

Global Road Safety and Road Safety in India

PRESENTATION OUTLINE

- *Global Road Safety Scenario*
- *Road Safety Scenario- India*
- *Characteristics of Accidents in India*
- *Measures to reduce the accidents - Globally*
- *Measures to reduce the accidents -India*
- *Conclusions*

WORLD ROAD SAFETY SCENARIO



Injuries - 50 million



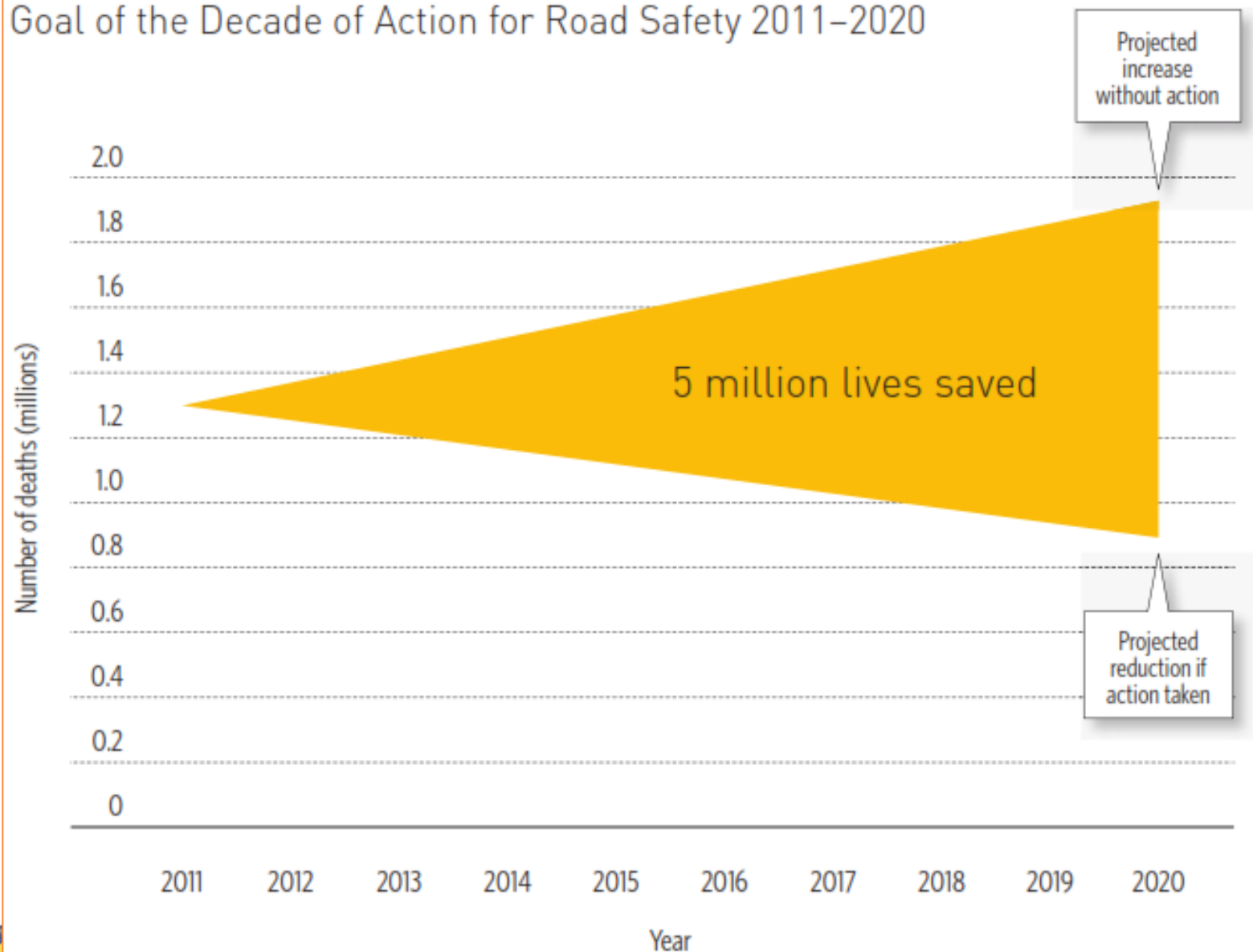
Deaths - 1.3 million



And still rising...

WORLD ROAD SAFETY SCENARIO

Goal of the Decade of Action for Road Safety 2011–2020



WORLD ROAD SAFETY SCENARIO

DECADE OF ACTION FOR ROAD SAFETY 2011-2020



UN GA resolution 54/255 in 2010 called for a Decade of Action for Road Safety (2011 -2020).

I call on Member States, International Agencies, Civil Society organizations, Business and Community leaders to ensure that the Decade leads to real improvements. As a Step in this direction , governments should release their national plans for the Decade when it is launched globally on 11th May 2011 –

WORLD ROAD SAFETY SCENARIO



DECADE OF ACTION FOR ROAD SAFETY 2011-2020



Five pillars for a Safe System approach

**Road
safety
management**



**Build safer
roads**



**Build safer
vehicles**



**Safer user
behaviour**



**Improve
post-crash
care**

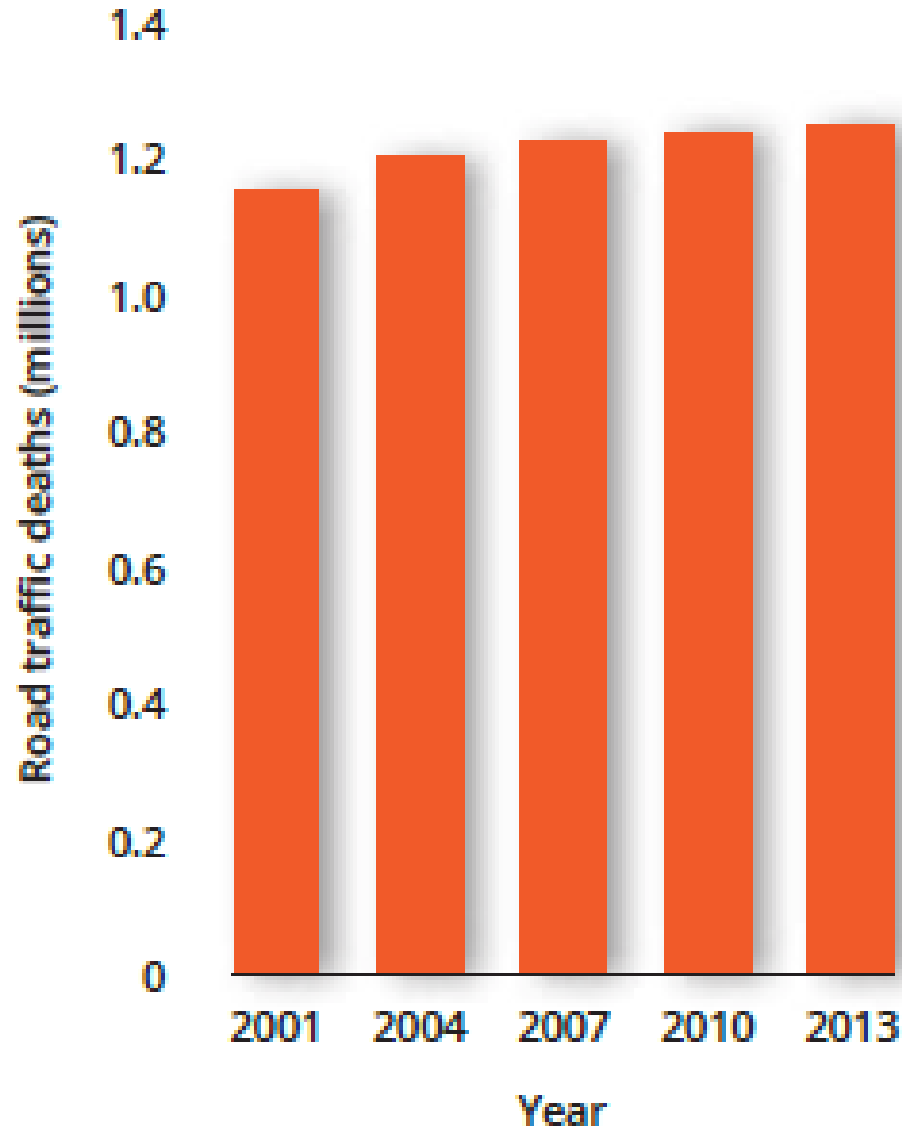


www.who.int/roadsafety/decade_of_action/



ICRI

WORLD ROAD SAFETY SCENARIO - ROAD TRAFFIC DEATHS (2007-2013)

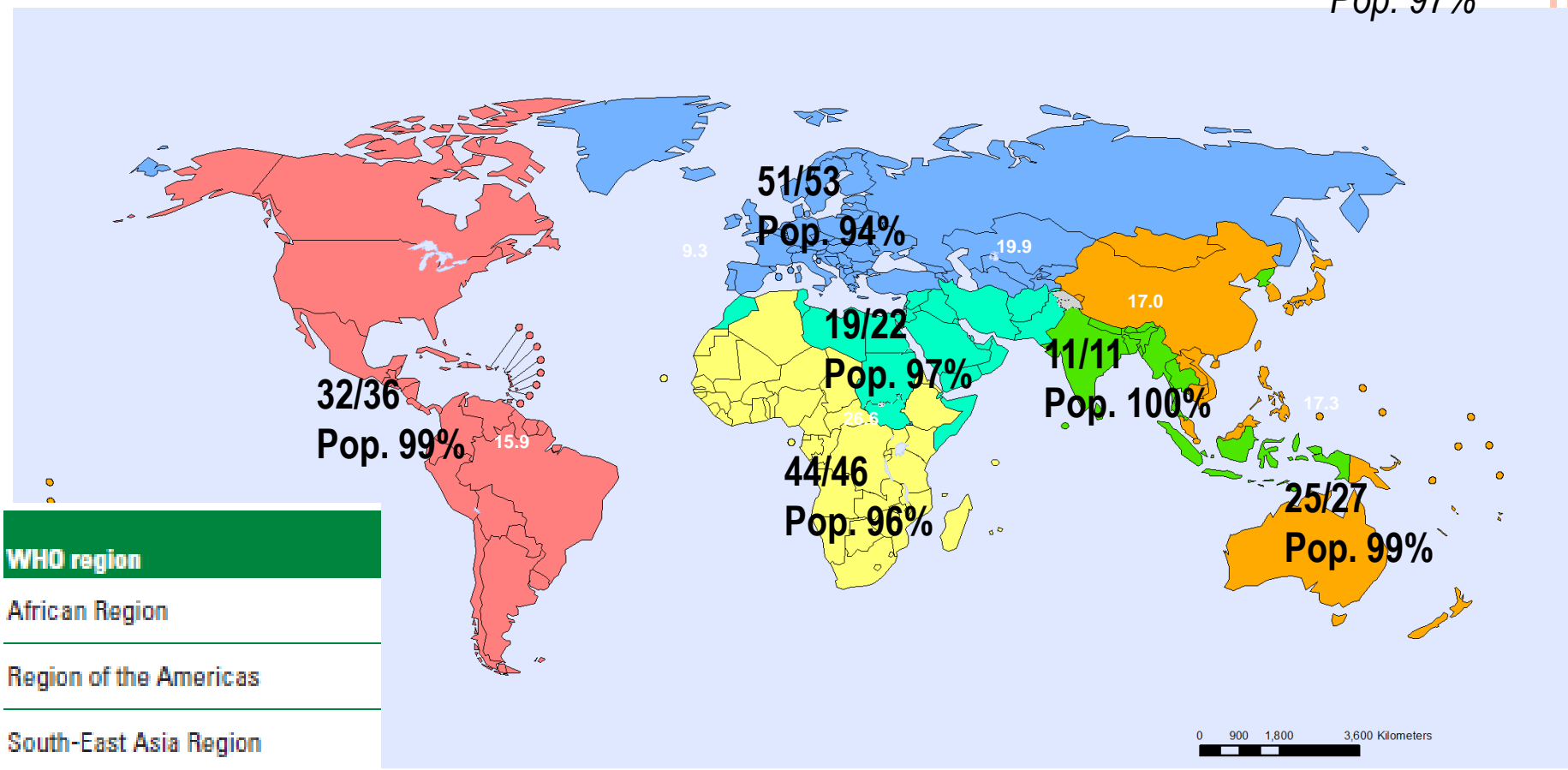


The plateau in road traffic deaths, set against a **4%** increase in **global population** and **16% increase in motorization**, suggests that road safety efforts over the past 3 years have saved lives.



WORLDWIDE ROAD FATALITIES : PARTICIPATING COUNTRIES

182/195
Pop. 97%



WHO region

African Region

Region of the Americas

South-East Asia Region

Eastern Mediterranean Region^{a,d}

European Region

Western Pacific Region^a

used on this map do not imply the expression of any opinion whatsoever as to the legal status of any country, territory, city or area or of its authorities, or its borders. Dotted and dashed lines on maps represent approximate border lines.

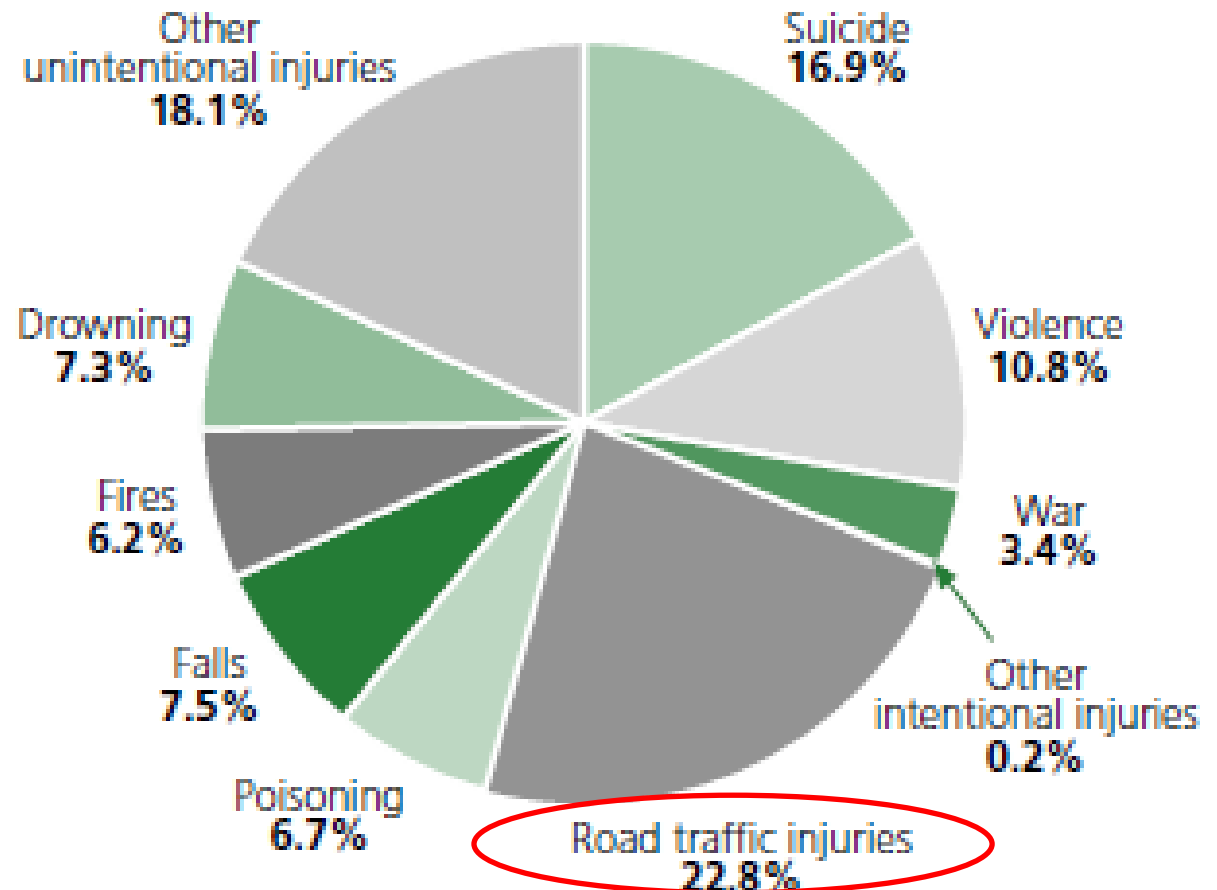
Data Source: World Health Organization
Map Production: Public Health Information
and Geographic Information Systems (GIS)
World Health Organization



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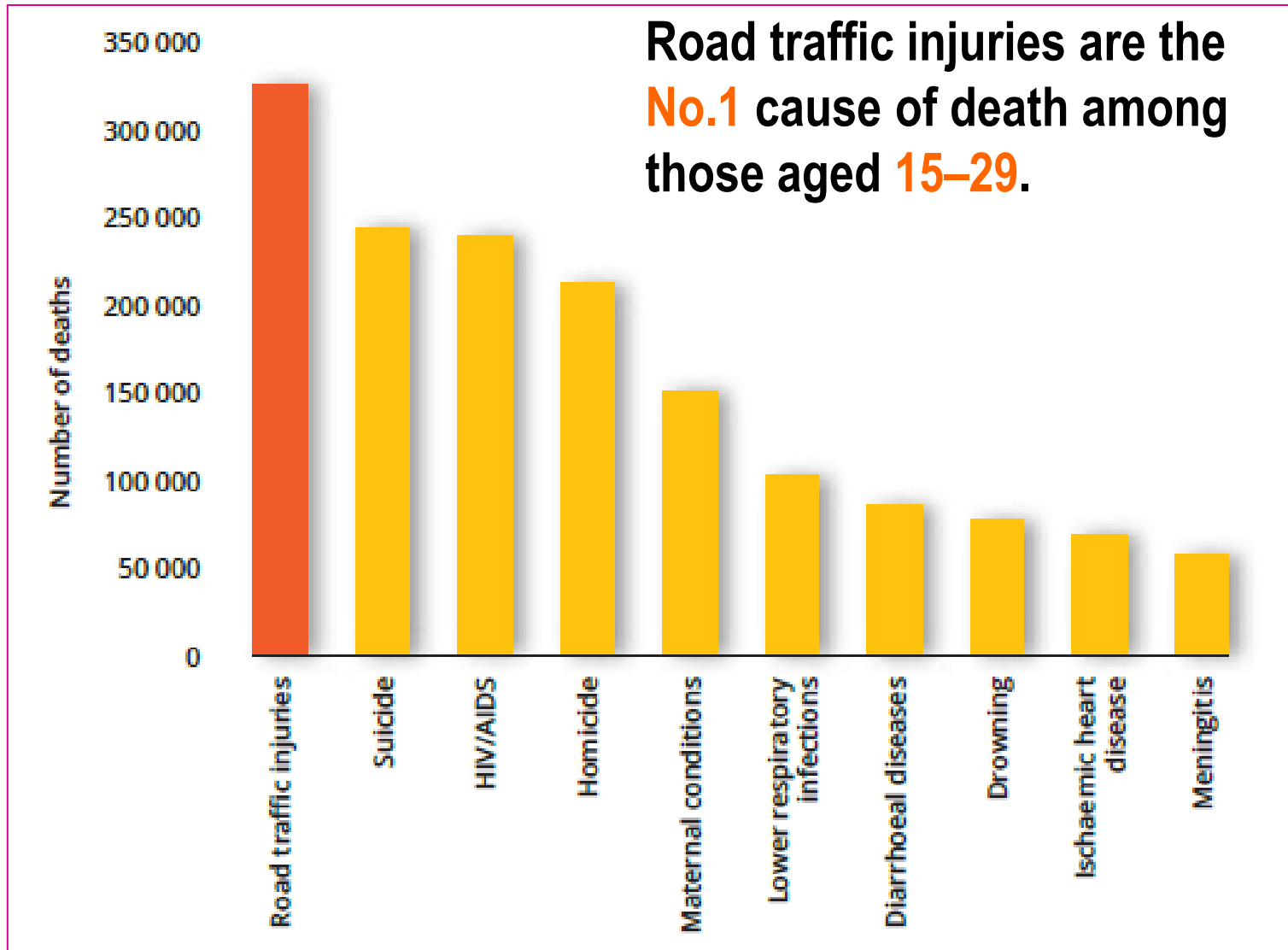
WORLDWIDE ROAD FATALITIES

Distribution of global injury mortality by cause



Road traffic deaths accounted for 23% of all injury deaths worldwide

WORLDWIDE ROAD FATALITIES



WORLDWIDE ROAD FATALITIES

Leading causes of deaths by age group, world, 2002

Rank	0-4 years	5-14 years	15-29 years	30-44 years	45-59 years	≥60 years	All ages
1	Lower respiratory infections 1 890 008	Childhood cluster diseases 219 434	HIV/AIDS 707 277	HIV/AIDS 1 178 856	Ischaemic heart disease 1 043 978	Ischaemic heart disease 5 812 863	Ischaemic heart disease 7 153 056
2	Diarrhoeal diseases 1 577 891	Road traffic injuries 130 835	Road traffic injuries 302 208	Tuberculosis 390 004	Cerebrovascular disease 623 099	Cerebrovascular disease 4 685 722	Cerebrovascular disease 5 489 591
3	Low birth weight 1 149 168	Lower respiratory infections 127 782	Self-inflicted injuries 251 806	Road traffic injuries 285 457	Tuberculosis 400 704	Chronic obstructive pulmonary diseases 2 396 739	Lower respiratory infections 3 764 415
4	Malaria 1 098 446	HIV/AIDS 108 090	Tuberculosis 245 818	Ischaemic heart disease 231 340	HIV/AIDS 390 267	Lower respiratory infections 1 395 611	HIV/AIDS 2 818 762
5	Childhood cluster diseases 1 046 177	Drowning 86 327	Interpersonal violence 216 169	Self-inflicted injuries 230 490	Chronic obstructive pulmonary diseases 309 726	Trachea, bronchus, lung cancers 927 889	Chronic obstructive pulmonary diseases 2 743 509
6	Birth asphyxia and birth trauma 729 066	Malaria 76 257	Lower respiratory infections 92 522	Interpersonal violence 165 796	Trachea, bronchus, lung cancers 261 860	Diabetes mellitus 749 977	Diarrhoeal diseases 1 766 447
7	HIV/AIDS 370 706	Tropical cluster diseases 35 454	Fires 90 845	Cerebrovascular disease 124 417	Cirrhosis of the liver 250 208	Hypertensive heart disease 732 262	Childhood-cluster diseases 1 359 548
8	Congenital heart anomalies 223 569	Fires 33 046	Drowning 87 499	Cirrhosis of the liver 100 101	Road traffic injuries 221 776	Stomach cancer 605 395	Tuberculosis 1 605 063
9	Protein-energy malnutrition 138 197	Tuberculosis 32 762	War 71 680	Lower respiratory infections 98 232	Self-inflicted injuries 189 215	Tuberculosis 495 199	Trachea, bronchus, lung cancers 1 238 417
10	STDs excluding HIV 67 871	Protein-energy malnutrition 30 763	Hypertensive disorders 61 711	Poisonings 81 930	Stomach cancer 185 188	Colon and rectum cancers 476 902	Malaria 1 221 432
11	Meningitis 64 255	Meningitis 30 694	Maternal haemorrhage 56 233	Fires 67 511	Liver cancer 180 117	Nephritis and nephrosis 440 708	Road traffic injuries 1 183 492
12	Drowning 57 287	Leukaemia 21 097	Ischaemic heart disease 53 870	Maternal haemorrhage 63 191	Diabetes mellitus 175 423	Alzheimer and other dementias 382 339	Low birth weight 1 149 172
13	Road traffic injuries 49 736	Falls 20 084	Poisoning 52 956	War 61 018	Lower respiratory infections 160 259	Liver cancer 367 503	Diabetes mellitus 982 175
14	Endocrine disorders 42 619	Violence 18 551	Childhood cluster diseases 48 101	Drowning 56 744	Breast cancer 147 489	Cirrhosis of the liver 366 417	Hypertensive heart disease 903 612
15	Tuberculosis 40 574	Poisonings 18 529	Abortion 43 782	Liver cancer 55 486	Hypertensive heart disease 129 634	Oesophagus cancer 318 112	Self-inflicted injuries 874 955

Over 50% of deaths are among young adults in the age range of 15 - 44 years.

Among both children aged 5 - 14 years, and young people aged 15 - 29 years, Road Traffic Injuries (RTI) are the second-leading cause of death worldwide.



WORLDWIDE ROAD FATALITIES

Change in rank order of DALYs for the 10 leading causes of the global burden of disease

1990		2020	
Rank	Disease or injury	Rank	Disease or injury
1	Lower respiratory infections	1	Ischaemic heart disease
2	Diarrhoeal diseases	2	Unipolar major depression
3	Perinatal conditions	3	Road traffic injuries
4	Unipolar major depression	4	Cerebrovascular disease
5	Ischaemic heart disease	5	Chronic obstructive pulmonary disease
6	Cerebrovascular disease	6	Lower respiratory infections
7	Tuberculosis	7	Tuberculosis
8	Measles	8	War
9	Road traffic injuries	9	Diarrhoeal diseases
10	Congenital abnormalities	10	HIV

Current and projected trends in low-income and middle-income countries foreshadow a huge escalation in global road crash mortality between 2000 and 2020.

Furthermore, on current trends, by 2020, Road Traffic Injury (RTI) is likely to be the third leading cause.

