

CHAPTER 38

ACCIDENT STATISTICS

38.1 As human beings evolve, their capacity to tackle vagaries of nature like cyclones, famines etc. increases. Improved hygiene and medical discoveries reduce incidence of epidemics like cholera and small pox. Consequently, the proportion of accidental deaths due to natural causes (heat stroke, exposure to cold, starvation, epidemic, cyclone etc.) is expected to decrease significantly. However, during the process of evolution, changing lifestyle (increasing stress, obesity etc.) introduces new elements like traffic accidents and cardiac arrests that effect mortality. Besides these, incidences of deliberate termination of life through suicide or abortions also increase. With the increasing population, accidental deaths are expected to increase in absolute terms (on the average), but a systematic increase/decrease in rates may be looked at to assess our progress towards the attainment of human well being.

38.2 **Accidental Deaths (Incidence & Rates)** Average incidence of accidental deaths per year and average annual rates of accidental deaths for decades 19701 onwards reveal not only increasing accidental deaths in India but also continuous increase in the rate of accidental deaths (accidental deaths per 1 lakh population) from 18.8 during 1971- 80 to 32.3 in 2011.

38.3 The incidence of accidental deaths has shown an increasing trend during the decade 2001-11 with an increase of 44.2 % in the year 2011 as compared to 2001. The population growth during the corresponding period was 17.8% whereas the increase in the rate of accidental deaths during the same period was 22.4%

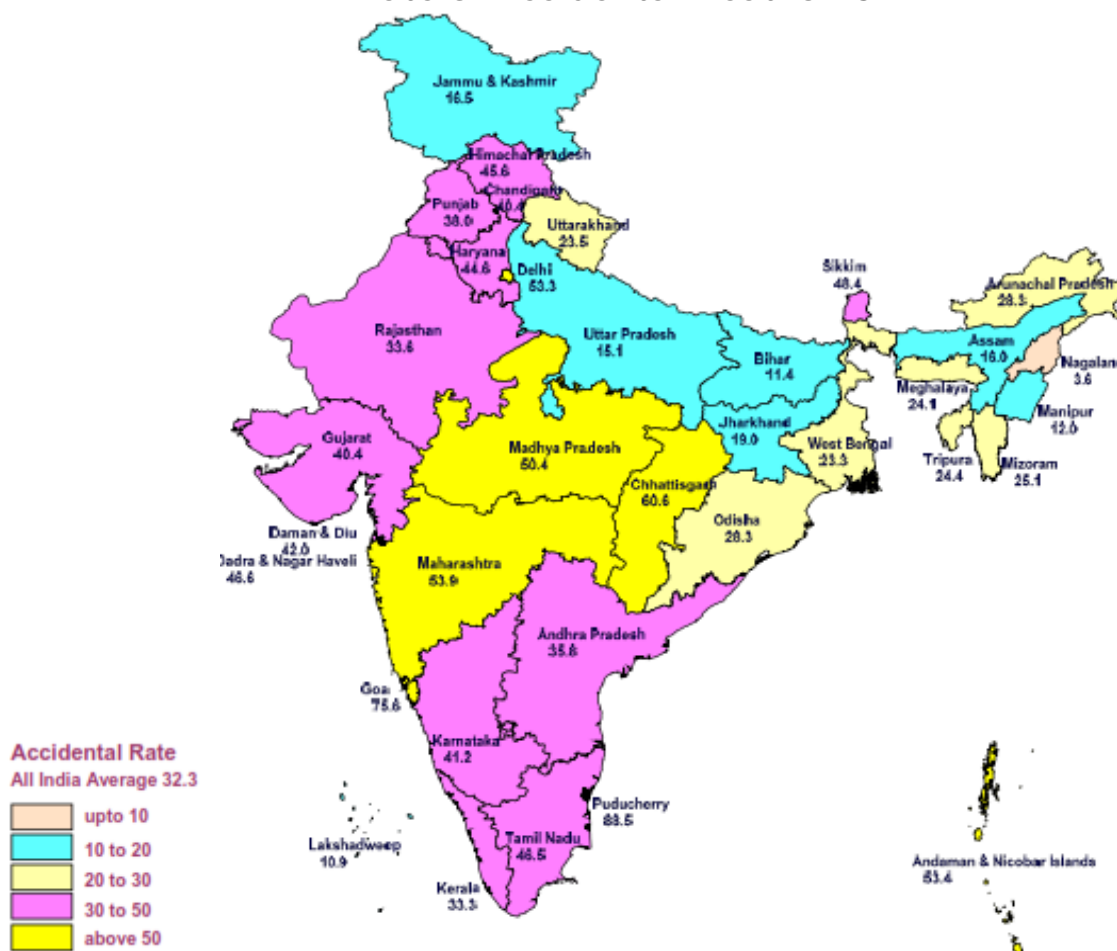
Year	Average accidental deaths per year	Average Rate of accidental deaths per year
1971-80	113952	18.8
1981-90	145740	19.2
1991-2000	222840	24.0
2001-2010	310168	27.9
2011	390884	32.3

38.4 **Natural & Unnatural Causes:** As mentioned in the introduction, it seems obvious that man's movement away from nature and into the world of his own making, would increase the share of accidental deaths due to unnatural causes. All through the last decade i.e. 2001-11, the share of accidental deaths due to unnatural causes has remained consistently high at around 92-94 %. During 2011 alone there was a decline of 5.5 % in deaths due to causes attributable to nature and an increase of 2.1 % in deaths due to

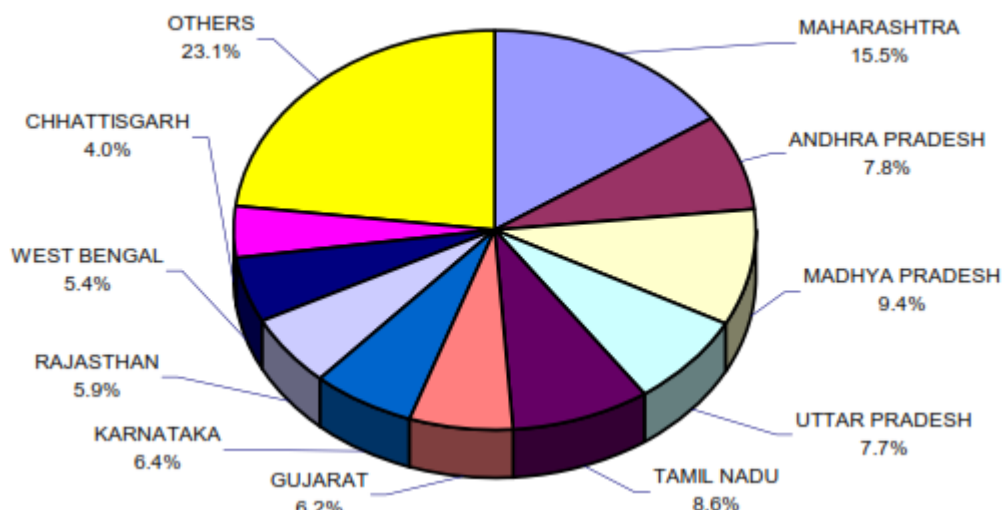
unnatural causes as compared to 2010, resulting in an overall increase in accidental deaths by 1.6 per cent . During the last decade, amongst identified natural causes of accidental deaths, lightning seems most significant accounting for about 10 % of deaths whereas amongst unnatural causes, traffic accident caused maximum unnatural deaths (42-45 % of unnatural deaths) followed by drowning (8-9 %) , fire (7- 8%) and sudden deaths(6 - 7 %). On the average all these major causes of unnatural deaths show an increasing trend for incidence of deaths whereas considering per cent share traffic accident & sudden deaths show an increasing contribution whereas deaths because of fire show decreasing share (with some fluctuation).

