



REPORT
OF
INTERNATIONAL CONFERENCE
ON

“ROAD SAFETY SCENARIO IN INDIA
AND WAY FORWARD”

Held on 29th – 30th November, 2014, New Delhi, India

Organized By

INDIAN ROADS CONGRESS
(under the aegis of Ministry of Road Transport & Highways)



Organizing Partners:



<https://irc.gov.in>



THE INTERNATIONAL CONFERENCE ON “ROAD SAFETY SCENARIO IN INDIA AND WAY FORWARD”

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EXECUTIVE SUMMARY AND RECOMMENDATIONS

India has one of the largest road networks in the world, of 4.699 million kilometers, consisting of 96,214 km National Highways, 1,47,800 km State Highways and 44,55,000 km District/Village roads. About 65% of freight and 85% of passenger traffic is carried by the roads. Motor vehicle population has recorded Compound Annual Growth Rate (CAGR) of close to 11%. Roads are used not only by the motorized transport but also by the non-motorized transport as well as pedestrians. Bulk transport vehicles (trucks & buses) make up only 8% of all registered motor vehicles, but causes about 40% of fatal accidents. India alone accounts for 11 per cent of the global road crashes, dubious distinction. In the year 2013, we had about half a million road accidents resulting in 137,572 fatalities and 4,90,000 serious injuries. This means one fatality in every four minutes. The total socio-economic loss due to road accidents is estimated at 4 per cent of GDP.

2. The UN has declared this decade as the “Decade of Action for Road Safety 2011-2020” aiming to reduce road fatalities by 50% by 2020. Globally, road crashes result in fatalities of 1.3 million a year and in serious injury of 50 million more, disproportionately affecting the poor.
3. Government of India has declared the current decade (2011-2020) as the decade of innovation for inclusive growth. The focus is now being shifted on the people and services for inclusive growth and the road safety. Bearing in mind the galloping trend in road accident and devastating consequences, the Hon’ble Supreme Court of India (SCI) has constituted a three member Committee under the Chairmanship of Hon’ble Justice Mr K. S. Radhakrishnan, former Judge of the Supreme Court of India to monitor the progress in the matter and directed the Govt. to expedite the necessary amendments by legislature in its *collective wisdom*.
4. In order to take into cognizance the globally best practices and pool collective wisdom, the IRC organised an International Conference on “Road Safety Scenario in India and Way Forward” with the support of Ministry of Road Transport & Highways, Govt. of India, World Road Association, Japan International Cooperation Agency (JICA), IRF GPC, The World Bank and the Asian



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Development Bank and NGOs on 29th and 30th November, 2014 to share experiences and exchange of views on measures required to identify an implementable Road Safety Action Plan in order to reduce the road accidents and ultimately aim for zero death and zero serious injuries on our roads.

5. Based on the deliberations among the participants and learned speakers, the recommendations, that emerged from the International Conference which offer prospective for generation of large scale employment and envisages as a potential means for India to become world leader in number of innovative fronts namely (i) to be the largest user of indigenously produced Bio-Diesel/Bio-Ethanol leading to energy security and climate change mitigation; (ii) to be the first country to introduce ‘pedestrian impact protection’ in vehicles compulsory and “*alcolocks*” in cars/buses to check drunken driving and (iv) to be the largest user of solar reflective technology based traffic safety devices etc. besides leverage to GDP growth rate by saving avoidable socio-economic loss caused due to road accidents, once implemented thru much awaited Comprehensive Central Road Traffic Legislation, are brought out in succeeding paragraphs.
6. Road safety has been one of the priority areas of the Government. Box 1 indicates some of the key initiatives. However, there is need of an integrated road safety strategy with the objective of first reversing the trend of increase in fatalities and thereafter move towards the vision of zero death and zero serious injury from road crashes. The road authorities and the vehicle manufactures need to expand their safety tool kit so as to help the drivers and vulnerable road users (pedestrians and cyclists) in reducing mistakes. Human fallibility (HF) factor has to be reduced.



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Box-1 Safety on Radar of Government

- Motor Vehicle Act, 1988 proposed to be overhauled, Introduction of Road Transport and Safety Bill, 2014.
- Road Safety Audit mandatory for all PPP projects in road sector.
- Government instructions to include safety engineering measures on all projects relating to NHDP, State Highways and PMGSY (rural roads).
- Prompt and appropriate medical care to accident victims in Golden Hour. Toll Free No.1033 and 24X7X365 Call Centre set up.
- Programs on Road Safety Education and Training.
- Support IRC in updating of road safety codes and standards with Technical Assistance of World Bank (GRSF) and ADB.
- Programs on setting up use in vehicles inspection and maintenance centres.
- Concerted efforts by Traffic Police in National Capital, State Capitals and other major cities.

7. Much more work is required to integrate safe system into road safety tools in order to ensure qualitative results duly considering the following five obligatory pillars by the Government:

7.1. Pillar-1: **Strengthening Institutional Capacity for Road Safety**

7.1.1 **Creation of Road Transport and Traffic Regulatory Authority of India**

It is proposed to create Road Transport and Traffic Regulatory Authority of India at the centre to regulate safe and sure traffic flow including fixation/revision of fee relating to road user/vehicle registration/driving license/national permit and penalties for offences etc. However, at the State level Kerala State Road Safety Authority is an example worthy of study and adoption by the States.



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This is essential since the Motor Vehicle Act; National Highways Act and the subject matter of roads, traffic thereon & vehicles other than mechanically propelled vehicles falls in concurrent; union and state lists respectively in the Seventh Schedule of the Constitution and in order to implement the Government mandate given thru the Committee on Infrastructure (CoI) in its meeting held on 13th January, 2005 under the Chairmanship of Hon'ble Prime Minister.

7.1.2 **Creation of Unified Highway Patrol Force (UHPF)**

It is proposed to create a dedicated UHPF with base unit mandatory to constitute 'integrated sectoral mobile sub-units' lace with toll free helpline under the overall administrative control of the proposed Road Transport and Traffic Regulatory Authority of India. Box. 2 indicates sectoral mobile sub-units:

Box. 2 sectoral mobile sub-units

- Patrol (Enforcement) Sub-unit [Strict surveillance on Traffic; checking drug trafficking/mushrooming of unauthorized liquor vendors (ULVs)/entry of stray/wild animals, drivers fatigue etc.]
- First-aid/Para-Medical Sub-unit (prompt post-accident medical care in Golden Hours and prevention of communicative diseases)
- Traffic Engineering Sub-unit (Road Safety Audit)
- Revenue Sub-unit (to ensure Right of Way free of encumbrances)

It is warranted in line of international practices across the globe and the Railway Protection Force, in order to sustain consistent patrol to enforce safe and sure traffic flow. This is proposed to start with over 24,000 kms 4/6 laned NHs under NHDP and built up gradually.