WORLD ROAD SAFETY SCENARIO

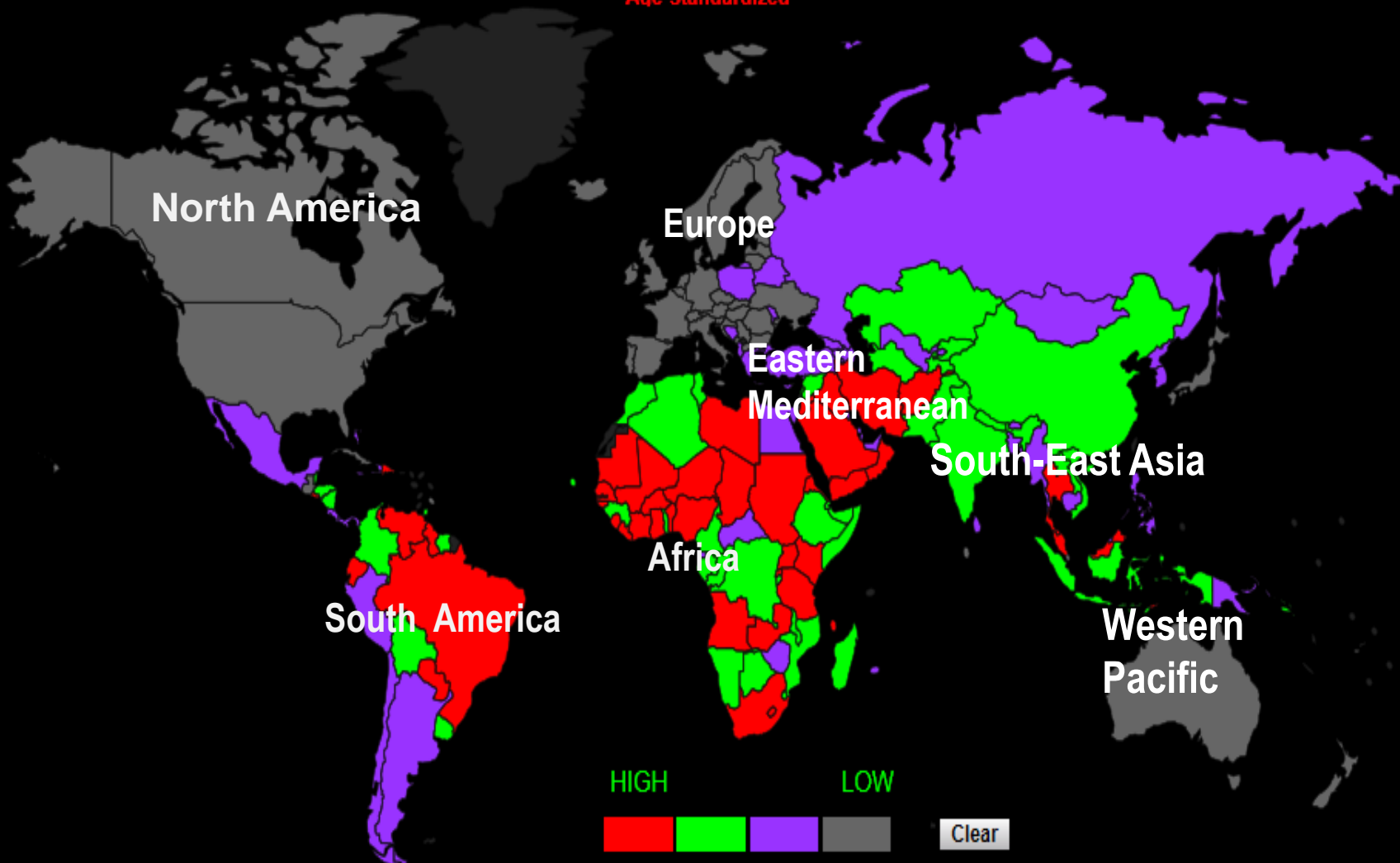
[RETURN](#) [WORLD HEALTH MENU](#)

ROAD TRAFFIC ACCIDENTS

Death Rate Per 100,000
Age Standardized

Road Traffic Accident

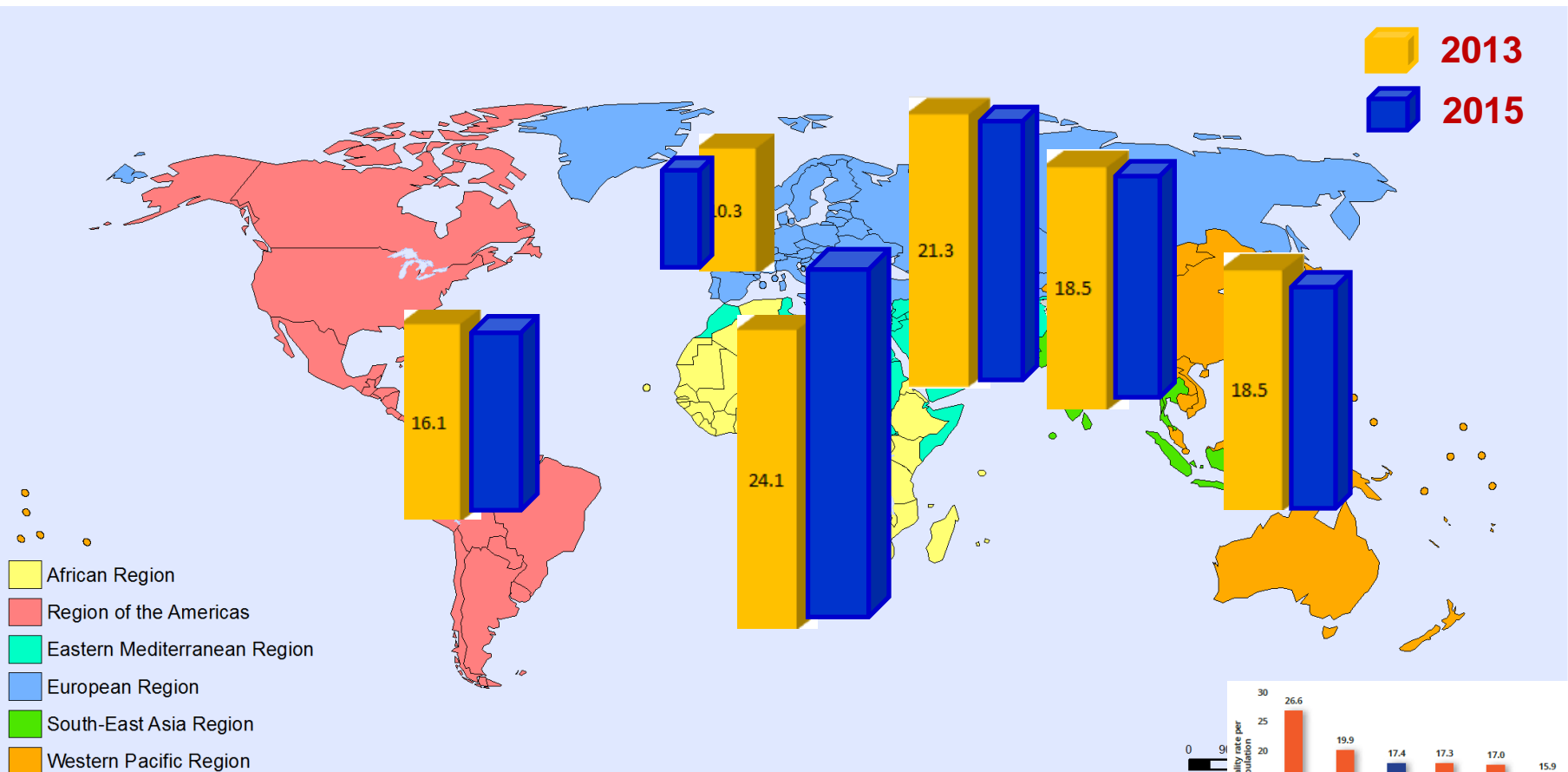
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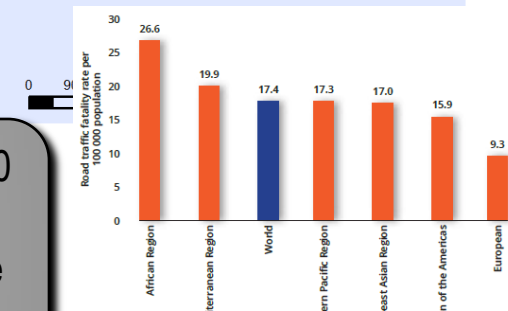
WORLDWIDE ROAD FATALITIES : CURRENT STATUS

Africa has the highest road traffic death rates per 1,00,000 population

WHO regions

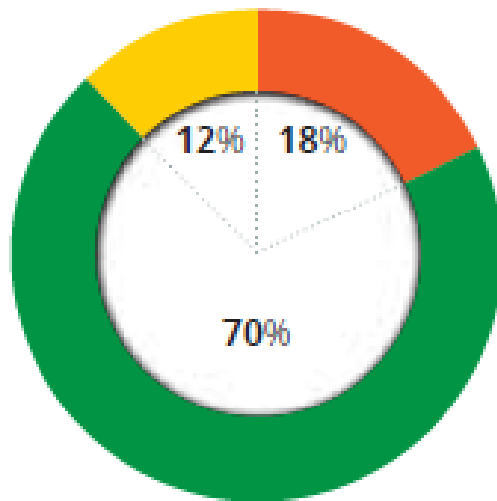


The high-income countries in Europe have the lowest road traffic fatality rate (9.0 per 100 000 population) followed by those of the Western Pacific Region (17.0 per 100 000 population). In general, the regional averages for low-income and middle-income are

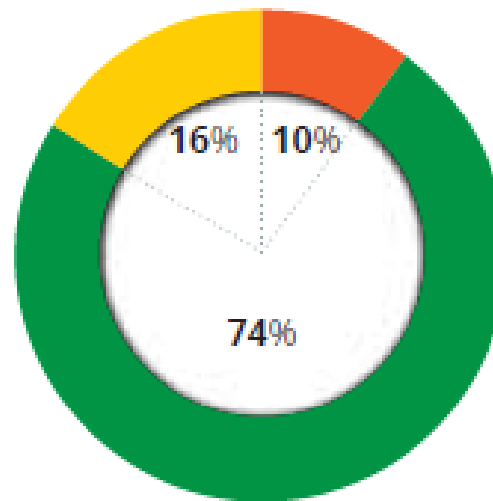


WORLDWIDE ROAD FATALITIES : CURRENT STATUS

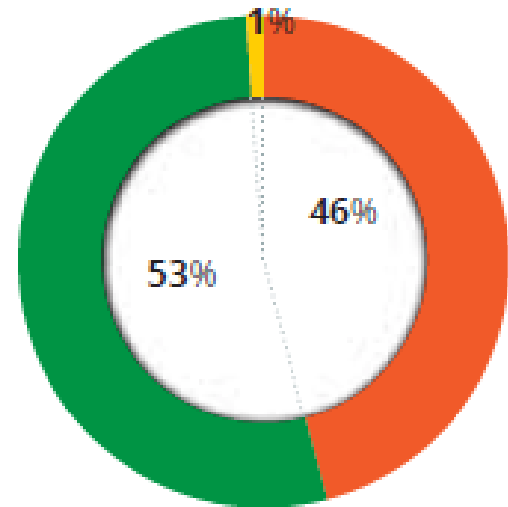
■ High-income ■ Middle-income ■ Low-income



Population



Road traffic deaths

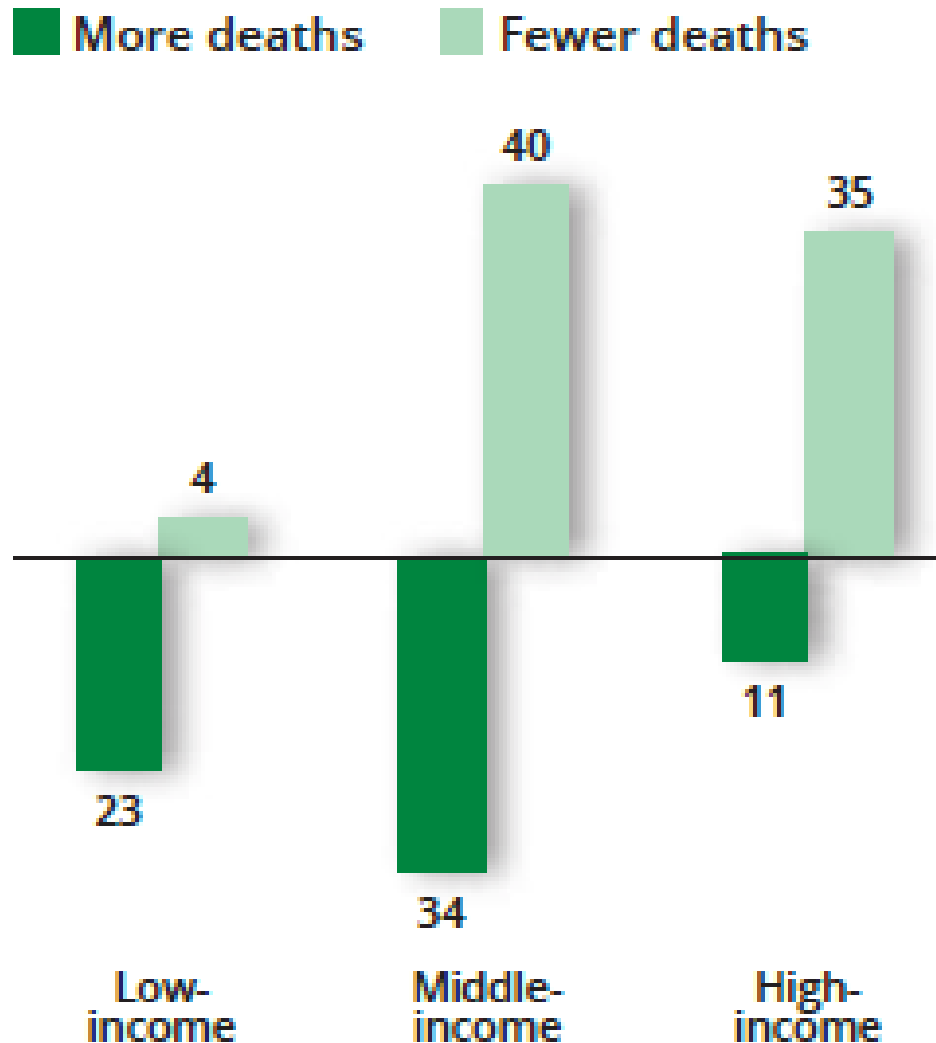


Registered motorized vehicles

Low- and middle-income countries bear a disproportionate burden of road traffic deaths

Road traffic death rates in low- and middle-income countries are more than **double** those in high-income countries

WORLDWIDE ROAD FATALITIES : CURRENT STATUS

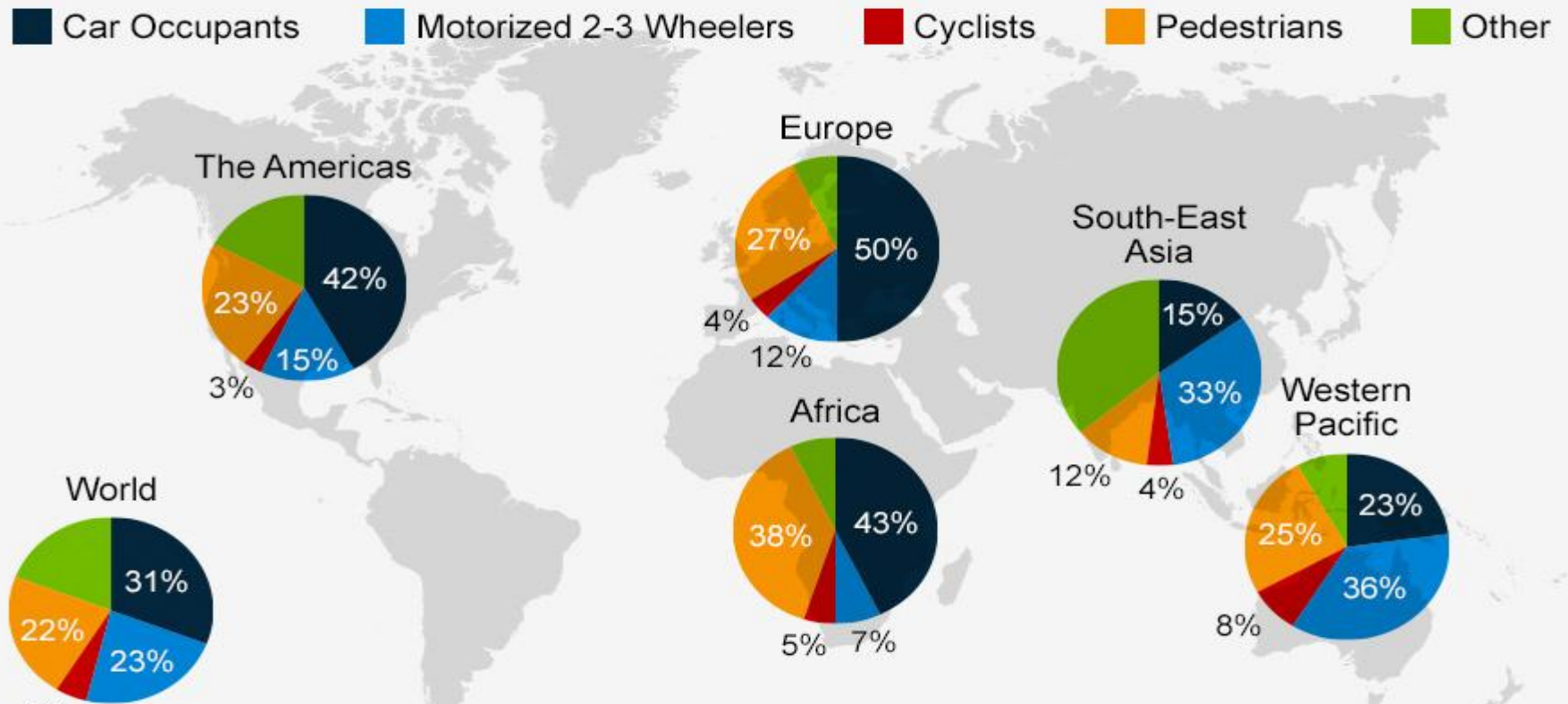


68 countries have seen a **rise** in road traffic deaths since 2010, while **79** have seen a **decrease**.

WORLD ROAD SAFETY SCENARIO : CURRENT STATUS

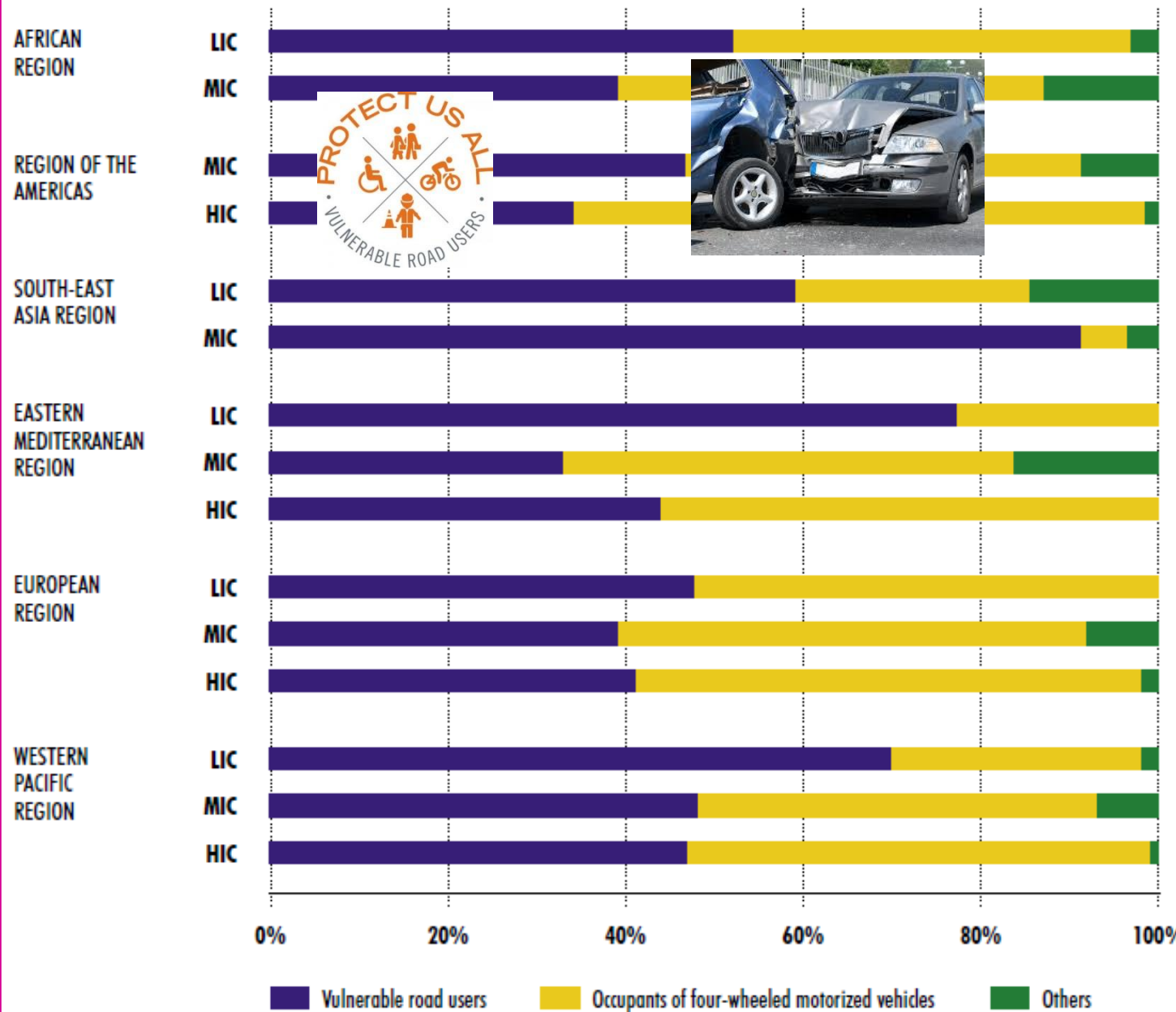
Pedestrians & Motorcyclists Account for 45% of All Road Fatalities

Road traffic deaths by type of road user by region in 2010 (WHO region)



Vulnerable Road Users (VRUs) **i.e. pedestrians cyclists and motorized 2Ws** tend to account for a much greater proportion of road traffic deaths in low-income and middle-income countries than in high-income countries.

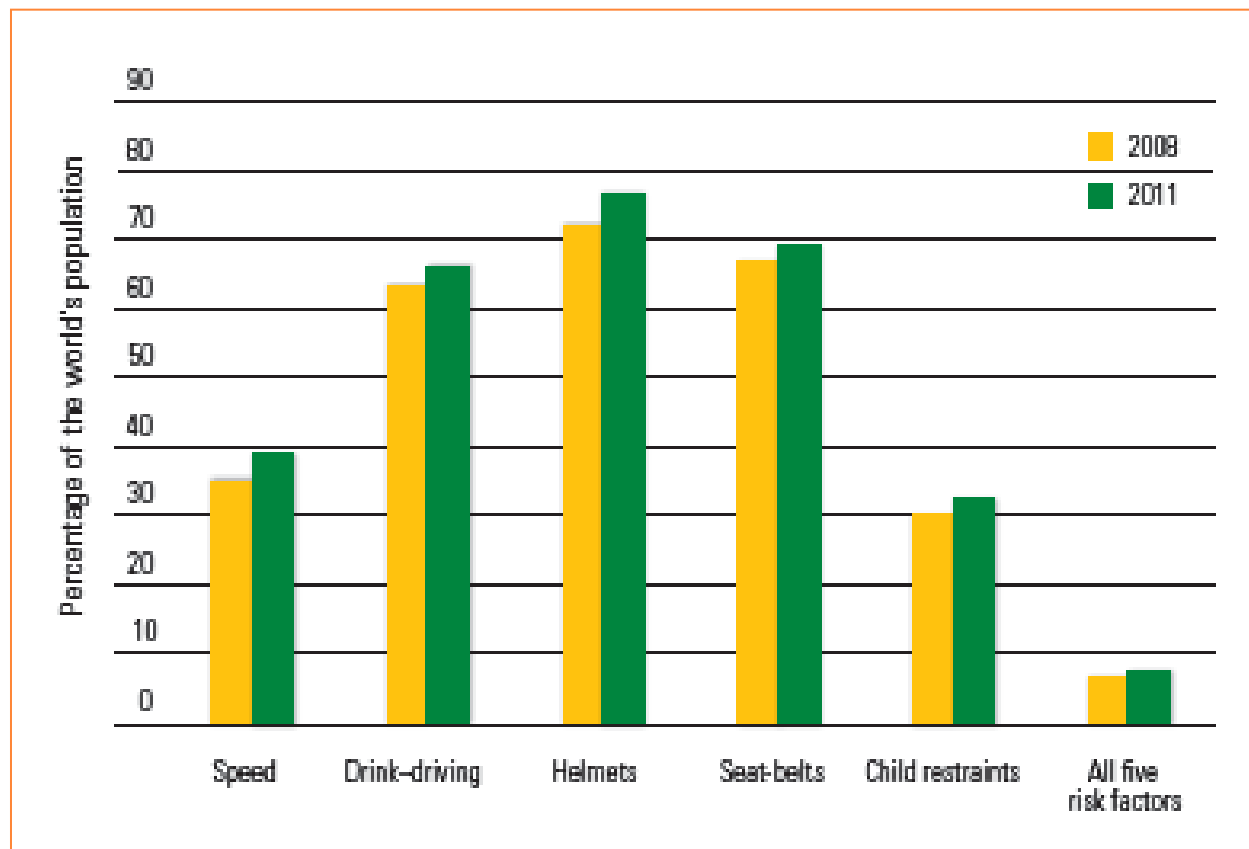
WORLD ROAD SAFETY SCENARIO : CURRENT STATUS



More than half of countries **(92)** report policies to increase walking and cycling, compared to **(68)** in 2010.

