelers alone make up the highest number of fatality in road accidents to the extent of 34187 constituting 24.87 percent in India in the year 2013. Highest number of deaths was in Maharashtra, followed by Andhra Pradesh, Uttar Pradesh and Madhya Pradesh. False driving and lack of safety measures by riders of two wheelers forms the primary reason for such high intensity of road accidental deaths. It is suggested by a research study that bright coloured vehicles are comparatively more visible and hence the chances of accidents are less. (Monosh University, Accident Research Centre of Melbourne). Heavy vehicles including Truck/Lorry, Bus and Tempo/Van account for 29.07 percent of total road accidental deaths. Highest number of deaths was in Uttar Pradesh followed by Tamil Nadu and Andhra Pradesh. The minimum quantum of fatality in road accidents is on bicycles constituting 1.88 percent of total casualties. Deaths in road accidents on Three Wheelers constitute 4.72 percent of total casualties. The reason responsible for this is that they are comparatively less in number and moreover the speed limit is regulated as mostly it is used for commercial purposes, within cities and towns. The fatality of Pedestrians is also sufficiently large to the extent of 12385 constituting nine percent in the year 2013, due to lack of provision for subways near educational institutions and other office-market centers. Moreover the provision of footpaths and zebra crossings in urban and sub-urban areas are bleakly maintained. The Central and State governments must prioritize to invest appropriately in road infrastructure, especially the national and state highways in order to reduce road accidents and fatalities there on. The National Highways are partly maintained by National Highway Authority of India and partly by

Public Works Department (B&R) in different states. National Highways must be intensely scrutinized for any engineering defects and they must be rectified at the earliest possible.

SUGGESTIONS AND POLICY IMPLICATIONS

1. There is a pressing need to regulate heavy vehicles including trucks, lorries, buses, tempo and vans which are primarily used for commercial purposes as they collectively form about 29 percent of total casualties during the period under study. Their speed limits, cargo carrying limit (over-loading) and passenger carrying limit must be regulated and strictly followed. It is also suggested that yellow, orange and such bright colours should be used on heavy vehicles because the bright colours make them more visible when parked under low light conditions. It is more relevant in countries like ours, where the parking and lighting regulations are scantily followed. White coloured cars are most visible and had least chances to be involved in an accident. (Monosh University, Accident Research Centre of Melbourne).
2. There is need to identify black spots and correct the defects (engineering and architectural aspects) of road infrastructure. Moreover the inferior construction of roads is causing deterioration of safety standards for heavy and fast moving vehicular traffic. A large number of fatal accidents can be avoided by appropriately curing such defects by concerned authorities at the earliest.
3. Dangerous television advertisements encouraging high speed and risky stunts should be banned as youngsters are likely to imitate the driving stunts performed by experts. Arrangement for sharing knowledge of traffic signals and their adherence should be given in educational institutions as they (youth) constitutes the major proportion in casualties. Children below a certain age must not be allowed to cycle on busy roads. Moreover bright coloured cycles with reflectors both in front and back, should be encouraged as they are less prone to accidents in low light.
4. Dedicated traffic police force is vital for patrolling and managing traffic in cities and towns. A special highway police force must be constituted to enforce road safety on the National Highways. This issue was discussed by a specialized committee, which was of the view that borrowing personnel from the state police force was not a satisfactory arrangement as there was no guarantee of continuity, capacity or uniformity in dealing with traffic management and road safety issues on National Highways. The committee noted that the Central Government was examining the possibility of employing the Central Industrial Security Force (CISF) for the purpose (Report, 2007).
5. Large number of road accidents happens at night, so it is required not to keep traffic lights in standby mode at nights. Furthermore directional and warning boards must be installed with neon lights and blinkers, so as to enhance their visibility at nights.
6. Authorities issuing driving licenses should follow proper procedure of written, physical and medical examination at the time of issuing fresh and renewed

licenses. It should be made mandatory to have a periodical checkup of vehicles, which also must pass basic environment standards.

