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# INDIAN RAILWAYS – SAFETY PERFORMANCE

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## INDIAN RAILWAYS – SAFETY PERFORMANCE

The Indian Railways is the world's largest Railway. In the Prime Minister Shri Narendra Modi's words it "will become the growth engine of the nation's vikas yatra<sup>1</sup>". The Railway System in our country is quite safe and reliable. From time to time, Government has initiated measures to prevent accidents and further strengthen safety of the railways which have been fruitful. Some of the notable safety measures initiated are as follows:

- To prevent accidents due to human error, all electric locomotives are equipped with Vigilance Control Device (VCD) to ensure alertness of Loco Pilots.
- Simulator based training for improving the driving skills and the reaction time of Loco Pilots.
- Special drives to check the alertness of Loco Pilots and other safety parameters.
- Retro-reflective sigma boards on the mast which is located two Over Head Equipment (OHE) masts prior to the signals in electrified territories to warn the crew about signal ahead when visibility is low due to foggy weather.
- Provision of Global Positioning System (GPS) based Fog Pass device to loco pilots in fog affected areas which enables loco pilots to know the exact distance of the approaching landmarks like signals, level crossing gates etc.
- Indian Railways has already adopted the technological upgradation in safety aspects of coaches and wagons by way of introducing Modified Centre Buffer couplers, Bogie Mounted Air Brake System (BMBS), improved suspension design and provision of Automatic fire & smoke detection system in coaches.
- Use of Long Rail panels on track to minimize welded joints.
- Ultrasonic Flaw Detection (USFD) testing of rails to detect flaws and timely removal of defective rails.

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<sup>1</sup> [http://www.indianrailways.gov.in/Presentation\\_3AUG\\_fin.pdf](http://www.indianrailways.gov.in/Presentation_3AUG_fin.pdf) Page 1.

- Procurement of Thick Web Switches and Weldable Cast Manganese Steel (CMS) Crossing for use on track.
- Mechanization of track maintenance to reduce human errors.
- Security Helpline 182 has been provided to help passengers especially women passengers travelling; the train passengers can contact the concerned Security Control to register any complaint.
- Emergency phones have been provided along railway track at a span of one Km. each for emergency communication by Driver with Railway control, in case of any emergency.
- Provision of Electrical/Electronic Interlocking System with centralized operation of points and signals to eliminate human failure and to replace old mechanical systems.
- Track Circuiting of stations to enhance safety for verification of track occupancy by electrical means instead of human element.
- Axle Counter for Automatic clearance of Block Section (BPAC) to ensure complete arrival of train without manual intervention before granting line clear to the next train.
- Interlocking of Level Crossing (LC) Gates to protect L.C Gate with signals to avoid accidents.
- Train Protection and Warning System (TPWS) based on European Technology ETCS Level-1, a proven Automatic Train Protection (ATP) System to avoid train accident/collision on account of human error of Signal Passing at Danger (SPAD) or over speeding.

In order to improve signaling, electrical/electronic interlocking system with centralized operation of points and signals are being provided to eliminate human failure and to replace old mechanical systems. Superior and Safer Linke Hofmann Busch (LHB) Coaches having

anti-climbing features have been progressively introduced on Indian Railways to reduce the fatalities in case of accidents.

### **BOX 1: MISSION 'ZERO-ACCIDENT'**

In the Railway Budget 2016-17, Mission Zero Accident was announced, comprising of the two sub-missions:

- ***Elimination of Unmanned Level Crossings:*** As on 01.04.2017, Indian Railways have 27181 Level Crossings, out of which 19480 are manned and 7701 are unmanned. Out of total 7701 unmanned level crossings, 4943 level crossings are on BG (Broad Gauge). It has been planned to eliminate unmanned level crossings (UMLCs) on Broad Gauge by 2020. Year-wise target fixed for elimination is as under:

<b>Year</b>	<b>No. of UMLCs to be eliminated</b>
2017-18	1500
2018-19	1500
2019-20	1943

- ***TCAS (Train Collision Avoidance System):*** To prevent collisions and signal passing at danger by the Loco Pilot through developing an indigenous technology and also to increase throughput by increasing average sectional speed on Indian Railways (IR).

This Fact Sheet tries to give a tabular account of train accidents, causalities, collisions and derailments, damage to railway property along with the causes behind the same. Side by side the reader can get a glimpse of related aspects like Railway Safety Fund (RSF) for railway safety, accident compensation, unmanned and manned level crossings as per availability of information in the brief note also.

### **Accidents**

The Table below gives information about train accidents in the country since 1960 onwards. The number of consequential train accidents decreased from 73 during 2017-18 to 59 during 2018-19. The number of train accidents per million train kilometers, which is a universally accepted safety index decreased from 0.06 in 2017-18 to 0.05 in 2018-19.