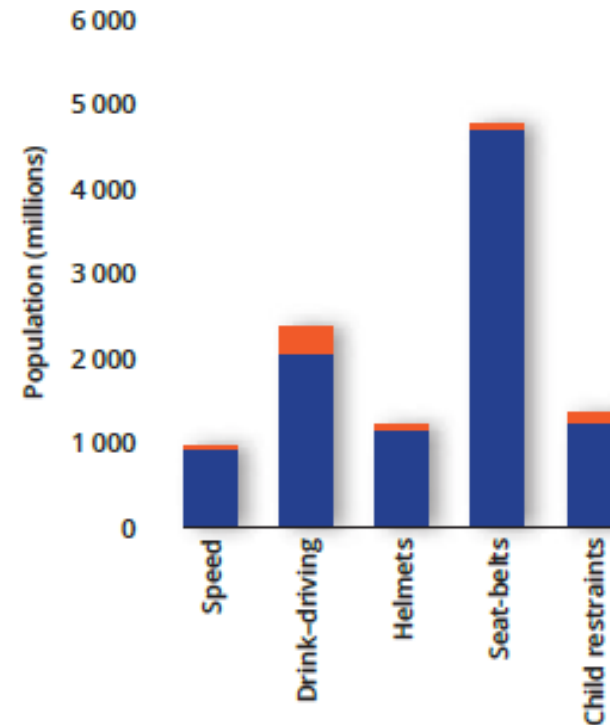
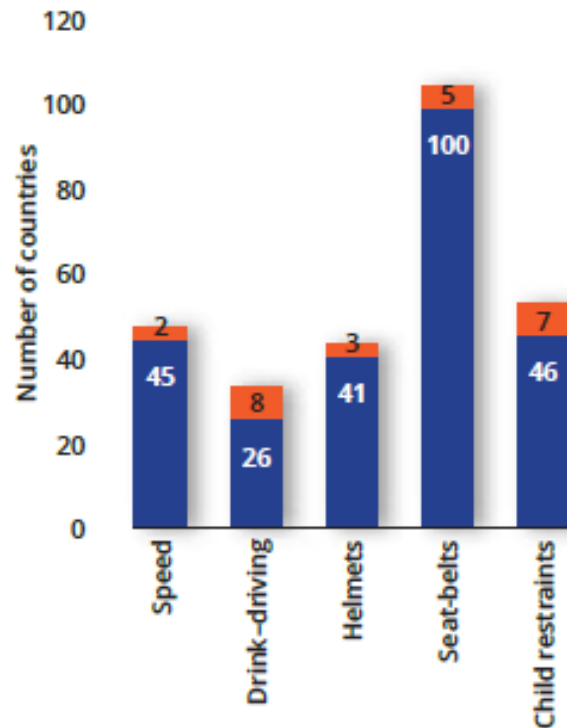
WORLD ROAD SAFETY SCENARIO: LEGISLATION & ROAD USER BEHAVIOUR

35 COUNTRIES PASSED NEW LAWS BUT ONLY 7% OF THE WORLD'S POPULATION IS COVERED FOR ALL 5 RISK FACTORS



WORLD ROAD SAFETY SCENARIO: LEGISLATION & ROAD USER BEHAVIOUR

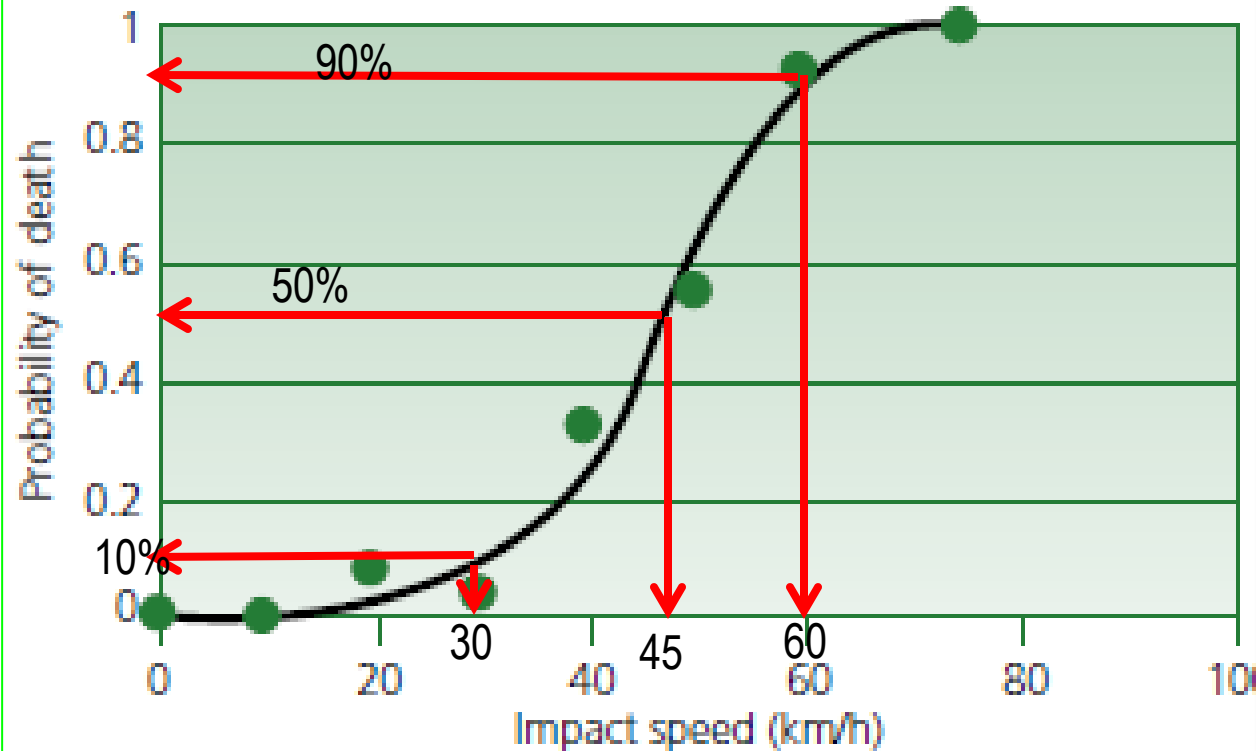
■ New countries with laws meeting best practice ■ Countries with laws meeting best practice



In the last three years **17 countries** representing **409 million People** have amended their laws on one or more key risk factors for road traffic injuries to bring them into line with best practice.

WORLDWIDE ROAD FATALITIES

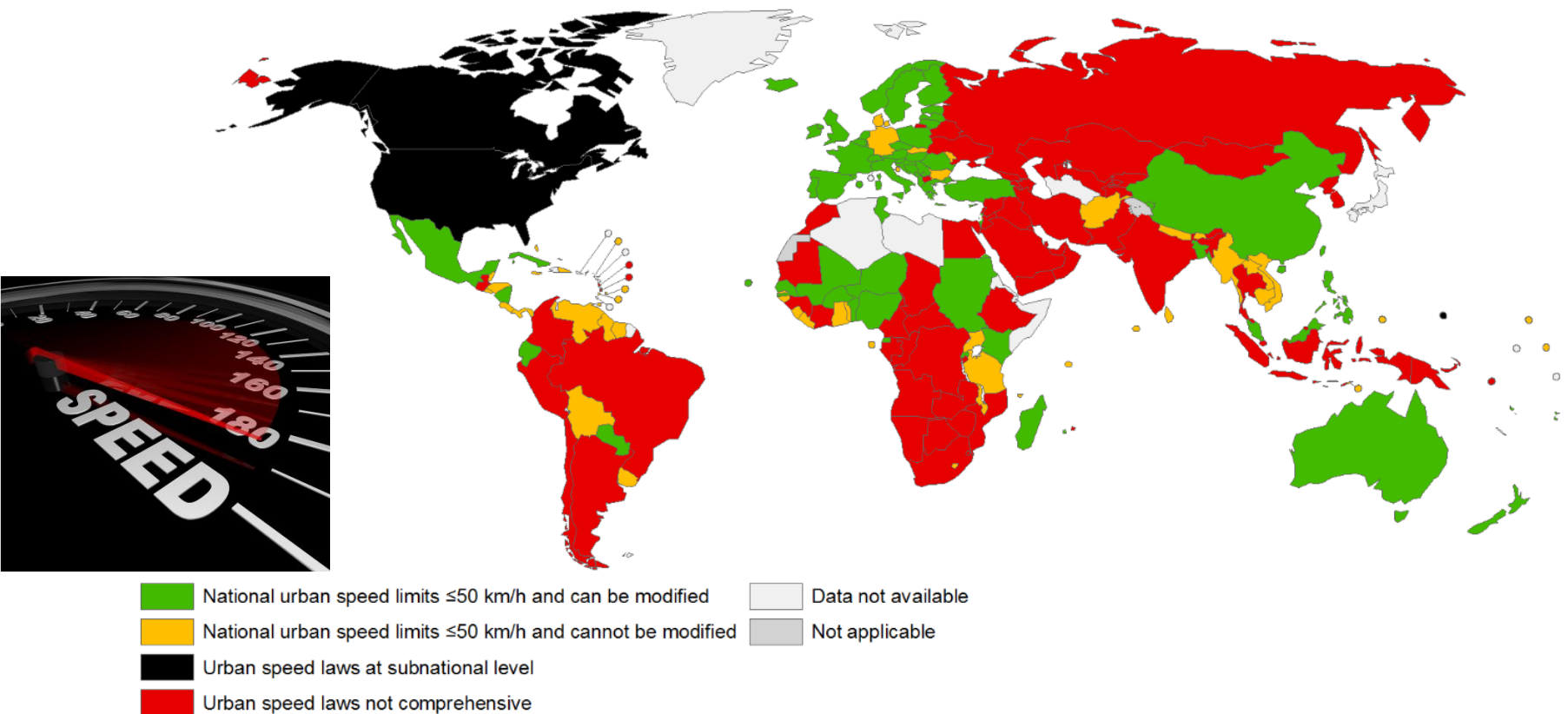
Pedestrian fatality risk as a function of the impact speed of a car



1. Pedestrians have a 90% chance of surviving road crashes at 30 km/h or below, but reduces exponentially thereafter. **i.e. less than a 50% chance of survival when impacted at 45 km/h or above.**
2. Pedestrian being killed rises by a factor of 8.0 as the impact speed of the vehicle increases from 30 km/h to 50 km/h.

WORLD ROAD SAFETY SCENARIO : CURRENT STATUS

ONLY 59 COUNTRIES HAVE A COMPREHENSIVE URBAN SPEED LAW

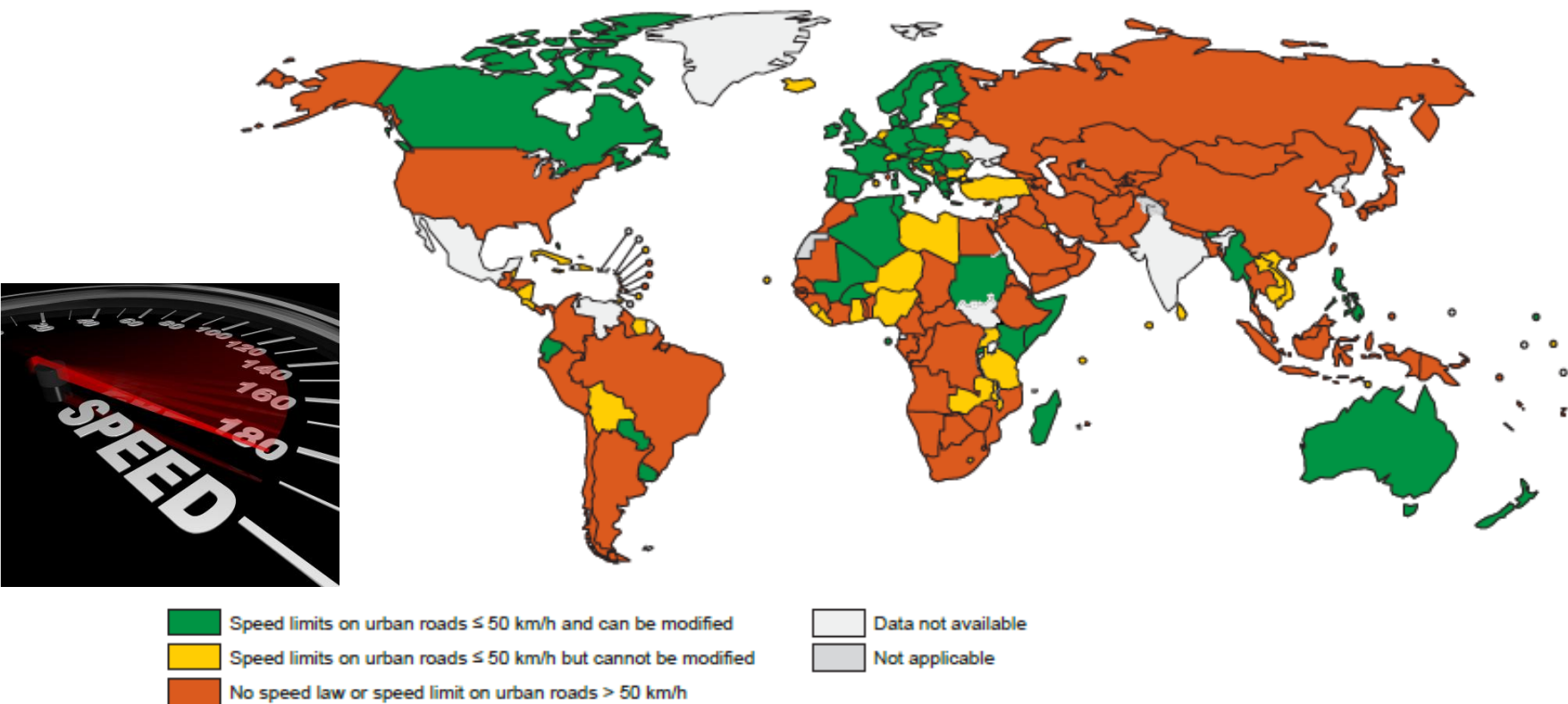


Comprehensive urban speed law = 50km/h and local authorities allowed to reduce limits

WORLD ROAD SAFETY SCENARIO

47 countries, representing approximately 950 million people, have urban speed laws that meet best practice.

Urban speed laws, by country/area



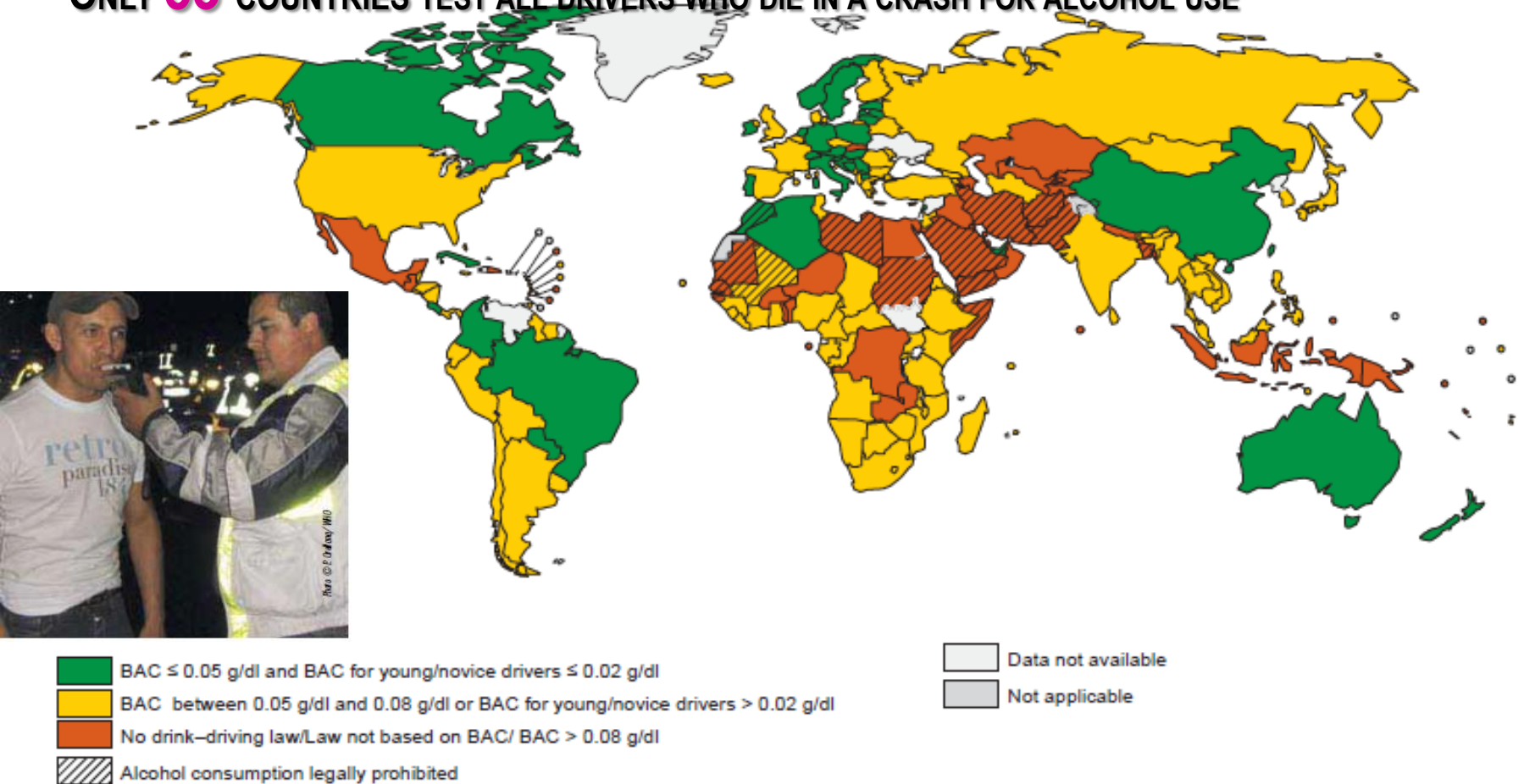
Comprehensive urban speed law = 50km/h and local authorities allowed to reduce limits

WORLD ROAD SAFETY SCENARIO: CURRENT STATUS

121 COUNTRIES HAVE A COMPREHENSIVE DRINK-DRIVING LAW

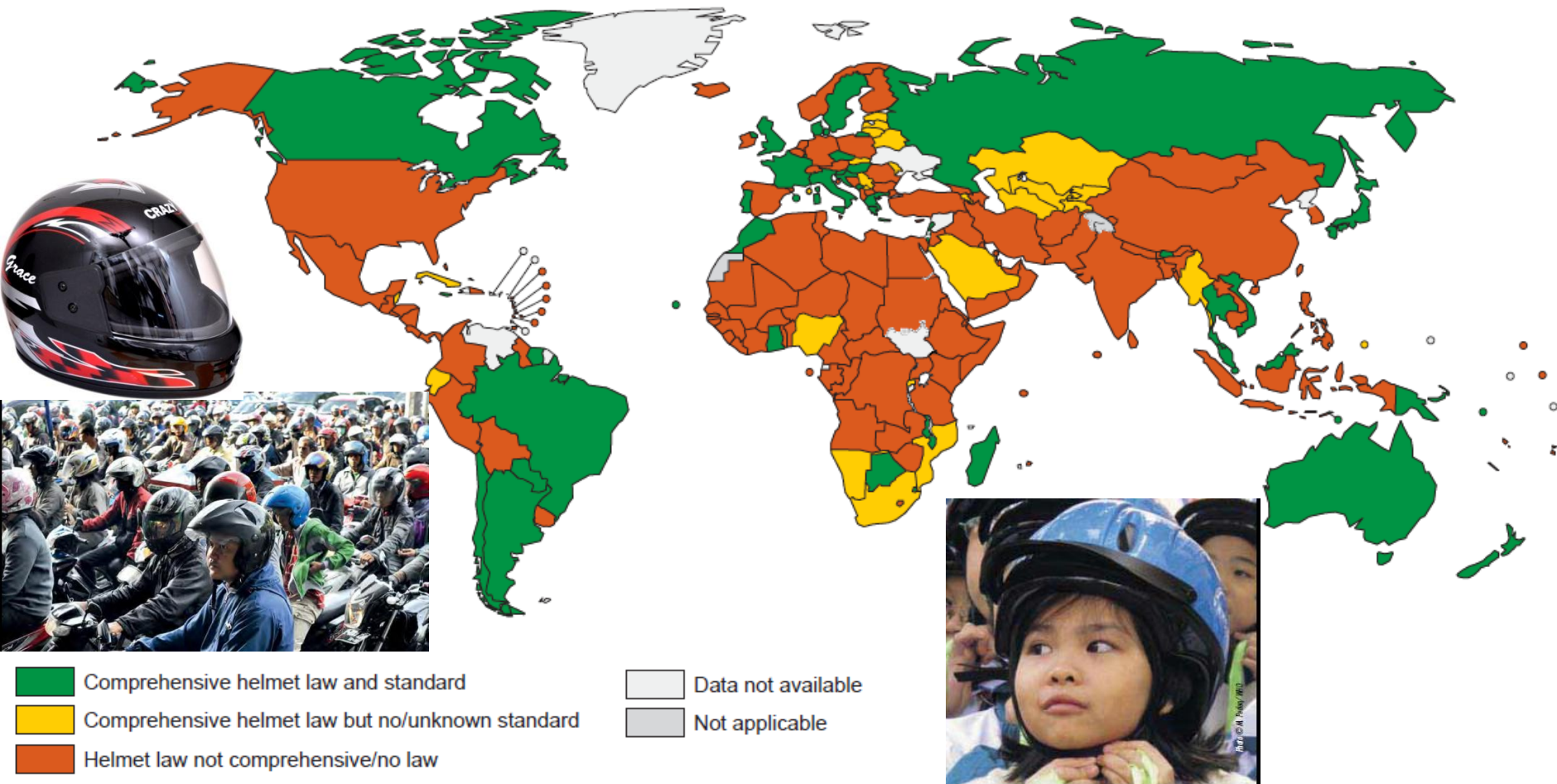
ONLY 34 COUNTRIES, REPRESENTING 2.1 BILLION PEOPLE, HAVE DRINK-DRIVING LAWS IN LINE WITH BEST PRACTICE

ONLY 53 COUNTRIES TEST ALL DRIVERS WHO DIE IN A CRASH FOR ALCOHOL USE



WORLD ROAD SAFETY SCENARIO: CURRENT STATUS

ONLY **44** COUNTRIES, REPRESENTING 1.2 BILLION PEOPLE, HAVE HELMET LAWS THAT MEET BEST PRACTICE AND APPLY A HELMET

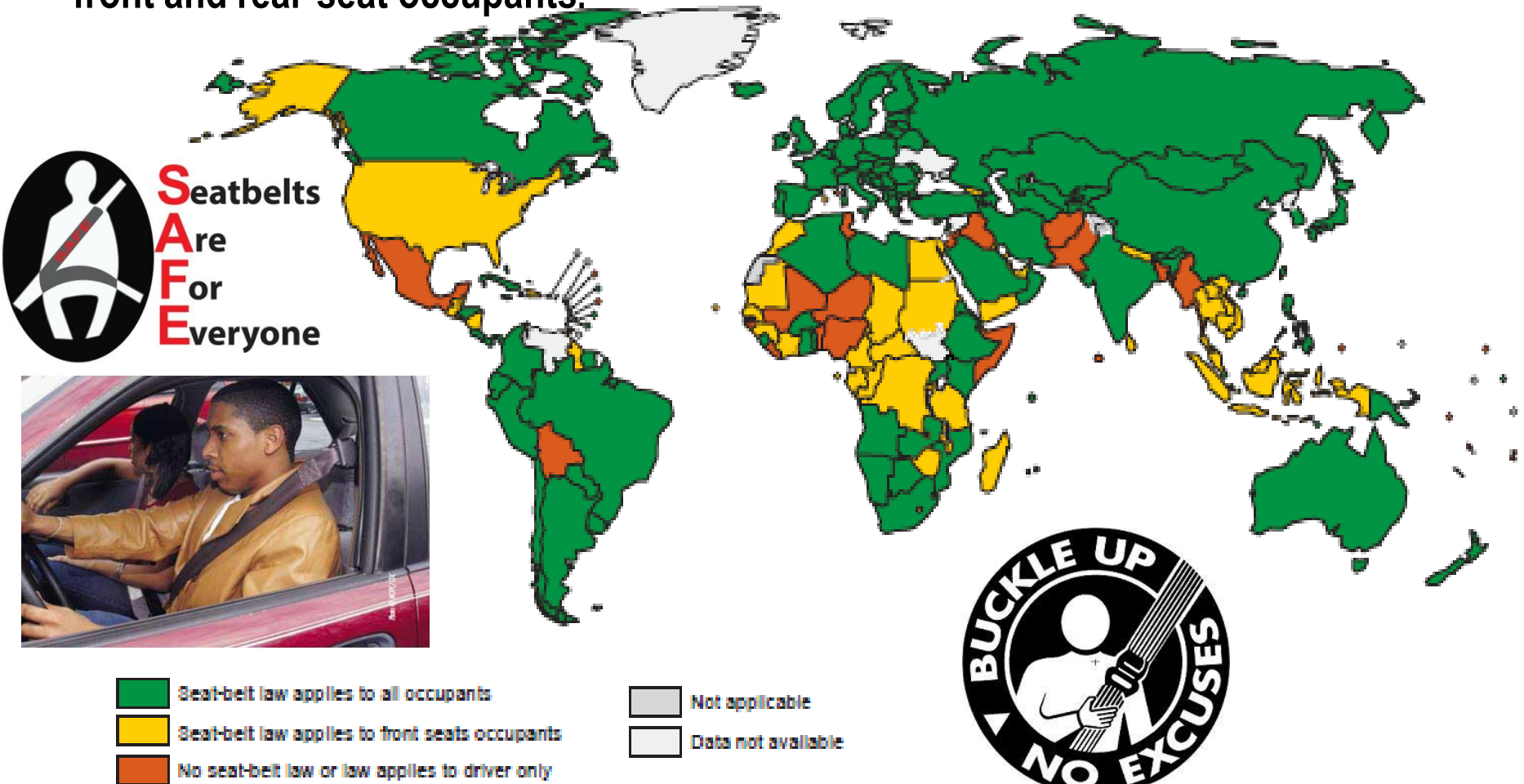


Comprehensive motorcycle helmet law = All riders, all roads, all engine types + helmet standard.

In India, the implementation of this law is still a State Subject!

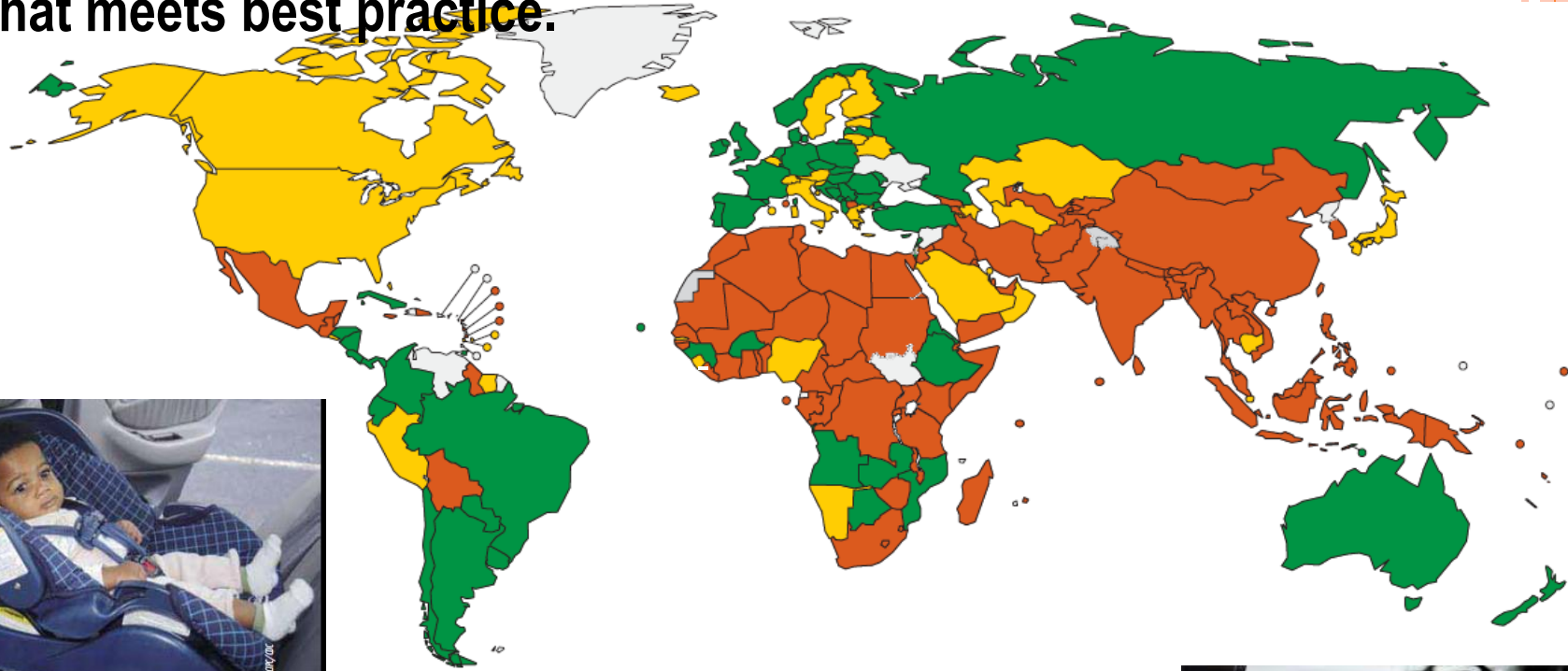
WORLD ROAD SAFETY SCENARIO: CURRENT STATUS




105 countries, representing 4.8 billion people, have seat-belt laws that cover both front and rear-seat occupants.





