

# LOGISTICS SAFETY *FOCUS ON TRUCKS*

By

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12<sup>th</sup> CII Safety Symposium & Exposition  
ITC Sonar, Kolkata

09 August 2018

# KOLKATA ACCIDENT RESEARCH INITIATIVE



- Jointly initiated by Kolkata Traffic Police, CII, ITC and JPRI.
- On-site crash investigations since November 2014.
- Monthly reports submitted to Fatal Squad of Traffic Police (FSTP), Kolkata.
- Latest report: 2017 Kolkata City Accident Study Report - submitted to Mr. Sumit Kumar, IPS, DCP (Traffic), Kolkata.

# RASSI - PUBLIC PRIVATE PARTNERSHIP

## States

1. Tamil Nadu
2. Maharashtra
3. Gujarat
4. West Bengal
5. Rajasthan

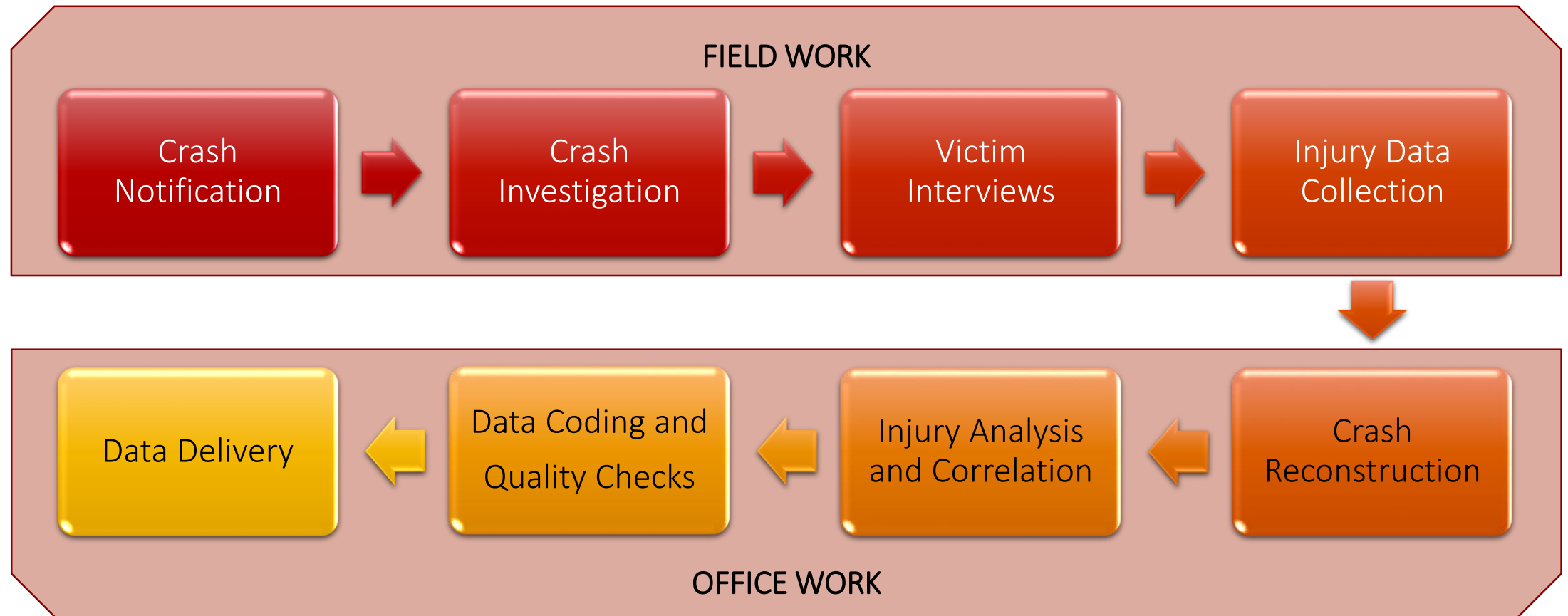
Founder and Co-ordinator:



## RASSI Members



# CRASH INVESTIGATION PROCESS

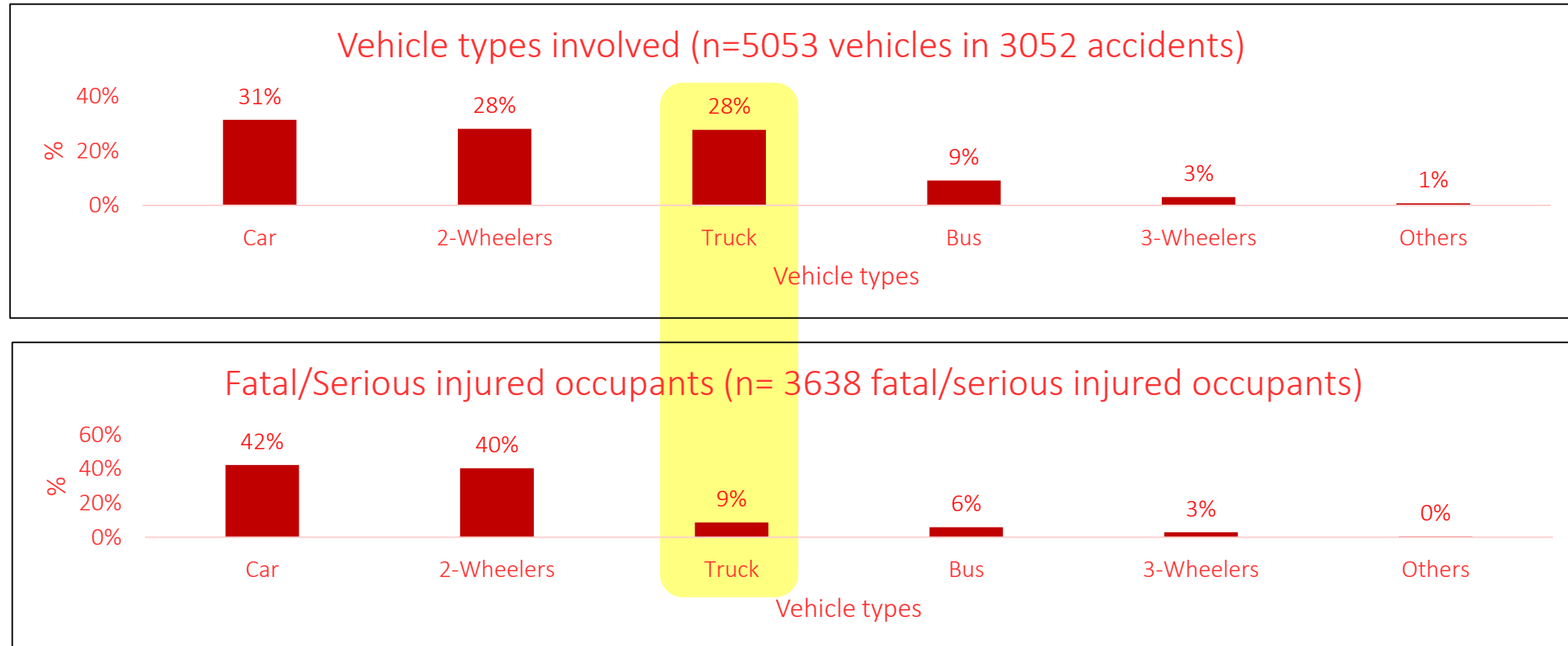


# THE HADDON MATRIX

## *A MUST KNOW FOR ANY ONE INVOLVED IN ROAD SAFETY*

		FACTORS		
PHASES		HUMAN	VEHICLE	INFRASTRUCTURE
PRE-CRASH	Crash Prevention	<ul style="list-style-type: none"> <li>• Driver Behavior</li> <li>• Driver Impairment</li> <li>• Driver Attitudes</li> <li>• Traffic rules</li> <li>• Police enforcement</li> </ul>	<ul style="list-style-type: none"> <li>• Roadworthiness</li> <li>• Working lights</li> <li>• Good brakes</li> <li>• Handling control</li> <li>• Speed control</li> </ul>	<ul style="list-style-type: none"> <li>• Road design and layout</li> <li>• Speed limits</li> <li>• Pedestrian Facilities</li> </ul>
CRASH	Injury prevention during the crash	<ul style="list-style-type: none"> <li>• Use of safety systems</li> </ul>	<ul style="list-style-type: none"> <li>• Crashworthiness</li> <li>• Crash protective design</li> <li>• Occupant restraints</li> <li>• Other Safety devices</li> </ul>	<ul style="list-style-type: none"> <li>• Crash protective roadside objects</li> </ul>
POST-CRASH	Life Sustaining	<ul style="list-style-type: none"> <li>• First-aid skill</li> <li>• Access to medics</li> </ul>	<ul style="list-style-type: none"> <li>• Ease of access</li> <li>• Fire risk</li> </ul>	<ul style="list-style-type: none"> <li>• Rescue facilities</li> <li>• Congestion</li> </ul>