38.5 Statewise Comparison : Amongst major states, Chhatisgarh (60.6), Maharashtra (53.9), Madhya Pradesh (50.4), Tamil Nadu (46.5), Karnataka (41.2), Gujrat (40.4) , Andhra Pradesh (35.8) & Rajasthan (33.6) had rates of accidental deaths higher than national average of 32.3. With higher rates and sizeable population , they contributed significantly in deaths due to accident . Bigger states like UP (15.1) & West Bengal (23.3) had significantly lower rates , still contributing significantly to the accidental deaths because of their larger population size.

Rate of Accidental Deaths 2011



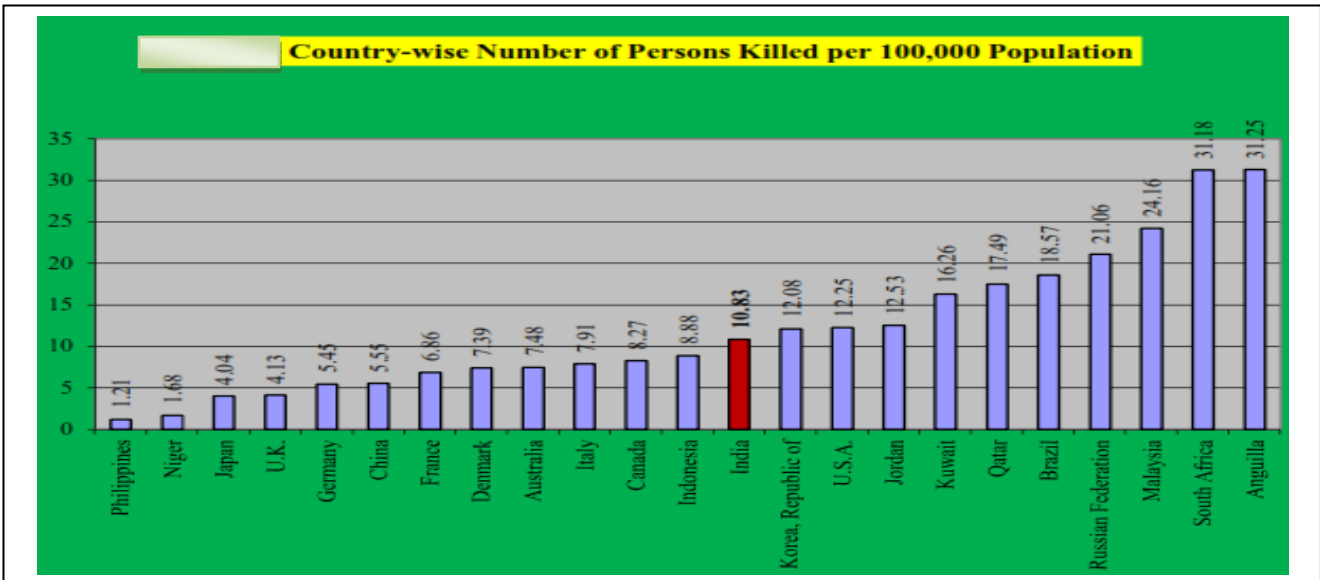
Percentage Share of Major States in Accidental Deaths during 2011



38.6 Road Accidents : Fatalities and injuries due to traffic accidents , is increasingly becoming matter of concern with surge in motorization both due to increasing population and increased penetration of vehicles into households.

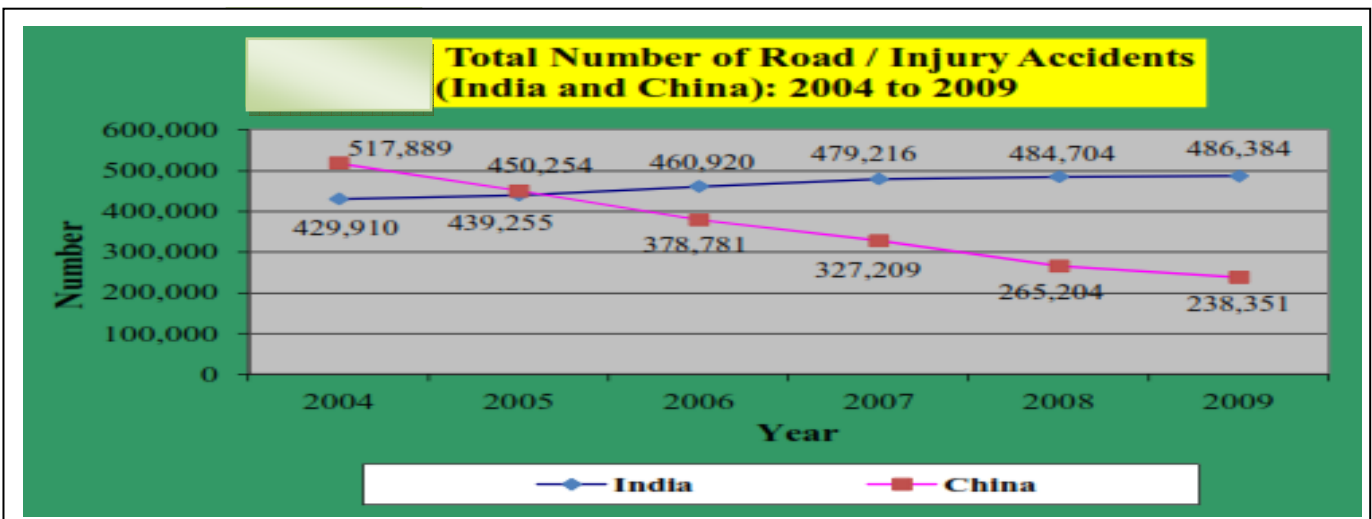
38.7 International Scenario : The road traffic death rate by **WHO** region and income level reveals that low- and middle-income countries have higher road traffic fatality rates (21.5 and 19.5 per 100,000 population, respectively) compared to high-income countries (10.3 per 100 000 population). While road traffic death rates in many high-income countries have stabilized or declined in recent decades, data suggest that in most other regions of the world, the global epidemic of traffic injuries is still increasing. About 1.2 Million people, each year, die on world roads. Fifty per cent of those dying on roads are vulnerable road users . About 51 per cent of countries do not have a law requiring use of child restraints for young children in vehicles.