7. It is also found in the study that intensity of road accidents is more in big cities. The traffic rules and regulations must be intensely supervised using modern techniques of surveillance and offenders must be stringently penalized. Universal enforcement of use of seat belts at both front and rear seats while driving should be made. Standardized helmets by two wheelers should be must both for driver and pillion rider.
8. There is a need to develop and efficiently run a dedicated emergency medical service at least at all national and state highways to extend required medical assistance in case of any mishappening. It will substantially reduce fatalities and large economic cost to society.
9. The menace of stray dogs and cows should be addressed as they possess a big hazard, especially to vehicles at night time.
10. It is also proposed to launch a drive against drunken driving with stringent penalties and moreover liquor shops must be removed from national/state highways.

CONCLUSION

It is concluded from above discussion that during the last decade there has been a rise in intensity of road accidental deaths in India, irrespective of the awareness campaigns launched by the Traffic Police Departments, efforts towards development and management of road infrastructure by National Highway Authority of India, provision for safer vehicles by automobile companies, provision of Highway Ambulance services and hospital services etc. Higher growth in density of vehicular traffic as compare to growth in density of roads is the primary cause of the problem. Moreover the quality of roads (engineering, architecture and constructional aspects) is not appropriate, causing deterioration of safety standards for heavy and fast moving vehicular traffic. The state of Uttar Pradesh has the highest share in total road accidental deaths in India followed by Tamil Nadu, Andhra Pradesh, Maharashtra and Rajasthan. These five states collectively constitute more than 50 percent share in total road accidents. Among the different type of vehicles, the fatality rate is highest among two wheeler riders due to false driving and lack of safety measures. Even heavy vehicles including Truck/Lorry, Bus and Tempo/Van account for about one-third of total road accidental deaths. Overloading, driving under the influence of intoxicants and lengthy working schedule forms the primary reasons for such accidents. Efforts by Traffic Police departments to check the menace of road accidents with spot specific centric approach has contributed substantially and need to be acknowledged.

The situation is alarming and growing at a very high rate especially in the states of Assam and Punjab and there are no signs of declining in near future. It is expected that at given growth of earnings of large populace, the density of vehicular traffic is yet to climb peak rate, indicating worsening of the problem. There is an urgent need to synchronize various agencies involved in road infrastructure development and vehicular traffic management. A comprehensive approach including all the efforts stated above must be executed with outmost dedication to check burgeoning road accidental deaths.

REFERENCES

- Report of the Committee on “**Road Safety and Traffic Management**”, *The Secretariat for the Committee on Infrastructure*, Planning Commission, Government of India, February 2007.
- CRRI Annual Report**, *Central Road Research Institute*, New Delhi, 2007.
- Accidental Deaths & Suicides in India**, *National Crime Records Bureau*, Ministry of Home Affairs, G.O.I. New Delhi, (2013).
- Mohan, D., Tsimhoni, O., Sivak, M., & Flannagan, **M.J. Road Safety in India: Challenges and Opportunities**, *The University of Michigan Transportation Research Institute* 2009.
- Tiwari, G., Mohan D., & Gupta, D.P., **Evaluation of Capacity Augmentation Projects of National Highways and State Highways**, *Ministry of Surface Transport*, New Delhi, GOI. (2000).
- S haheem, S., Mohammed, K.M.S., & Rajeevan, **Evaluation of cost effectiveness of improvements of accident prone locations on NH-47 in Kerala state. “Indian Highways”** 2006
- Cropper, M.L. & Kopits, E, **Traffic Fatalities and Economic Growth. “World Bank Policy Research Working Paper”** *Washington D.C., World Bank*, 2003.
- WHO, **Global Status Report on Road Safety**, 2013.
- WHO, **United Nations Decade of action for road safety 2011-2020**, 2013
- WHO, **Road Traffic Injuries Fact Sheet**, No.358, March 2013.
- Marvin Hsiao et al., **Road traffic injury mortality and its mechanisms in India: nationally representative mortality survey of 1.1 million homes.**
<http://bmjopen.bmj.com/content/3/8/e002621.full> Aug 2013.
- Global Road Safety Partnership**, <http://www.grsproadsafety.org/about-us/our-purpose>, 1999.
- WHO, **Drinking and Driving: A road safety manual for decision-makers and practitioners**, www.who.int/roadsafety/projects/manuals/alcohol/drinking_driving.pdf, *Global Road Safety Partnership*, Geneva, 2007.
- Transforming City Bus Transport in India through Financial Assistance for Bus Procurement under JnNURM**, *Ministry of Urban Development*, GOI. ,2011
- Traffic and Transportation Policies and Strategies in Urban Areas in India.** *Ministry of Urban Development*, GOI, 1998.
- Mohan D, **Moving around in Indian Cities**, *Economic and Political Weekly*, Vol XLVIII No.48, Nov. 30, 2013.
- Monosh University, *Accident Research Centre of Melbourne*, 2010.