WORLD ROAD SAFETY SCENARIO: CURRENT STATUS

53 countries, representing 1.2 billion people, have a child restraint law that meets best practice.



-  Law requires child restraints based on age/weight/height and restricts children from sitting in front seats
-  Law requires child restraints based on age/weight/height or child restraint law combined with restrictions on children sitting in front seats
-  No child restraint law/Child restraint law not based on age/weight/height and no restrictions on front seat.

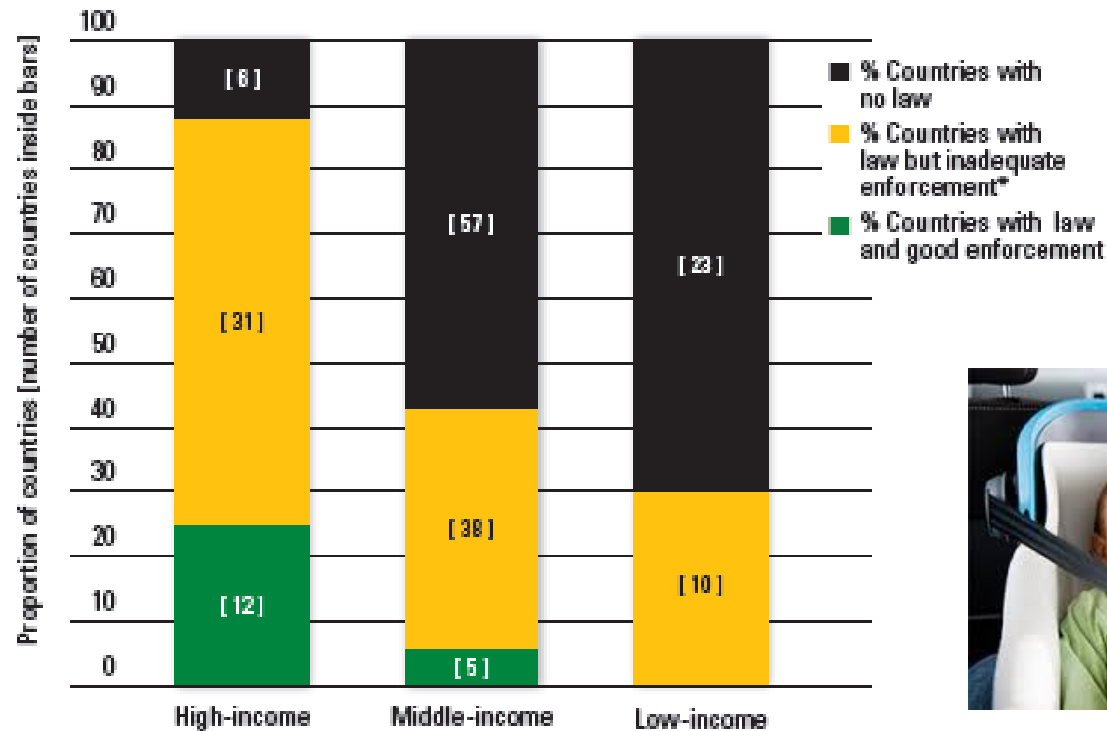
-  Data not available
-  Not applicable



Comprehensive seat-belt law = Applies to all vehicle occupants
In India, the implementation of this law is still a State Subject!

WORLD ROAD SAFETY SCENARIO : CURRENT STATUS

HALF OF ALL COUNTRIES HAVE A CHILD RESTRAINT LAW BUT ENFORCEMENT IS POOR

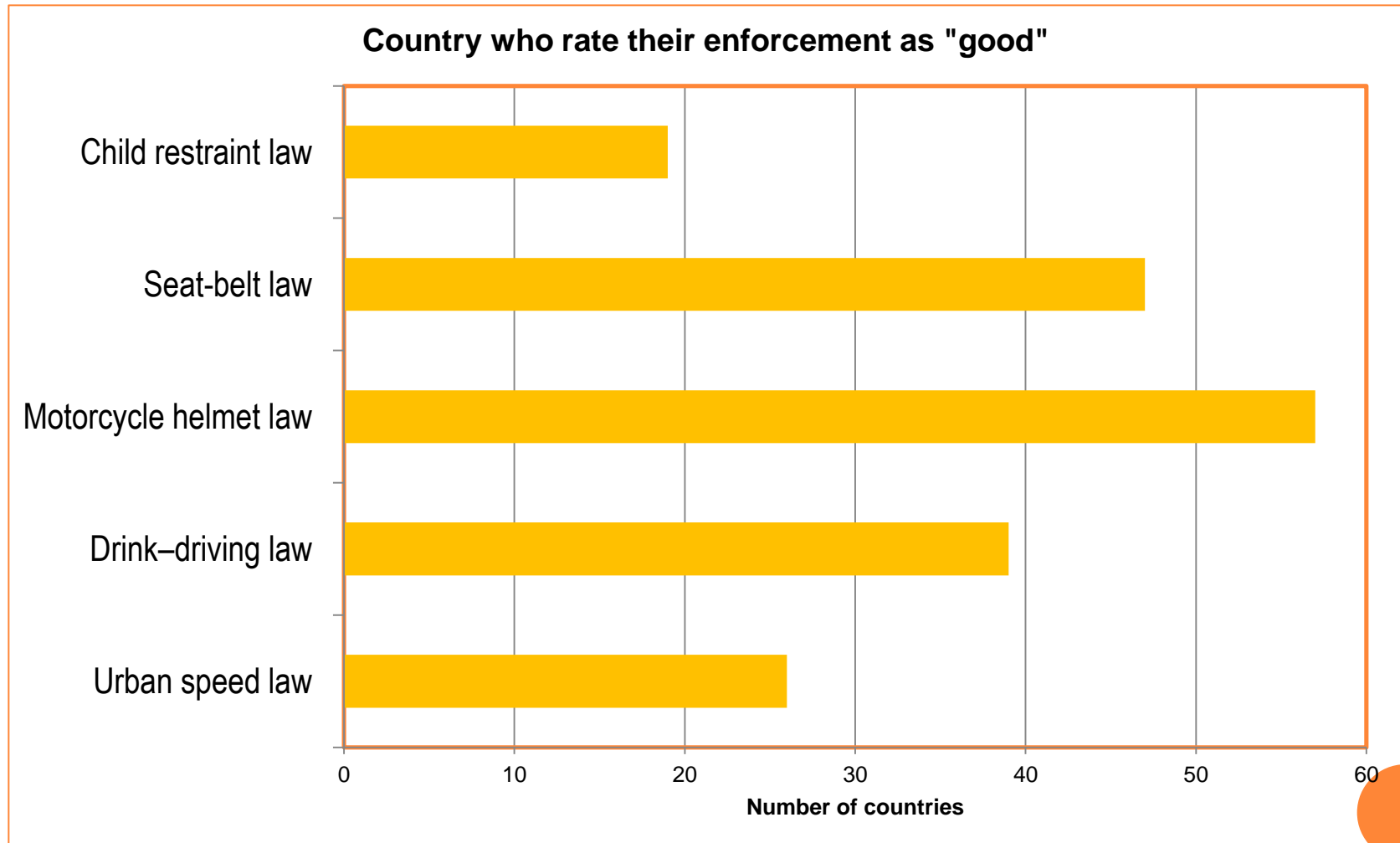


* <8 on a scale of 0 to 10, or no answer as reported by countries



WORLD ROAD SAFETY SCENARIO

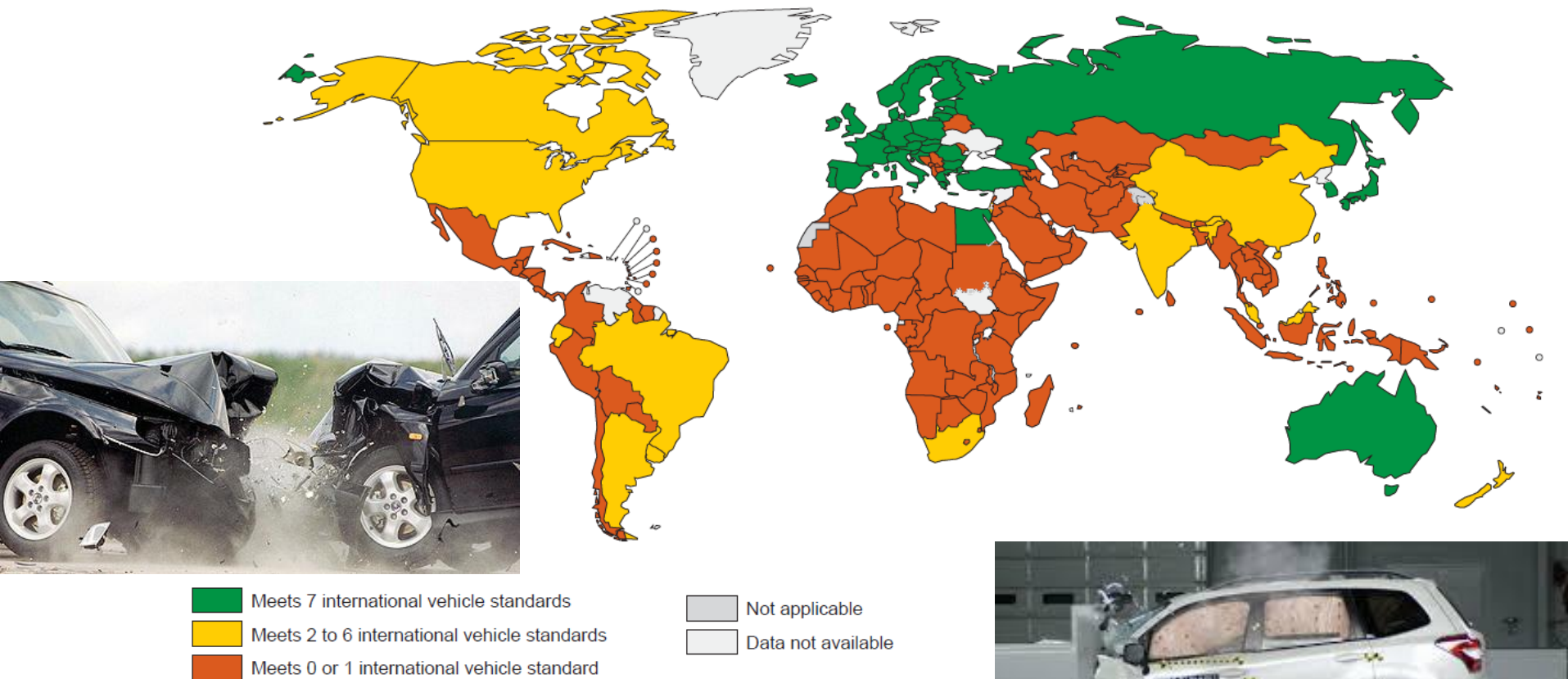
FEW COUNTRIES RATE THE ENFORCEMENT OF LAWS AS "GOOD"



WORLD ROAD SAFETY SCENARIO : SAFE VEHICLES

VEHICLES SOLD IN **80%** OF ALL COUNTRIES FAIL TO MEET PRIORITY SAFETY STANDARDS.

Countries applying priority UN vehicle safety standards



WORLD ROAD SAFETY SCENARIO

- *1.25 million people are killed each year on the world's roads, and that this figure has plateaued since 2007.*
- *For every 1 person who dies in a road traffic crash, 20 are injured.*
- *1 in 20 of those injured are left with a disability.*
- *Only 111 countries have a universal national access emergency number.*
- *Only 59 countries have an ambulance service able to transfer over 75% of injured patients.*
- *Less than 2/3 of doctors and <50% nurses are trained in emergency care in LMICs.*



WORLDWIDE ROAD FATALITIES

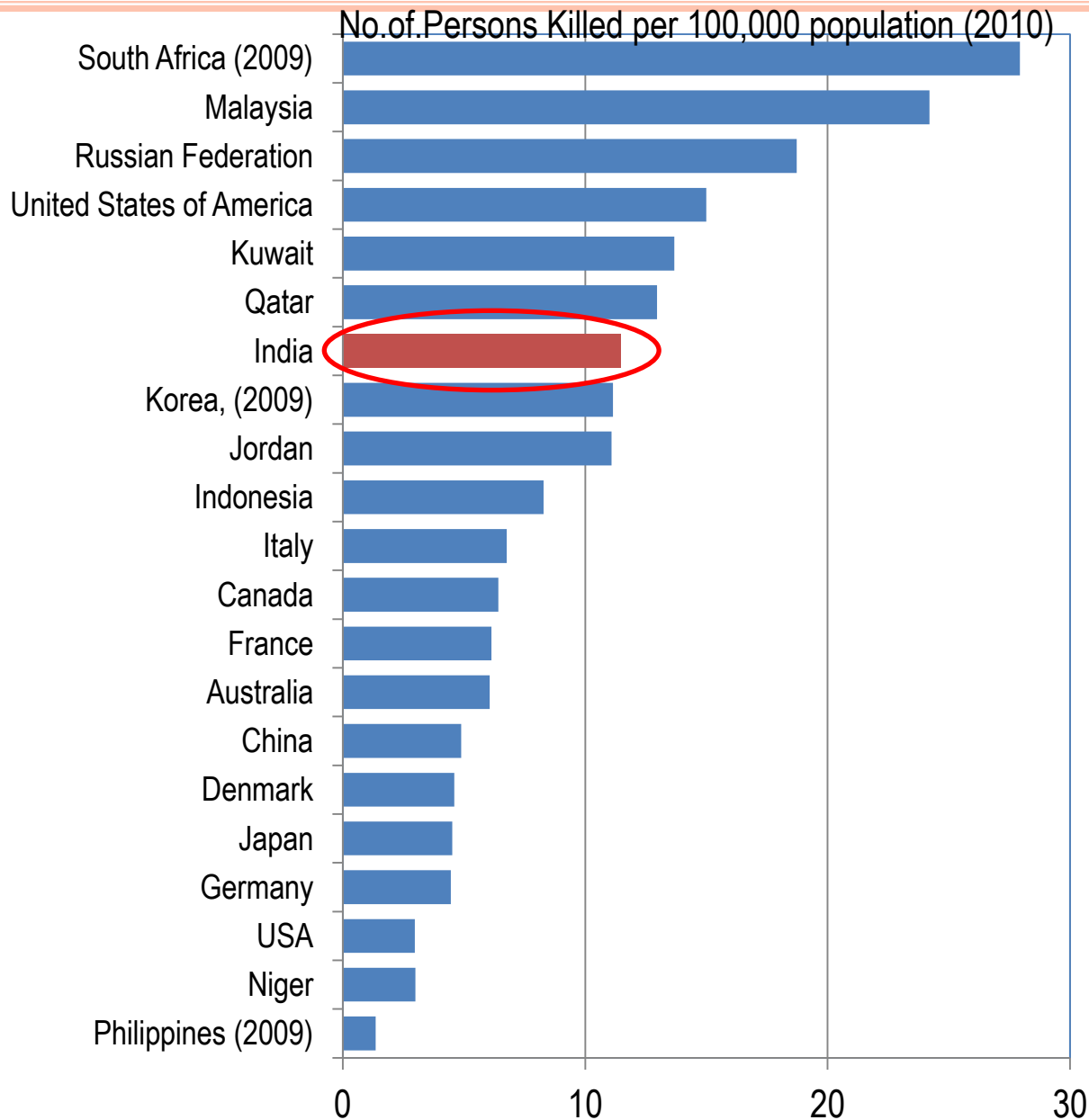
Number of persons killed per 100000 population



Number of persons killed



WORLDWIDE ROAD FATALITIES PER 100 000 POPULATION



ROAD SAFETY SCENARIO - INDIA

1,50,785 deaths/yr (2016)

10% of World Road deaths

413 deaths /day- Equivalent to Jumbo jet crash

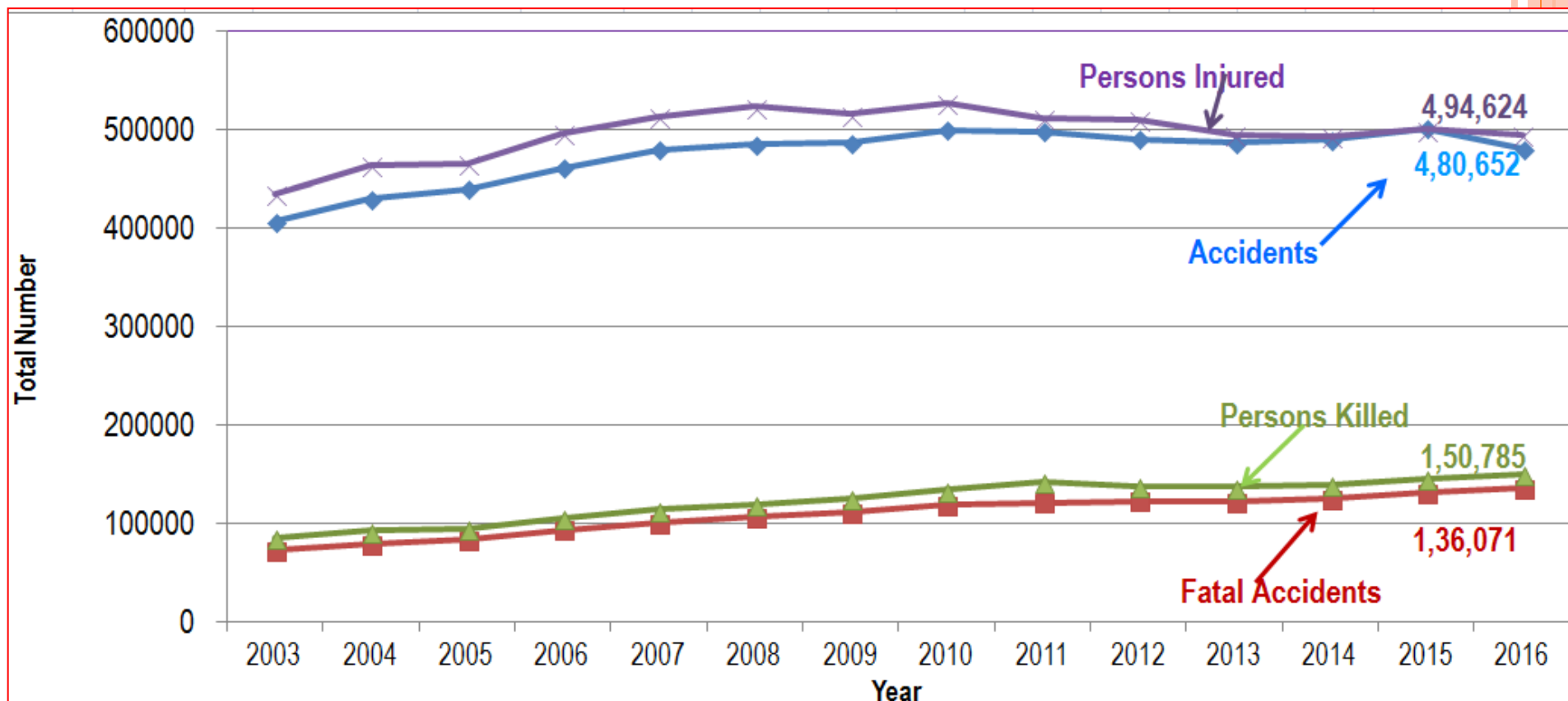
17 deaths /hr , **One death /every 4 minutes**

One of the Top three cause for death for age group 5-44 yrs



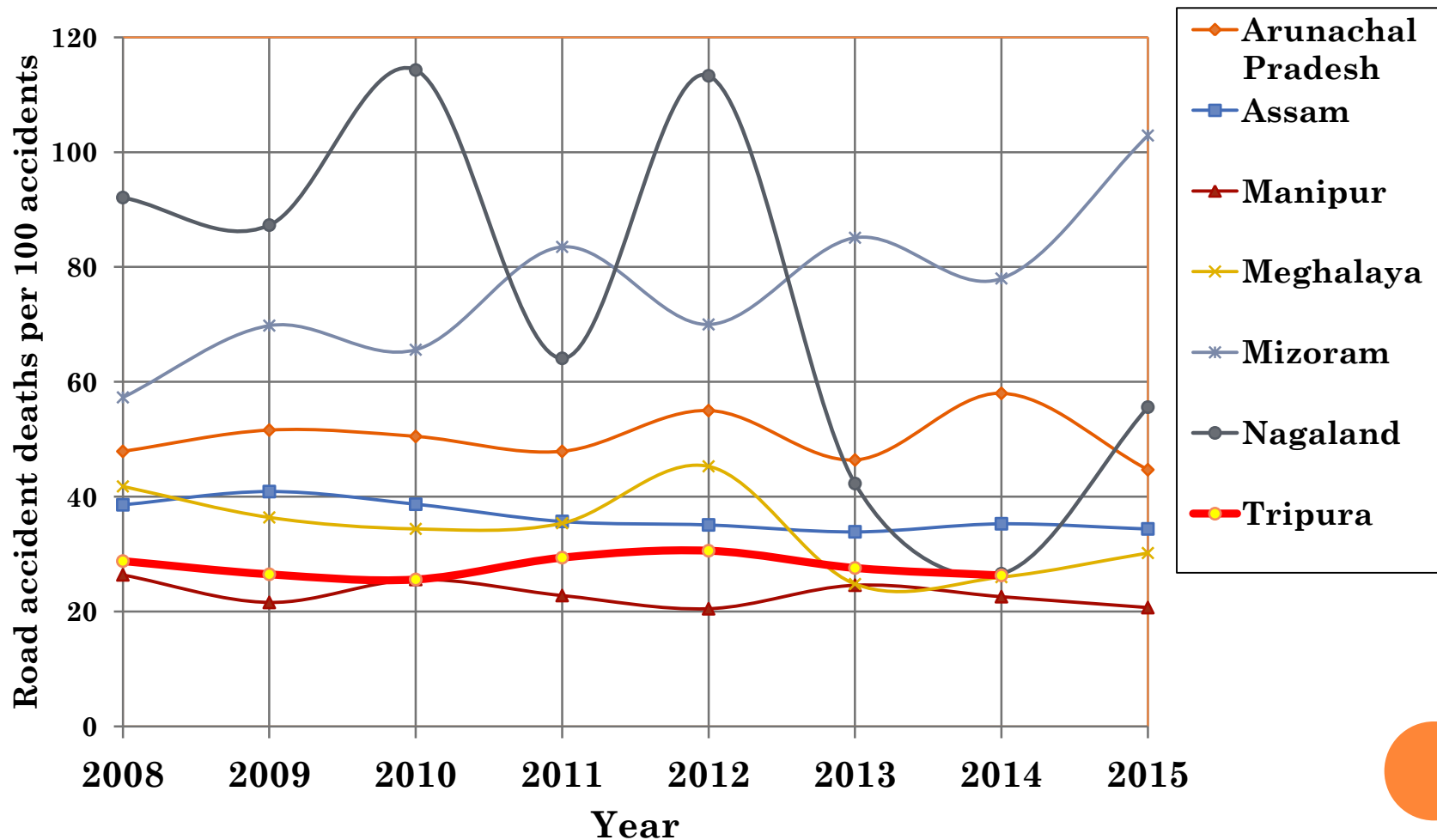
ROAD SAFETY SCENARIO - INDIA

	2015	2016
Accidents	5,01,423	4,80,652
Fatal Accidents	1,31,726	1,36,071
Persons Killed	1,46,133	1,50,785
Persons Injured	5,00,279	4,94,624



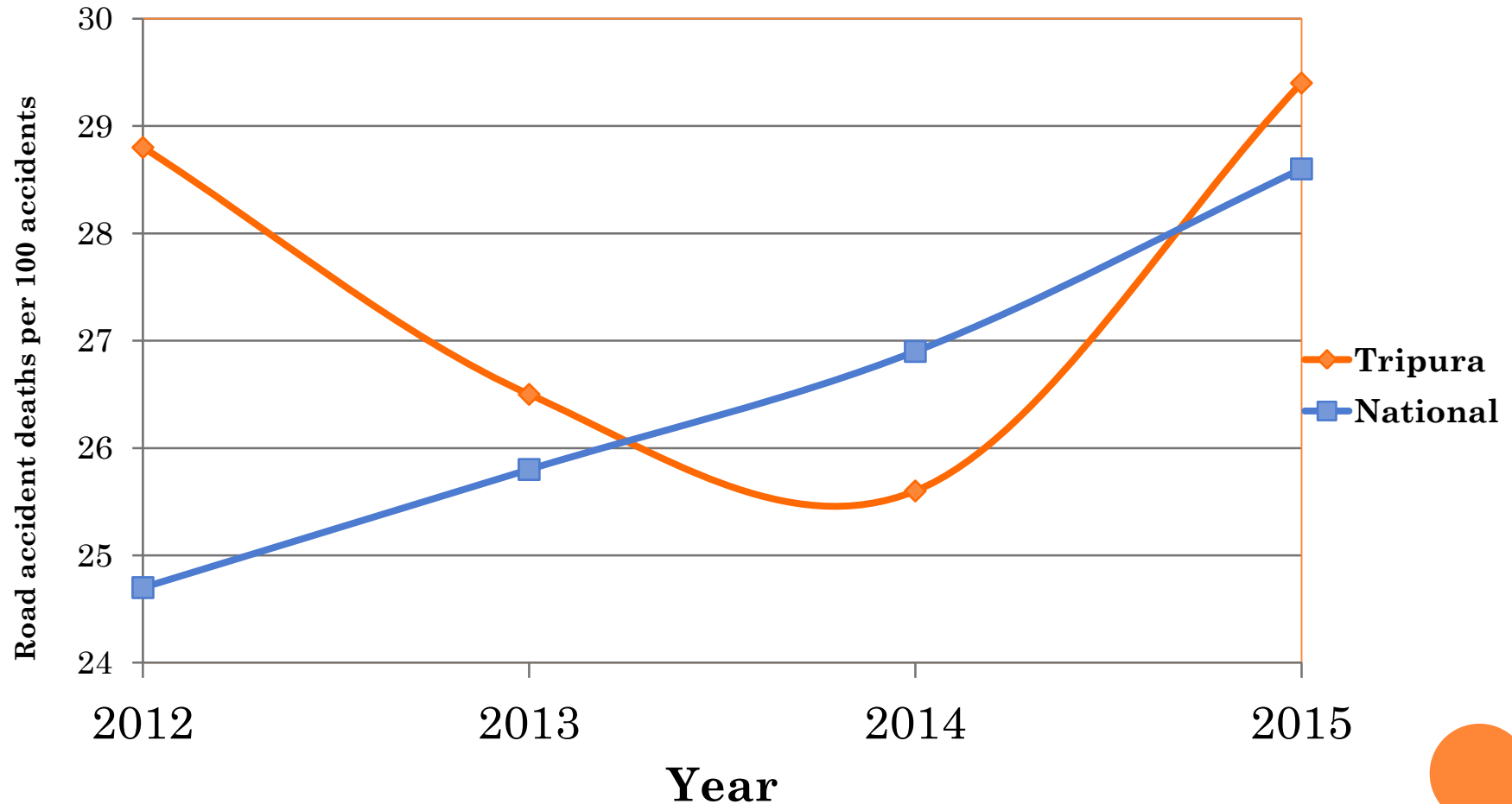
ROAD SAFETY SCENARIO – NORTH-EAST STATE

Severity of Road Accidents in North-Eastern State:
Persons Killed per 100 accidents