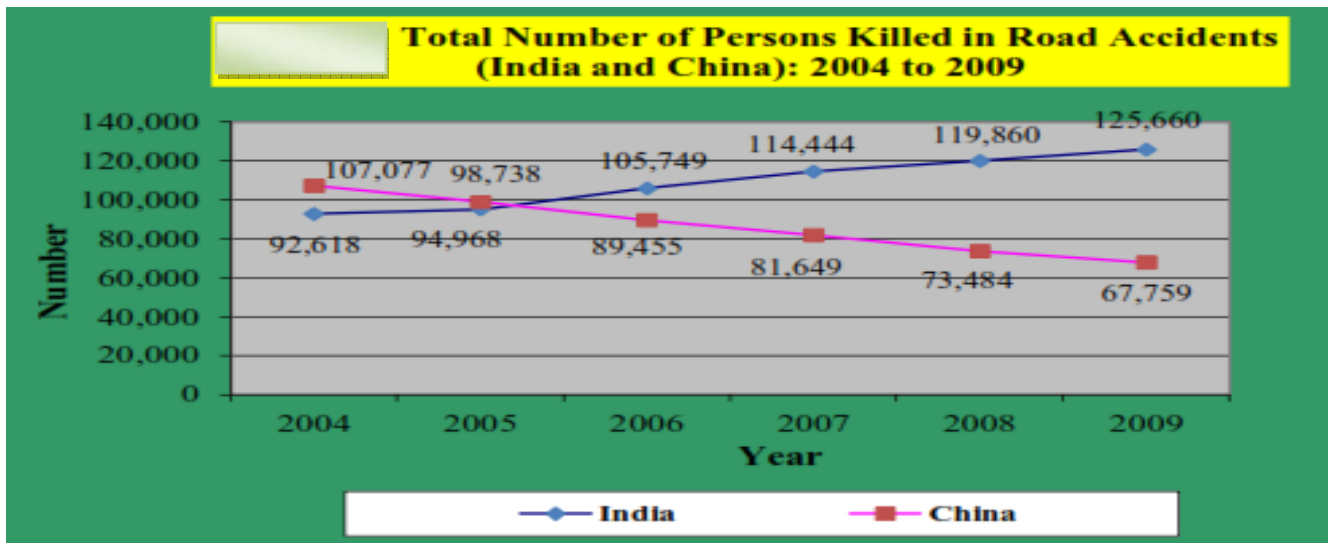
38.8 International Comparison of Road Traffic Injury Accidents and Deaths: Cross country comparisons of incidence of road accident related deaths and injury accidents per lakh persons as per **World Road Statistics (WRS) 2011 (published by International Road Federation, Geneva)** shows lower incidence of both the parameters for India in comparison to many developed and developing countries .In 2009, the number of road accident deaths per lakh of population at 10.83 in India was much lower compared with South Africa, Malaysia, Russian Federation , Kuwait, Republic of Korea , Jordan and USA (Chart below). Countries which recorded a lower number of persons killed per 1,00,000 populations were United Kingdom, Brazil, Japan, Germany, China , Denmark , Canada , Australia , France , Italy and Indonesia .



38.9 Accidental injury rate (per lakh of population) in India was substantially lower at around 36.58 when compared with France (115.49), United Kingdom (265.21), South Africa (304.15), Canada (371.08), Germany (379.59), Republic of Korea (475.91) and the U.S.A. (504.16). For 2009, the highest figure was reported by Japan (577.52) and Niger (5.41) reported the lowest figures in respect of injury accidents per 100,000 persons. However, the lower rates in countries like India may not necessarily be indicative of improved road safety. Large population with less vehicles, conditions of road (limiting the speed limits) etc might also contribute towards lower rates.

38.10 **Comparison of India & China** : A comparative status of road accidents and persons killed in China and India is shown below through graphs which clearly brings out that in China both road accidents and fatalities are on a downward slide, while in India both road accidents and the number of persons killed are steadily rising.





38.11 Indian Scenario : Expansion in the road network, surge in motorization and a rising population of a country contribute towards increasing numbers of road accidents, accident related injuries and fatalities and all these factors viz road network, the numbers of registered motor vehicles and the population of India have increased at a compound annual growth rate (CAGR) of 3.4 per cent, 9.9 per cent and 1.6 per cent, respectively, during the decade 2001 to 2011. During the same period, the number of road accidents in the country increased at a CAGR of 2.1 per cent. Similarly, the number of road accident fatalities and the number of persons injured in road accidents in the country between 2001 and 2011 increased by 5.8 per cent and 2.4 per cent, respectively

Trends in Road Accidents, Injuries and Fatalities

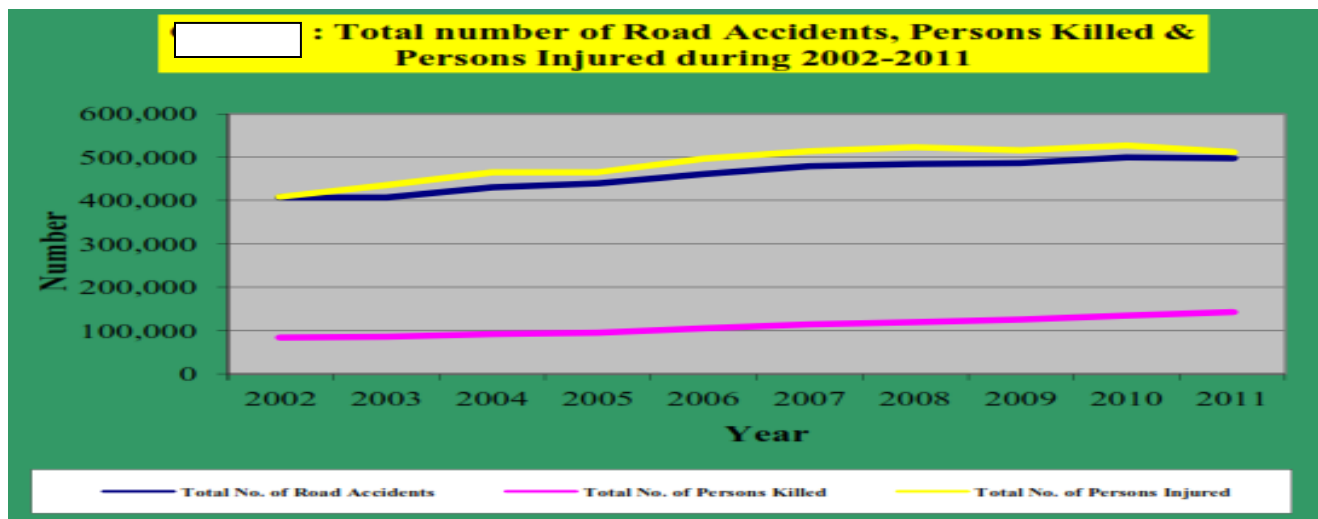
38.12 While the CAGR of the number of accidents and the number of road accident injuries has moderated during the decade 2001 to 2011, as compared to the previous decade 1991 to 2001, there has been a spurt in the CAGR of the number of road accident fatalities during the latter period .