7.1.3 **Enactment of National Policy on Substance Use (Alcohol and Drugs)**

It is proposed to enact an effective National Policy on Substance Use (Alcohol and Drugs) in tune with WHO Global Strategy and in collaboration with Union Ministries of Social Justice and Empowerment; Health & Family Welfare and Food Processing Industries besides Patanjali Yogpeeth, Social Activists and NGOs.



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It is inevitable to save avoidable and unaffordable socio-economic loss caused due to road accidents and deaths occurred as a result of Non Communicable Disease (NCDs) since nearly 40% fatal road accidents occur under the influence of intoxication/tobacco and consumption of alcohol have significant impact on deaths occurred as a result of NCDs including cancers, cardiovascular disease and liver cirrhosis whereas 2/3rd of these casualties occur in the age less than 40 years. It is, therefore, expected to support the judgement of Hon'ble High Court of Punjab and Haryana at Chandigarh in its Order dated 18th March, 2014 in the matter of CWP (PIL) No.25777 of 2012 between ArriveSAFE Society of Chandigarh and NHAI & others regarding removal of Unauthorized Liquor Vendors (ULVs) along NH-1 (Panipat – Jalandhar Section), against which the appeals have since been filed by the States of Punjab and Haryana separately in the Hon'ble Supreme Court of India vide SLPs (C) No. 8267/2014 & 8971/2014 respectively.

7.1.4 Establishment of Pool of Dedicated Fund for Road Safety

It is proposed to establish a pool of dedicated fund in synergy with private partnership under the Corporate Social Responsibility (CSR) availing tax exemption (100%) under Rule 11K (m) prescribed under Section 35 AC of the Income-tax Act, 1961 for carrying out programs for road safety. This would also facilitate the emergent relief through justifiable insurance coverage to accident victims.

7.1.5 Setting up Centre of Excellence on Road Safety

It is proposed to set-up Centre of Excellence region/zone wise for scientific understanding road safety, data building and accident analysis of fatal road crashes in ascertaining the root-cause(s) resulting in corrective measures thereof.



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7.2 Pillar-2: Safer Roads and Mobility

7.2.1 Road Safety Audit

It is proposed to comply with safety audit as an integral part of the road design in disseminating the outcome of two leading safety tools developed by PIARC Technical Committee namely “2011R01 PIARC Road Safety Audit Guidelines for Safety Checks of New Road Projects” and “2012R27 PIARC Road Safety Inspection Guidelines for Safety Checks of Existing Roads”.

Keeping in view the scope for human fallibility factor as well as engineering measures, the audit is essentially to be carried out by independent and competent auditors. It is proposed to generate affordable and economically sound Safer Road Investment Plan to improve road star rating [ranging 1 (least safe) to 5 (safest)] and hence save lives. It is warranted to consider the support of International Road Assessment Program (iRAP), a registered charity and member of UN Road Safety collaboration already engaged for surveying nearly 6500 kilometres road in states of Andhra Pradesh, Assam, Gujarat, Karnataka, Kerala, Rajasthan, Uttar Pradesh & NHAI to create a requisite band of competent road safety auditors which are in acute shortage of supply currently.

7.2.2 Creation of Dedicated Pedestrian-cum-Cycle Track in urban conurbation

It is proposed to mandate the channelization of fast and slow moving traffic besides dedicated pedestrian-cum-cycle track in urban conurbation to start with high density corridors while development/upgradation of road projects are undertaken.

7.2.3 Introduction of Solar Reflective Technology for Enhancing Road Safety

It is proposed to create solar reflective technology based speed calming devices/measures like alert/blinking road signs/markings at black spots (scarce visibility); CCTV cameras, junction improvement starting with vulnerable pedestrian zones.



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7.2.4 Introduction of New Porous Pavement Technology for Enhancing Road Safety

New Technology of porous pavement evolved by Japan is asserted to be introduced which enhances skid resistance during rain, reduces the risk of aquaplaning and improve visibility during rain.

7.3 Pillar-3: Safer Vehicles

7.3.1 Integration of Mandatory Life Saving Features in Vehicles Compatible to WP:29

- (i) It is proposed to fully align automotive standards compatible to the UNECE (UN Economic Commission for Europe: WP29) including that of crash tests and introduction of ‘Bus Body Code’ and ‘Truck Code’ with mandatory life saving features i.e. CCTV coupled with GPS and GPRS, door locks; Retarded system; Antilock Braking System (ABS); Forward/Reverse Collision Warning with cameras; Overload Control Devices; Blind Speed Cameras; Fatigue Warnings; Child Restraint System; Advanced Driver Assistance System (ADAS) and the last but not least Electronic Stability Control (ESC) to take last minute decision for maneuvering vehicle safely.
- (ii) It is warranted that no commercial vehicle (trucks/buses) be allowed if it is not fitted with under run protection devices on in use at the rear, side and front.
- (iii) It is warranted that photograph of complete built up truck along with number of Original Equipment (OE) supplied leaf springs should be entered in the RC Book at the time of registration and no modification be allowed at the time of issuing renewal fitness certificate.

7.3.2 Integration of Mandatory Life Saving Features in Two-Wheelers

It is proposed to mandate for the manufacturer of two-wheelers to ensure inbuilt life saving features essentially helmet for driver and pillion rider in order to curb brain injuries which have no full treatment. Helmet standard should be aligned with UN ECE Standards. Motor cycle more than 150 cc should be fitted with ABS.



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7.3.3 Introduction of Bio-Diesel/Bio-Ethanol Fuel in Reduction of Greenhouse Gases (GHG) Emission

It is proposed to mandate the diesel engine fitted vehicles to be phased out with Bio-Diesel/Bio-Ethanol fuel in order to reduce GHG emission in time bound manner in collaboration with Department of Bio-Technology (DBT), Patanjali Yogpeeth and Society of Indian Automobile Manufacturers (SIAM).

7.3.4 Introduction of Advanced Automotive Technology

- (i) It is proposed to introduce the new technology of V2V (Vehicle-to-Vehicle) and V2I (Vehicle-to-Infrastructure) communication in collaboration with Ministry of Communications & IT to allocate a requisite frequency node to make the technology operative in India to create driving support and enhances active safety (alert/warning on lane change/entry to x-ings departing / obstacle / sudden halt / congestion / real time response / hot pursuits and bad weather, parking etc).
- (ii) It is envisaged that India should be the 1st country to introduce new technologies of “pedestrian impact protection” compulsory and “alcolocks” in cars/buses to check drunken driving.