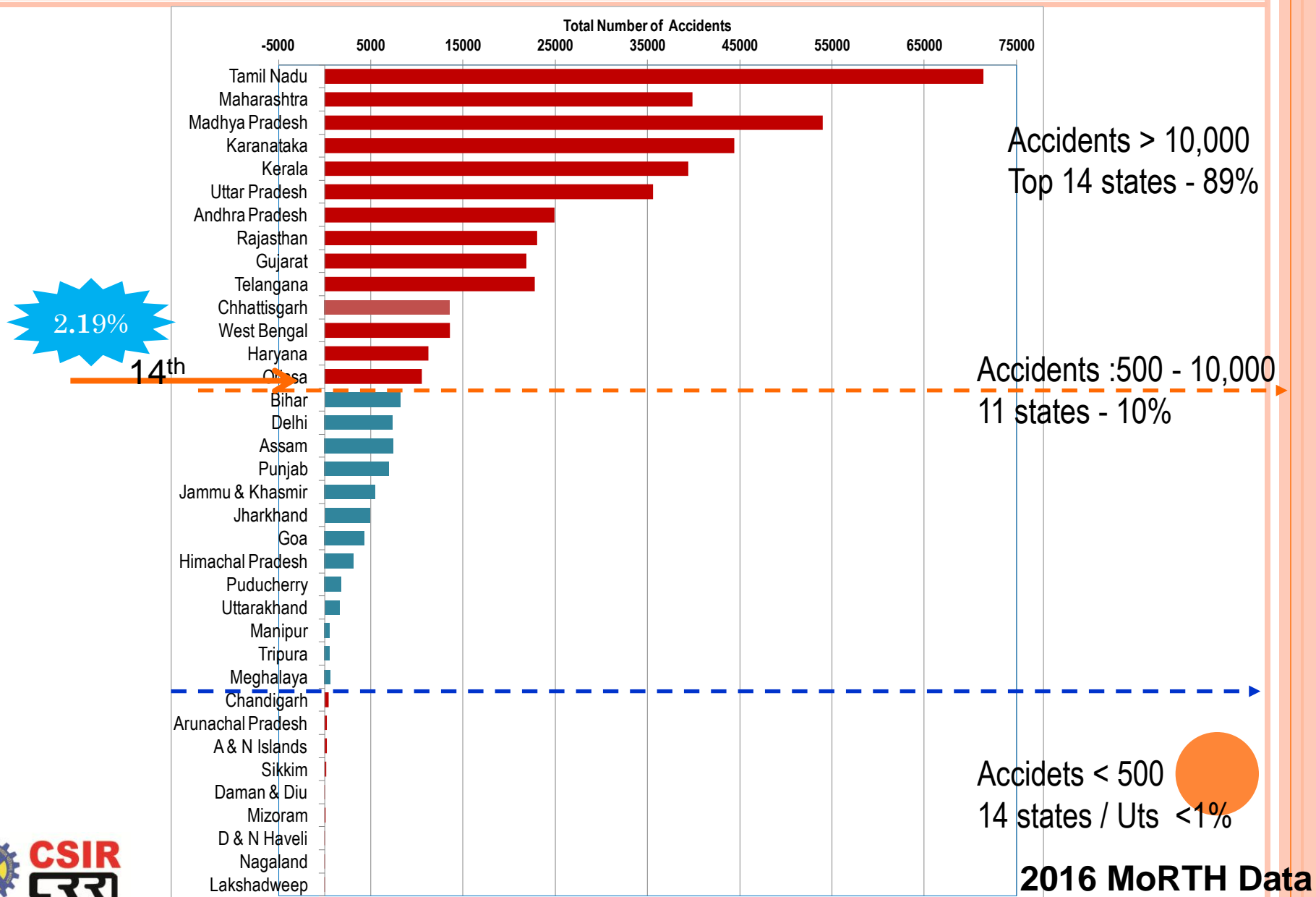


ROAD SAFETY SCENARIO – ACCIDENT SEVERITY INDEX

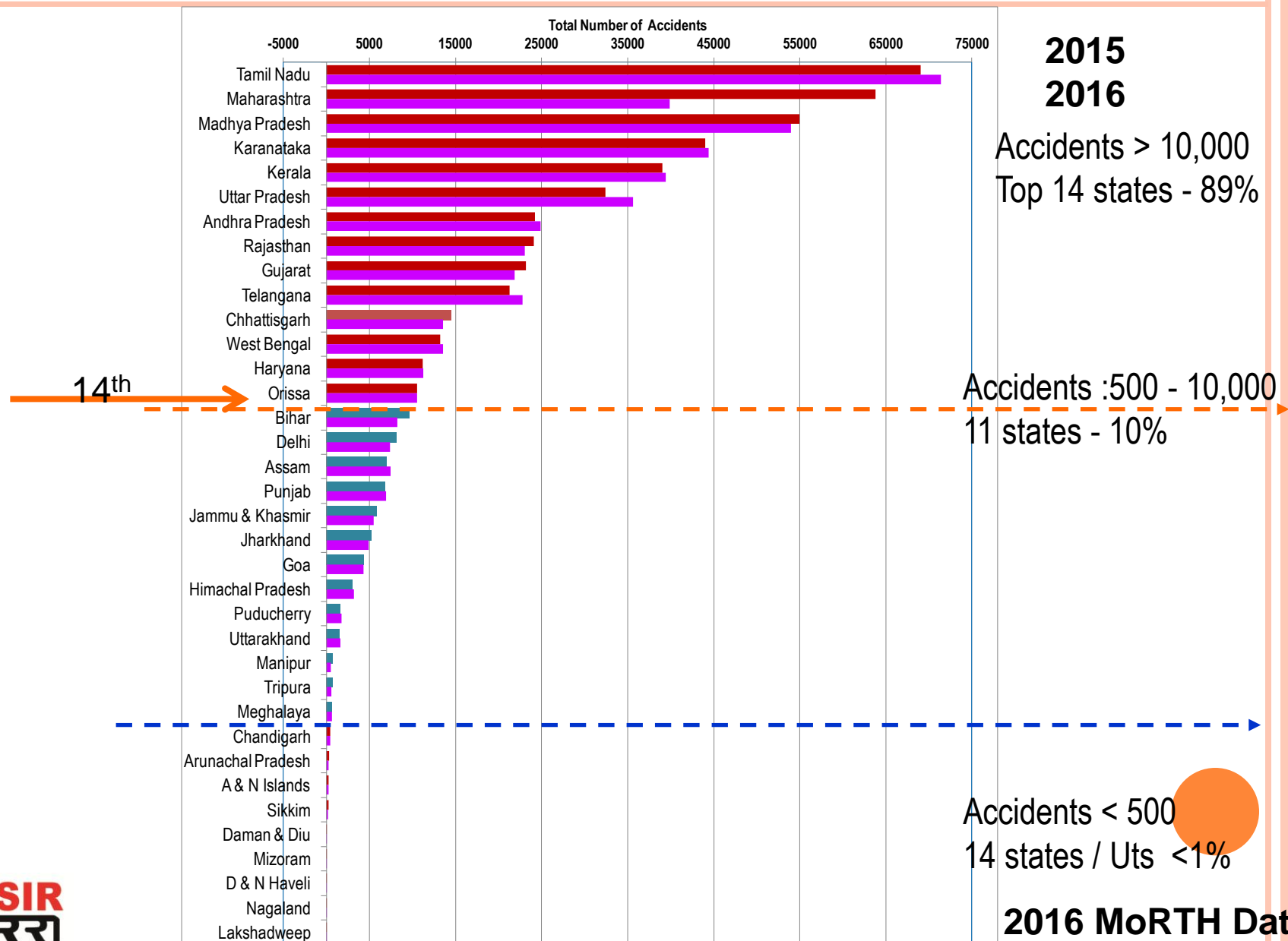
Accident Severity: Tripura and National



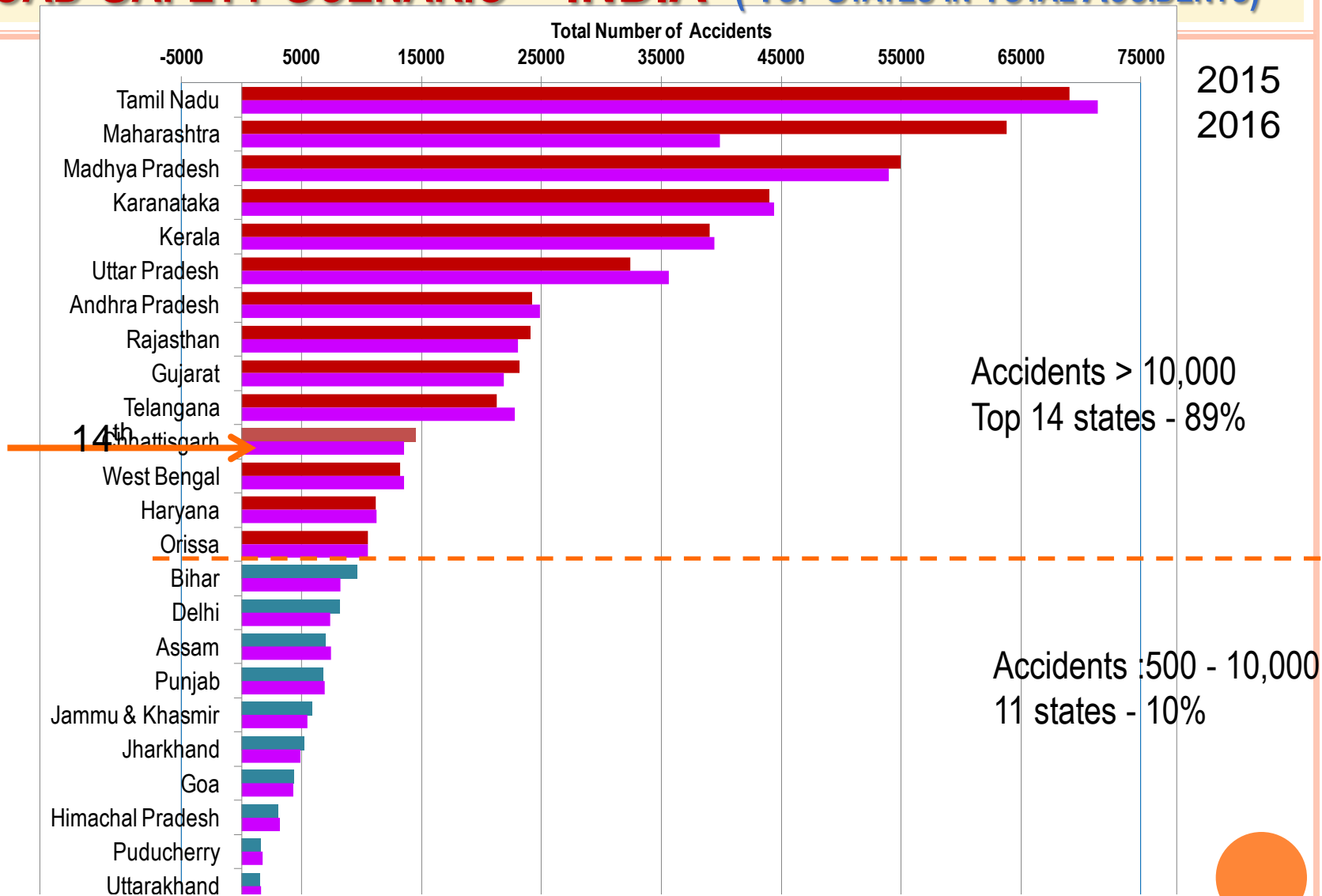
ROAD SAFETY SCENARIO – INDIA (TOP STATES IN TOTAL ACCIDENTS)



ROAD SAFETY SCENARIO – INDIA (TOP STATES IN TOTAL ACCIDENTS)

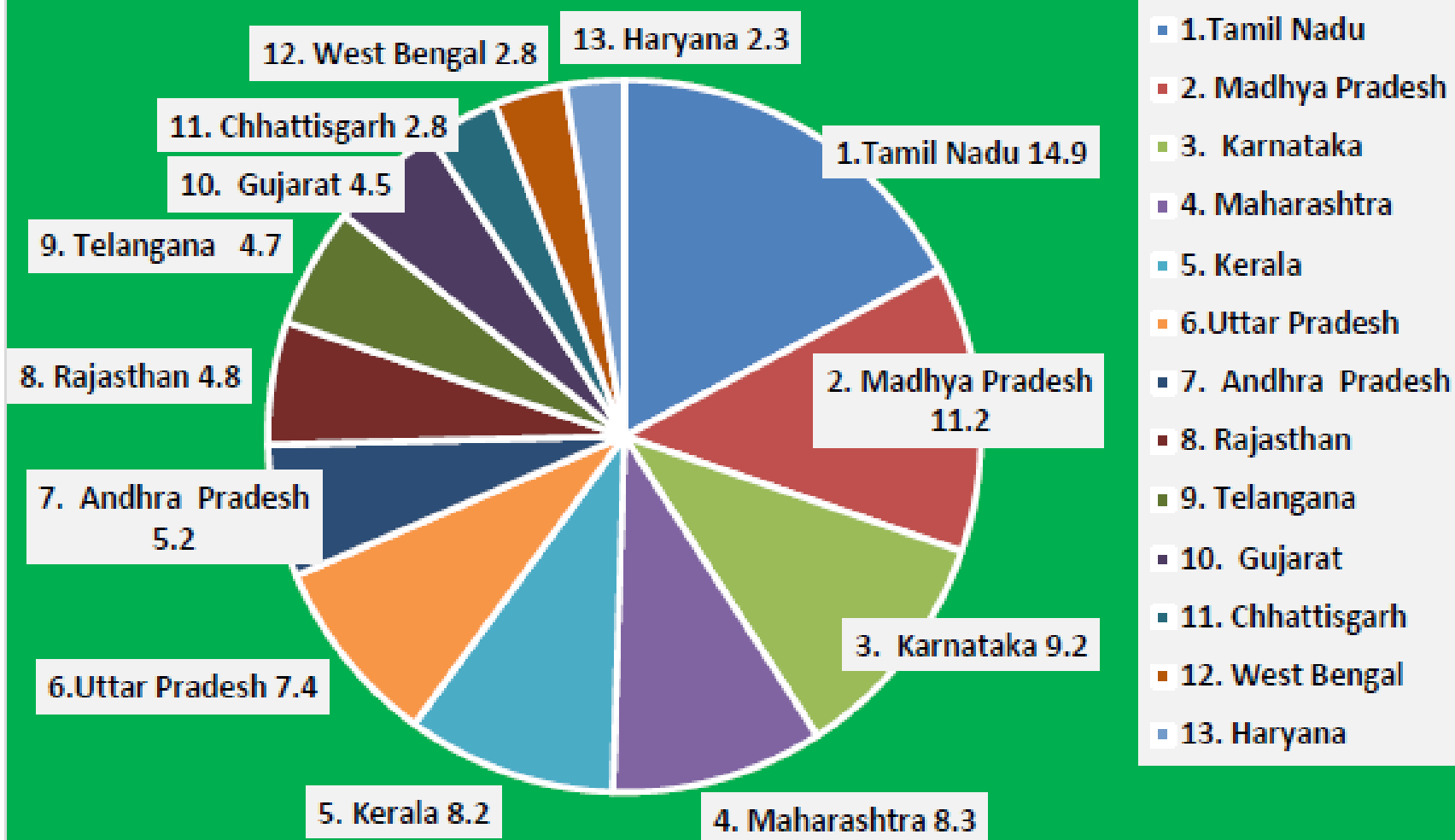


ROAD SAFETY SCENARIO – INDIA (TOP STATES IN TOTAL ACCIDENTS)

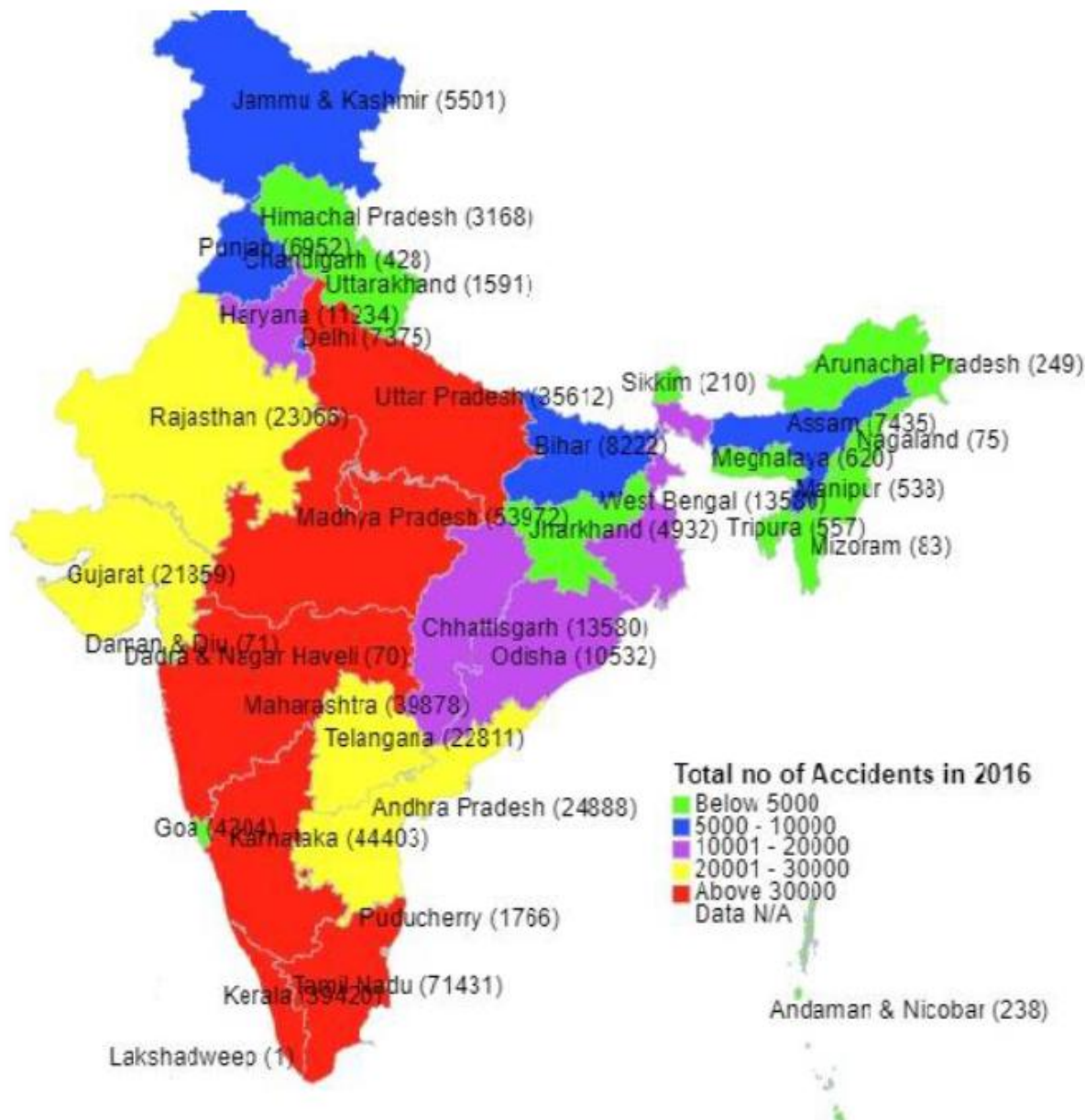


ROAD SAFETY SCENARIO – INDIA (TOP STATES IN TOTAL ACCIDENTS)

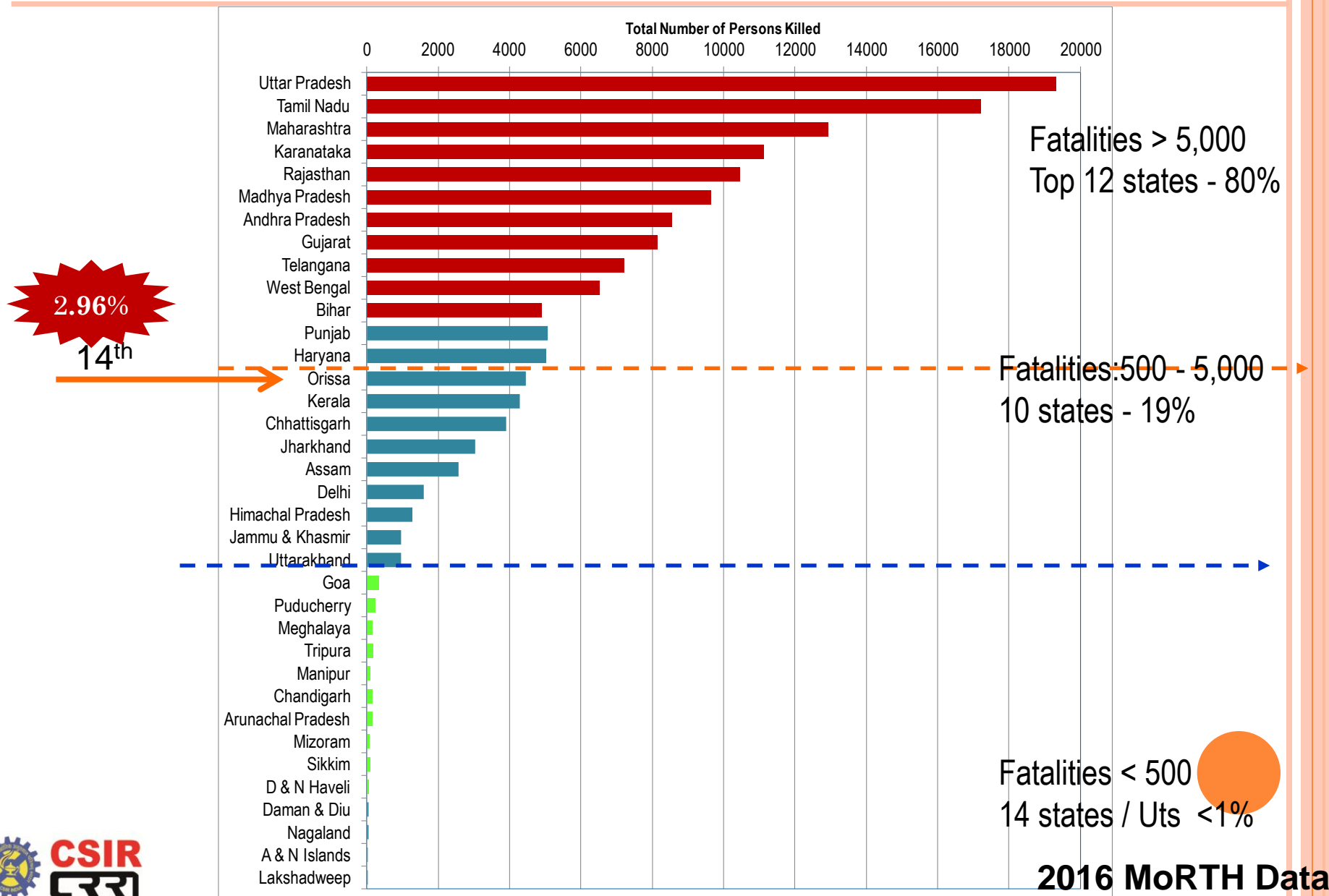
Chart 7.1 : Percentage Share of Top 13 States in Total Number of Road Accidents, 2016



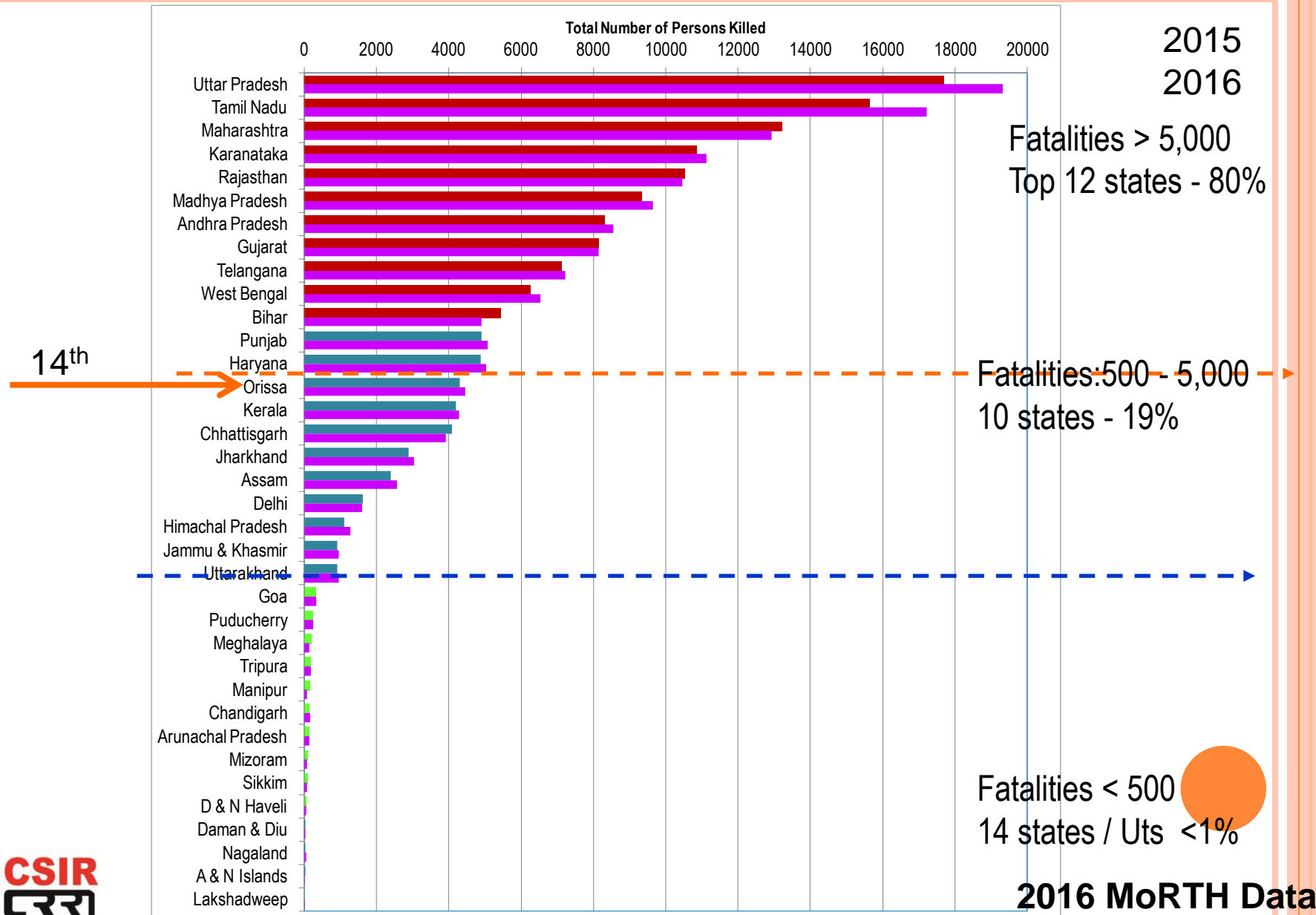
ROAD SAFETY SCENARIO – INDIA (TOP STATES IN TOTAL ACCIDENTS)



