

Safety Issues on Indian Railways



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INDIAN RAILWAYS: AN INTRODUCTION



- Around 23 million passengers per day
- 1000 million tonnes of freight a year
- Nearly 64460 route kilometres
- Over 7100 block stations
- Nearly 1.3 million employees
- Daily earnings of \$ 40 million on an average
- Aiming for \$ 13 billion dedicated freight corridor (DFC) mega project



OUTLINE OF PRESENTATION



- Analysis of accident figures of Indian Railways
- Response of Indian railways
- The issue of level crossings: providing alternative
- Various innovations
- Case study of Delhi Division

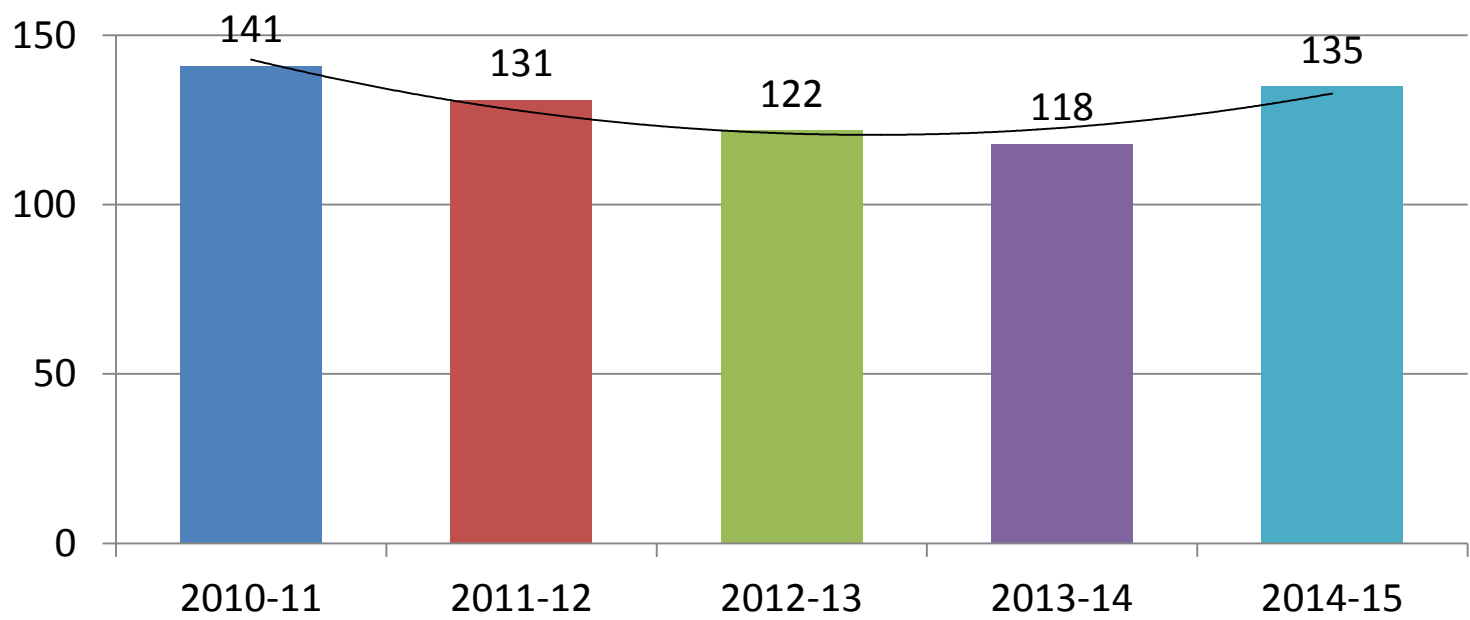


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ANALYSIS OF ACCIDENT FIGURES OF IR

Consequential Train Accidents per year



(5 Year : 2010-11 to 2014-15)