7.3.5 Inspection of Vehicles and Maximum Life Thereof

It is proposed to mandate automated vehicle inspection certification for road worthiness to minimize human intervention and phase out/dispose of or recycle old vehicles once reach warranted maximum life prescribed for the catalytic converter at the time of giving the type approval by the testing agency.



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7.4 Pillar-4: Safer Road User Behaviour

7.4.1 Enforcement of Traffic Regulations

(i) Strict and Vigorous Traffic Enforcement

There was consensus that strict and vigorous traffic enforcement is of prime importance in averting accidents as it plays critical role in controlling road users behaviour. A case example of Chennai City is given in Box.3 indicates some of the key enforcement measures.

Box. 3 Enforcement Measures, a case example of Chennai City

- Road Accident Data Management System in place.
- Joint inspection of accident spots by team comprised of rap of Enforcement, Investigation and the Highway Authority.
- Target offences such as Over speeding, Rash and Negligent Driving, Drunken driving, Using Cell Phone while driving, Driving without seat belt/ helmet, jumping red signal, overloading, wrong side overtaking, driving without valid license.
- Award to traffic officials who performed excellently in detecting violations.
- Automatic generation of challan, use of IT in e-challaning.
- Enrolment of Road Safety Patrol (RSP) Volunteers.
- Introduction of Speed Check Posts during 23⁰⁰ hrs. to 05⁰⁰ hrs (Night Hours).
- Day to day scientific analysis of accident data and planning of detecting violations.
- Visible Police: 57 Traffic Patrol Vehicles.
- Fatal Accidents started decreasing since 2011.

(ii) Governance of over-speeding

It is proposed to mandate temperproof “speed governor” in motor vehicles conforming to optimum economic speed (range 50-80 kmph) starting with commercial/public vehicles and leverage RFID tags & check time to distance via mapped toll plazas starting with trunk routes and if it is over speed, fine to be imposed.



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It is essential to minimize risk of fatalities (over speeding alone constitute over 2/3rd of the casualties), huge loss of Forex reserves (due to reduced mileage) and increase in Vehicle Operating Cost (VOC) due to extra wear and tear.

(iii) **Governance of overloading**

It is proposed to audit of overloading at out-start itself i.e. at freight logistic parks/depots (near major urban conurbations), Rly siding, ports, steel/cement plant site, quarries, factories etc. with video WIM (Weigh in Motion) technology making use of a load cell scale in right lane and quartz axle sensor array in left lane as prevalent in developed countries. Besides, provision for heavy penalties on defaulter in terms of fine and cancellation of insurance.

It is warranted to minimize the risk of human health and deterioration of road exponentially, huge loss of Forex reserves (due to reduced mileage) and increase in Vehicle Operating Cost (VOC) due to extra wear and tear.

(iv) **Introduction of Vehicle Tracking System (VTS)**

It is proposed to mandate GPS/GPRS (General Pocket Radio Service) equipped with audio alarm (to alert driver) based VTS in all commercial vehicles/School buses/Taxis/Policing Vehicles to check social and financial crimes as well as policing speed limit more effectively in a time bound manner starting with trunk routes.

(v) **Introduction of E-Challan for Violation of Traffic Regulations**

It is proposed to introduce automatic generation of challan (e-challan) for violation of traffic regulations.



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(vi) **Introduction of Unified Driving License/Vehicle Registration**

It is proposed to introduce single window unified biometric licensing and vehicle registration system being 100% deterrent against the likely offences.

(vii) **Amendment to Anti-Corruption Law**

It is recommended to impose penalties on erring traffic officials and reward to enforcement officials for their excellent endeavor in reducing road accidents.

(viii) **Speedy Settlement of Claims**

It is desirous to set up judicial commission and fast track courts (district level) to ensure speedy trials for settlement of claims.

7.4.2 Education and Awareness

(i) **Local Community Participation in Promoting Awareness Among Vulnerable Road Users (VRUs) and Drivers**

It is proposed to create reason based mass awareness in active support of Patanjali Yogpeeth and NGOs preferably in vernacular media through “marketed social media campaigns” on “target groups” of VRUs and drivers aiming towards 3 S “Surakshit & Suhana Safar” (Safe and Sure Journey) for example creating awareness among school children to wear helmet mandatory while driving two-wheeler since 1/3rd of the injuries are brain injuries which have no full treatment hence warranted to be the best prevented.

(ii) **Introduction of Traffic Regulations in School Curriculum**

It is warranted to mandate traffic signs/regulations in school curriculum to catch them at young age.



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(iii) **Creation of Pool of Road Safety Patrol (RSP) Volunteers**

It is proposed to increase awareness through mass media with the slogan of “*start early reach early*” and establish close contacts with schools besides interaction with public transport/auto-rickshaw/taxi-drivers on regular interval.

7.5 Pillar-5: Post-Crash Medical Care

- (i) The proactive incident management system is warranted with due linkage to nearest trauma/medical centres for prompt and appropriate care to accident victims during Golden Hours in collaboration with WHO/Ministry of Health & Welfare/NGOs.
- (ii) It is proposed to establish chain of training centers at sectoral trauma/rehabilitation/pre-hospital emergency centers and hospitals to create a pool of trained doctors, nurses, para-medicos primarily for trauma care under the multi-prolonged strategy in collaboration with WHO/Ministry of Health and Welfare/NGOs for being deployed in sectoral first aid/para medical sub-units of the proposed UHPF (Ref:P-1.2) and in trauma/rehabilitation/pre-hospital emergency centers and hospitals along highways for better injury prevention care techniques.



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Chapter II

INTRODUCTION

India has one of the largest road networks in the world, of 4.699 million kilometers, consisting of 96,214 km National Highways, 1,47,800 km State Highways and 44,55,000 km District/Village roads. About 65% of freight and 85% of passenger traffic is carried by the roads. Motor vehicle population has recorded Compound Annual Growth Rate (CAGR) of close to 11%. India has 160 million registered motor vehicles consisting 110 million two/three wheelers (70%); 25 million cars (16%); 12 million commercial trucks (6%); 3 million buses (2%) & 10 million others (6%). Roads are used not only by the motorized transport but also by the non-motorized transport as well as pedestrians. Bulk transport vehicles (trucks & buses) make up 8% of all registered motor vehicles, but causes about 40% of fatal accidents. The studies reveal that 53% of the persons who died in road accidents were pedestrians and 28% were two-wheeler drivers. India has the highest number of road accidents in the world, a dubious distinction. In the year 2013, we had about half a million road accidents resulting in 137,572 fatalities and 4,90,000 serious injuries. This means 360 deaths including 20 children and 1280 serious injuries in a day i.e. one fatality in every four minutes. The total socio-economic loss due to road accidents is estimated at 4 per cent of Gross Domestic Product (GDP).