APPENDIX

TABLE 1: MAGNITUDE OF ROAD ACCIDENTS IN DIFFERENT STATES OF INDIA (2004-2013)

States	2004 *	2005 *	2006 *	2007 *	2008 *	2009 *	2010 *	2011 *	2012 *	2013 *	Total Number of Road Accident al Deaths (2004- 2013)	Average Annual Number of Road Accident al Deaths (2004- 2013)	Average Annual Compon d Growth Rate (2004- 2013)
Andhra Pradesh	10960	10944	12661	13762	14158	14516	15337	15158	14966	14647	137109	13710.90	3.73
Arunachal Pradesh	181	89	116	108	125	125	139	126	136	155	1300	130.00	1.68
Assam	1012	1456	1740	1604	1721	1983	2030	2342	2291	2441	18620	1862.00	8.48
Bihar	2099	2148	2231	2804	3471	4405	4693	5072	5056	4989	36968	3696.80	12.66
Chhattisgarh	2250	2325	2574	2932	3243	3158	2888	3454	3167	3477	29468	2946.80	4.64
Goa	319	258	310	340	333	324	342	338	302	269	3135	313.50	-0.01
Gujarat	4948	5264	5599	6293	6386	6914	7384	8006	7855	7458	66107	6610.70	5.50
Haryana	3253	3282	4420	4376	4680	4866	5006	4681	4598	4547	43709	4370.90	3.77
Himachal Pradesh	934	854	890	997	798	1112	1099	1083	1109	1056	9932	993.20	2.79
Jammu & Kashmir	969	857	1092	952	981	1171	1029	1140	1426	992	10609	1060.90	2.70
Jharkhand	614	1282	1667	1760	1574	2026	2140	2053	2512	2646	18274	1827.40	12.71
Karnataka	6481	6876	7939	8762	8814	8714	9574	8958	9448	9044	84610	8461.00	3.75
Kerala	3154	3161	3627	3802	3934	3825	3950	4145	4286	4258	38142	3814.20	3.44
Madhya Pradesh	4916	5361	5598	6346	7514	8040	8539	8256	8506	8977	72053	7205.30	7.25
Maharashtra	10605	10613	11934	12616	12957	13034	14063	13680	13936	13245	126683	12668.30	3.03
Manipur	119	138	157	114	133	125	153	156	158	165	1418	141.80	2.87
Meghalaya	128	122	132	133	149	193	184	299	213	170	1723	172.30	7.40
Mizoram	67	52	64	35	78	63	82	81	77	97	696	69.60	5.99
Nagaland	63	42	62	92	116	50	44	36	56	35	596	59.60	-5.34
Orissa	2472	2895	2745	3058	3104	3549	4105	3797	3701	4062	33488	3348.80	5.50
Punjab	1855	1622	2048	2155	2055	2392	2133	4897	4795	4588	28540	2854.00	13.03
Rajasthan	6477	6793	7154	8145	8388	9045	9163	9232	9528	9724	83649	8364.90	4.80
Sikkim	51	77	88	52	79	87	71	106	44	68	723	72.30	0.38
Tamil Nadu	9507	13961	11009	12036	12784	13746	15409	15422	16175	15563	135612	13561.20	4.95
Tripura	179	204	196	223	221	229	236	245	272	226	2231	223.10	3.35
Uttar Pradesh	10182	9860	11520	12555	12073	14829	15099	14996	15109	15630	131853	13185.30	5.56
Uttarakhand	931	869	975	973	1067	852	917	922	827	766	9099	909.90	-1.67
West Bengal	4269	4364	4557	4919	4739	5014	5470	5646	6222	5827	51027	5102.70	4.16
Total (All India)	91376	98254	105725	114590	118239	126896	133938	136834	139091	137423	1202366	120236.60	4.93

Source: *Accidental Deaths and Suicides in India, National Crime Record Bureau, Ministry of Home, G.O.I.