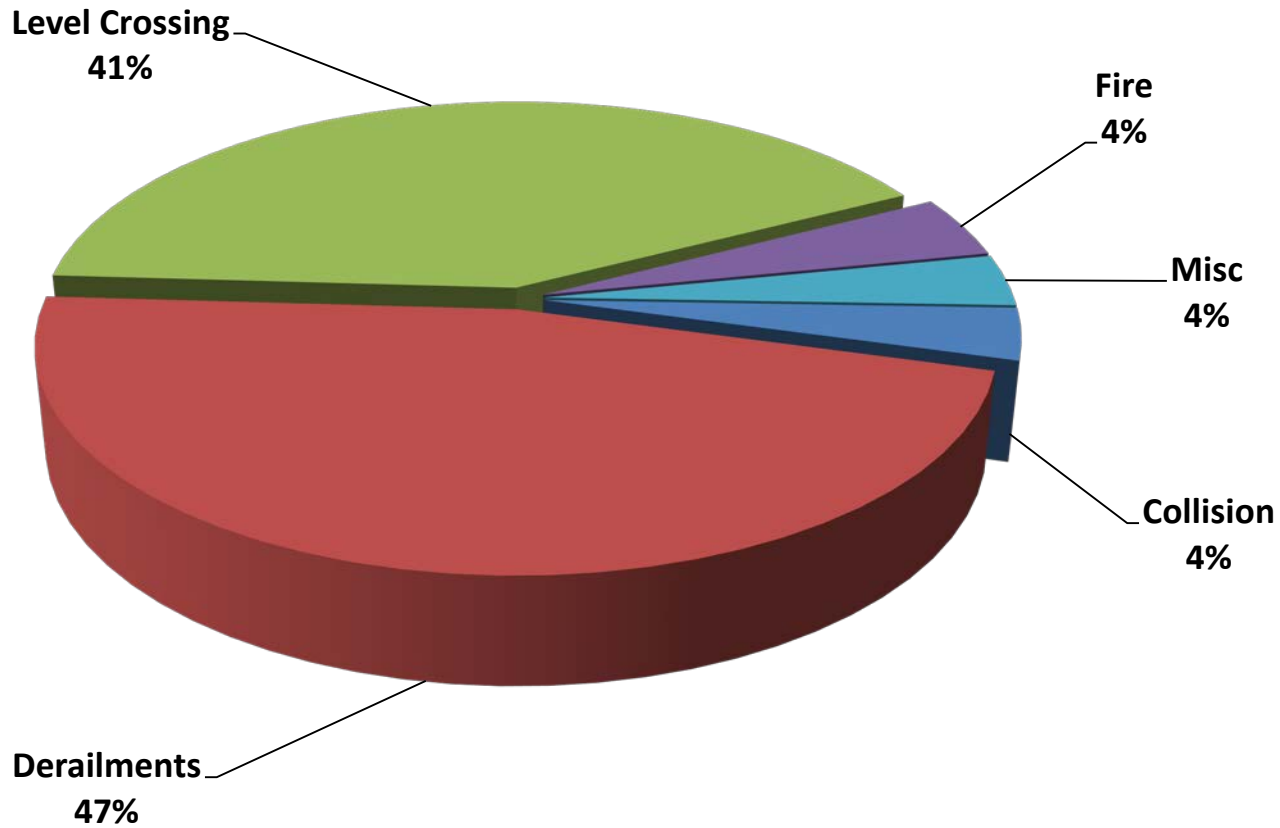


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TYPES OF ACCIDENTS



Accidents in 2014-15 in %



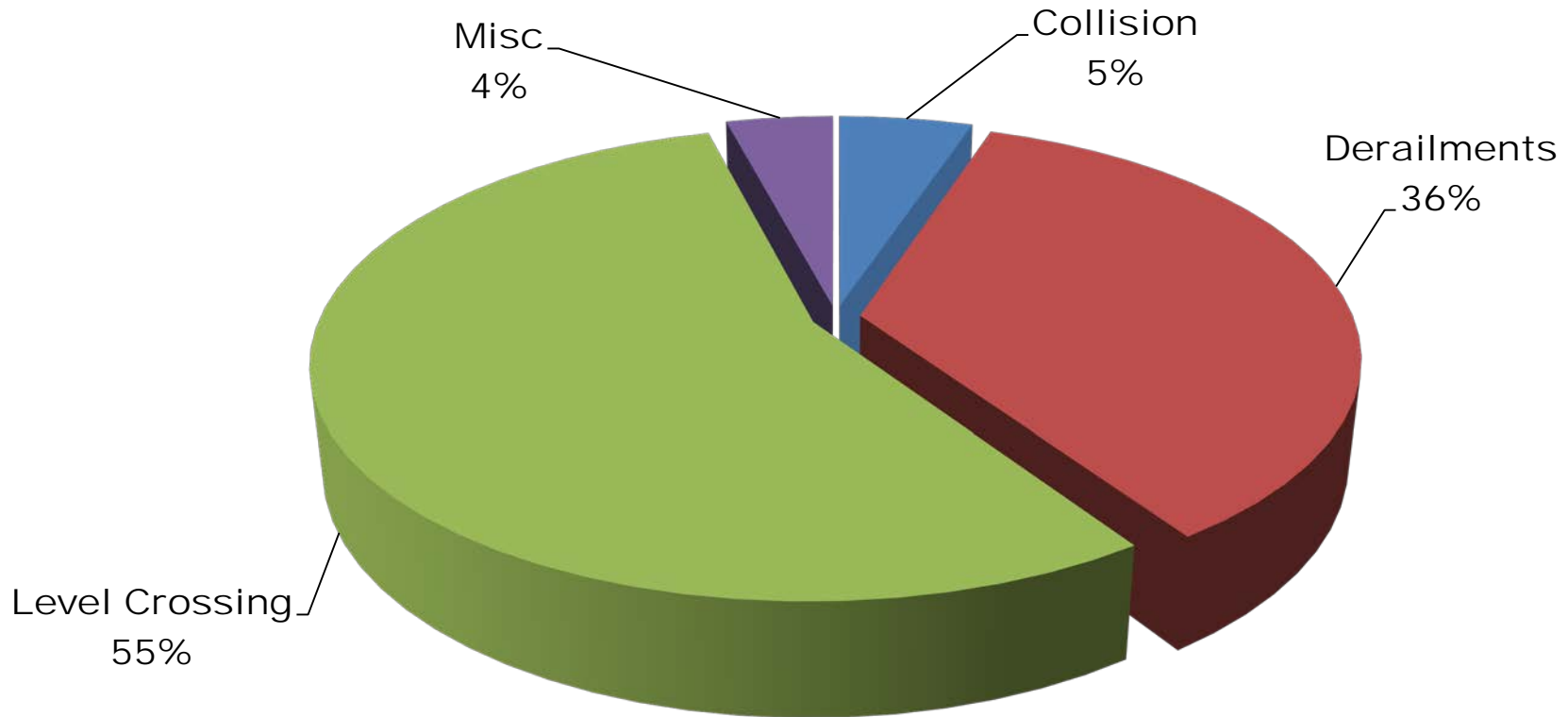


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CASUALTIES IN ACCIDENTS



Casualties in Train Accidents in 2014-15





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Comparison of IR accident statistics with European Rail Systems



Average number of accidents in 2012.

<u>SN</u>	<u>Country</u>	<u>Total accidents</u>	<u>Total number of million train km</u>	<u>Accidents per million Train Km</u>
1	United Kingdom	26	535.59	0.05
3	Spain	22	188.73	0.12
4	Germany	139	1038.11	0.13
5	Denmark	10	63.06	0.16
6	France	85	511.9	0.17
7	Netherlands	25	149.77	0.17
8	<u>India</u>	<u>194</u>	<u>963.48</u>	<u>0.20</u>
9	Sweden	33	140.43	0.23
10	Belgium	24	99.26	0.24
12	Austria	44	149.8	0.29
13	Finland	16	50.89	0.31
14	Portugal	13	37.5	0.35

Source: European Railway Agency (ERA)



RESPONSE OF INDIAN RAILWAYS



4 'A' i.e.