2. Road safety was recognized in global environmental policy deliberations at the UN Conference on Sustainable Development held at Rio in 2012. The UN has declared this decade as the “Decade of Action for Road Safety 2011-2020” aiming to reduce road fatalities by 50% by 2020 with increased focus on Vulnerable Road Users (VRU) like pedestrians, cyclists and non-motorized transport. Globally, road crashes result in fatalities of 1.3 million a year and in serious injury of 50 million more, disproportionately affecting the poor. India alone accounts for 11 per cent of the global road crashes. More than 90% of these deaths occur in low/middle income countries, which have less than half of the world’s vehicle. Road injuries place a heavy burden on a country’s economy as a result of their direct impact on health care and rehabilitation services,



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as well as through indirect costs put considerable financial stress on affected families, who often must absorb medical, rehabilitation, funeral and other costs as the lost earnings of the victims, in addition to extensive emotional strain.

3. Government of India has declared the current decade (2011-2020) as the decade of innovation for inclusive growth. The focus is now being shifted on the people and services for inclusive growth and the road safety. Bearing in mind the galloping trend in road accident and devastating consequences, the Hon'ble Supreme Court of India (SCI) has constituted a three member Committee under the Chairmanship of Hon'ble Justice Mr K. S. Radhakrishnan, former Judge of the Supreme Court of India to monitor the progress in the matter and directed the Govt. to expedite the necessary amendments by legislature in its *collective wisdom*.
4. In order to take into cognizance the globally best practices and pool collective wisdom, the IRC organised an International Conference on “Road Safety Scenario in India and Way Forward” with the support of Union Ministry of Road Transport & Highways, World Road Association, JICA, IRF GPC, The World Bank and the Asian Development Bank on 29th and 30th November, 2014 to share experiences and knowledge amongst the learned speakers & participants and exchange of views on measures required to build road safety capacity in order to intensify and accelerate the pace of road safety initiatives in reduction of road accidents and ultimately aim towards zero road crash fatalities vision.



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Chapter III

INAUGURAL AND PLENNERY SESSION

Mr SS Nahar, Secretary General, IRC, welcoming the Chief Guest, HE Mr P. Radhakrishnan Hon'ble Minister of State for Road Transport, Highways & Shipping, Govt of India; Guests of Honour Mr Vijay Chhibber, Secretary Road Transport & Highways, Govt of India, Mr S N Das Director General (Road Development) and Special Secretary, Govt of India, Mr Jean-François CORTÉ Secretary General, PIARC (World Road Congress), Mr Shinya Ejima, Chief Representative, Japan International Cooperation Agency, JICA India Office, New Delhi and delegates highlighted the indispensability of pro-active and effective initiatives in order to bring qualitative results in improving the road safety scenario in India.

2. The Conference was inaugurated by HE Mr P. Radhakrishnan Hon'ble Minister of State for Road Transport, Highways & Shipping, Govt of India. He proclaiming the objective of first reversing the trend of increase in fatalities due to road accidents and thereafter move towards the vision of zero death and zero serious injury from road crashes, mentioned that the road authorities and the vehicle manufactures need to expand their safety tool kit so as to help the drivers and vulnerable road users (pedestrians and cyclists in specific) in reducing mistakes. Human fallibility factor has to be reduced, he avowed. In order to achieve progress towards the ultimate aim of zero road crash fatalities, he drew the attention towards following key initiatives of the Govt:

- Motor Vehicle Act, 1988 proposed to be overhauled, Introduction of Road Transport and Safety Bill, 2014.
- Road Safety Audit mandatory for all PPP projects in road sector.
- Government instructions to include safety engineering measures on all projects relating to NHDP, State Highways and PMGSY (rural roads).
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- Support IRC in updating of road safety codes and standards with Technical Assistance of World Bank (GRSF) and ADB.
 - Programs on setting up use in vehicles inspection and maintenance centres.
 - Concerted efforts by Traffic Police in National Capital, State Capitals and other major cities.
3. In his introductory address, Mr Jean-François CORTÉ, Secretary General, PIARC (World Road Congress) recapped the long standing association of PIARC with India/IRC and as a result MOU was entered into in 2010 for mutual cooperation. He wished the greater participation of PIARC Technical Committee 3.2 “Design and Operation of Safer Road Infrastructure” with INDIA/IRC to share knowledge and valuable information in improving road safety scenario in India. He recommended that two leading safety tools namely “PIARC Road Safety Audit Guidelines for Safety Checks of New Road Projects (2011R01)” and “PIARC Road Safety Inspection Guidelines for Safety Checks of Existing Roads (2012R27)” may be followed to bring down the road accidents in India.
4. In his key address, Mr SS Nahar, Secretary General, IRC in order to reduce road fatalities emphasized upon practical and workable solution for overcoming following foremost causes responsible for recognition of India with dubious distinction of sharing 11% of world road accidents and suggested way forward as a policy of correction towards the set goal of “zero tolerance”:

4.1 **Creation of Road Transport and Traffic Regulatory Authority of India**

It is proposed to create Road Transport and Traffic Regulatory Authority of India at the centre to regulate safe and sure traffic flow including fixation/revision of fee relating to road user/vehicle registration/driving license/national permit and penalties for offences etc. However, at the State level Kerala State Road Safety Authority is an example worthy of study and adoption by the States.



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4.4 Establishment of Pool of Dedicated Fund for Road Safety

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4.5 Introduction of Solar Reflective Technology for Enhancing Road Safety

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4.6 Introduction of Bio-Diesel/Bio-Ethanol Fuel in Reduction of Greenhouse Gases (GHG) Emission

It is proposed to mandate the diesel engine fitted vehicles to be phased out with Bio-Diesel/Bio-Ethanol Fuel in order to reduce GHG emission in time bound manner in collaboration with Department of Bio-technology (DBT); Patanjali Yogpeeth and Society of Indian Automobile Manufactures (SIAM).

4.7 Governance of over-speeding

It is proposed to mandate temperproof “speed governor” in motor vehicles confirming to optimum economic speed (range 50-80 kmph) starting with commercial/public vehicles and leverage RFID tags & check time to distance via mapped toll plazas starting with trunk routes and if it is over speed, fine to be imposed.