TABLE 2: MAGNITUDE, PROPORTION AND RATE OF ROAD ACCIDENTAL DEATHS IN DIFFERENT STATES OF INDIA (2004 & 2013)

States	Number of Accidental Deaths (2004)*	Number of Road Accidental Deaths (2004)*	Mid-Year Population (in Lakh) (2004)*	Proportion of Road Accidental Deaths in Total Accidental Deaths (2004)	Rate of Road Accidental Deaths (2004)	Number of Accidental Deaths (2013)*	Number of Road Accidental Deaths (2013)*	Mid-Year Population (in Lakh) (2013)*	Proportion of Road Accidental Deaths in Total Accidental Deaths (2013)	Rate of Road Accidental Deaths (2013)
Andhra Pradesh	22029	10960	788.5	49.75	13.90	31228	14647	864.8	46.90	16.94
Arunachal Pradesh	307	181	11.4	58.96	15.88	451	155	12.7	34.37	12.20
Assam	2924	1012	282.1	34.61	3.59	5070	2441	314.5	48.15	7.76
Bihar	5727	2099	883.1	36.65	2.38	11791	4989	1007.2	42.31	4.95
Chhattisgarh	11299	2250	221.5	19.91	10.16	15844	3477	250.2	21.95	13.90
Goa	1113	319	14.7	28.66	21.70	1000	269	18.9	26.90	14.23
Gujarat	17273	4948	534.6	28.65	9.26	26305	7458	608.3	28.35	12.26
Haryana	7833	3253	224.2	41.53	14.51	11852	4547	264.1	38.36	17.22
Himachal Pradesh	1975	934	63.2	47.29	14.78	3210	1056	69.4	32.90	15.22
Jammu & Kashmir	1974	969	110.4	49.09	8.78	1869	992	120.6	53.08	8.23
Jharkhand	1597	614	284.5	38.45	2.16	6495	2646	324.8	40.74	8.15
Karnataka	15649	6481	550.4	41.41	11.78	22516	9044	608.2	40.17	14.87
Kerala	8069	3154	329.8	39.09	9.56	11527	4258	351.1	36.94	12.13
Madhya Pradesh	25536	4916	646.6	19.25	7.60	37456	8977	748.7	23.97	11.99
Maharashtra	51504	10605	1017.5	20.59	10.42	62770	13245	1162.1	21.10	11.40
Manipur	213	119	25.1	55.87	4.74	351	165	25.2	47.01	6.55
Meghalaya	253	128	24.2	50.59	5.29	602	170	26.9	28.24	6.32
Mizoram	135	67	9.4	49.63	7.13	284	97	10.3	34.15	9.42
Nagaland	82	63	21.0	76.83	3.00	77	35	23.1	45.45	1.52
Orissa	8272	2472	382.9	29.88	6.46	13471	4062	415.7	30.15	9.77
Punjab	6013	1855	254.4	30.85	7.29	10577	4588	283.8	43.38	16.17
Rajasthan	17487	6477	605.1	37.04	10.70	24741	9724	702.9	39.30	13.83
Sikkim	191	51	5.7	26.70	8.95	314	68	6.3	21.66	10.79
Tamil Nadu	20222	9507	642.3	47.01	14.80	33295	15563	684.0	46.74	22.75
Tripura	652	179	33.4	27.45	5.36	644	226	37.1	35.09	6.09
Uttar Pradesh	24166	10182	1779.4	42.13	5.72	32971	15630	2089.2	47.41	7.48
Uttarakhand	1727	931	89.7	53.91	10.38	2406	766	102.7	31.84	7.46
West Bengal	12408	4269	839.5	34.41	5.09	21864	5827	913.9	26.65	6.38
Total (All India)	277263	91376	108560	32.96	8.42	400517	137423	122879	34.31	11.18

Source: *Accidental Deaths and Suicides in India, National Crime Record Bureau, Ministry of Home, G.O.I.