# VEHICLE TYPE INVOLVEMENT & SEVERITY



- Although truck occupants suffer fatal/serious injuries, most truck accidents involve injuries to other road users.

# CONTRIBUTING FACTORS ANALYSIS *FOR TRUCKS IN ROAD ACCIDENTS*

## DATA SAMPLE FROM RASSI DATABASE

- 775 Truck Accidents in Highways
  - Coimbatore Rural District and Mumbai Pune Expressway
- 228 Truck Accidents in Urban Roads
  - Ahmedabad, Jaipur and Kolkata

## HADDON MATRIX APPROACH

- Phases: Pre-Crash, Crash and Post-Crash
- Factors: Human and Vehicle only

# CONTRIBUTING FACTORS ANALYSIS FOR TRUCKS IN HIGHWAY ACCIDENTS

	HUMAN	VEHICLE
PRE-CRASH	<ul style="list-style-type: none"> <li>• Driver – Sleep/Fatigue/Drowsiness (21%)</li> <li>• Speeding – Excessive speed for conditions (13%)</li> <li>• Improper lane change/lane usage (10%)</li> <li>• Overtaking in undivided road (9%)</li> <li>• Parked - vehicle on road (full or partial) (9%)</li> </ul>	<ul style="list-style-type: none"> <li>• Defective – Brakes/Tires/Steering (5%)</li> <li>• Absence of Reflectors (2%)</li> </ul>
CRASH	<ul style="list-style-type: none"> <li>• Seat belt not used (6%)</li> <li>• Occupants in cargo area (3%)</li> </ul>	<ul style="list-style-type: none"> <li>• Knock-down of M2W/Bicyclist/Pedestrian (26%)</li> <li>• Override (18%)</li> <li>• Passenger Compartment Intrusion (15%)</li> <li>• Seatbelts not available/usable (12%)</li> <li>• Run over of M2W rider/Bicyclist/Pedestrian (9%)</li> </ul>
POST-CRASH		<ul style="list-style-type: none"> <li>• Ejection (2%)</li> <li>• Entrapment (1%)</li> </ul>



# CONTRIBUTING FACTORS ANALYSIS FOR TRUCKS IN URBAN ACCIDENTS

	HUMAN	VEHICLE
PRE-CRASH	<ul style="list-style-type: none"> <li>Speeding - Excessive speed for conditions/over speed limit (17%)</li> <li>Driver Inattention (9%)</li> <li>Parked - vehicle on road (full or partial) (8%)</li> <li>Improper lane change/lane usage (7%)</li> </ul>	<ul style="list-style-type: none"> <li>Vision obstruction due to vehicle interiors (10%)</li> <li>Absence of Reflectors (2%)</li> <li>Defective - Steering (1%)</li> <li>Overloading - goods (1%)</li> </ul>
CRASH	<ul style="list-style-type: none"> <li>Seat belt not used (6%)</li> <li>Occupants in cargo area (3%)</li> </ul>	<ul style="list-style-type: none"> <li>Run over of M2W rider/Bicyclist/Pedestrian (42%)</li> <li>Knock-down of M2W/Bicyclist/Pedestrian (34%)</li> <li>Seatbelts not available/usable-others (3%)</li> </ul>
POST-CRASH	<ul style="list-style-type: none"> <li>None</li> </ul>	<ul style="list-style-type: none"> <li>Ejection (3%)</li> <li>Entrapment (1%)</li> </ul>

# HUMAN SAFETY SOLUTIONS:

## Driver safety training focus on the following issues:

- Parking of vehicle incase of breakdowns.
- Importance of wearing seat belts.
- Occupants should never be carried in cargo area.