It is essential to minimize risk of fatalities (over speeding alone constitute over 2/3rd of the casualties), huge loss of Forex reserves (due to reduced mileage) and increase in Vehicle Operating Cost (VOC) due to extra wear and tear.

4.8 Governance of overloading

It is proposed to audit of overloading at out-start itself i.e. at freight logistic parks/depots (near major urban conurbations), Rly siding, ports, steel/cement plant site, quarries, factories etc. with video Weigh in Motion (WIM) technology making use of a load cell scale in right lane and quartz axle sensor array in left lane as prevalent in developed countries. Besides, provision for heavy penalties on defaulter in terms of fine and cancellation of insurance.



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It is warranted to minimize the risk of human health and deterioration of road exponentially, huge loss of Forex reserves (due to reduced mileage) and increase in Vehicle Operating Cost (VOC) due to extra wear and tear.

4.9 Introduction of Vehicle Tracking System (VTS)

It is proposed to mandate GPS/GPRS (General Pocket Radio Service) equipped with audio alarm (to alert driver) based VTS in all commercial vehicles/School buses/Taxis/Policing Vehicles to check social and financial crimes as well as policing speed limit more effectively in a time bound manner starting with trunk routes.

4.10 Local Community Participation in Promoting Awareness Among Vulnerable Road Users (VURs) and Drivers

It is proposed to create reason based mass awareness in active support of Patanjali Yogpeeth and NGOs preferably in vernacular media through “marketed social media campaigns” on “target groups” of VRUs and drivers aiming towards 3 S “Surakshit & Suhana Safar” (Safe and Sure Journey) for example creating awareness among school children to wear helmet mandatory while driving two-wheeler since 1/3rd of the injuries are brain injuries which have no full treatment hence warranted to be the best prevented.

4.11 Introduction of Traffic Regulations in School Curriculum

It is warranted to mandate traffic signs/regulations in school curriculum to catch them at young age.



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5. In his keynote address, Mr Brendan Marsh, an expert member of PIARC Technical Committee 3.2 “Design and Operation of Safer Road Infrastructure” emphasized upon the inevitability of reduction of human fallibility factor in road accidents. He prompting the ethical obligation of highway designers and managers to prevent avoidable fatal and serious injury(FSI) crash outcomes by various low cost and effective measures like traffic calming, speed humps, reducing carriage width, making rough surface, etc. stated to be of prime importance.
6. In his keynote address, Mr Dipan Bose, Road Safety Specialist, Global Road Safety Facility (GSRF), World Bank stated that the Bank is providing financial and technical assistance to the developing World to leverage the collective efforts by intervention of coordinated manner in improving post construction road/vehicle design, sign/markings, enforcement, mass awareness with specific focus on vulnerable road users in reducing road fatalities and accidents. Further, he avowed that as collective responsibility, road safety audit is being strictly enforced as integral part of road project funded by the World Bank.
7. Mr S.S. Porwal, Vice-President, IRC proposed Vote of Thanks.
8. Inaugural Session declared closed with the singing of National Anthem.



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Chapter IV

TECHNICAL SESSION1 – “Overview of Traffic Rules, Regulations & Enforcement: National/International Best Practices”

Moderator: Prof. (Dr) Dinesh Mohan, Emeritus Fellow, IIT Delhi

Prof Mohan in his opening remarks acknowledging the examples of USA where nearly 4,000 traffic professionals are deployed by National Highway Traffic Safety Agency (NHTSA) only in Washington to ensure very high frequency of checking of cars/drivers and permissible limit of alcohol in blood is nearly 3 times (80 mg per 100 ml blood) of India (30 mg per 100 ml) and China where over speeding is checked by verifying between two toll booths and find if over speed, asserted that it is indeed proactive and preventive strict traffic enforcement since it is subjective perception of probability of getting punished if offence is committed. Prof. Mohan asserting the reasonability of legal framework already in place stressed upon the need of over 20 research centers/universities as Centers of Excellence for scientific understanding road safety.

2. Mr Brendan Marsh, an expert of PIARC sharing his Australian experience reiterated ethical obligations of road and enforcement authorities in focusing on key FSI Crash risks by way of speed calming specifically in vulnerable pedestrian zones by installation of signals/road markings, junction improvements, CCTV cameras, enforcing seat belts/helmets, public awareness etc. which brought the qualitative results in reducing the road accidents.
3. Mr Takashi HIRAI, Chief Rep. of Japan Automobile Standards International Centre, (JASIC) Jakarta office highlighting the strategy of Japan New Car Assessment Program (JNCAP) by strengthening three groups namely Safety in Vehicle; Human Behaviour & Road Characteristics in coordination stated that as a result of strict implementation of Vehicle Standards for protection against collusion/crash, the rate of fatal accidents decreased to less than half. In 1999 mandate



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of the Govt. of Japan (MLIT) on speed limiter (max. 90kmph) on large freight vehicles resulted sharp decrease in fatality rates. On/offline Periodical technical inspection of vehicles by dedicated government owned (MLIT) National Agency of Vehicle Inspections (NAVI) brought a noticeable improvement in road safety. He informed that in April, 2014 Japan Govt. decided the vehicle test protocol for (a) Autonomous Emergency Braking System (AEBS) (b) Lane Departure Warning System (LDWS) (c) Night Vision (d) LKA/LCA (Lane Keep Assist/Lane Change Assist) (e) Advanced Driver Assistance System (ADAS) (f) Speed Alert (SA) (g) Blind Spot Monitoring System (BSMS) based on Electronic Stability Control (ESC)/Electro-Magnetic Compatibility (EMC) as crash avoidance system. In order to reduce the human error, drivers training, labour norms & running distance in fine-tuning the drivers fatigue, pedestrian/bicyclists protections, seat belt, child seat, breaking performance in dry/wet surface tests are being conducted besides improvement of road condition by providing sidewalk, pedestrian existence alarm system, etc. he asserted.