- ✓ Awareness,
- ✓ Alternatives,
- ✓ Accountability &
- ✓ Administer



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THE ISSUE OF LEVEL CROSSINGS: PROVIDING ALTERNATIVE

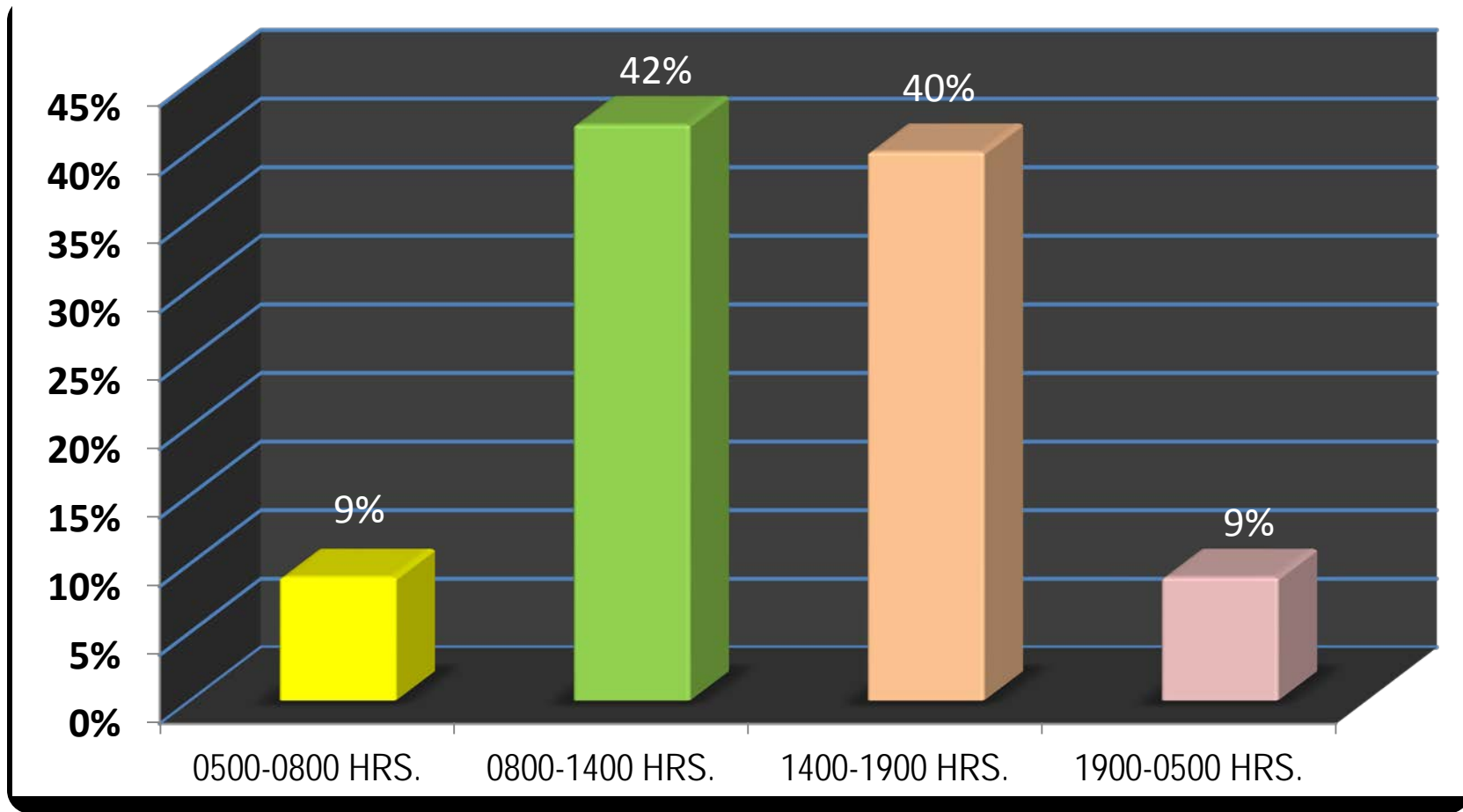


- Total 31,254 level crossings on 1.04.2013
- 12,582 (40%) level crossings unmanned
- Unmanned Level Crossing accidents constitute 38% of the total train accidents resulting in 56% of deaths and 25% of injuries in train accidents.



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TIMINGS OF ACCIDENTS





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ACTION PLAN FOR ELIMINATION OF UNMANNED LCS



Items	2013-14	2014-15	2015-16	2016-17	Total
By Closure (having NIL/Low Traffic)	173	309	218	207	907
By Merger to nearby (LC/RUB/ROB)	203	377	366	360	1306
By Construction of RUBs/Subways	476	1286	1272	1390	4424
By construction of Low Cost ROB	5	18	17	15	55
By Manning	495	936	814	871	3116
Total	1352	2926	2687	2843	9808



