Safety Issues on Indian Railways

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Ministry of Indian Railways
• 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
• 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
Consequential Train Accidents per year

(5 Year : 2010-11 to 2014-15)
Types of Accidents in 2014-15:

- Derailments: 47%
- Level Crossing: 41%
- Collision: 47%
- Fire: 4%
- Misc: 4%

Accidents in 2014-15 in %
Casualties in Train Accidents in 2014-15

- Level Crossing: 55%
- Derailments: 36%
- Collision: 5%
- Misc: 4%
## Comparison of IR accident statistics with European Rail Systems

Source: European Railway Agency (ERA)

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

- Awareness,
- Alternatives,
- Accountability &
- Administer
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.
TIMINGS OF ACCIDENTS

- 0500-0800 HRS.: 9%
- 0800-1400 HRS.: 42%
- 1400-1900 HRS.: 40%
- 1900-0500 HRS.: 9%
## ACTION PLAN FOR ELIMINATION OF UNMANNED LCS

<table>
<thead>
<tr>
<th>Items</th>
<th>2013-14</th>
<th>2014-15</th>
<th>2015-16</th>
<th>2016-17</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>By Closure (having NIL/Low Traffic)</td>
<td>173</td>
<td>309</td>
<td>218</td>
<td>207</td>
<td>907</td>
</tr>
<tr>
<td>By Merger to nearby (LC/RUB/ROB)</td>
<td>203</td>
<td>377</td>
<td>366</td>
<td>360</td>
<td>1306</td>
</tr>
<tr>
<td>By Construction of RUBs/Subways</td>
<td>476</td>
<td>1286</td>
<td>1272</td>
<td>1390</td>
<td>4424</td>
</tr>
<tr>
<td>By construction of Low Cost ROBs</td>
<td>5</td>
<td>18</td>
<td>17</td>
<td>15</td>
<td>55</td>
</tr>
<tr>
<td>By Manning</td>
<td>495</td>
<td>936</td>
<td>814</td>
<td>871</td>
<td>3116</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1352</strong></td>
<td><strong>2926</strong></td>
<td><strong>2687</strong></td>
<td><strong>2843</strong></td>
<td><strong>9808</strong></td>
</tr>
</tbody>
</table>
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
AUTOMATIC FIRE AND SMOKE DETECTION SYSTEM ON COACHES

Fire Suppression system on Power Cars and Pantry Cars
INTRODUCTION OF CCTV ON COACHES TO IMPROVE SECURITY OF WOMEN PASSENGERS
Analysis of UMCL Accidents
2008-09 TO 2012-13

- 36% BULLOCK CART
- 22% CAR/JEEP
- 27% BUS TRUCK/LORRY/TEMPO
- 10% TRACTOR TROLLEY
- 2% OTH MOTORIED VEHICLE
- 1% AUTO
PATH TO AWARENESS:
CASE STUDY OF DELHI DIVISION

• 'Sukhi Griha' scheme
• Public education programs
• Street plays and dramas
• Indian Railway museum at Delhi
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
<table>
<thead>
<tr>
<th>State/Region</th>
<th>Literacy</th>
<th>Per capita income (Rs.)</th>
<th>Population Percentage</th>
<th>Level crossing Manned Unmanned</th>
<th>Route Km.</th>
<th>Level Crossing/route Km.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bihar(E)</td>
<td>63.82</td>
<td>24681</td>
<td>9,20,75,028 (88.70)</td>
<td>981</td>
<td>1089</td>
<td>3515</td>
</tr>
<tr>
<td>Delhi(N)</td>
<td>86.34</td>
<td>175812</td>
<td>4,19,319 (2.50)</td>
<td>56</td>
<td>02</td>
<td>182</td>
</tr>
<tr>
<td>Punjab(N)</td>
<td>76.68</td>
<td>78172</td>
<td>17,31,68,100 (62.51)</td>
<td>775</td>
<td>865</td>
<td>2133</td>
</tr>
<tr>
<td>Kerala(S)</td>
<td>93.99</td>
<td>83725</td>
<td>1,74,55,506 (52.28)</td>
<td>418</td>
<td>101</td>
<td>1050</td>
</tr>
<tr>
<td>Gujrut(W)</td>
<td>79.31</td>
<td>75115</td>
<td>3,46,70,817 (57.42)</td>
<td>1470</td>
<td>2688</td>
<td>5328</td>
</tr>
<tr>
<td>Maharastra(W)</td>
<td>82.91</td>
<td>83471</td>
<td>6,15,45,441 (54.77)</td>
<td>1176</td>
<td>1051</td>
<td>5601</td>
</tr>
<tr>
<td>Andhra Pradesh(S)</td>
<td>67.66</td>
<td>71540</td>
<td>5,63,11,788 (66.51)</td>
<td>421</td>
<td>595</td>
<td>5185</td>
</tr>
<tr>
<td>West Bengal(E)</td>
<td>77.08</td>
<td>55864</td>
<td>6,22,13,676 (68.11)</td>
<td>1155</td>
<td>1123</td>
<td>3890</td>
</tr>
</tbody>
</table>
ISSUE OF ACCOUNTABILITY

- Claims and Compensation on vandalizing Government properties.
- Deteriorating law and order situation in some parts
- Issue of Sabotage
Co-operative relationships with stakeholders

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