4. Mr Rajesh Rohatgi, Sr. Transport Specialist, World Bank (GRSF) citing example of highway policing of a pilot project of Uttar Pradesh Highway Patrol (UPHP) on NH-2 & NH-25 asserted that it is the preventive enforcement of the traffic regulations which matters. Mr Rohatgi informed that in the pilot project traffic outposts @ 40 km equipped with bikes & cars lace with life-saving devices besides strong marketed social campaign have been proved to be effective in reducing road accidents. He claimed that highway policing in Maharashtra, Kerala & Haryana is working in reactive mode rather than pro-active mode.
5. Mr P. Sakthivelu, IPS Inspector General of Police (Retd) Tamil Nadu, India who has been instrumental in enforcing traffic regulations in Chennai city claimed following some of the key enforcement measures:

- **Road Accident Data Management System in place.**
- **Joint inspection of accident spots by team comprised of rap of Enforcement, Investigation and the Highway Authority.**



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- **Target offences such as Over speeding, Rash and Negligent Driving, Drunken driving, Using Cell Phone while driving, Driving without seat belt/ helmet, jumping red signal, overloading, wrong side overtaking, driving without valid license.**
- **Award to traffic officials who performed excellently in detecting violations.**
- **Automatic generation of challan, use of IT in e-challaning.**
- **Enrolment of Road Safety Patrol (RSP) Volunteers.**
- **Introduction of Speed Check Posts during 2300 hrs to 0500 hrs (Night Hours).**
- **Day to day scientific analysis of accident data and planning of detecting violations.**
- **Visible Police: 57 Traffic Patrol Vehicles.**
- **Fatal Accidents started decreasing since 2011.**

Mr. Sakthivelu asserted that single window unified biometric licensing system and unified vehicle registration, amendment to anti-corruption law to impose penalties on erring and rewarding for outstanding endeavor of traffic officials and setting up fast track courts (district level) to impart safety trials for settlement of claims are warranted in ensuring full proof enforcement of traffic regulations.

6. Prof. Dinesh Mohan aspiring that India should be the first country to make ‘pedestrian impact protection’ compulsory and introduction of a new technology “*alcolocks*” in cars/buses to ensure that vehicle will not move, if anyone inside the vehicle have alcohol in blood. He also asserted that bus/truck drivers should be provided with smart phones and apps installed in it so that police will get the data by Bluetooth from driver’s smartphone without stopping the vehicle.



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Chapter V

TECHNICAL SESSION 2 – “Safer Roads and Road Safety Audit”

Dr Yogendra Narain, former Secretary General, Rajya Sabha (India)

Dr Narain in his opening remarks referring to the dilemma of viable solution for improving road safety stated that amongst four major stakeholders, ‘driver’ is the key who coordinate with other three namely road condition, vehicle condition & road users. Dr Narain emphasized upon the inclusion of road safety in school curriculum.

2. Mr Keita NAKSU, JICA Expert, assisting the MoRT&H, citing the outstanding example of Japan for preparedness of disaster management informed that communication of inland routes were restored within 72 hours of “Tsunami Attack on 11th March, 2011 in Japan”. He informed that JICA is negotiating to provide technical assistance to praiseworthy candidate projects in India.
3. Mr Arnab Bandopadhyay, Senior Transport Engineer & Mr Jigesh N. Bhavsar, Road Safety Engineer stated that International Road Assessment Program (iRAP), a registered charity and member of UN Road Safety collaboration, is in partnership with World Bank (GRSF) to generate affordable and economically sound Safer Road Investment Plan (SRIP) to improve road star rating [ranging 1 (least safe) to 5 (safest)] engaged for surveying nearly 6500 kilometres road in states of Andhra Pradesh, Assam, Gujarat, Karnataka, Kerala, Rajasthan, Uttar Pradesh & NHAI and developing star rating for preparation of road projects focusing on improving safety and traffic flow, strengthening institutional capacity, identification and treatment of high-risk sites in targeted manners to reduce fatal accidents by three stage intervention i.e. before, during design stage and during construction with specific indicators of traffic calming, pedestrian facilities (Delineators/Signals, Lighting, lines, markings, etc.), intersection/curve improvements, parking facilities in urban sections, four-laning in major junctions, paved shoulders, safety barriers, street lighting, etc.



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4. Mr Brendan Marsh, an expert of PIARC & Prof (Ms) Marion Doerfel of Switzerland highlighted the HADDON's matrix of contributing factors stated that 93% road crashes attributed to human error; 34% to road characteristic; 13% to vehicle condition and 1% others like weather etc. They asserting the ethical obligations by improved road/vehicle design in preventing FSI (Fatal & Serious Injury) Crash outcomes recommended that two leading safety tools namely “2011R01 PIARC Road Safety Audit Guidelines for Safety Checks of New Road Projects” and “2012R27 PIARC Road Safety Inspection Guidelines for Safety Checks of Existing Roads” may be followed.
5. Mr N.K. Sinha, Chairman, IRF (India Chapter) stating the requirement of huge capacity building for road safety in order to correct the misleading road design asserted the need to create requisite band of competent road safety auditors which are in acute shortage of supply currently. He acknowledged that IRF India Chapter in collaboration with ARRB, Australia and CRRI, New Delhi has been organizing the training program for Road Safety Auditors and trained around 300 Auditors so far.



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Chapter VI

TECHNICAL SESSION 3- “Overview of Urban and Non-Urban Roads: Sustainable Way of Traffic Management”

Moderator: Mr D.P. Gupta, Director General (Road Development) & Additional Secretary Govt. of India (Retd.)

Mr Gupta in his opening remarks stated that the safety is not at the cost of mobility and the mobility is not at the cost of safety, when it comes to life and health there is no negotiations with other benefit so we are able to subjugate even our property for the sake of health and hence WHO took up the issue of the health as a road accident predictable and preventable.

2. Mr Daniel Aubin, an Expert of PIARC highlighting the best practices in Road Accidents Investigation (RAI) through audit of accident site (data) as per PIARC guidelines reiterated the HADDON's matrix of contributing factors to road crashes. He warranted integration of Human Factor (HF) in evaluating driving characteristics (inappropriate speed); trajectories (path) of vehicle; fish eye photos of road in vicinity of accident spot in ascertaining the driver's perception (a) Reaction time (b) *Field of View* & (c) *Perception Logic*. Audit of HF is essential in transition zone normally zone of 217 m to be covered in 6 sec comprised of maneuvering and three warning sections each @ 83 m in order to provide clarity in identification of critical point, he asserted.
3. Dr (Ms) Sibylle Birth, engineering psychologist, PIARC in furtherance analyzing the role of HF and road characteristics in accidents explained with examples the effect of Gestalt on driving. She asserted that road user's behaviors is controlled @70% by infrastructure features (surrounding); 15% each by conscious control (decision making) and weather, road, car condition together. Expecting integrated ergonomic (HF+ understanding surrounding) road design, she asserted that minimum safe reaction time/field of view for 4-6 sec is warranted.