Growth in Select Accident Related Parameters: CAGR in per cent					
Period	Number of Accidents	Number of Fatalities	Number of Persons Injured	Number of Registered Vehicles	Road Length (in kilometre)
2001/1991	3.2	3.7	4.7	9.9	3.7
2011/2001	2.1	5.8	2.4	9.9	3.4

38.13 Between 1970 and 2011, the number of accidents increased by 4.4 times, accompanied with 9.8 times increase in fatalities and 7.3 times increase in the number of persons injured, in the backdrop of more than 100 fold increase in the number of registered motor vehicles and close to 4 fold increase in the road network .

38.14 As a result of concerted and coordinated road safety efforts there has been a decline of about 3.1 per cent and 0.4 per cent in the number of persons injured and the number of road accidents (decline has been observed for the first time since 2003), respectively, in 2011, compared to 2010. However, the number of fatalities increased by 5.9 per cent in 2011, even though there is some moderation as the increase in 2010 was 7 per cent ..

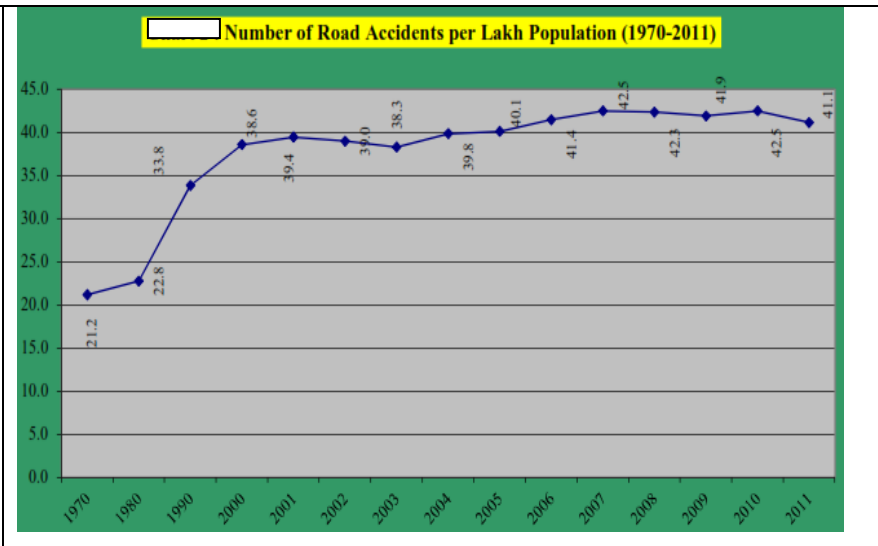
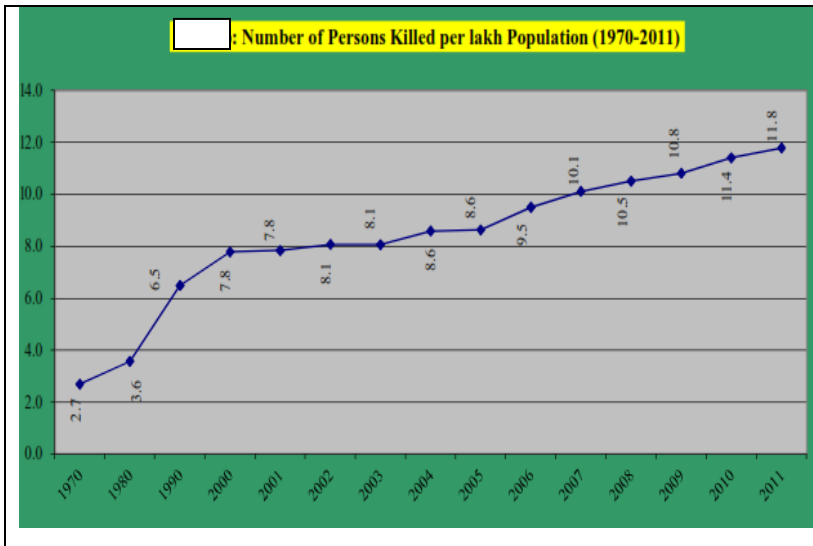
38.15 The proportion of fatal accidents in total road accidents has consistently increased since 2002 from 18.1 per cent to 24.4 per cent in 2011 . The severity of road accidents, measured in terms of persons killed per 100 accidents, has also increased from 20.8 in 2002 to 28.6 in 2011.



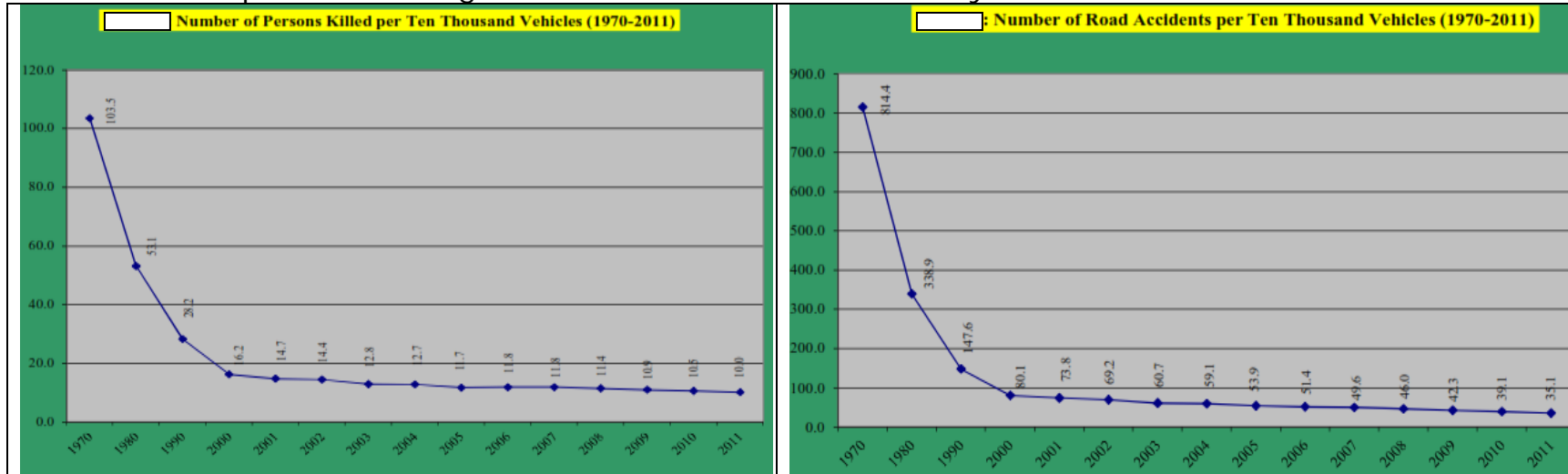
Normalized Indicators of Road Accidents, Injuries & Fatalities: All India Averages