ROAD SAFETY SCENARIO – INDIA (TOP STATES IN NO.OF. PERSON KILLED)

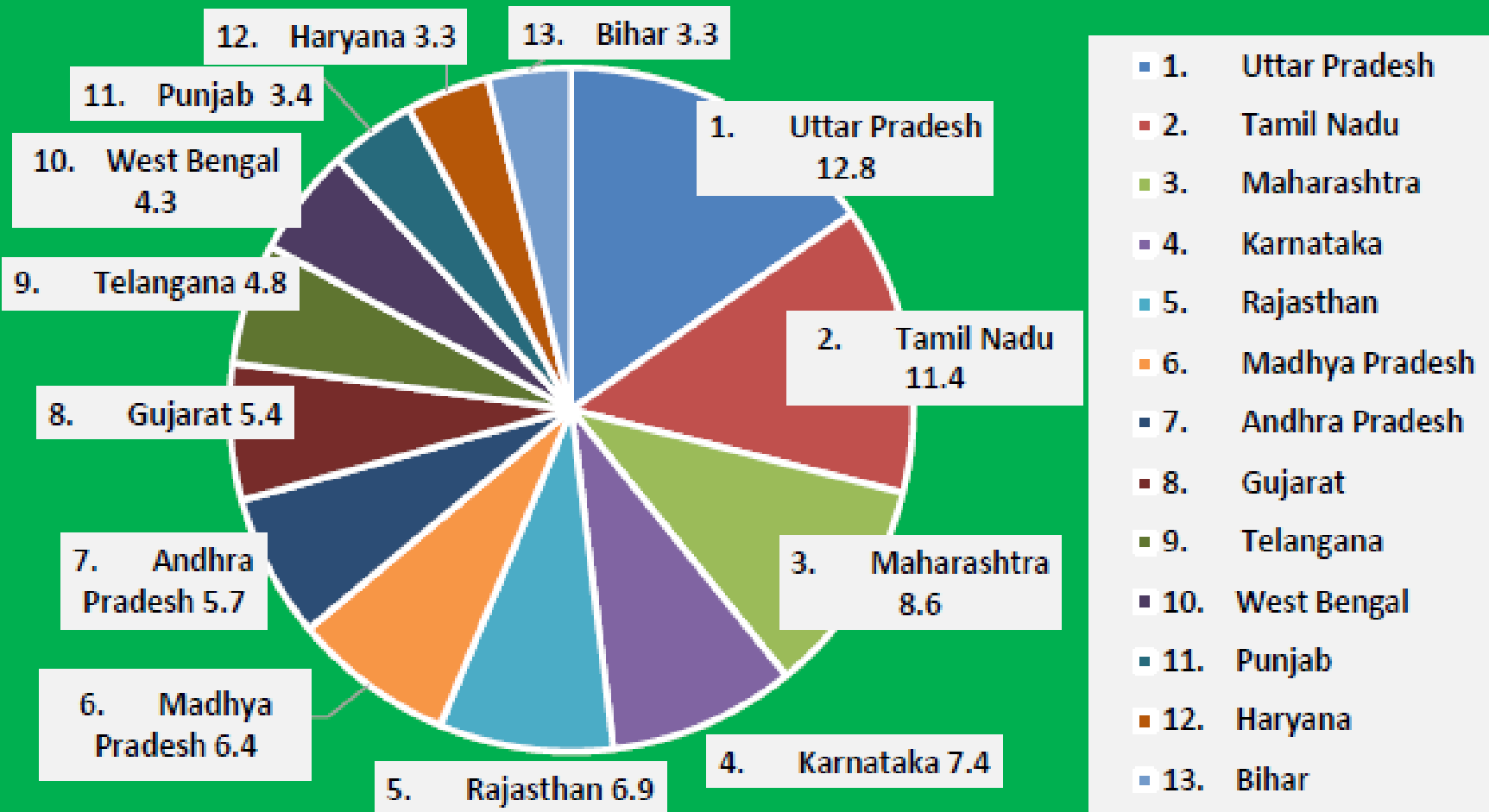


ROAD SAFETY SCENARIO – INDIA (TOP STATES IN NO.OF. PERSON KILLED)



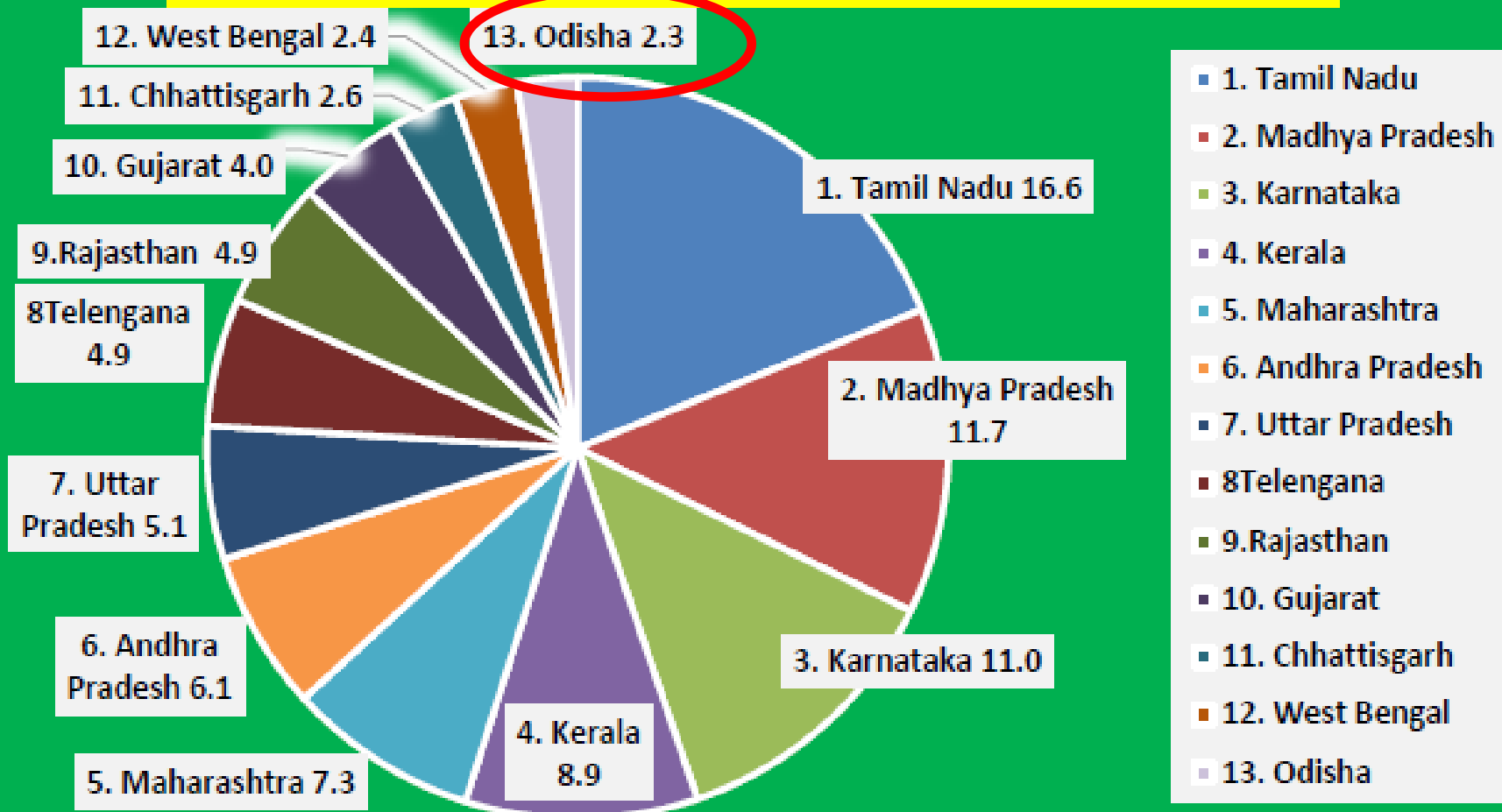
ROAD SAFETY SCENARIO – INDIA (TOP STATES IN NO.OF. PERSON KILLED)

Chart 7.2 : Percentage Share of Top 13 States in Total Number of Persons Killed in Road Accidents, 2016



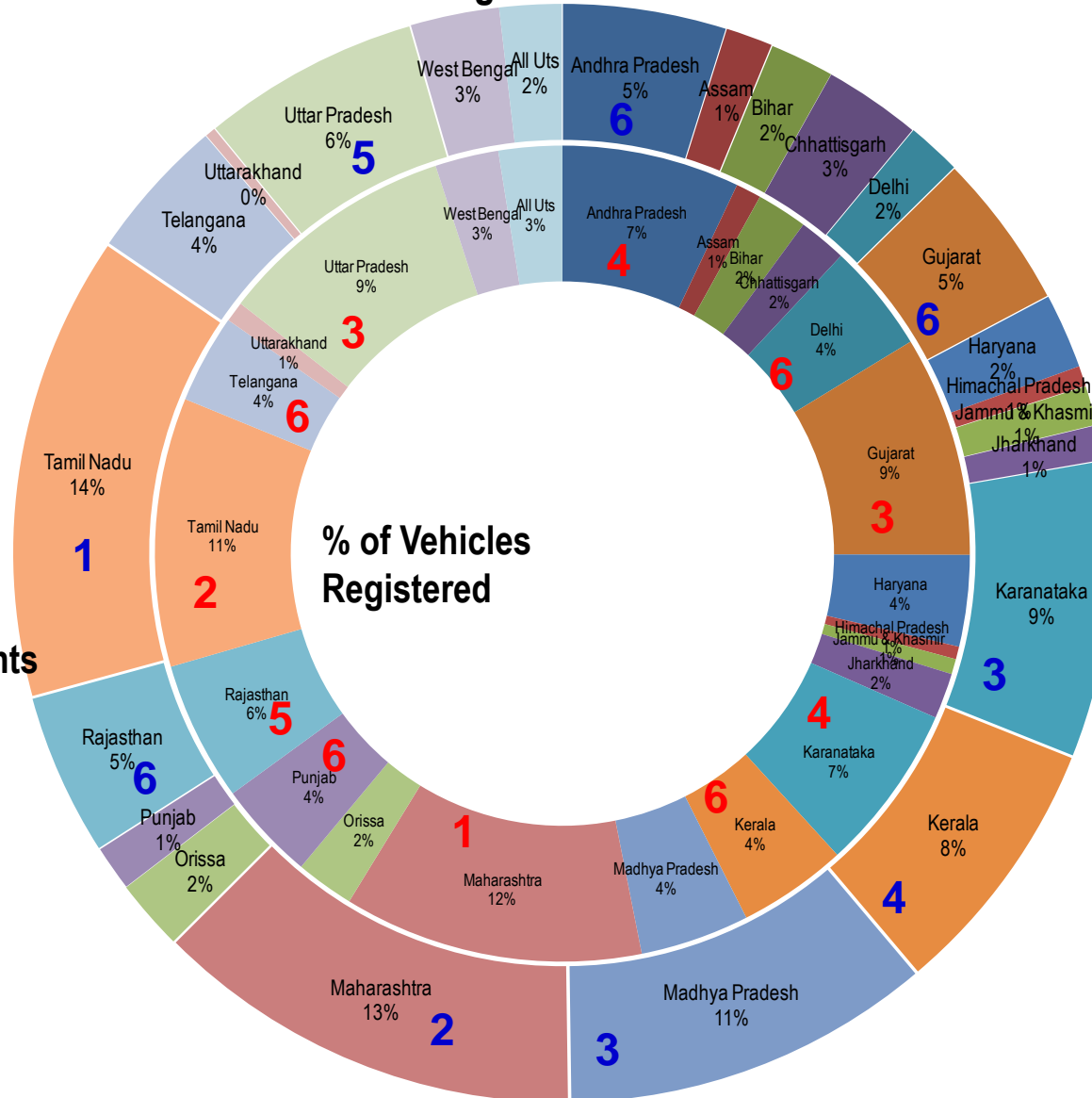
ROAD SAFETY SCENARIO – INDIA (TOP STATES IN NO.OF. PERSON INJURED)

Chart 7.3 : Percentage Share of Top 13 States in Total Number of Persons Injured in Road Accidents, 2016



ROAD SAFETY SCENARIO – INDIA (% OF VEHICLES REGISTERED Vs % ACCIDENTS)

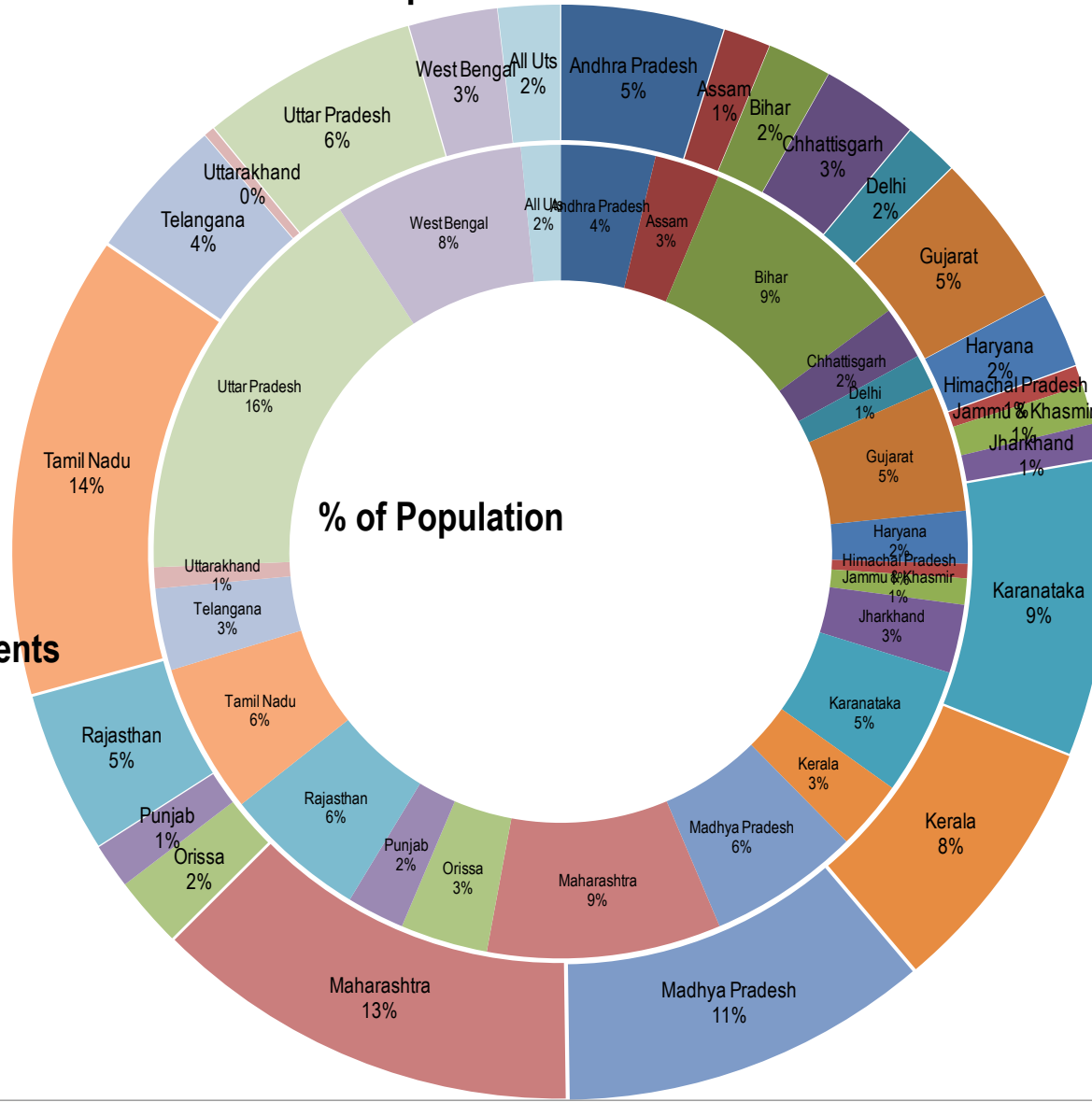
% of Vehicle Registered Vs % Accidents



	% Share Vehicles Registered	% Share of Accidents
A & N Islands	0.0	0.1
Arunachal Pradesh	0.1	0.1
Chandigarh	0.6	0.1
D & N Haveli	0.1	0.0
Daman & Diu	0.1	0.0
Goa	0.5	0.9
Lakshadweep	0.0	0.0
Manipur	0.2	0.1
Meghalaya	0.1	0.1
Mizoram	0.1	0.0
Nagaland	0.2	0.0
Puducherry	0.4	0.3
Sikkim	0.0	0.0
Tripura	0.1	0.1
	2.5	1.8

ROAD SAFETY SCENARIO – INDIA (% OF POPULATION Vs % ACCIDENTS)

% of Population Vs % Accidents

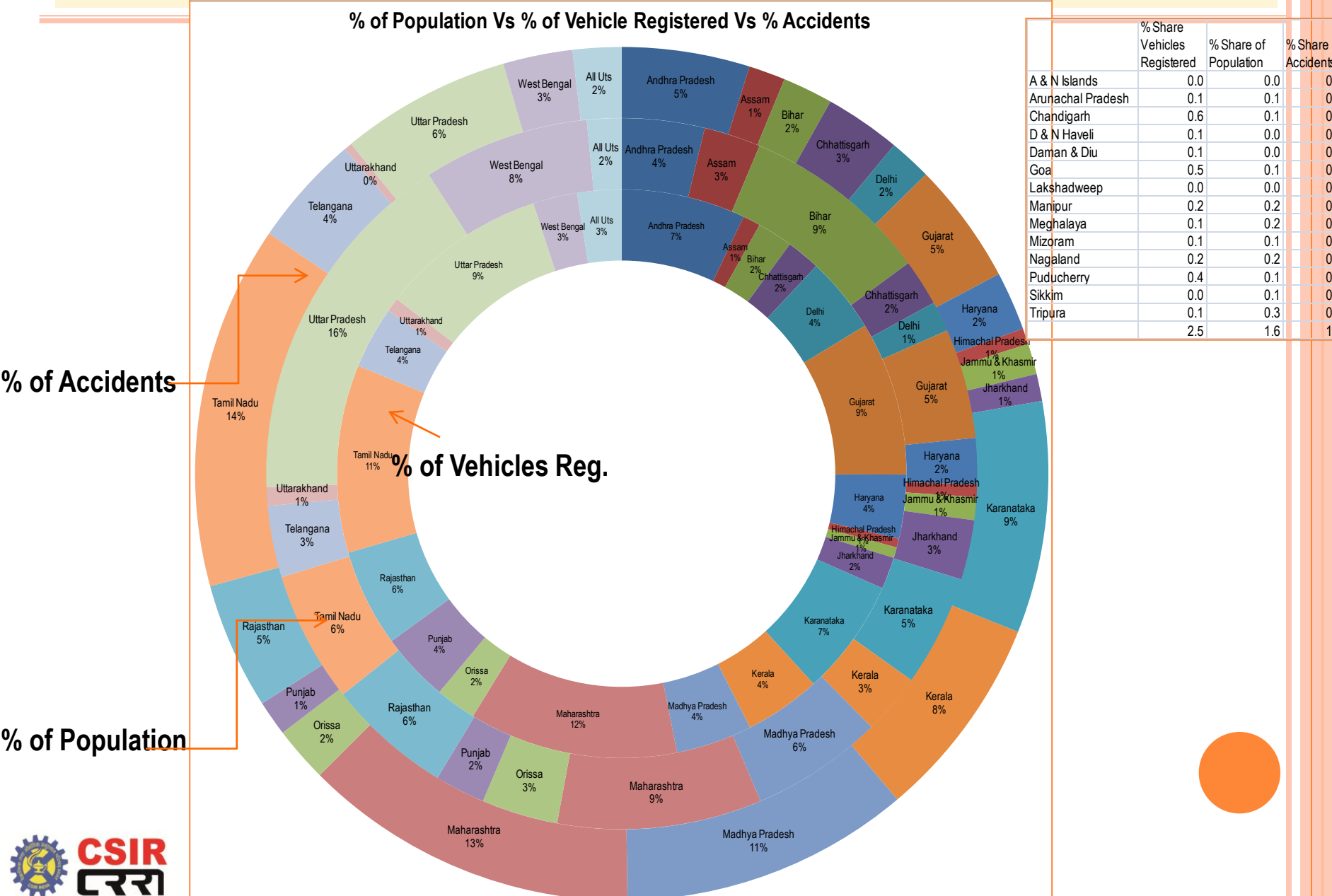


	% Share of Population	% Share of Accidents
A & N Islands	0.0	0.1
Arunachal Pradesh	0.1	0.1
Chandigarh	0.1	0.1
D & N Haveli	0.0	0.0
Daman & Diu	0.0	0.0
Goa	0.1	0.9
Lakshadweep	0.0	0.0
Manipur	0.2	0.1
Meghalaya	0.2	0.1
Mizoram	0.1	0.0
Nagaland	0.2	0.0
Puducherry	0.1	0.3
Sikkim	0.1	0.0
Tripura	0.3	0.1
	1.6	1.8

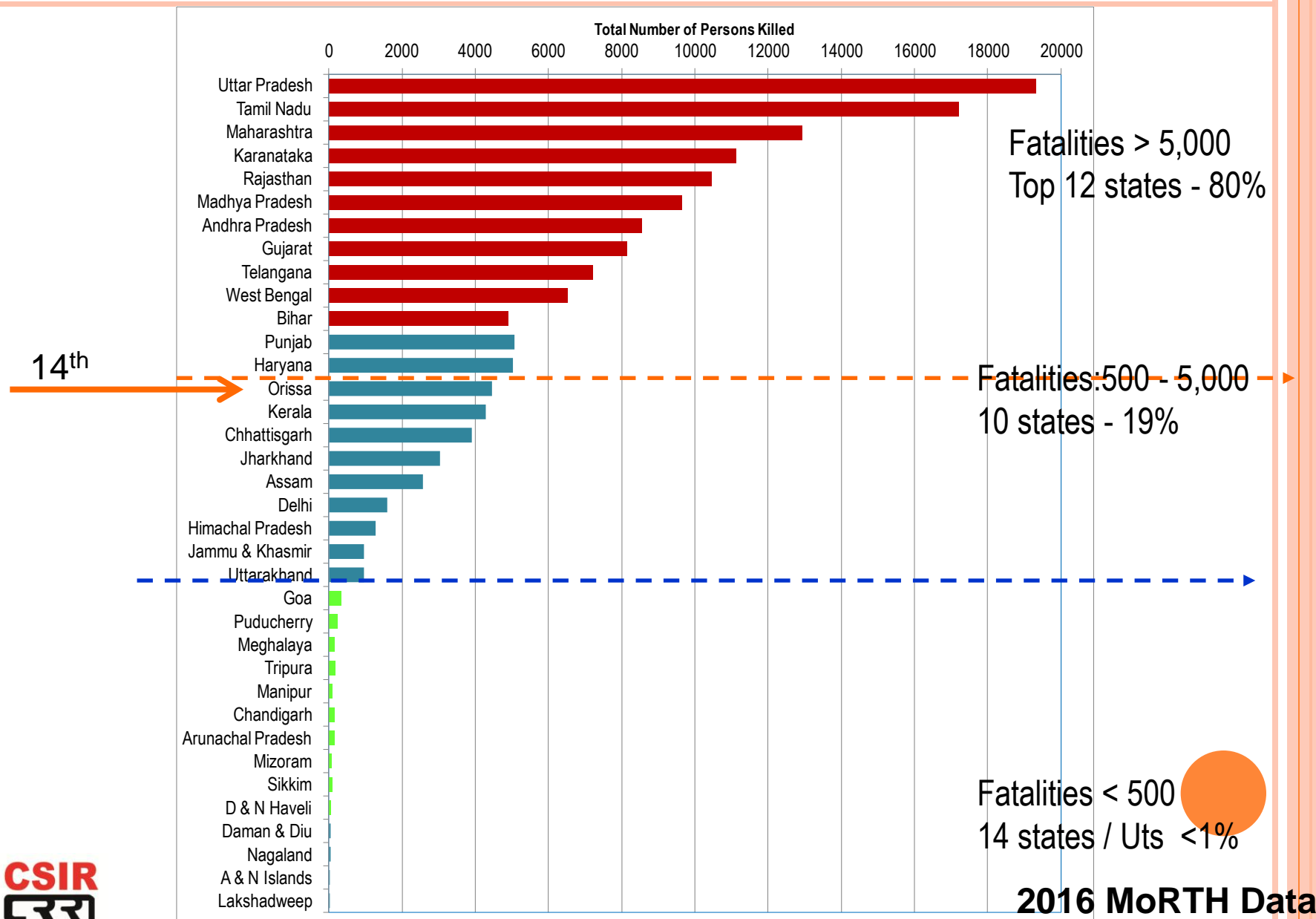
% of Accidents



ROAD SAFETY SCENARIO – INDIA (% OF VEHICLES REGISTERED Vs % POPULATION Vs % ACCIDENTS)



