

Robert Bosch Engineering and Business Solutions

Summary of presentation.

- The tremendous increase in the number of vehicles on Indian roads has also unfortunately led to the increase in the number of road accidents. Perhaps we are all aware of the state of vehicle safety in India. We have the dubious distinction of the highest road fatalities globally. An alarming 142,000 lives are lost on road each year and an accident takes place every minute.
- In the year of 2013 in India the total number of accidents with injuries is registered by Ministry of Road Transport and Highway with 486,476 out of which injured people are 494,893 and fatalities are 137,572. 29% of fatalities are users of two wheelers which constitute the highest & 17% of the fatalities are occupants of passenger cars which constitute the second highest contributor for fatal accidents in India
- India accounts for 10% of the global road crash fatalities as we are yet to adopt a system of scientific investigation and analysis of road crashes. Therefore traffic safety became very important in India. In order to understand the root causes of accidents data is needed in more detail which could be analyzed and points out the major issues to look at. Besides vehicle safety, Infrastructure related issues and education skills can be derived out of accident data.
- Official statistics regarding accidents in India are not available. More detailed information about accident causes, accident conditions and consequences are roughly obtained. There is a lack of engineering data in the available reports. To address traffic safety related issues like infrastructure, driving behaviour and benefit of vehicle safety systems more detailed accident data is needed.
- We need in depth “Accident Data” which can be analyzed, to understand major factors/causes and find solutions, to stop this increasing trend of accidents and fatalities. Accident research can help understand the need for the better implementation of infrastructure, education and awareness and vehicle safety systems.
- Bosch Accident research team started to expand their accident research activity to India in 2009/2010 in Coimbatore, Tamil Nadu. The main focus of the pilot study covers the topics on infrastructure, traffic safety awareness and vehicle safety. The results of the study led to the establishment of RASSI accident database (Road accident sampling System for India) with powerful partners in international consortium which includes similar details according to GIDAS (German In-depth Accident Study) and US Databases NASS-GES (National Automotive Sampling System-General Estimation System) and CDS (Crashworthiness Data System). The focus is currently on 4 national highways near Coimbatore Tamilnadu and Mumbai Pune Express way in Maharashtra, collecting all kinds of traffic accidents with casualties. As of now, 800 accidents with ~1000 variables are included in the database. Besides accident data collection, information about severity and reconstruction are also objectives of this study.
- RASSI Project in India: As supported by Bosch and several OEMs, RASSI Consortium was established in 2011 which includes Bosch, Daimler, Nissan, Renault, Hyundai and JP Research as data collection partner (as of JAN 2014). The RASSI investigators attend the crash scene and collect data using latest accident investigation techniques involving accident scene examination, accident vehicle examination, vehicle interior inspection and later injury

coding and correlation. Accident reconstructions based on a scaled sketch, which assess e.g. the impact speed, are later carried out based on onscene information including collision point, pedestrian and vehicle end-positions, and brake and skid marks. Approximately 1000 different variables are collected for each accident and recorded and stored in digital format.

The outcome of accident research activities are effectively used in identification of key issues for traffic safety in India,

- Safety legislation in India
- NCAP (Crash test) technical specifications are derived out of AR data
- Benefit estimation of Key safety products in India
- Key suggestions to engineering team on product design and development
- Design of India specific safety products
- Key suggestions to Ministry of surface and road transportation in terms of formulation of safety strategies towards safety
- Key suggestions to OEM , SIAM , ACMA(Society of Indian Automobile Manufacturers) and Suppliers from ACMA (Automotive Component Manufacturers Association of India) in terms of formulation of safety strategies towards safety
- Representative in drafting/Amending CMVR rules and legislations – Central motor vehicles rules and legislations India
- Methods and training in Data collection of road traffic accident to local police evaluation of recorded data, taking up accident prone areas and using our expertise to reduce and manage safety
- Creating awareness material based on engineering aspects, using effective materials on accidents, rather than a general awareness videos. Also awareness for other segments of road users Truck drivers, etc.
- Post Crash Response/Emergency Care-creation of ecall app for smart phones

Sources:

1. *Bosch Accident Research (India)*
2. *Road Accident in India 2013 , Transport Research Wing, Ministry of Road Transport and Highway Department, GOI.*
3. *RASSI: Road Accident Sampling System India (2010 through 2014)*
4. *JPR: Jeya Padmanaba Research India*