

Accidents Investigation for Particular Zone and its Analysis

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Abstract— India is a creating nation and security of road is still in an untimely stage. Accident severity is expanding in expanding request because of expanding in vehicle populace. Accident prompts disablement, demise, harm to wellbeing and property, social enduring and general corruption of condition. The street mischance circumstance in India is disturbing. Records demonstrate that there is one passing at regular interval in view of street mischance. Road accidents inflict heavy economic loss to the country. Road safety is necessary to lessen mishap including both human and vehicles there by making the street more sheltered and easy to use to movement. NH-53 is one of the major connectivity from Mumbai to Kolkata which takes into the account the need of transportation of light goods to heavy goods and travelers. Study area was undertaken on road NH-53 from Charoda to Bhilai Power House with distance of 8km in Chhattisgarh state. The steel based power plants and steel industries have been set up since 1955. The study Stretch is a major connectivity to a heavy traffic area. The no of accidents is expanding every year because of expanding vehicles population. The area in a roadway where the traffic accident frequently is called a black spot. The accident information is investigated using accident frequency and seriousness record strategy. The safety deficiencies were identified to limit accidents and save the road users. The inadequacies alongside the measures for further improvement have been presented in next paper.

Key words: Accidents Investigation

I. INTRODUCTION

Road traffic accident is an injury due to crashes originating from, terminating with or involving a vehicle partially or fully on a public road. It is projected that traffic injuries will move up to the third position by the year 2020 among leading causes of the global disease burden. They are considerable economic losses to victims, their families, and to countries as whole. India is number of exception and data as a accidental record. India the dubious honor of topping the global list of fatalities from road crashes.

Accidents are a drain on the national economy and may prompt disablement, death, harm to wellbeing and property, social enduring and general corruption of condition. To limit the no of accidents by any sort and seriousness anticipated that would happen on the substance amid a particular period is known as street security. Accidents and the fatalities on street are the result of between play of various variables. Street clients in India are heterogeneous in nature, running from walkers, creature driven trucks, bicycles, rickshaws, pushcarts and tractor trolleys, to different classifications of two/three wheelers, engine autos, transports, trucks, and multi-hub business vehicles and so on., The vehicle population has been steadily increasing on account of progress in the style of living of people. Increase in vehicle population with limited road space utilized by an expansive assortment of vehicles has uplifted the need and criticalness for a well thoroughly considered strategy on the

issue of street security. In India the rate of mischance is straight forwardly corresponding to development of vehicle populace.

Road accidents are a personal misfortune, & that relate sharp creature discomfort. They promulgate an immense socio-economic take when it comes to premature deaths, injuries and lack of ability income. The ramifications of subway accidents may be vast and its unfavorable affect is felt not just on individuals, their hardihood and welfare, but also on the economy. Consequently, artery safety has become an issue of national concern. Road Safety is a multi-sector and multi-dimensional issue. It fuses the advancement and administration of street framework, arrangement of more secure vehicles, enactment and law authorization, versatility arranging, arrangement of wellbeing and healing facility administrations. As it were, its ambit traverses building parts of both, street and vehicles on one hand and the arrangement of wellbeing and healing facility administration for injury cases in post-crash situation.

Reasons for accidents and their commitment are as per the following by measurements of Street mishaps in India.

- Drivers blame 77.5%
- Imperfections in street condition- 1.5%
- Deformities in engine vehicle- 1.6%
- Blame of bicyclist- 1.3%
- Blame of person on foot 2.4%
- Climate condition- 1%
- Every single other reason 14.8%

Street wellbeing in India is the poorest on the planet. As indicated by MORTH India has the highest number of accident in the world. Awareness among road user and safe outline of Road components is important to decrease mishap including both human and vehicles

II. DATA COLLECTION

According to Chhattisgarh data of road accident, of the 13,820 accident in 2017. Raipur recorded maximum 2103 accidents with 430 killed. In 2016, of 13,657 accident, capital count was 2,242 with 394 killed. This year till march, there have been already registered 120 fatalities. Bilaspur is the second with 1058 accidents and 262 death in 2017 while Durg that witnessed 1040 accident with 269 death is third.

Chhattisgarh ranks between 11th to 12th in the country when it comes to road accidents with the number of daily accidents recorded at 37 injuries and 11 deaths per day Road safety experts in traffic department said that actually number of fatalities could be much higher since many cases are not reported, especially after injured people die during treatment or after a few days of the accident. Their death are then no longer linked to road traffic accidents.

According to national crime records bureau, most accidents in Chhattisgarh happened due to Over-speeding with 1,175 persons being killed in 4,237 cases in 2017. Another 992 died in 3,546 cases that are related to overtaking and careless driving.