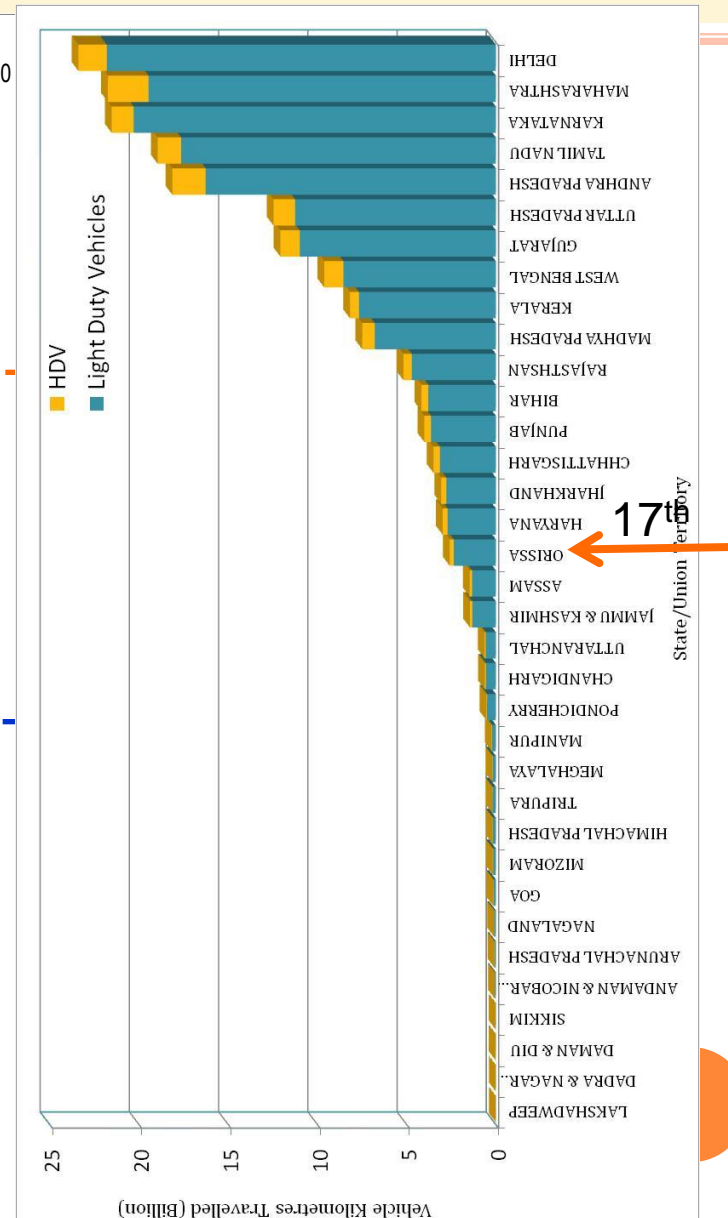
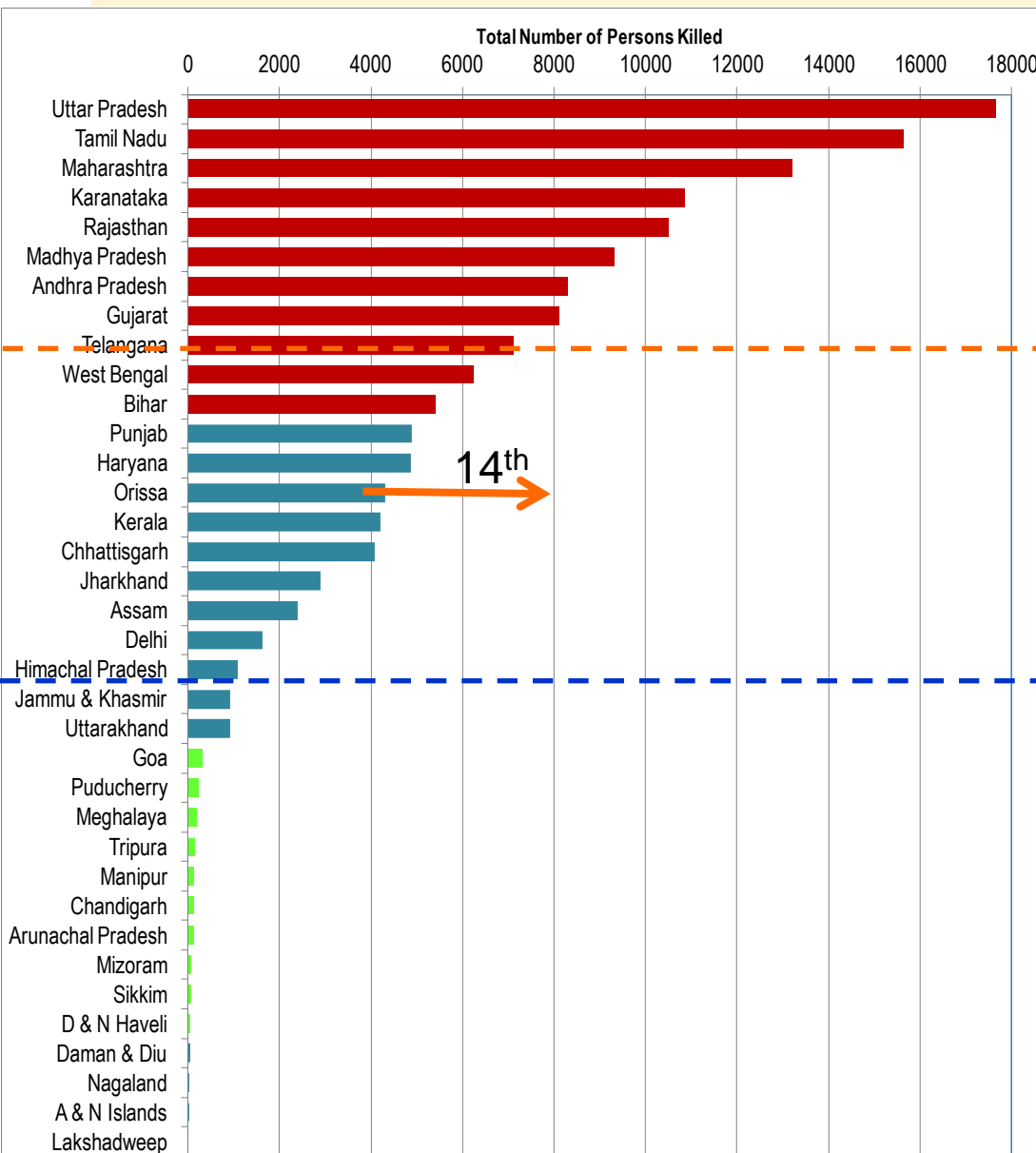
ROAD SAFETY SCENARIO – INDIA (TOP STATES IN NO.OF. PERSON KILLED)



ROAD SAFETY SCENARIO IN INDIA:

ROAD CRASHES

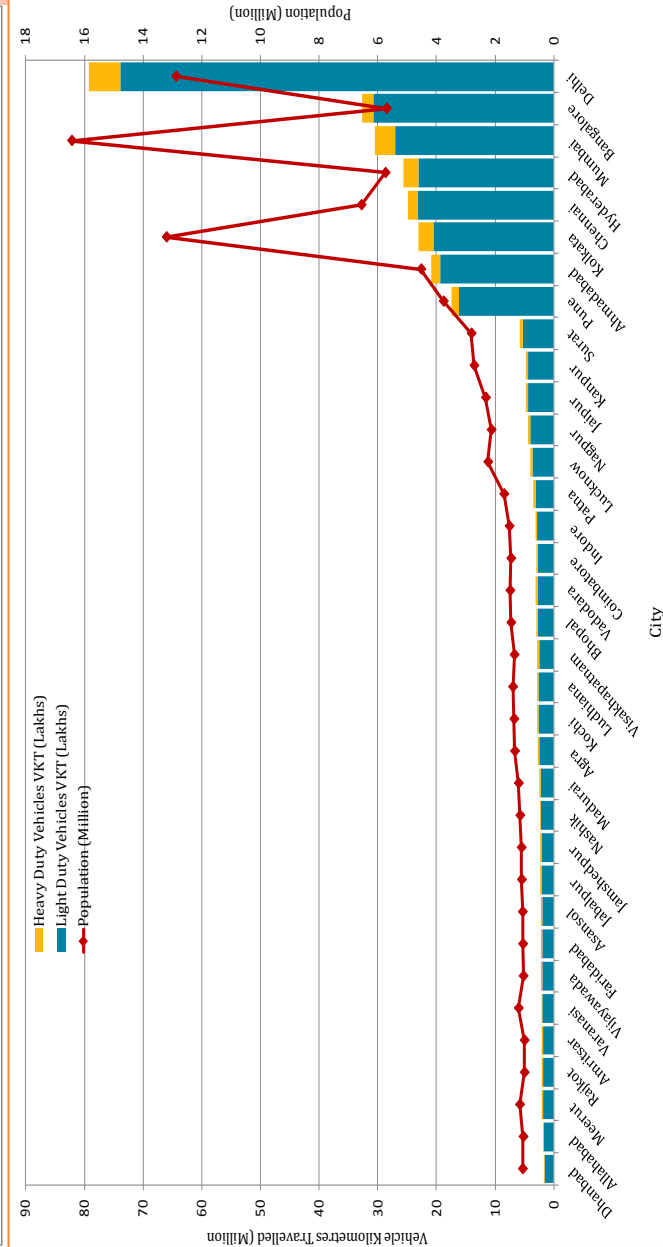
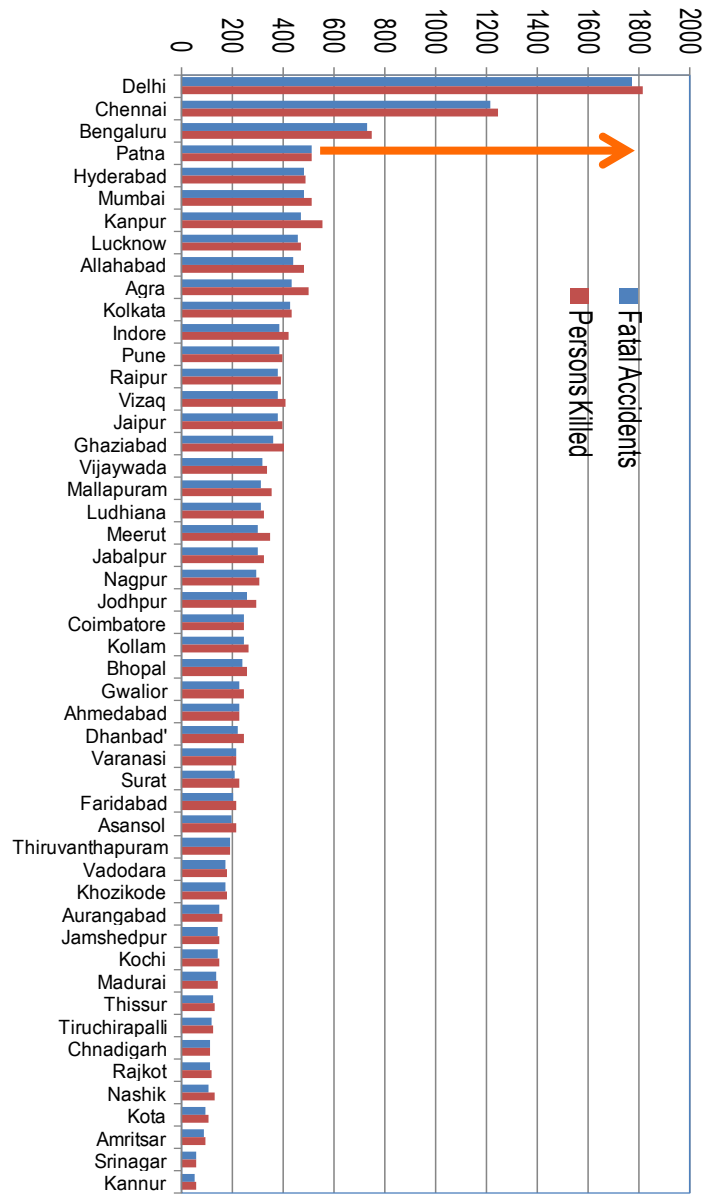
VS. VEHICLE KILOMETER TRAVELLED



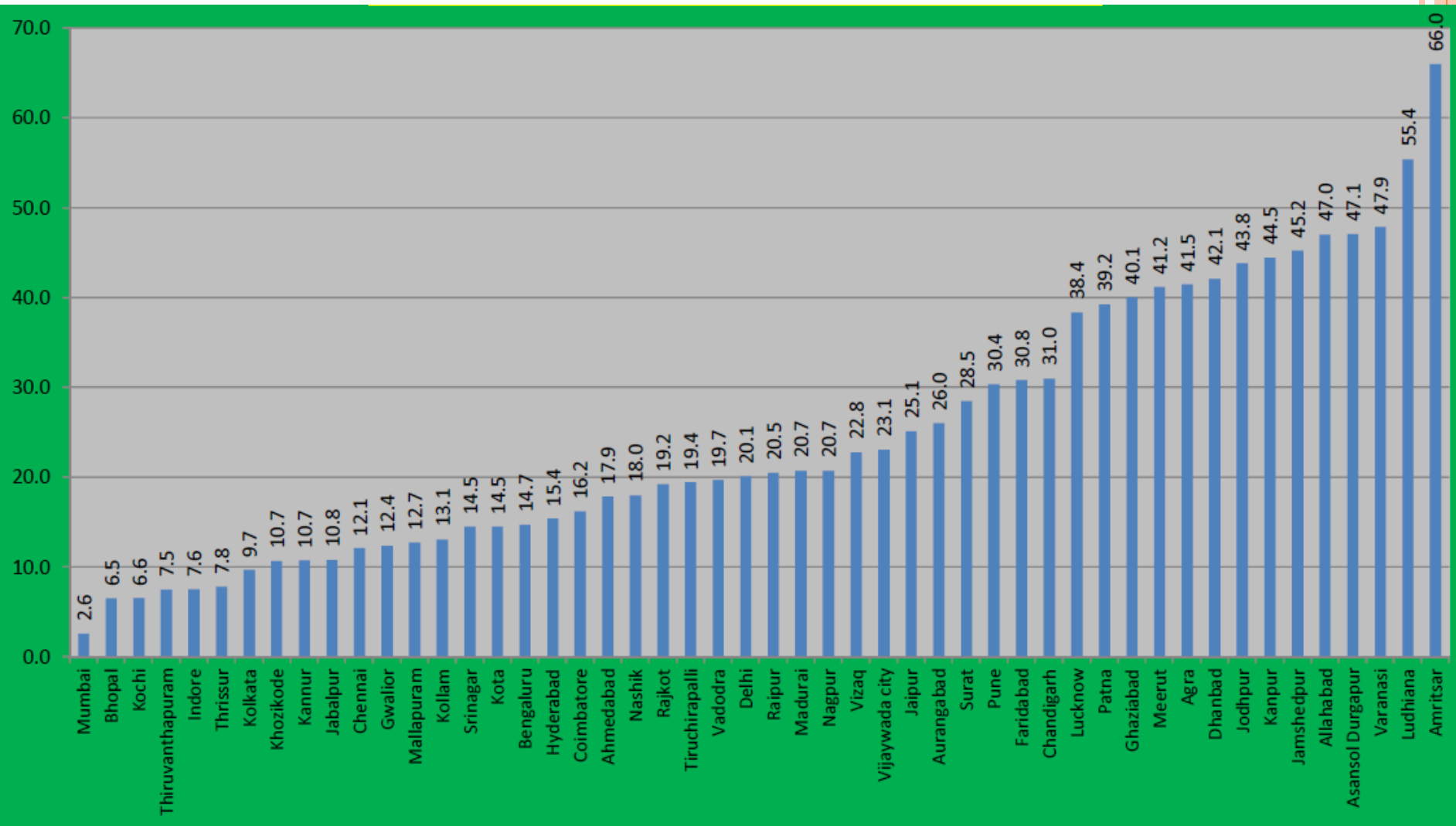
ROAD SAFETY SCENARIO - INDIA IN MILLION PLUS CITIES

ROAD CRASHES

VS. VEHICLE KILOMETER TRAVELLED

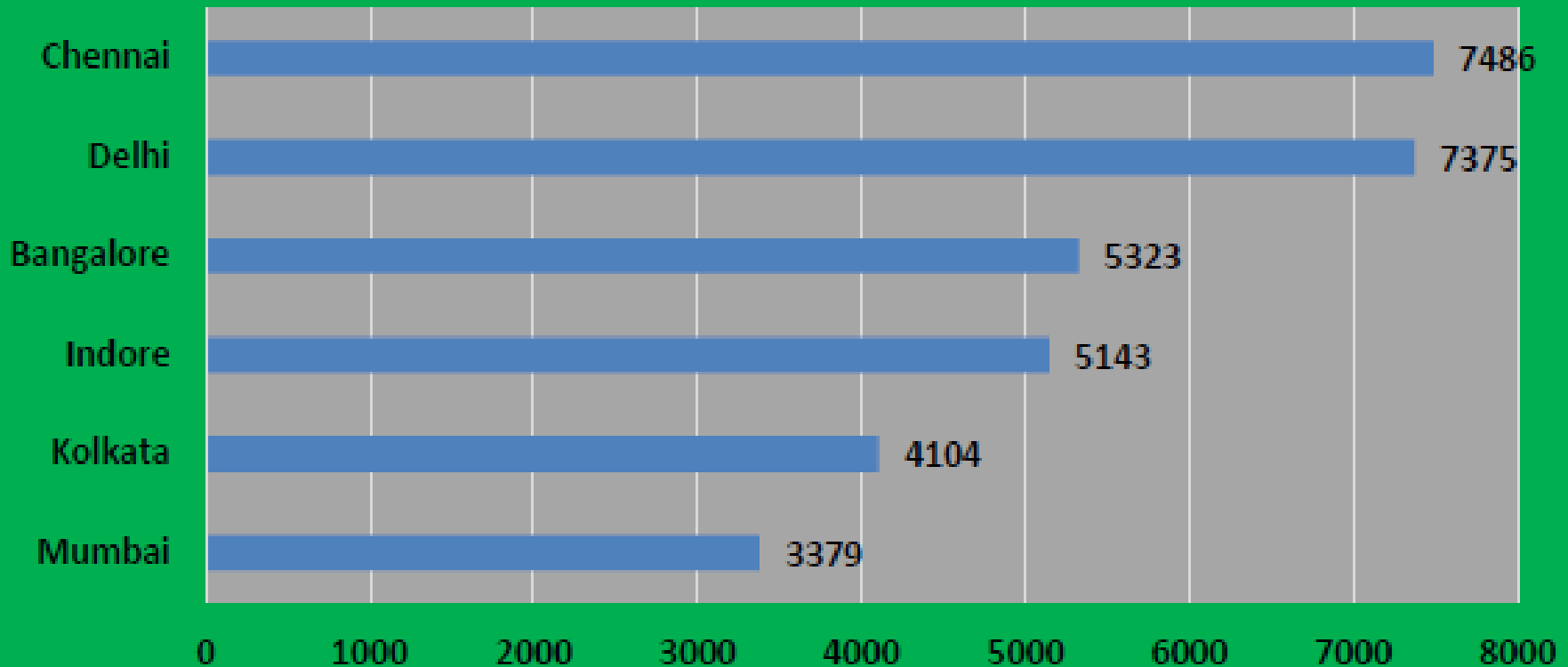


ROAD SAFETY SCENARIO – INDIA – MILLION PLUS CITIES



ROAD SAFETY SCENARIO – INDIA –TOP 5 MILLION PLUS CITIES

Chart 8.1 Top Five Cities with Higher Road Accidents



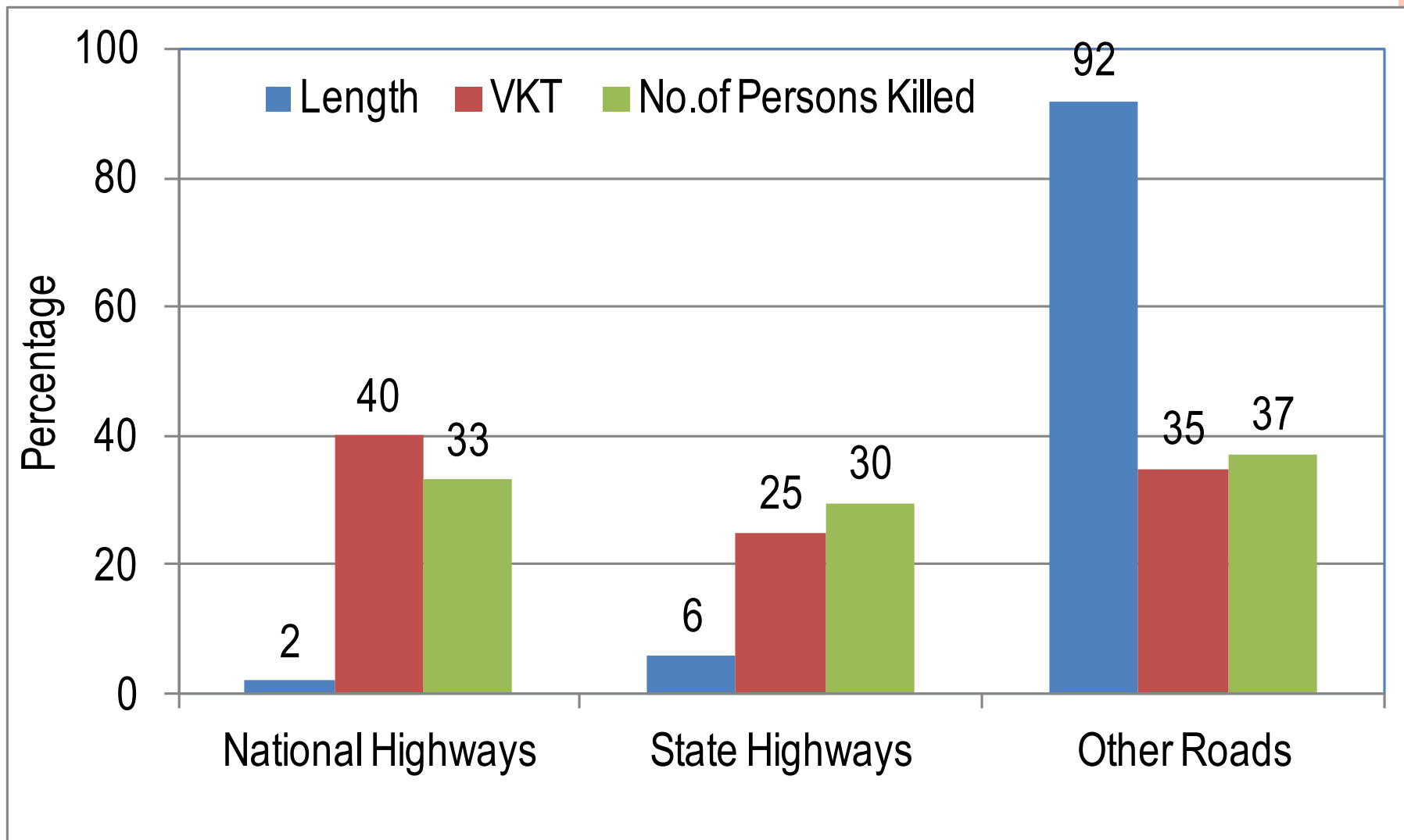
ROAD SAFETY SCENARIO – INDIA –TOP MILLION PLUS CITIES



DIP IN DEATHS IN DELHI IN 2016

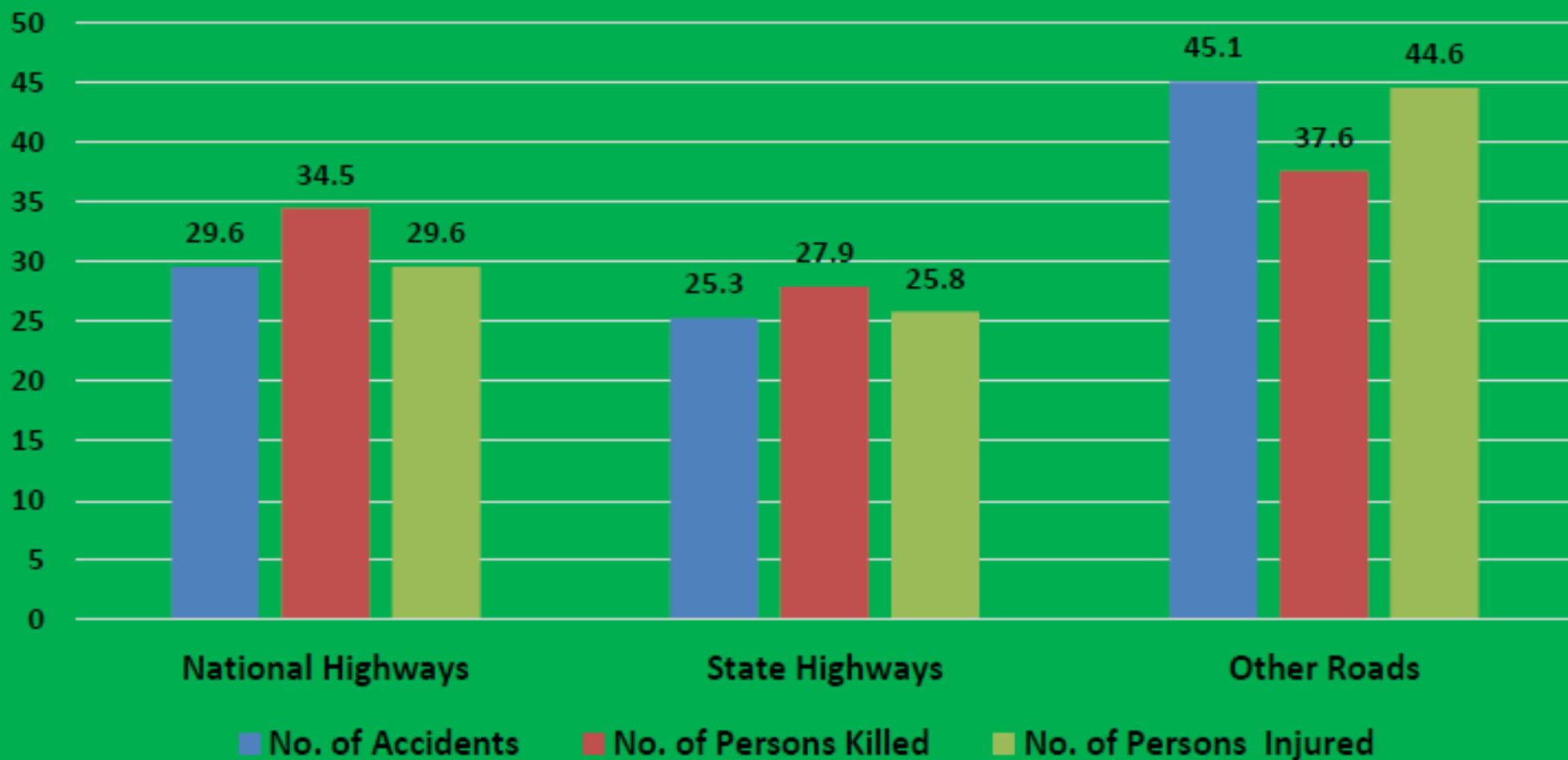
City	Accidents		Death		Severity	
	2016	2015	2016	2015	2016	2015
Delhi	↓ 7,375	8,085	↓ 1,591	1,622	↑ 21.6	20.1
Chennai	↑ 7,486	7,328	↑ 1,183	886	↑ 15.8	12.1
Jaipur	↑ 3,004	1,894	↑ 890	476	↑ 29.6	25.1
Bangalore	↑ 5,323	4,834	↑ 835	713	↑ 15.7	14.7
Kanpur	↓ 1,451	1,496	↑ 684	665	↑ 47.1	44.5
Mumbai	↑ 24,639	23,468	↓ 562	611	↓ 2.3	2.6
50 million-plus cities	↓ 89,835	1,11,024	↑ 17,797	16,513	↑ 19.8	14.9