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4. Mr Pankaj Som Chaturvedi, Expert from ADB asserted that the enhanced use of ICT (Information & Communication Technologies) in road safety is due to the multifaceted benefits including live and dynamic crowd sourcing is warranted.
5. Mr Shivalik Prasad, ED, MMI (MapMyIndia) business partner of Zenrin, Japan informing that traffic population in India is nearly 160 million and therefore warranted safety response alert in emergency, fire, terrorism besides accidents and speed calming etc. to be enabled GPS based CAD (Computer Aided Dispatch) maps.
6. Mr S.R. Ramchandani, Joint Managing Director, MSRDC (India) citing the case study of ITS based safety precautions incorporated on Mumbai-Pune Cement Concrete Expressway stated that 24x7 hrs helpline, trauma center, highway patrol, ambulance etc have been provided.



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Chapter VII

TECHNICAL SESSION 4 – “Review of Design of Vehicle Safety, Innovative and Environmental Friendly Models”

Moderator: Dr K.K. Kapila), Chairman, IRF GPC.

Dr Kapila in his opening remarks asserted that unless there is a holistic approach and multifaceted efforts are made, desired targets of road safety cannot be achieved.

2. **Mr Balraj Bhanot, Chairman, TEDC, BIS, India in his key note address highlighting the need for introducing V2V (Vehicle-to-Vehicle) and V2I (Vehicle-to-Infrastructure) communication. Department of Communication should allocate frequencies for Dedicated Short Range Communication (DSRC) as is the practice world over. In the absence of allocation of a dedicated frequency for the purpose, higher end cars i.e. BMW and Mercedes disable these devices when vehicles are exported to India and one is not able to drive the benefits of latest technology.**

He informed that recently a Committee has been constituted to evolve application oriented standard basic architecture for GPS/GPRS (General Packet Radio Service) based Vehicle Tracking System (VTS) warranted to be installed in commercial vehicles / school buses / taxis / policing vehicles to check crimes (social / financial) in India [portfolio: TED (Transport Engineering Department)-28 Group of BIS], perhaps first of its kind in the world.

Mr Bhanot referring to the statutory authorization for certification of safety standards in vehicles stated that one system called ‘self-certification’ is operative in USA in which it is manufacturer’s responsibility to comply with the safety norms framed by Federal Motor Vehicle Safety Standards (FMVSS) and enforced by National Highway Traffic Safety Administration (NHTSA), the another system called ‘type approval’ is operative in



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European Union in which certification is required before vehicle is allowed to be sold. India though is not a signatory to 1958 Agreement, but signatory to 1998 Agreement which allow the member country to develop automotive standards compatible to the UN Economic Commission for Europe: WP29 (UNECE) standards, he informed. India has aligned with most of ECE standards except compatibility in crash test facility, which is likely to become fully operational in another two to three years, since testing facilities had been under installation at four laboratory centers under the aegis of National Automotive Testing and R&D Infrastructure Project (NATRiP) namely (i) Automotive Research Association of India (ARAI), Pune (Maharashtra); (ii) International Centre for Automotive Technology (iCAT), Manesar (Haryana); (iii) Global Automotive Research Centre (GARC), Chennai (Tamil Nadu) and (iv) National Automotive Test Track (NATRAX), Indore (MP), he stated. Mr Bhanot asserted that all the States should take initiative that no truck to be allowed to operate in their state if it is not fitted with under run devices at the rear, side and front. This will save number of fatal accidents on highways.

Mr Bhanot cited example of introducing the power steering in commercial vehicles in India which took number of years due to stiff resistance from Industry. As Adviser to Delhi Govt. during Commonwealth Games in 2010, inspite of stiff resistance from the manufacturers, his consistent endeavors succeeded in introducing ‘Bus Body Code’ in procuring a fleet of 6,000 low floor buses equipped with all the safety measures like display devices, door locks, ABS devices, Retarded system, ECU based speed Governors, GPS, etc. Mr Bhanot asserting the mandatory life saving features in a car like ABS alongwith ESC to take last minute decision for maneuvering car safely, stated the sorry state of affairs in India where these features are offered as optional as if life is also optional. Expressing serious concern, Mr Bhanot regretfully stated that the only sector which is lagging behind happens to be the two commercial sectors one is bus; the other is truck justifiably due to the reason that the sectors are being operated under the cottage industry, where standardized body building safety codes are yet to be mandated. Mr Bhanot drew attention towards dubious distinction of India in sharing of 11% of world



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road accidents and hence stressed upon the inevitability of detailed scientific accident analysis of fatal road crashes in ascertaining the root-cause(s) resulting in corrective measures thereof.

3. Mr Kiran C. Sharma, Automotive Expert India (SE, MoRTH) emphasizing upon the safety standards for vehicle design stated that crash avoidance (active safety) and crash protection (passive safety) life saving features like Antilock Braking System (ABS); Electronic Stability Control (ESC); Retarded System; Forward/Reverse Collision Warning with cameras; Overload Control Devices, Blind Spot Cameras, Fatigue Warnings, Child Restraint System & Advanced Driver Assistance System (ADAS) are warranted.
4. Dr Ashok Kumar, Sr Highway Engineer, World Bank cited the preparation of comprehensive Road Safety Action Plan for N-E State of Assam and rebuilding Institutional and capacity resources.
5. Mr Souhei SAKAKI, Japan cited the new technology of porous pavement with combination of SMA (homogenous asphalt/cement mix) involved by Japan which enhances skid resistance and visibility during rains and reduces the risk of aquaplaning. He also cited the examples of well-designed rumble strips/speed pave (continuous sine waves) as speed calming measures; colored ceramic aggregates scattered uniformly and fixed on resin binder coating on surface perform as excellent skid resistance during rains; MMA (Methyl Methacrylate) resin paint is highly effective for heavy trafficked roads, colorization of side walk as protection to pedestrians and solar reflective technology based markings as road safety tool etc.
6. Mr O.P. Shemar, Advisor, Transport and Ms Shashi Bala, Statistic Officer, MoRTH, India cited the detailed spectrum of accidents in India. They stated that 11% of road fatalities of the World occurs in India and 91% of the World's road fatalities (over half on vulnerable road users) occur in low/middle income countries. They suggested creation of pool of road safety fund with contribution from penalties, corporate participation under CSR, re-appropriation of CRF Cess.



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7. Mr B.T. Sridhara, IT Expert, India (SE, MoRTH) highlighting the working of AMMS (Android os based Accident Monitoring and Management System) with Web GIS/Mobile application proclaimed that in collaboration with Pixel Softek data collection modules have been developed which display details of location, hospitals, vehicle, victim direction tools and summary reports to optimum response time/data based checklist/tools prescribed in IRC:53 to disseminate of accident data scientifically in addressing road safety issues.



