



REFLECTIVE STICKERING ON REAR SIDE OF VEHICLES - A Strategic Safety Initiative to Reduce Accidents on National Highways

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KEYWORDS

Introduction:

World-wide about 1.2 million people are killed and 50 million people are injured in road crashes every year. Developing countries are experiencing high rates of increase in car ownership, population and in demands for enhanced mobility. The resultant increase in number of people killed or injured in road crashes, poses a great challenge for those responsible for the road transport system in the developing world.

Most (91%) of the world's fatalities on the roads occur in low income and middle income countries which have only 48% of the world's registered vehicles. Approximately 62% of the reported road traffic deaths occur in ten countries, which in order of magnitude are India, China, United States, Russian Federation, Brazil, Iran, Mexico, Indonesia, South Africa and Egypt which account for 56% of world's population.

While the number of total deaths is clearly related to both the population and motorization levels within a country and does not give an assessment of risk, it nonetheless gives an indication of where intervention could help significantly to reduce the number of road traffic deaths at a global level.

Road Accidents Scenario in India:

In India, total number of road accidents increased by 2.5 per cent from 4,89,400 in 2014 to 5,01,423 in 2015. The total number of persons killed in road accidents increased by 4.6 per cent from 1,39,671 in 2014 to 1,46,133 in 2015. Road accident injuries have also increased by 1.4 per cent from 4,93,474 in 2014 to 5,00,279 in 2015. The severity of road accidents, measured in terms of number of persons killed per 100 accidents has increased from 28.5 in 2014 to 29.1 in 2015. (Accident report 2015 MORT & H, GOI)

The analysis of road accident data 2015 reveals that about 1,374 accidents and 400 deaths take place every day on Indian roads which further translates into 57 accidents and loss of **17 lives on an average every hour** in our country. About 54.1 per cent of all persons killed in road accidents are in the 15 - 34 years age group during the year 2015. During 2015, only 13 States accounted for 86.7% of road accidents in the Country.

Major causes of accidents on National Highways:

- (1) Over speeding
- (2) Road side parking of vehicles leading to rear end collision of vehicles
- (3) Drunken driving
- (4) Helmetless driving
- (5) Unfastened seat belts in 4 wheelers

Accident Statistics: (On 6-lane stretch of NH-16 from Vijayawada to Tada)

As per the road accident statistics available with Police, South Coastal Zone in Andhra Pradesh, about 400 accidents occurred on the stretch from Vijayawada - Tada, National Highway No. 16, out of which, about 102 are only due to rear end collision of vehicles (due to parking of vehicles on the road side), which account for

about 25% of the accidents on the above National Highway stretch.

Reasons for rear end collision:

Drivers are habituated to park the trucks on the road side, for having food on the adjacent dhabas, attending to nature calls and for taking rest due to fatigue. Owing to the poor visibility of the parked vehicle on the road side, especially during night time or during the time of fog, the approaching vehicles at a higher speed meet with rear end collision with the parked vehicle. The reason for this rear end collision is due to lack of any reflective object on the rear side of the vehicles.

Initiation of a pilot project:

To address the problem of rear end collision type of accidents , a pilot project on Road Safety with a title - "SAFE HIGHWAYS – REFLECTIVE STICKERING CAMPAIGN" was taken up with the coordination of the following stakeholders:

- (i) Andhra Pradesh Police, South Coastal Zone, Andhra Pradesh.
- (ii) National Highways Authority of India
- (iii) M/s Vijayawada Tollway Pvt. Ltd., (Concessionaire for 6-laning project)
- (iv) National Service Scheme wing of Acharya Nagarjuna University, Nambur
- (v) Vendors for Reflective stickering
- (vi) Lorry Owners Association, Guntur

Location:

Kaza Toll plaza on the 6 - lane stretch of Vijayawada – Chilakaluripet section of National Highway No.16

Necessity of the project:

(a) Several accidents are occurring due to rear end collision type of accidents owing to poor visibility / lack of reflectivity on the vehicles during night time and in adverse weather conditions.

(b) Reflective Stickers improves visibility in all weather conditions and reduces the incidents of motorists crashing in to the sides or rear of vehicles at night time.

Objectives:

- To educate the importance of rear side stickering to truck drivers in prevention of accidents.
- To ensure stickering at rear side of different category of transport vehicles
- To achieve reduction in rear end collision accidents and enhance the safety of road users.
- To study various other aspects of the drivers, leading to accidents.

Standards followed for stickering:

Automotive Industry Standard (AIS 090) for "Approval of Retro Reflective Markings for Heavy and Long Vehicles, their Trailers and Semi Trailers"

Methodology:

- Commercial vehicles at random, not having rear end stickering

- were stopped at the toll plaza location, with the assistance of police personnel.
- Driver was briefed and educated about the importance of the reflective stickering programme.
- Stickering was carried out by the NSS students and staff of vendor, as per the standard specifications.
- Cost of stickering was borne by the driver and paid to the vendor at site
- Details of all vehicles provided with stickering were maintained in as prescribed Proforma.
- Drivers will be interviewed on the aspects of education, age, income, habit of alcohol and awareness on safety.