ROAD SAFETY SCENARIO – INDIA – ROAD LENGTH WISE



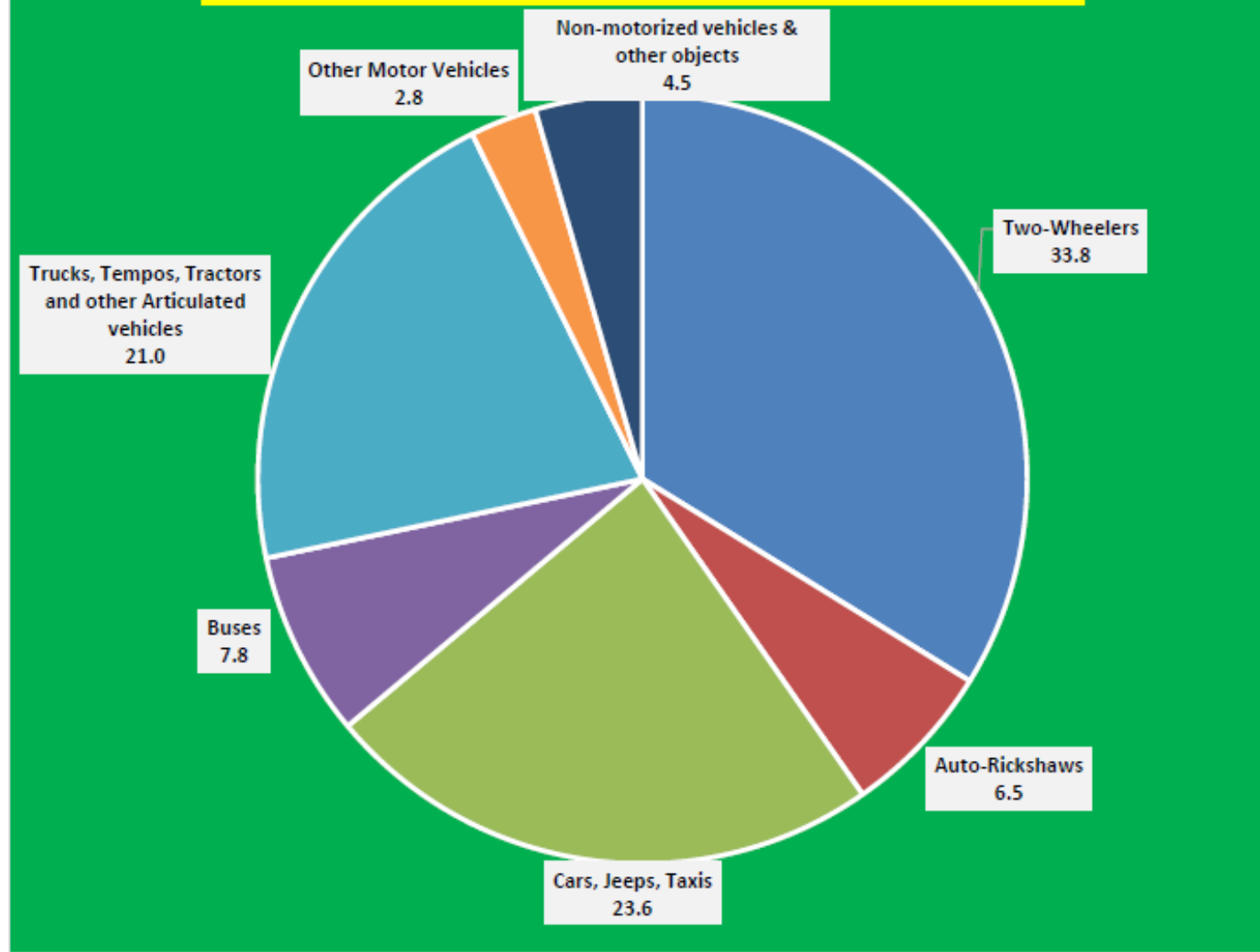
ROAD SAFETY SCENARIO – INDIA – ROAD LENGTH WISE

Chart 3.1: Share of Accidents, Persons killed & Injured as per Road Category (2016)



ROAD SAFETY SCENARIO – INDIA

Chart 4.1 : Share in Total Road Accidents by Type of Motor Vehicle Involved : 2016



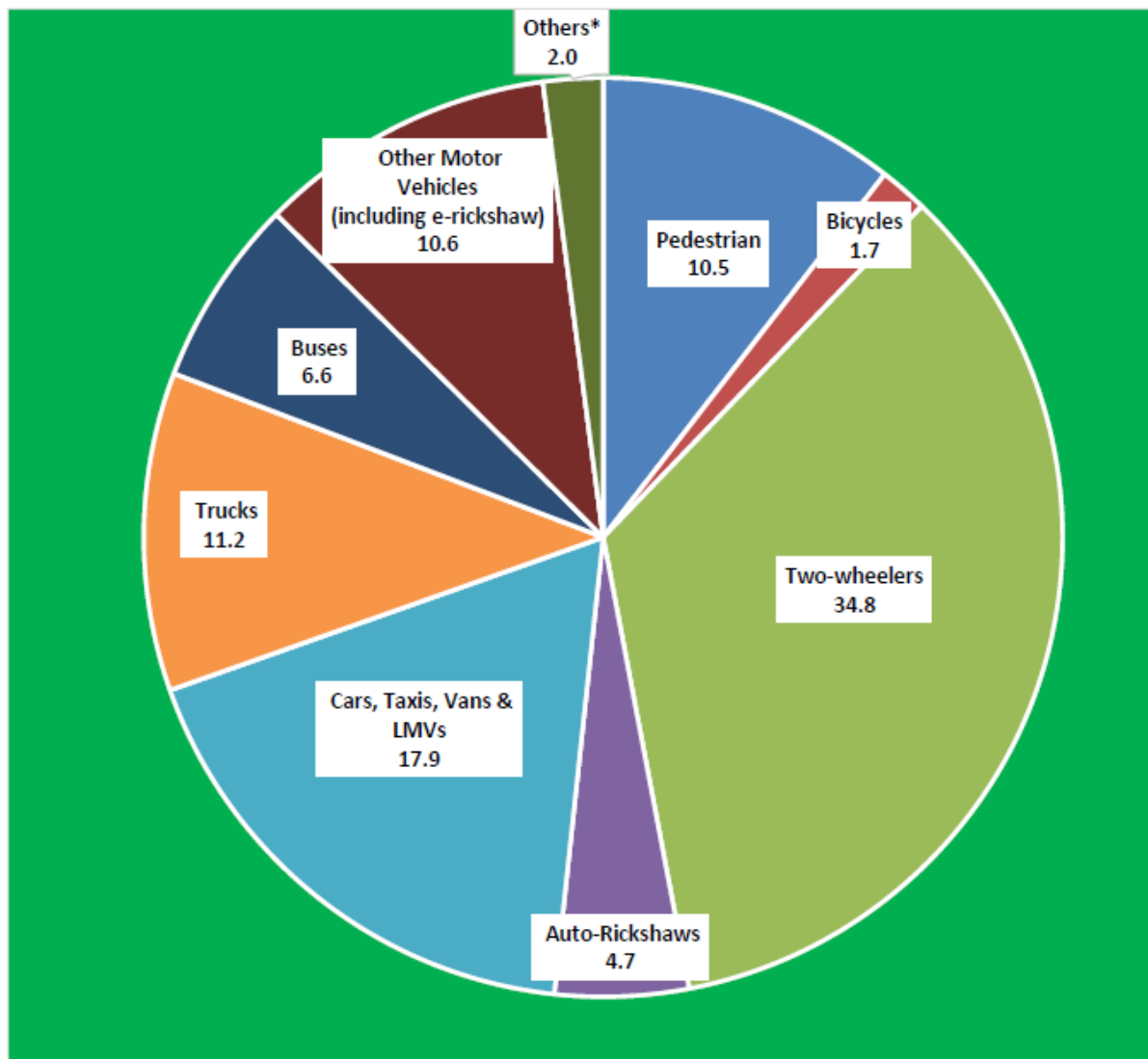
ROAD SAFETY SCENARIO – INDIA

Chart 4.2 : Share in accidents based on age of the vehicles (2016)



ROAD SAFETY SCENARIO – INDIA

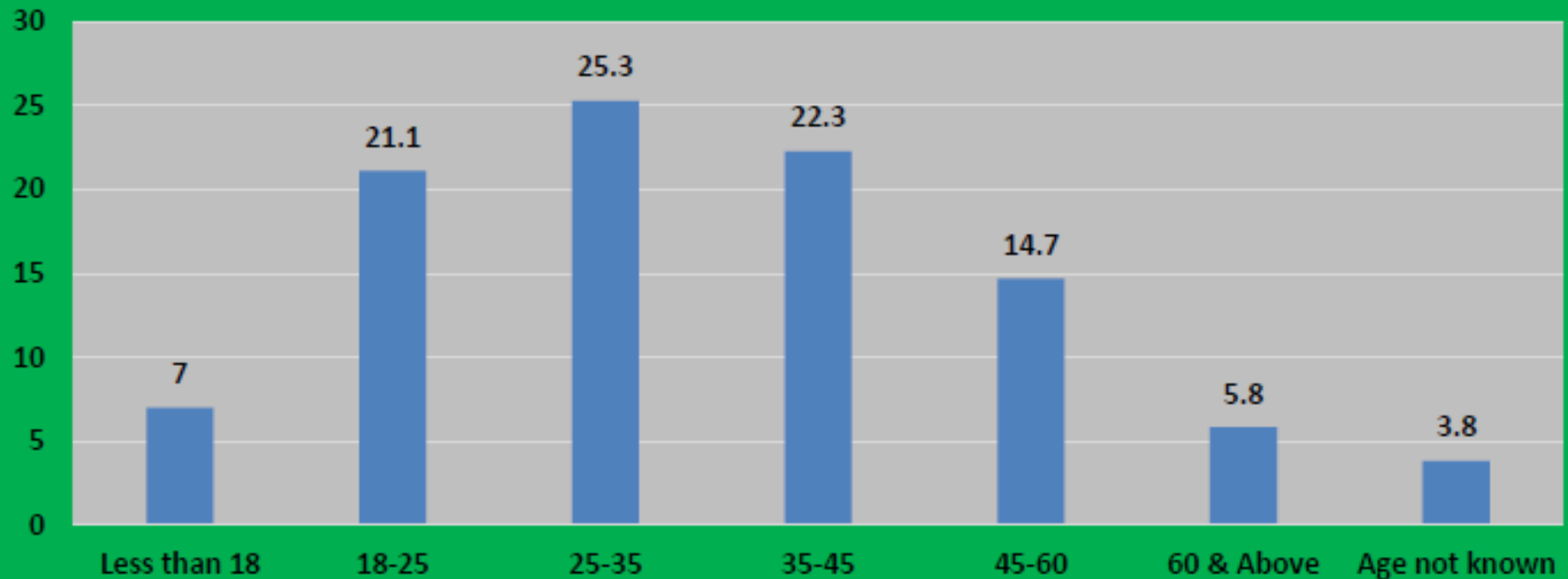
Chart 5.1 : Share of Total Number of Persons Killed in Road Accidents in terms of Road User Categories: 2016



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

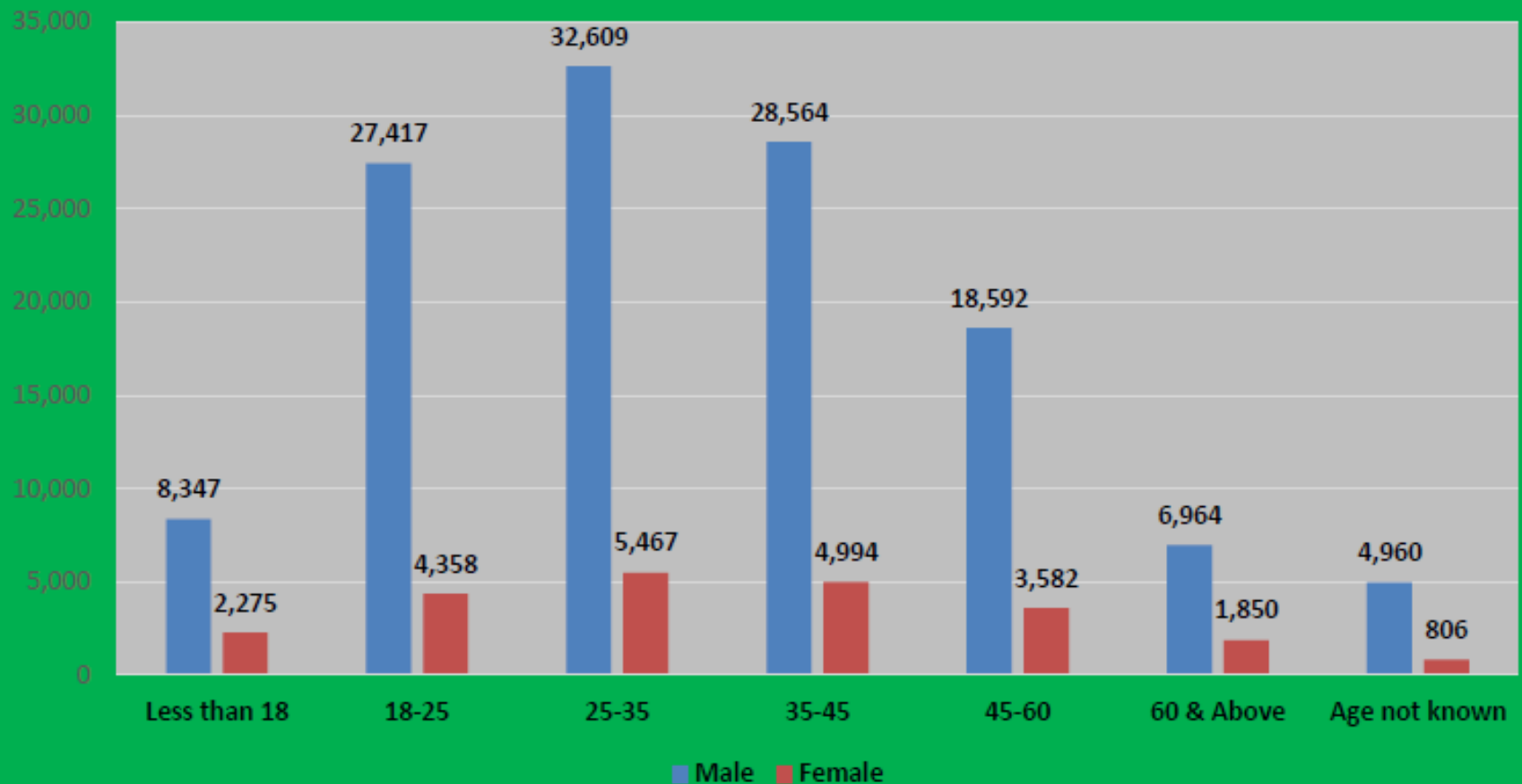
ROAD SAFETY SCENARIO – INDIA

Chart 5.2 : Percentage share of Road Accident Victims as per age profile
(Passengers as well as drivers)



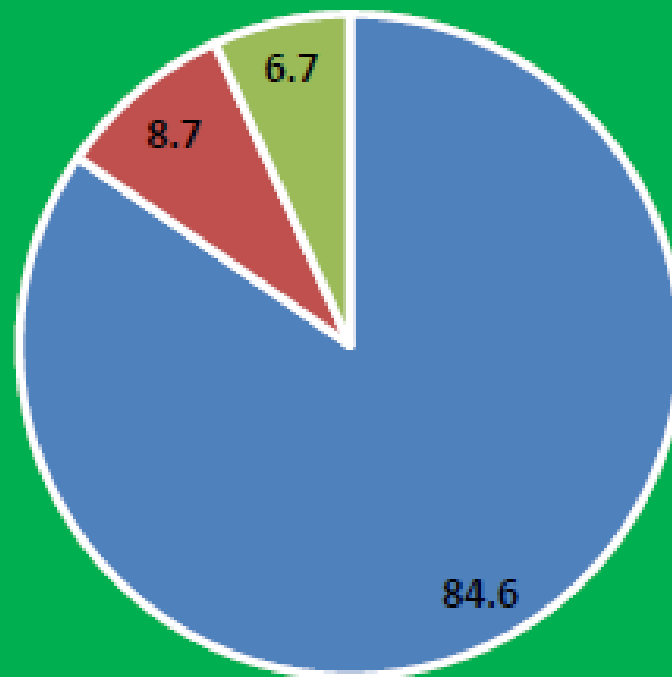
ROAD SAFETY SCENARIO – INDIA

Chart 5.3 : Age wise number of Persons killed in Road Accidents during the calendar year 2016



ROAD SAFETY SCENARIO – INDIA

Chart 6.1 : Share of Road Accidents based on Type of Licence holders during 2016



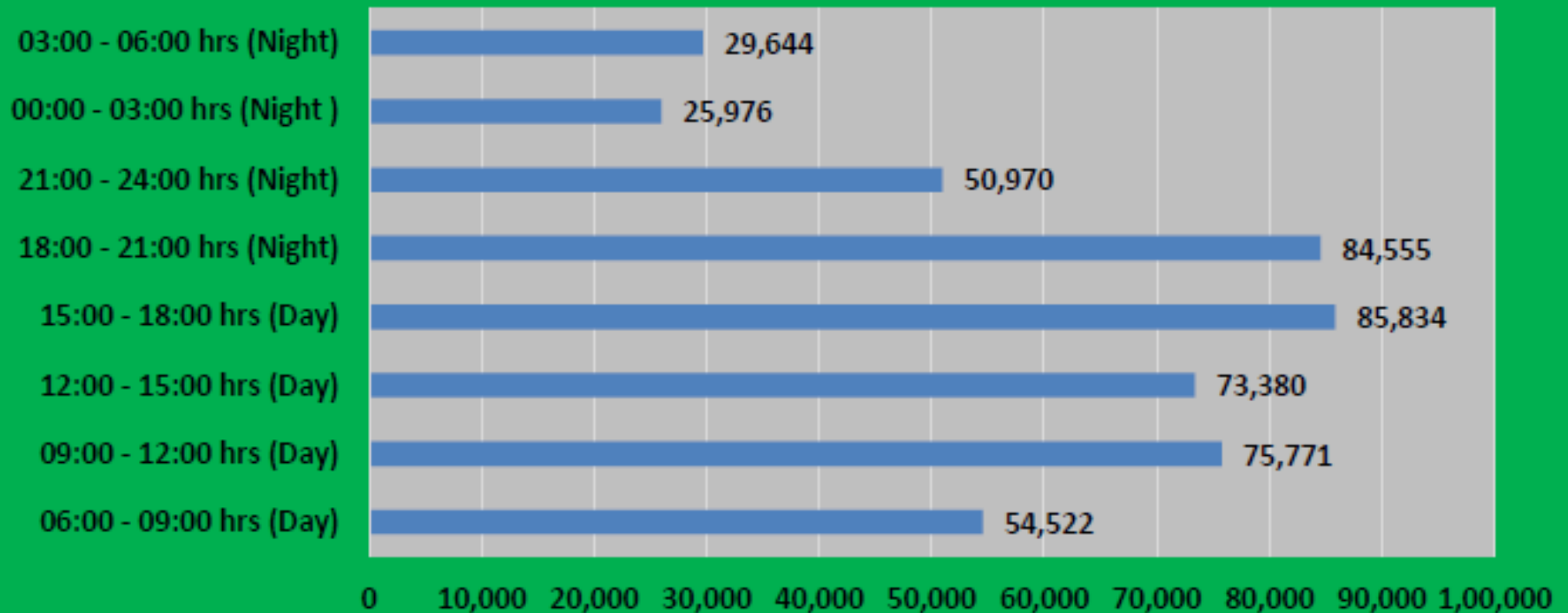
■ Regular Licence

■ Learner's Licence

■ Without Licence

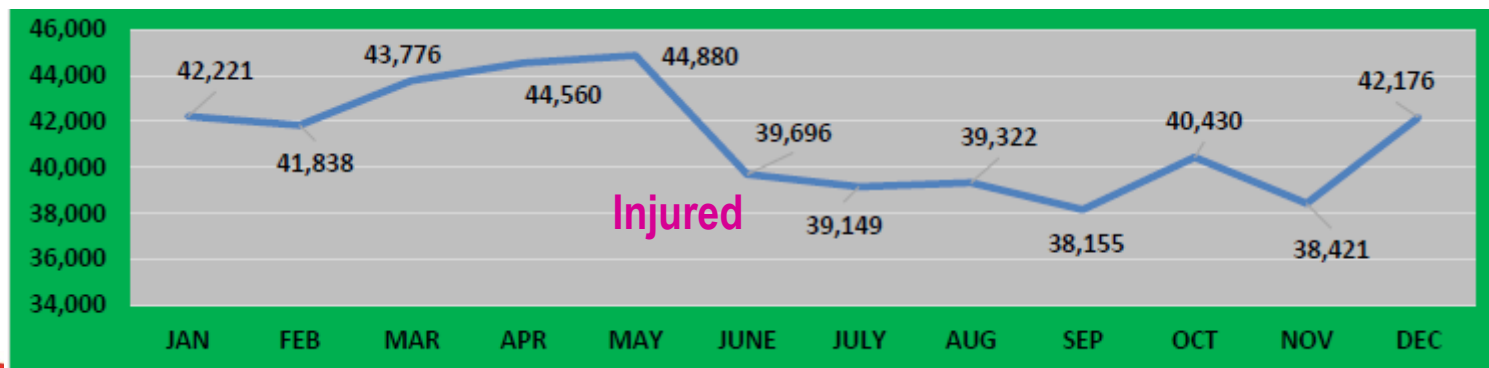
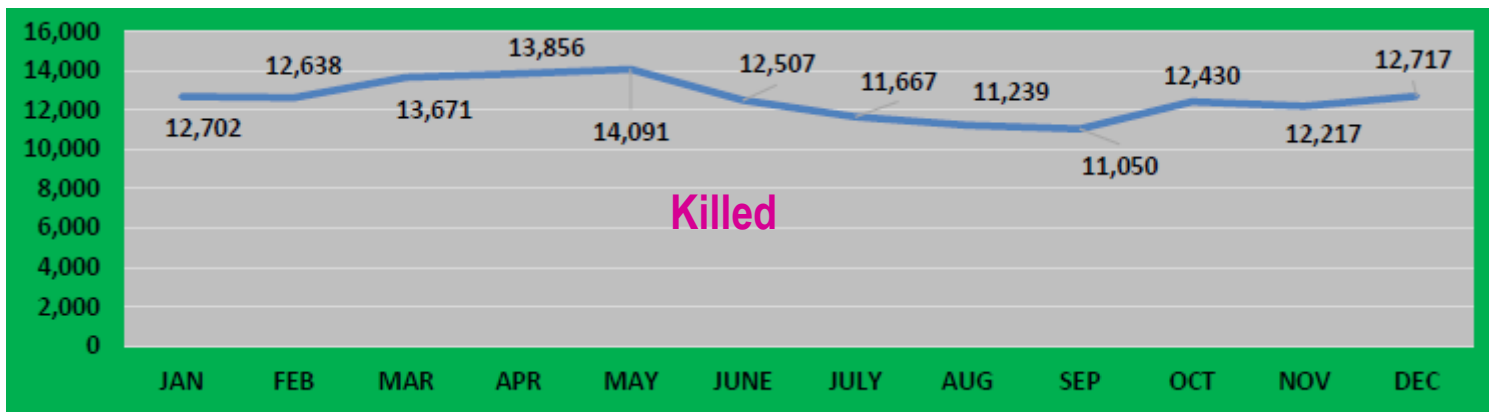
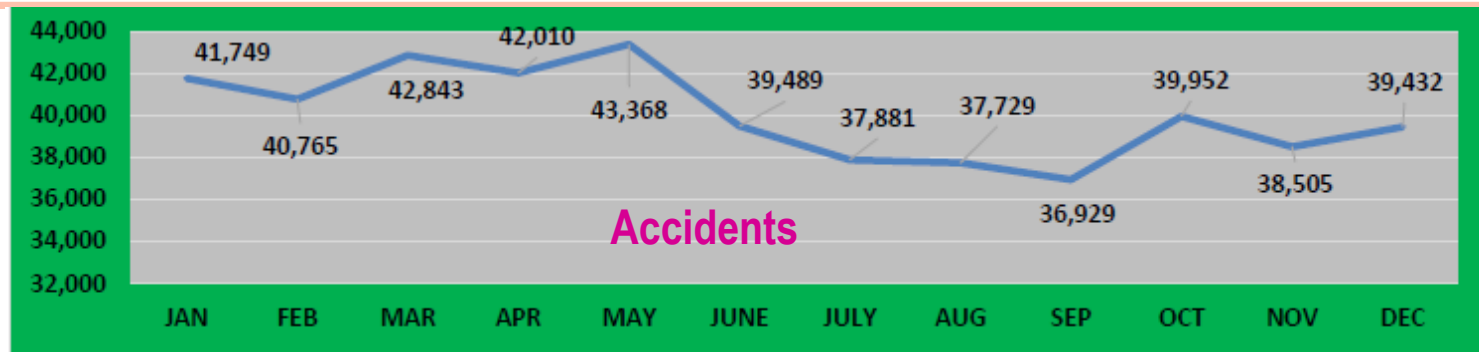
ROAD SAFETY SCENARIO – INDIA

Chart 9.5 : Distribution of Total Number of Road Accidents as per Time of Occurrence: 2016



Time of Occurrence of Road Accidents

ROAD SAFETY SCENARIO – INDIA – MONTH WISE



ROAD SAFETY SCENARIO – INDIA

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)

ROAD SAFETY SCENARIO -

- Odisha ranked the **14th highest** in the total number of road accidents (**10,532**) in the country in 2016, with a share of **2.19** per cent. The number of road accidents in Odisha slightly **decreased from 11,825 in 2015 to 10,532 in 2016**.
- Odisha ranked the **14th highest** in the number of persons killed in the country in 2016 accounting about 2.96% (**42.4** Accident Severity Index).

ROAD SAFETY MEASURES - INDIA

- *Safety Consultant Appointed for all Road Projects*
- *Road Safety Cell, NHAI has initiated Road Safety activities with World Bank loan*
- *Accident Data Collection from PIUs of NHAI on Daily/Monthly basis*
- *Issue of policy circular on work zone Safety and Engineering Measures to various PIUs*
- *Road Safety Public Education on all 4 arms of GQ*
- *Organizing various Work Shops /Seminars on Road Safety and Work Zone Safety including workers safety*
- *Road Safety Audits – Design Stage, Construction Stage, Pre-Opening stage and OM Stage*
- *New Bill on Road Transport & Safety Bill 2015 (Draft)*
- *Hon'ble Supreme Court Committee to Monitor Road Accidents*

Ministry of Road Transport & Highways, Government of India
September 13, 2014



CONCLUSIONS

- The pace of **legislative change is too slow**: increase adoption of comprehensive laws.
- Enforcement of **strong road safety laws** is essential for success and should be coupled with **public awareness**.
- **Reducing road traffic** deaths requires more consideration of the **needs of pedestrians, cyclists & motorcyclists**.
- Also need to **make infrastructure safer**, implement crash testing standards, as well as improve post-crash care and road safety databases.



CONCLUSIONS

- **Safety hazards as result** of short falls in the compatibility of **Road - Vehicle –Road User Systems-**
- The Vehicle safety is improved recently with the advancement of Vehicle Technology
- Improvement in **Road User skill and behavior can** be achieved through driver training and public education and enforcement campaigns.
- **Engineering safety of Roads** can be enhanced through **Roads Safety Audits**
- **Road Safety Action Plan- Conduct more problematic roads Road Safety Audit, get acquit some engineers further to train some other Engineers**



Thank You