38.16 To get an appropriate measure of incidence of accidents, three normalized/standardized accident rates normally used in India are conversions of absolute numbers into **(a) per lakh persons, (b) per ten thousand motor vehicles and (c) per ten thousand kilometres of road length**. These help in neutralizing the effect of increased motorization. Some of the broad trends at the all-India level are summarized below

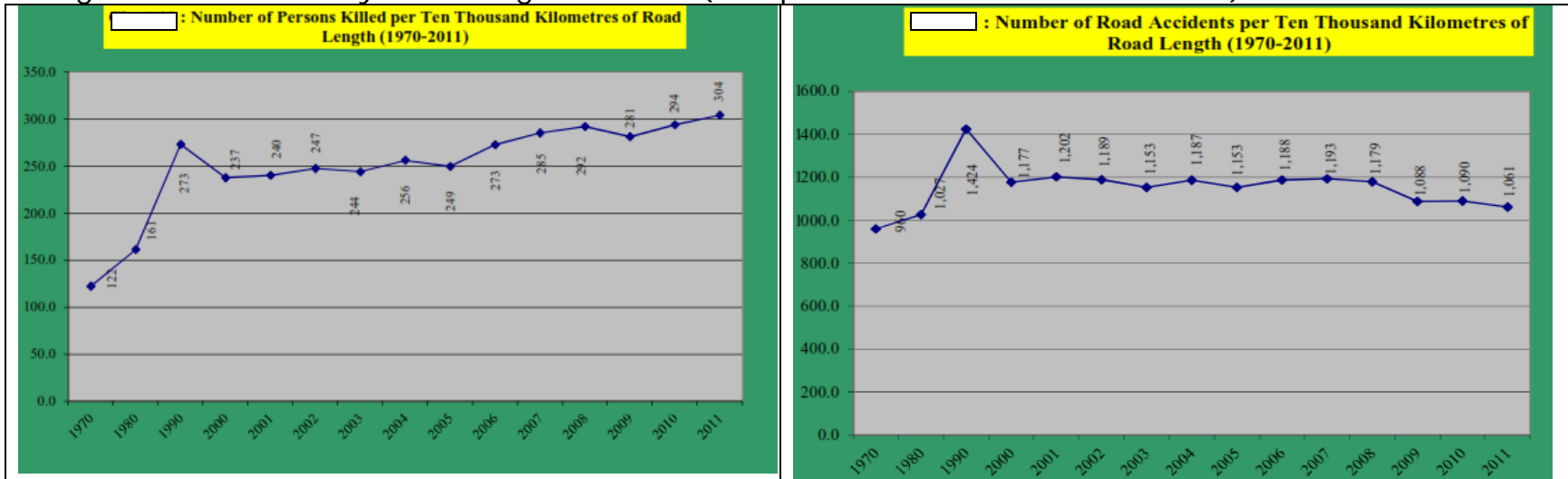
- (a) **Accidents & Deaths per lakh population** : Both accidents and deaths per lakh population have shown significant increase during 1980-2000. Fatality rate, after remaining somewhat stationary till 2008 has been increasing since then in contrast to road accidents rate which has been fluctuating in a narrow range of 39 to 42 since 2000.



(b) **Accidents & Deaths per ten thousand vehicle** : Both accidents rate and fatality rate shows identical trend with steep decline during 1970 – 2000 with slow but steady decline thereafter.



(c) **Accidents & Deaths per ten thousand Kms of road length** : Both accidents & deaths per ten thousand km road length show sharp rise during 1970 - 90 , sharp fall thereafter till 2000 with accidents rate showing very gradual decline (fluctuating , not steady) whereas fatality rate after fluctuating till 2005 in a narrow range has been steadily increasing thereafter (except for 2009 when it decreased)



Road Accidents: Inter State Comparisons:

38.17 Top five states (on the basis of their share in accidents, injuries and deaths in 2011) have accounted for more than half of the all India incidences since 2008. Maharashtra , Andhra Pradesh & Tamil Nadu feature in all the three lists (accidents , injuries and deaths) of top five contributors whereas Karnataka and Madhya Pradesh which feature in lists of top contributors to accidents and injuries are replaced by UP & Rajasthan in the list of top five for deaths due to road accidents . Amongst major states severity of road accidents is highest in UP, accounting for its significant share in fatality despite of relatively lesser share in number of accidents.

All India Share of Select States (in %): Road Accidents, Injuries, Deaths and Registered Motor Vehicles: 2008 to 2011				
State/UT	2008	2009	2010	2011 (P)
Top* 5 States: Share in Total Number of Road Accidents (in %)				
Share of 5 States	55.4	55.3	55.5	54.8
1.Maharashtra	15.6	14.8	14.3	13.8
2.Tamil Nadu	12.5	12.5	13.0	13.2
3. Madhya Pradesh	9.0	9.7	10.0	9.9
4.Karnataka	9.5	9.3	9.3	9.0
5.Andhra Pradesh	8.8	9.0	8.9	8.9
Share of the above 5 States in total Registered Vehicles.	42.0	42.1	42.6	42.7
Top* 5 States: Share in Total Number Killed in Road Accidents (in %)				
Share of 5 States	50.5	50.6	50.4	52.2
1.Uttar Pradesh	11.0	11.6	11.3	15.1
2.Tamil Nadu	10.7	10.9	11.5	10.8
3.Andhra Pradesh	11.5	11.8	11.7	10.6
4.Maharashtra	10.3	9.1	9.2	9.2
5.Rajasthan	7.0	7.2	6.8	6.5
Share of the above 5 States in total Registered Vehicles.	45.8	45.8	45.3	45.5
Top* 5 States: Share in Total Number of Injuries in Road Accidents (in %)				
Share of 5 States	56.6	55.6	55.9	56.8
1.Tamil Nadu	13.4	13.7	14.3	14.5
2. Karnataka	12.1	12.0	11.7	11.7
3. Andhra Pradesh	11.2	10.6	10.8	10.9
4. Madhya Pradesh	9.8	10.1	10.2	10.9
5.Maharashtra	10.1	9.3	8.9	8.9
Share of the above 5 States in total Registered Vehicles.	42.0	42.1	42.6	42.7
*: Top 5 according to their respective shares in 2011 P : Provisional				

38.18 State Level features with normalized data : The process of normalization yields very different results for states depending on the indicator used .eg. Bihar & West Bengal, among the major states at the lower spectrum of accidents and death rates per lakh population, move significantly up (in fact to the forefront for death rates) when indicator of per ten thousand vehicles is used as the criterion. This may be explained by large population in these states which does not own a vehicle. Jharkhand, however, remains comparatively stable towards the lower and middle spectrum.