WAY TO ADMINISTER

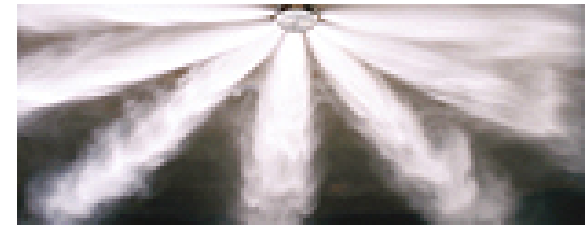
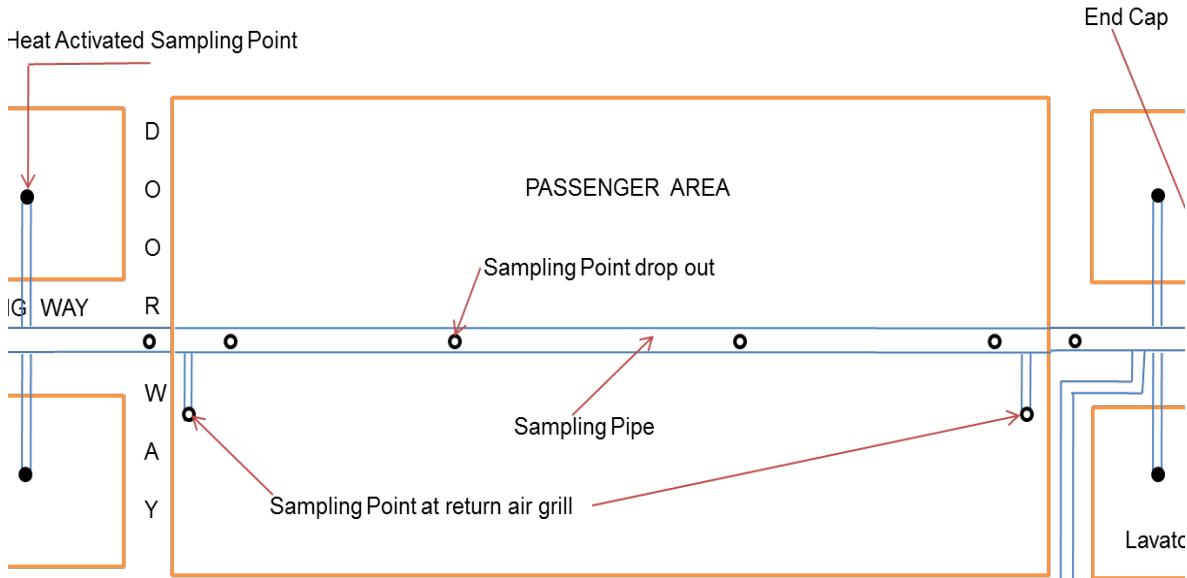


- Various innovations like active and passive warning systems, sliding boom level crossing system, Train Actuated Warning Device (TAWD), Gate Warning System as part of Anti Collision System.
- SIMS (Safety Information Management System)
- Provision of Vigilance Control Device
- Periodical Safety Audits
- Standardised Track Structure and LWR
- Crashworthy and Fire Worthy features of Coaches

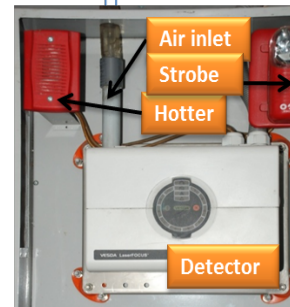


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AUTOMATIC FIRE AND SMOKE DETECTION SYSTEM ON COACHES



Fire Suppression system on Power Cars and Pantry Cars





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INTRODUCTION OF CCTV ON COACHES TO IMPROVE SECURITY OF WOMEN PASSENGERS