Note: The rate of accidental deaths defined as the number of deaths per lakh inhabitants is universally taken as a realistic indicator since it balances the effect of growth in population.

TABLE 3: ROAD ACCIDENTAL DEATHS IN DIFFERENT STATES OF INDIA – TYPE OF VEHICLE (2013)

Type of Vehicle States	Truck/Lorry	Bus	Tempo/Van	Jeep	Car	Three Wheeler	Two Wheeler	Bicycle	Pedestrian	Others	Govt. vehicle	Total	Share of States in Total Road Accidental Deaths (%)	Rank	Proportion of Deaths on Govt. Vehicles in Total Road Accidental Deaths (%)
Andhra Pradesh	2884	482	750	600	1497	1684	3097	181	960	1645	867	14647	10.7	3	5.92
Arunachal Pradesh	30	8	10	20	9	5	30	0	2	25	16	155	0.1	25	10.32
Assam	455	271	198	94	525	158	536	29	52	116	7	2441	1.8	17	0.29
Bihar	1015	740	438	435	321	231	701	42	200	814	52	4989	3.6	10	1.04
Chhattisgarh	656	208	82	259	181	57	955	53	131	894	1	3477	2.5	15	0.03
Goa	4	0	4	2	11	1	175	11	56	5	0	269	0.2	21	0.00
Gujarat	1400	355	519	715	811	585	1576	104	628	580	185	7458	5.4	8	2.48
Haryana	709	135	252	383	589	218	906	73	622	561	99	4547	3.3	12	2.18
Himachal	133	135	46	135	276	4	152	1	21	119	34	1056	0.8	18	3.22
Jammu & Kashmir	124	93	84	35	114	18	155	3	83	268	15	992	0.7	19	1.51
Jharkhand	520	245	267	107	165	100	824	48	114	215	41	2646	1.9	16	1.55
Karnataka	1196	499	574	343	827	404	2155	27	611	1922	486	9044	6.6	6	5.37
Kerala	120	118	55	79	292	275	1817	125	1303	24	50	4258	3.1	13	1.17
Madhya Pradesh	1397	635	300	702	581	237	2714	118	1352	860	81	8977	6.5	7	0.90
Maharashtra	1726	335	759	958	1188	595	4607	214	1857	726	280	13245	9.6	4	2.11
Manipur	57	7	2	7	8	4	21	0	39	17	3	165	0.1	24	1.82
Meghalaya	46	9	11	11	34	13	26	3	13	1	3	170	0.1	23	1.76
Mizoram	24	7	0	5	10	0	26	0	2	23	0	97	0.1	26	0.00
Nagaland	1	1	2	0	2	4	5	0	5	0	15	35	0.0	28	42.86
Orissa	961	257	281	159	357	215	1049	66	166	541	10	4062	3.0	14	0.25
Punjab	810	328	268	210	854	96	883	101	132	688	218	4588	3.3	11	4.75
Rajasthan	1638	593	262	1243	962	126	2488	100	1066	1095	151	9724	7.1	5	1.55
Sikkim	4	0	0	33	13	0	4	0	2	12	0	68	0.0	27	0.00
Tamil Nadu	2833	884	1040	199	2385	415	4467	348	729	952	1311	15563	11.3	2	8.42
Tripura	25	24	12	36	24	35	38	0	0	18	14	226	0.2	22	6.19
Uttar Pradesh	3196	1250	1300	1244	1589	814	3074	553	1025	923	662	15630	11.4	1	4.24
Uttarakhand	96	85	34	72	79	9	170	30	40	136	15	766	0.6	20	1.96
West Bengal	1379	582	250	232	540	125	950	285	771	602	111	5827	4.2	9	1.90
Total (All India)	23701	8356	7894	8322	14565	6492	34187	2587	12385	14099	4835	137423	100.0		3.52

Source: Accidental Deaths and Suicides in India, National Crime Record Bureau, Ministry of Home, G.O.I.