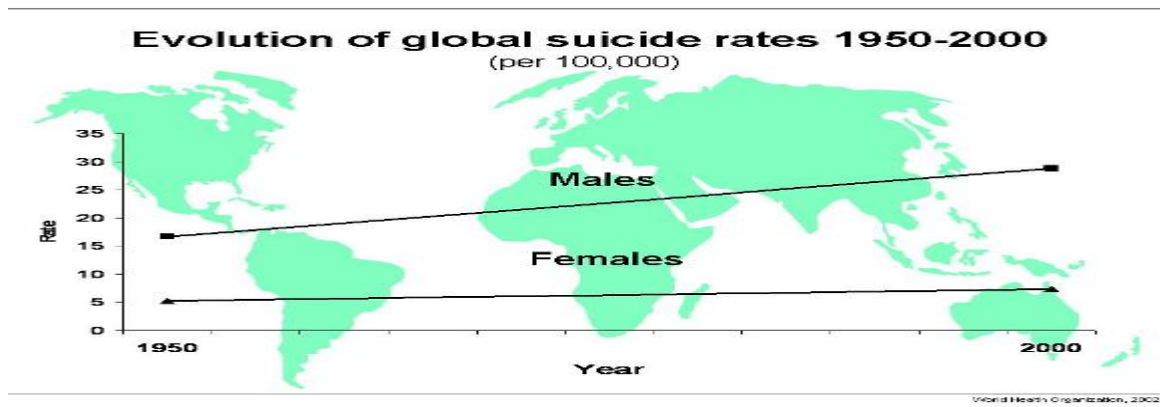
38.19 Other Highlights : National Highways accounted for 30.1 per cent of total road accidents and 37.1 per cent of total number of persons killed in 2011. State Highways accounted for 24.6 per cent of total accidents and a share of 27.4 per cent in the total number of persons killed in road accidents in 2011. **Highways permit greater speed resulting in relatively greater number of road accidents and fatalities.**

38.20 Amongst the vehicle categories, **two-wheelers** accounted for the highest share in total road accidents (23.7 per cent), followed by trucks, tempos, tractors and other articulated vehicles (22.4 per cent) and cars, jeeps and taxis (21.3 per cent) whereas trucks, tempos, tractors and other articulated vehicles caused maximum fatalities (27 per cent) followed by two-wheelers (19 per cent) & cars, jeeps and taxis (18 per cent).

Deaths due to suicide

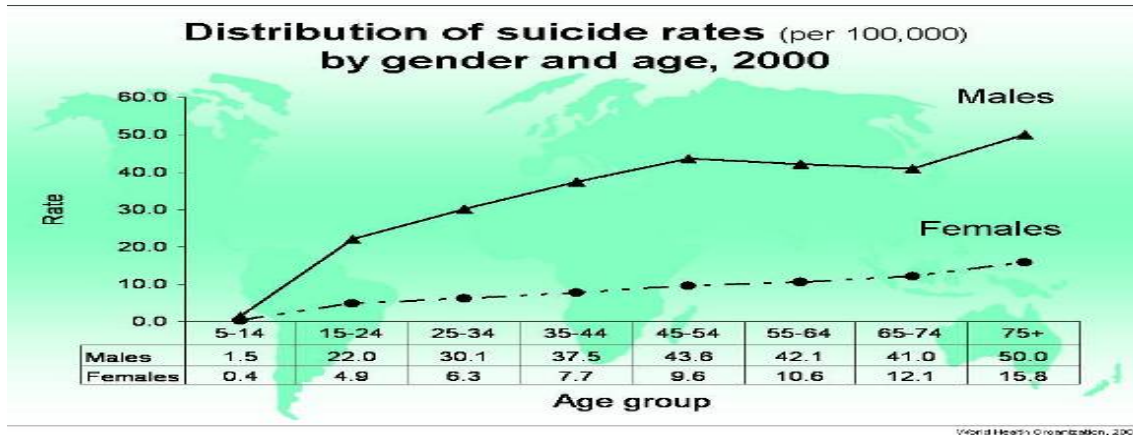
International scenario :

38.21 Trend : For young men across the world, suicide is second only to accidental death amongst causes of mortality. Trend of suicide appears to be increasing worldwide with not only absolute numbers but also the rates (suicides per lakh population) showing an increase on the basis of data available with World Health Organisation (The analysis may be taken with caution because number of reporting countries have increased over the years. This might have affected the rates)

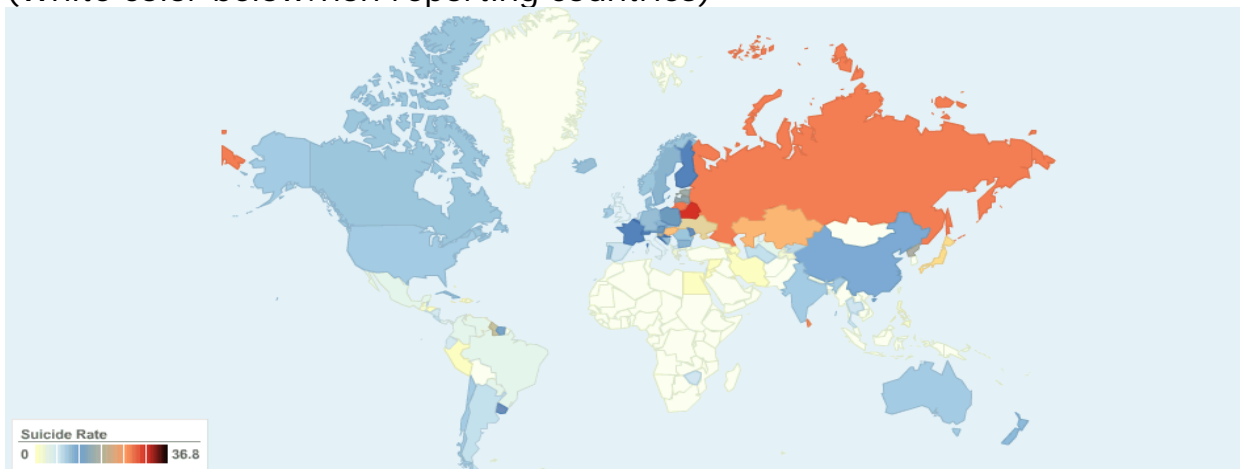


38.22 Age-Sex Distribution : Based on the reported information, WHO reports reveal that share of deaths due to suicide has increased in younger age group i.e 5-44 years from 40 (data reported by 11 countries) to 55 per cent during 1950 to 2000 (data reported by 47 countries). This might be expected

because of increased population in the younger age group i.e. less than 44 years. Across most countries the suicide rates are higher for males than for females (except China & 2-3 other smaller countries)