# VEHICLE SAFETY SOLUTIONS

- Seatbelts
- Reflective Markings
- Underrun protection device



# VEHICLE SAFETY SOLUTIONS *FOR DRIVER VISION OBSTRUCTION*

## Problem



Video Courtesy: Kolkata Traffic Control Room

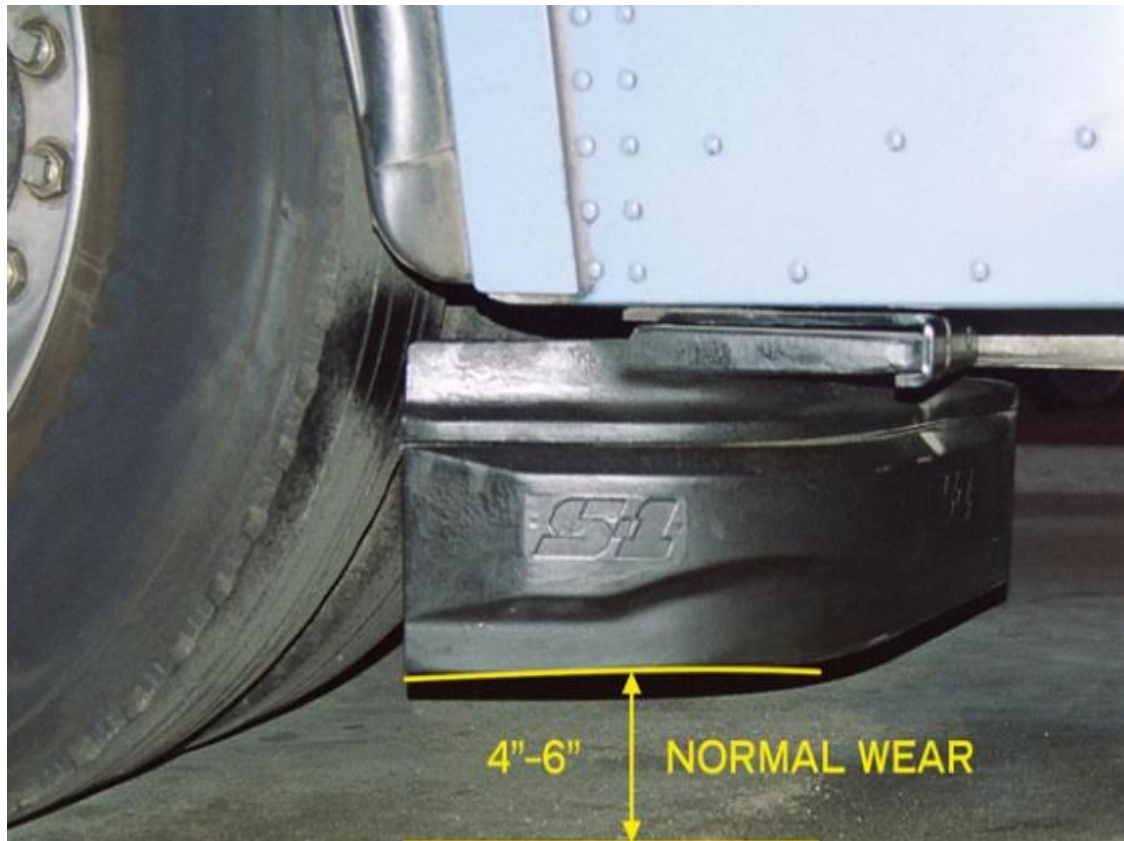
## Solution



Additional mirror showing the front of the vehicle

# VEHICLE SAFETY SOLUTIONS *FOR RUN OVER PROTECTION*

Runover protection devices for urban buses



# LOW-HANGING FRUITS

## *FOR SAFER TRUCKERS AND TRUCKS*

HUMAN SAFETY	VEHICLE SAFETY
Parked vehicle on road (full or partial)	Reflective tapes on all sides
Seat belt not used	Underrun protection devices
Occupants in cargo area	Additional mirror to aid driver vision directly in front of vehicle
	Run over protection device

COIMBATORE



PUNE



AHMEDABAD



KOLKATA



JAIPUR



# THANK YOU!

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