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Chapter VIII

TECHNICAL SESSION 5 – “Overview of Road User Behaviour: Innovative Methods for Mass Awareness to Improve Road Safety Including Emergency Crash Response, Trauma Care Facility”

Moderator: Mr S.S. Nahar, Secretary General, Indian Roads Congress,

Mr Nahar in his opening remarks citing the land mark verdict dated 28.08.1989 of Hon'ble Supreme Court of India exempting the person from the legal formalities (police inquiry) who help to road accident victim, affirmed the indispensability of vanishing the knowledge gap by awareness campaigns.

2. In his key note address Dr M.C. Mishra, Director AIIMS, New Delhi, India regretting the apathetic attitude of people towards accident victim warranted that the proactive incident management system with due linkage to nearest trauma/medical centres for prompt and appropriate care to accident victims during Golden Hours is indispensable. Dr Mishra citing the courage to retrieve the damages quoted the incident of Ms Arunima Sinha national level volleyball player who lost one of her legs in a train accident on 11th April, 2011 climbed the Mount Everest on 21st May, 2013 with a prosthetic leg. Dr Mishra warranted the indispensability of chain of training centers at sectoral trauma/rehabilitation/pre-hospital emergency centers and hospitals to create a pool of trained doctors, nurses, para-medicos primarily for trauma care under the multi-prolonged strategy in collaboration with WHO/Ministry of Health and Welfare/NGOs for better injury prevention care techniques. He stressed upon the need of pro-active reason based awareness campaigns to sensitize school children to wear helmet mandatory while driving two-wheeler since 1/3rd of the injuries are brain injuries which have no full treatment hence warranted to be the best prevented.



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3. Mr Harman Singh Sidhu, Chairman, ArriveSAFE, a NGO dedicated to road safety formed in 2007 by Mr Sidhu, a Mechanical Engineer, after a traumatic road accident that left him paralyzed neck downwards cited a case study of corrupt practices traffic enforcement in confirmation to the verification of traffic violation challans between 2007 to 2012 whereas only 6% violations attributed to the over speeding and drunken driving. **Mr Sidhu citing his Hercules mission against mushrooming of unauthorized liquor vendors (ULVs) along highways informed that the Hon'ble High Court of Punjab and Haryana at Chandigarh in its Order dated 18th March, 2014 in the matter of CWP (PIL) No. 25777 of 2012, ArriveSAFE Society of Chandigarh vs NHAI and others, regarding 291 km of NH-1 from Panipat to Jalandhar, whereas 185 ULVs @ 1.5 km/ULV were operating, has directed that ULVs to be removed. The States of Punjab & Haryana have filed appeals in the Hon'ble Supreme Court of India separately against the High Court judgment vide SLPs (c) No. 8267/2014 & 8971/2014 respectively. A study by National Institute of Mental Health and Neuro Sciences (NIMHANS), Bangalore shows that 28% road accidents attributable to alcohol, he stated.**
4. Mr Sony Thomas, Consultant, World Bank citing the success story of Kerala emphasized upon the significance of community participation in road safety to create synergy with multi-sector stakeholders through sponsorship/partnership having common goal and sharing ownership at grassroots lever.
5. Mr Amit Bhatt, urban transport expert from India citing the India's dubious distinction in road accidents whereas per day 381 persons (i/c 20 children) are killed and 1287 persons get injured besides 6,27,426 pre matured deaths per year due to air pollution stated that in order to ensure safe mobility at sustainable of pollution in cities and reduction of pollution, restriction on entry of private vehicles in core city areas, integrated fare for all modes of travel in city, speed restriction and priced parking is warranted.



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Chapter IX

Closing Plenary Session

Moderator: Mr G. Sharan, Director General (Road Development) & Special Secretary Govt. of India (Retd.)

Mr Sharan in his opening remarks emphasizing upon the awareness of road safety right from elementary school asserted that developing self-discipline towards road ethics though is a big challenge, however, we in our collective wisdom endeavor to arrive at the sustainable level.

2. Mr P Sakthivelu, IPS Inspector General of Police (Retd), Tamil Nadu, India stressing upon the human behaviour as the key contributing factor in road accidents re-affirmed the workable solution of strict and vigorous traffic enforcement through indispensable measures like introduction of e-challan for violations, unified driving licenses/vehicle registration, amendment to anti-corruption law, fast track courts (district level) for speedy settlement of claims and punishing erring traffic officials besides reward for outstanding endeavour of traffic officials etc.
3. **Dr K. K. Kapila, Chairman, IRF GPC recommending the mass awareness in sensitizing law makers towards importance of road safety activities under the MP/MLA Local Area Development Fund Schemes informed about the achievement of IRF (GPC) towards saving of lives of cyclists during dark hours by making it mandatory in BIS Code for the manufacturers to put reflective tapes on the bicycle red on back, orange on sides and white on front besides Dr. Kapila reminded his consistent endeavor towards inclusion of road safety regulations in school curriculum.**
4. **Mr Jean Francois Corte, SG, PIARC appreciating India as unity in diversity of culture and nature of federal structure asserted that complexity of solutions for rehabilitation work do exists but for new projects he do not perceive any legal obstacle in implementation of new**



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pragmatic approach which is reasonably expensive. He suggesting the need for change in mindset from reactive to proactive with strong wish to accept changes asserted that responsible people at decision making level should take initiatives in introducing new ideas.

5. Mr Harman Singh Sidhu, Chairman, ArriveSAFE recommending to follow the available best road Manual keeping in view our strength and weaknesses, appealed to work fearlessly and honestly to achieve set short/long term goals.
6. Dr M.C. Mishra, Director, AIIMS, New Delhi, India, citing the endeavor of AIIMS, New Delhi towards multi-prolonged strategy stated that a chain of training of doctors, nurses, paramedicos and pre hospital care providers has been completed. Dr Mishra asserting that 1/3rd of injuries in trauma care are brain injuries which have no full treatment, warranted to be best prevented by strict and proactive enforcement of traffic regulations since helmet wearing for two wheeler rider is mandatory by law. Dr Mishra emphasizing upon the strict medical checkup specially eyes while granting the driving license and mandating safety features in manufacturing of two-wheelers.

Mr S.S. Nahar, Secretary General, IRC emphasizing upon the pro-active and sustainable solution for visible improvements in road safety reaffirmed that building institutional capacity; introduction of GPS technology in order to proactive enforcement of speed & load limits, creation of unified highway patrol force in facilitation of traffic enforcement effectively and checking crime and marketed social media campaign is warranted to be indispensable.

The Conference ended successfully with reassurance in endeavoring collectively to save millions of lives in serving the mission of UN.