A. Road Selected for Study

- Two-lane roads from Charoda to Bhilai power house on NH-53 was chosen
- 1) Charoda bus stand chowk to sirsa gate (S1)
- 2) Sirsa gate chowk to transport area (S2)
- 3) Transport area chowk khursipar chowk (S3)
- 4) Khurisipar chowk to Power house chowk (S4)

Year	Fatal	Major injury	Minor injury
2011	11	30	58
2012	16	28	37
2013	21	32	61
2014	18	37	50
2015	20	34	81
2016	13	41	74
2017	23	47	87

Table 1.1 Details of Accidents

B. Data Collected From Area Investigation: Chhattisgarh

In 2017, there were 1,580 road crashes in area, which resulted in 308 deaths and left 955 person injured

The percentage share of accident in area is total road crashes eleventh at 2.8% and eleventh in total number of people injured and a 4.2% decreases in fatalities.

Certain positive trends have been observed with regard to road crash statistic in area since 2015 there has been a 5.9% decrease in road crashes, a 3.5% decrease in people injured and 4.2% decrease in fatalities

III. ANALYSIS OF DATA & DISCUSSION

A. Accident Rate & Frequency

Name of area	Length	No. of accident in a year	
		Sum of 10yr	Accident rate
Charoda bus stand to sirsagate		228	45.6
Sirsagate to transport area		208	41.6
Transport area to		26	5.2
To power house chowk		239	47.8

Table 1.4: Frequency of Acciden

Distance of origin	No of accidents (2011-2016)	Frequency	Total frequency
0-5	228	32.5	32.5
6-10	208	29.6	62.1
11-15	26	3.7	65.8
16-20	239	34.1	100
Total	701	100	260.5

B. Analysis

1) Black Spot Analysis

The point where accident occurs frequently is known as black spot or accident point. Analysis is required for improving traffic environment. The detail analysis of four stretches are shown below

Accident point	No. of accidents	Problem	Safety enhancement
Hanuman mandir crossing	20	x-signalized	Sight distance visibility
Jyoti school	7	T, area on both side, school ,heavy traffic	Clearance of obstruction on shoulder
Church	16	Short crossing area with steep gradient	Installation of speed breaker
Petrol pump	12	Petrol pump, transformer on blind corner, sight distance obstruction	Junction improvement, clearance of obstruction on shoulder
Padumnagar gate	9	Market area, chowpatie, unusual traffic	Clearance of obstruction
Sbi bhilai	8	On street parking, with no marking	Installation of breaker
Government college	17	Sight distance obstruction	Sight distance visibility

Table 1.5: Black Spot Analysis Area -1

Accident point	No. of accident	Problems	Safety
Sirsa gate chowk	14	x-signalized	Clearance of obstruction on shoulder, sight distance visibility
Shanti nagar	8	Median without sign on the road, temple on the shoulder	Median to be painted, obstacle on th road should be removed
Masjid	10	Market area, garage	Discouragement of market area
Bhilai-3 petrol pump	9	Bad shoulder front area of petrol pump damaged	Shoulder maintenance, petrol pump front should be repair
Station	6	Taxi stand, on street parking	Clearance of obstruction on shoulder
Kapda market	11	Wine outlet, unpainted median	Junction improvement

Table 1.6: Black Spot Analysis Area -2

Accident point	No. of accident	Problem	Safety
Transport area chowk	15	T, area with heavy truck	Speed restriction
Khursipar mini stadium	6	Bad shoulder	Shoulder maintenance
Khursipar chowk	10	Steep gradient	Junction improvement

Table 1.7: Black Spot Analysis Point -3

Accident point	No. of accident	Problems	Safety
Mangal Bhawan	5	Shoulder drop off, shoulder ponding	Clearance and maintenance
Nagar Nigam office	7	Motor show room, shoulder ponding by drains	Off street parking facility, shoulder maintenance
Imi multispeciality	11	Curved side distance obstructed by tree	Curve side distance visibility
Hotel lovely palace	9	On street parking	Clearance of obstruction on the shoulder
Power house chowk	24	Taxi stand, vegetable Market area	Clearance of obstruction, sight distance visibility

Table 1.8: Black Spot Analysis Point-4

IV. CONCLUSIONS

- 1) The accessible written works on accident examination show that 77.5 percent of street accidents in India are caused because of driver's mistake.
- 2) Heavy vehicles like truck are engaged with most extreme no of mishap on two-path streets. It is assessed that fatalities caused by truck is 59 % taken after by other (26%) and bicycle (7%) and jeep (5%) and transport (3%). Road security mindfulness ought to be raised among street client.
- 3) Stretch IV has the most noteworthy no of mishaps which represents 34.1% of aggregate accident. The mishap rate can be diminished by street side leeway, legitimate support of shoulders, lighting, and intersection change. Speed point of confinement ought to be brought around giving mounds Close mischance spots. Sight remove close bends ought to be without deterrent.

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