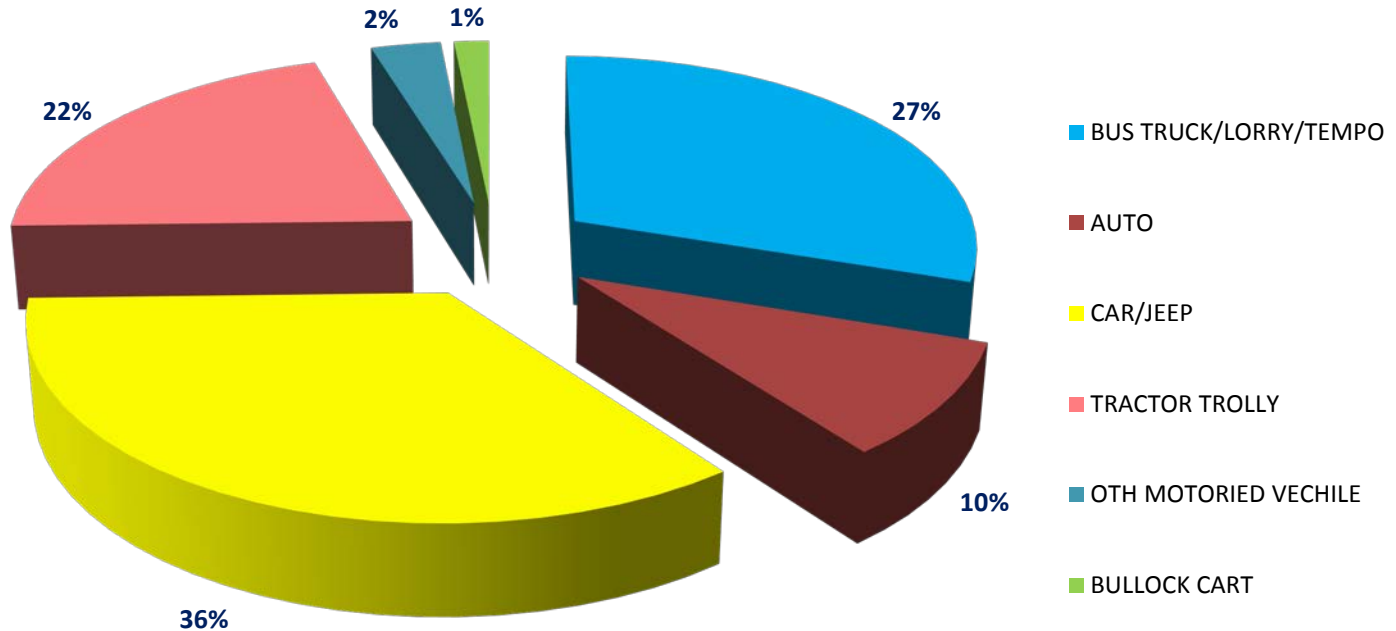


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TYPES OF VEHICLES INVOLVED IN ACCIDENT

Analysis of UMCL Accidents 2008-09 TO 2012-13





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PATH TO AWARENESS: CASE STUDY OF DELHI DIVISION



- 'Sukhi Griha' scheme



- Public education programs



- Street plays and dramas

- Indian Railway museum at Delhi



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AWARENESS CAMPAIGNS



- Posters in Panchayats (local village government offices).
- Targeting illiterate heavy vehicle drivers
- Safety campaigns in rural areas
- Sending SMS messages
- Media Sensitization workshops
- Appointing Rail Safety Ambassadors from celebrities



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REGIONAL SEGMENTS



State/ Region	Literacy	Per capita income (Rs.)	Population Percentage		Level crossing		Route Km.	Level Crossing /route Km.
			Rural	Urban	Manned	Unmanned		
Bihar(E)	63.82	24681	9,20,75,028 (88.70)	1,17,29,609 (11.30)	981	1089	3515	0.59
Delhi(N)	86.34	175812	4,19,319 (2.50)	1,63,33,916 (97.50)	56	02	182	0.32
Punjab(N)	76.68	78172	17,31,68,100 (62.51)	1,03,87,436 (37.49)	775	865	2133	0.77
Kerala (S)	93.99	83725	1,74,55,506 (52.28)	1,59,32,171 (47.77)	418	101	1050	0.49
Gujrat (W)	79.31	75115	3,46,70,817 (57.42)	2,57,12,811 (42.58)	1470	2688	5328	0.78
Maharastra(W)	82.91	83471	6,15,45,441 (54.77)	5,08,27,531 (45.23)	1176	1051	5601	0.40
Andhra Pradesh(S)	67.66	71540	5,63,11,788 (66.51)	2,83,53,745 (33.49)	421	595	5185	0.20
West Bengal(E)	77.08	55864	6,22,13,676 (68.11)	2,91,34,060 (31.89)	1155	1123	3890	0.59



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ISSUE OF ACCOUNTABILITY



- Claims and Compensation on vandalizing Government properties.
- Deteriorating law and order situation in some parts
- Issue of Sabotage



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CONCLUSION



Co-operative relationships with stakeholders

- ✓ Railway staff
- ✓ Road users and maintenance authorities
- ✓ NGOs, Police and Urban development authorities.
- ✓ Other Railway Institutions

THANKS