38.23 Distribution of suicide rates across the world : Suicide rate is comparatively less in India (11.2) compared to US, Japan, China, Russia but higher than UK, Brazil & South Africa (White color below: non reporting countries)



38.24 Suicides in India: Incidence & rate since 2001 : More than 1 lakh (135585) people in the country lost their lives by committing suicides during 2011. The number of suicides in the country during the decade (2001–2011) has recorded an increase of 25.0 %, from 1,08,506 in 2001 to 1,35,585 in 2011 and the incidence has been continuously increasing since 2001. During the decade, the population also increased by 17.8 per cent . The rate of suicides in 2011 was 11.2, which is greater than 10.6 recorded in 2001. The rate of suicides has shown a declining trend during 2000 to 2003 whereas it increased during 2006-10(to maximum of 11.4) before falling marginally during 2011.

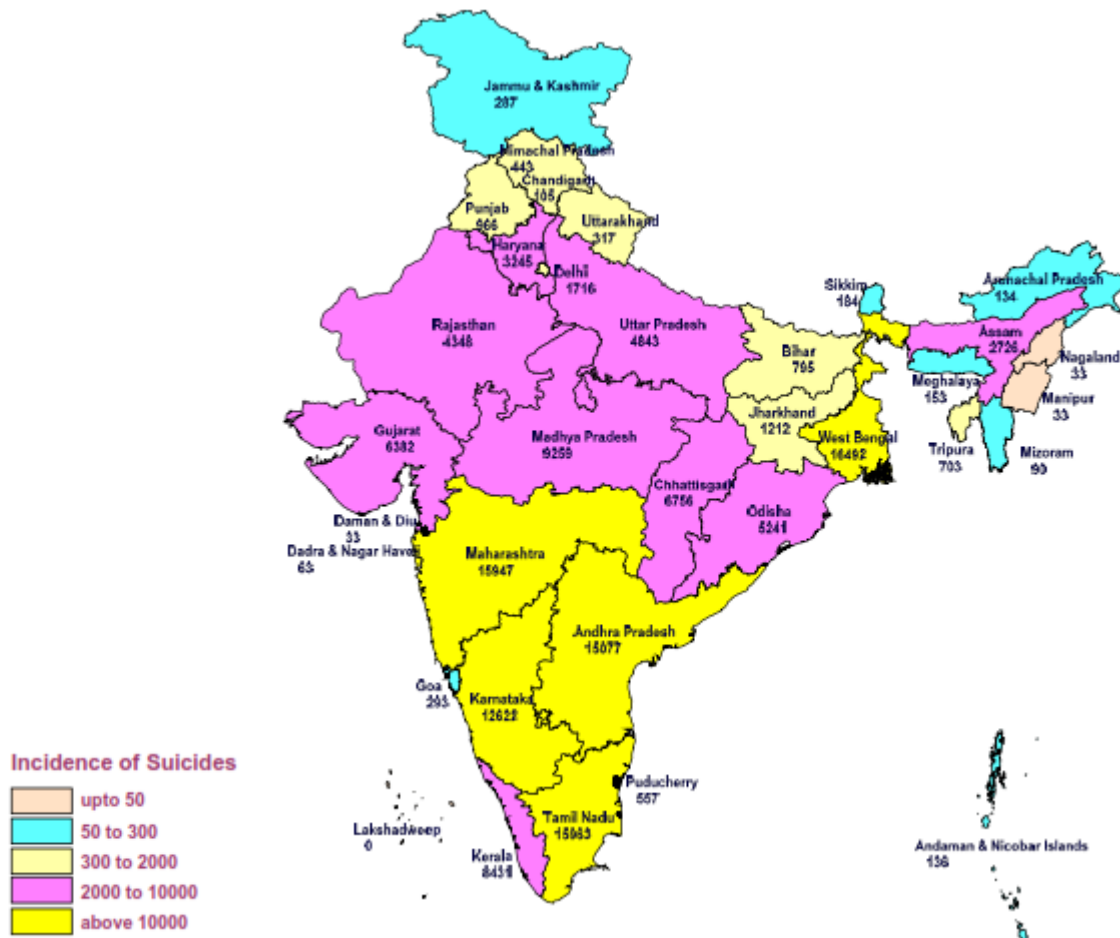
38.25 Incidence and Percentage Share of Suicides in States/UTs (2011): West Bengal has reported the highest number of suicides(16,492) accounting for 12.2% of total suicides in the country followed by Tamil Nadu (15,963), Maharashtra (15,947), Andhra Pradesh (15,077) and Karnataka (12,622) accounting for 11.8%, 11.8%, 11.1% and 9.3% respectively. These 5

States together accounted for 56.2% of the total suicides reported in the country and have each accounted for about 10 % or more of the total suicides reported in the country during last 4 years. Uttar Pradesh, the most populous state (16.5% share of population) has reported comparatively lower percentage of suicidal deaths, accounting for only 3.6% of the total suicides reported in the country. It has significantly lower suicide rate of 2.4 vis a vis national average rate of 11.2. **North-south divide** is quite apparent in case of suicides with major southern States (along with west Bengal) accounting for major share of suicidal deaths.