Analysis and discussions:

S.No	Date	Trucks passing through the toll plaza per day	Number of trucks provided with stickering	Percentage of stickering carried out
1	07-11-2016	5786	258	4.5
2	08-11-2016	6524	578	8.9
3	09-11-2016	6731	155	2.3
4	10-11-2016	7640	215	2.8
5	11-11-2016	7434	298	4.0
6	12-11-2016	6791	139	2.0
7	13-11-2016	6267	151	2.4
8	14-11-2016	6135	135	2.2
	TOTAL	53308	1929	3.61

- Maximum number of trucks (578) were provided with reflective stickering as per Automobile Industry Standards on 08-11-2016, accounting for 8.9% of the trucks passing through the toll plaza.
- The percentage of trucks provided with reflective stickering as per Automobile Industry Standards on other days of the project period ranged from 2% - 4.5%.
- Apart from the above salient data of the Pilot project, certain other Demographic data of Drivers, which have a significant influence on road safety were also collected and tabulated as below:

Table 1: Education level

S.No	Education level	No. of Respondents	Percentage
1	Graduate	251	13
2	12th Standard	309	16
3	10th standard	444	23
4	Below 10th	540	48
	TOTAL	1929	100

- About 71% of the drivers Educational Qualification of were 10th Standard and below.
- 29% of the drivers have better Educational Qualification of 12th Standard.

Table 2: Age Profile

S.No	Age	No. of Respondents	Percentage
1	More than 60 years	463	24
2	41 years - 60 years	540	28
3	25 years - 40 years	752	39
4	Less than 25 years	174	9
	TOTAL	1929	100

- About 48% of the drivers are aged below 40 years.
- About 52% of the drivers are aged above 40 years.

Table 3: Monthly Salary

S.No	Monthly Salary	No. of Respondents	Percentage
1	More than 30,000 INR	309	16
2	15,000 INR to 30,000 INR	251	13
3	10,000 INR to 15,000 INR	1080	56
4	Less than 10,000 INR	289	15
	TOTAL	1929	100

- About 71% of the drivers have a monthly salary less than 15,000 INR.
- About 29% of the drivers have a monthly salary of more than 15,000 INR.

Table 4: Habit of Alcohol

S.No	Habit	No. of Respondents	Percentage
1	Yes	1215	63
2	No	714	37
	TOTAL	1929	100

- About 63% of the drivers have habit of Alcohol.

Table 5: Highway safety rules

S.No	Awareness	No. of Respondents	Percentage
1	Don't have much	984	51
2	Never bothered	501	26
3	Have good	444	23
	TOTAL	1929	100

- About 77% of drivers have low awareness of highway safety rules.

Findings:

Reflective Stickering:

- About 50% of the Trucks passing through the toll plaza are not having reflective stickering on the rear side.
- The existing reflective stickering on the trucks, though not as per desired standards is serving the intended purpose to a reasonable extent.
- During the Pilot project, on an average, reflective stickering was carried out on the Trucks / multi axle vehicles to the extent of 2 to 3% per day.
- The total percentage of vehicles, provided with reflective stickering during the Pilot project of 8 days is 3.61%.

Drivers: (Aspects leading to accidents)

- Poor educational back ground and low awareness levels on road safety and road management.
- Forced to be behind the wheels for strenuous long hours and leading to fatigue.
- Lack of health consciousness, especially regarding the eye sight.
- Distracted thoughts due to lack of basic comforts, the leading one being low income, not able to meet the needs of the family.
- Getting addicted to drugs and alcohol to get relieved of the stress and fatigue.

Suggestions:

- The exercise of providing reflective stickering on rear side of all class of vehicles plying on all the National Highway is to be carried out at all the toll plazas through various agencies.
- The incidences of rear end collision accidents can be totally brought down to minimum if reflective stickering is provided on all class of vehicles especially trucks / buses / multi - axle vehicles.
- Parking of vehicles is not to be allowed on Main Carriage way of the highways, unless otherwise the rear ends are reflective, to be identified during the night time.
- Stern enforcement by Police / Transport department on ensuring the reflective stickering on vehicles will bring visible changes on road safety and will contribute to reduction of accidents on National Highways.
- Poor academic background and lack of safety awareness of the drivers is to be thoroughly addressed by establishing more training

centres to impart awareness to the drivers on all aspects of driving, safety, road management, fuel conservation, repairs, maintenance and further equip them for life both on and off the roads.

6. More rest areas and truck parking areas are to be set up for every 50 Kms to enable the drivers to take rest during the peak hours of fatigue and stress, especially in the early hours of the day.

7. Transport owners to recruit truck drivers through driver training institutes and give them job with substantial salary, to meet all basic needs of the family.

8. Major truck manufacturers should take up Promotion of holistic approach to health, stress control and overall well being of the drivers of all ages, especially those who are above 40 years, as a Corporate Social Responsibility.

9. Drivers comfort is to be properly addressed from all corners as it affects the overall psychological and behavioral patterns of the driver.

10. More emphasis from Government to ban the liquor shops within 200 mts from National Highways / State Highways.