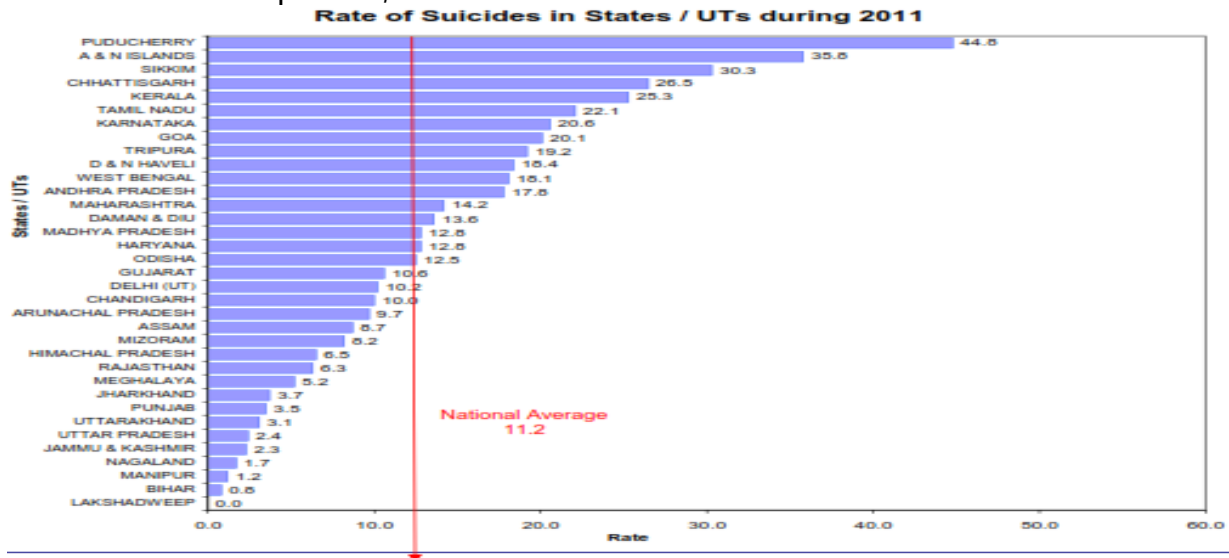
38.26 U.P. accounted for a lower percent share in suicidal deaths despite a 33% increase in the same (2011 compared to the previous year). Amongst other states with noticeable incidence of suicides, Odisha Haryana and Delhi show significant percentage increase of 23.2 , 12.1 & 11.2 per cent respectively. On the contrary , amongst states with noticeable incidence of suicides , Bihar (35.2 %), Himanchal Pradesh (18.3 %), Rajasthan (11.6 per cent), Assam (8.9 per cent) & Andhra (5.2 per cent) show significant per cent decline.

38.27 Amongst mega cities Chennai (2438 cases) , Banglore(1717), Delhi(1385) & Mumbai (1162)(in the same order) account for significant number of suicides . Kolkata has reported only 268 cases of suicide.

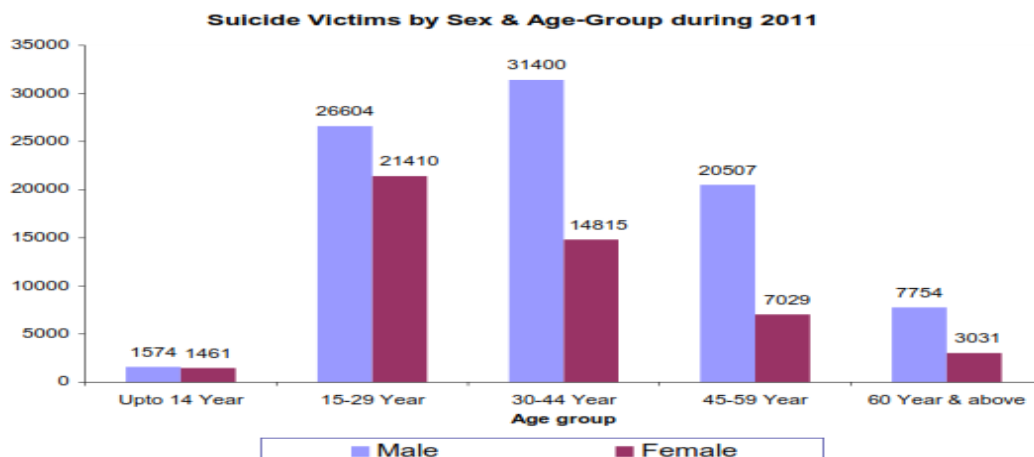
Incidence of Suicide 2011



38.28 **Rate of suicides – States/UTs** : Southern States, alongwith West Bengal, continue to dominate in suicide rate statistics also (besides their dominance in incidence of suicides).In addition to these, Chhatisgarh also has significantly higher suicide rate , in fact it tops the list with rate of 26.5 suicide per one lakh population.Most northern States have suicide rate significantly lower than national average of 11.2 – e.g. the rate in J&K is 2.3, UP 2.4, UK 3.1 , Punjab 3.5, Rajsthan 6.3 and Himanchal Pradesh 6.5. Whereas Gujrat, MP, Odisha, & Maharashtra with suicide rates of 10.6 12.8 12.5 14.2 respectively have the values in the middle spectrum. Bihar, with not very favourable indicators of socio economic development, has lowest rate of 0.8.



38.29 **Age - sex composition of suicide victims** : In tune with the world scenario, the overall male -female ratio of suicide victims for 2011 was 64.8:35.2 even though there is marginal increase in female ratio over that of the previous year. The per cent of female victims increased in categories- illegitimate pregnancy , dowry deaths, physical abuse and barrenness . It is observed that social and economic causes have led most of the males to commit suicide whereas emotional and personal causes have mainly driven females to end their lives. Illnes was primary reason for suicides in case of senior citizens whereas it was family problem in case of persons in the age group 15-60 years i.e. youths & middle aged persons. In addition to these two factors , love affairs & failure in exams drove children to committing suicides .



38.30 During the last decade 2001-11, generally , an increasing trend in suicides has been observed in age group above 15 years (with some fluctuation). However, in the age group upto 14 years presence of any systematic trend is not visible.

38.31 **Data Source** : Some information on suicides in various countries across the world is maintained by **World Health Organisation**. In case of India, **National Crime Record Bureau (NCRB)** has been collecting data on accidents for the annual publication 'Accidental Deaths and Suicides in India'. This publication collects data on **accidental deaths** due to **natural causes** such as Cyclone, Earthquakes, Flood, Landslide, Torrential rain etc. as well as due to **un-natural causes** such as Explosion, Drowning, Fire, Traffic accidents etc..

38.32 Data on Accident is collected as a by product of FIR received by Police Stations on Accidents. The regularity, quality and completeness in the collection of these statistics is interwoven with the working of the Police. The data for the report is collected by State Crime Records Bureaux (SCRbx) from District Crime Records Bureaux (DCRBx). Then SCRbx send the data to NCRB. Data from mega-cities (cities having population of 10 lakhs or more as per the latest census 2001) is also collected separately. Presently data on accidents are being collected from 35 States/UTs & mega-cities.

Data Flow

POLICE STATION → DCRB → SCRb → NCRB

38.33 Detailed information on road accidents is available in the publication Road Accidents in India 2011, Transport Research Wing, M/o Road Transport & Highways.

References:

- Road Accidents in India 2011, Transport Research Wing, M/o Road Transport & Highways.
- Accidental Deaths and Suicides in India 2011, National Crime Records Bureau, Ministry of Home Affairs.
- Website of World Health Organization (WHO).