**Table 1: Train Accidents on Indian Railways since 1960-61**

Year	Colli-sions	Derail-ments	Level crossing accidents	Fire in trains	Misc.	Total	Movement of traffic i.e., Train Kms. Run (in Million)	Incidence of train accidents per Million train Kms.
1960-61	130	1415	181	405	--	2131	388.1	5.5
1961-62	124	1433	160	236	--	1953	396.2	4.9
1962-63	98	1316	168	55	--	1637	408.3	4.0
1963-64	93	1300	161	81	--	1635	421.9	3.9
1964-65	81	1035	146	31	--	1293	433.2	3.0
1965-66	74	962	123	42	--	1201	450.8	2.7
1966-67	67	876	104	50	--	1097	451.7	2.4
1967-68	66	892	111	42	--	1111	455.3	2.4
1968-69	47	684	129	48	--	908	460.1	2.0
1969-70	54	751	111	47	--	963	473.0	2.0
1970-71	59	648	121	12	--	840	466.5	1.8
1971-72	57	667	118	22	--	864	474.4	1.8
1972-73	57	598	131	25	--	813	473.1	1.7
1973-74	59	578	125	13	--	782	432.8	1.8
1974-75	66	696	140	23	--	925	430.1	2.2
1975-76	64	768	105	27	--	964	487.4	2.0
1976-77	45	633	86	16	--	780	511.6	1.5
1977-78	54	705	93	14	--	866	526.1	1.6
1978-79	55	778	86	12	--	931	504.1	1.8
1979-80	72	692	115	21	--	900	503.4	1.8
1980-81	69	825	90	29	--	1013	504.5	2.0
1981-82	87	936	84	23	--	1130	516.6	2.2
1982-83	54	653	70	20	--	797	530.9	1.5
1983-84	48	621	82	17	--	768	541.7	1.4
1984-85	39	678	65	30	--	812	541.1	1.5
1985-86	46	588	62	21	--	717	570.4	1.3
1986-87	28	538	65	13	--	644	582.3	1.1
1987-88	40	490	62	12	--	604	590.2	1.02
1988-89	30	457	55	3	--	545	602.2	0.90
1989-90	34	456	42	8	--	540	618.0	0.87
1990-91	41	446	36	9	--	532	617.1	0.86
1991-92	30	444	47	9	--	530	629.2	0.84
1992-93	50	404	51	9	--	524	632.3	0.83
1993-94	50	401	66	3	--	520	634.2	0.82
1994-95	35	388	73	5	--	501	641.9	0.78

1995-96	29	296	68	5	--	398	655.9	0.61
1996-97	26	286	65	4	--	381	667.6	0.57
1997-98	35	289	66	6	--	396	675.8	0.58
1998-99	24	300	67	6	--	397	686.9	0.58
1999-2000	20	329	93	21	--	463	717.7	0.58
2000-01	20	350	84	17	2	473	723.8	0.65
2001-02	30	280	88	9	8	415	756.4	0.55
2002-03	16	218	96	14	7	351	786.2	0.44
2003-04	9	202	95	14	5	325	790.8	0.41
2004-05	13	138	70	10	3	234	810.14	0.29
2005-06	9	131	75	15	4	234	825.4	0.28
2006-07	8	96	79	4	8	195	847.8	0.23
2007-08	8	100	77	5	4	194	890.5	0.22
2008-09	13	85	69	3	7	177	905.2	0.20
2009-10	9	80	70	2	4	165	997.2	0.17
2010-11	5	80	53	2	1	141	1005.9	0.14
2011-12	9	55	61	4	2	131	1077.0	0.12
2012-13	6	49	58	8	-	121	1109.7	0.11
2013-14	4	53	59	7	3	117	1096.00	0.10
2014-15	5	63	56	6	5	135	1166.70	0.11
2015-16	3	65	35	0	4	107	1144.19	0.10
2016-17	5	78	20	1	0	104	1173.50	0.09
2017-18	3	54	3	13	0	73	1170.74	0.06
2018-19	0	46	6	6	1	59	1190.60	0.05
2019-20 (upto 30 September 2019)*	3	24	1	7	0	35	**	**

**Source:** The Ministry of Railways.

\* Provisional

\*\*Under compilation in the Ministry of Railways.

## Casualties

The position of casualties in consequential Train accidents since 1965-66 and onwards has been given in the following Table.

Since 1990-91 data is available year-wise and before 1990-91 data is available for five-year period.

**Table 2: Casualties**

Year	Number of Passengers		Total Casualties per million passengers carried
	Killed	Injured	
1965-66	41	458	0.24
1970-71	27	309	0.14
1975-76	36	249	0.10
1980-81	117	494	0.17
1985-86	77	297	0.11
1990-91	220	595	0.22
1991-92	98	451	0.13
1992-93	96	467	0.15
1993-94	179	446	0.17
1994-95	84	434	0.13
1996-97	83	237	0.08
1997-98	171	747	0.21
1998-99	280	615	0.06
1999-2000	341	733	0.07
2000-01	55	286	0.01
2001-02	144	595	0.02
2002-03	157	658	0.03
2003-04	135	302	0.03
2004-05	50	191	0.04
2005-06	315	627	0.165
2006-07	208	402	0.098
2007-08	191	412	0.092
2008-09	209	444	0.094
2009-10	238	397	0.088
2010-11	235	358	0.078
2011-12	100	586	0.083
2012-13	60	270	0.039
2013-14	42	94	0.02
2014-15	118	340	0.05
2015-16	40	126	0.02
2016-17	195	346	0.07
2017-18	28	182	0.03

<b>2018-19</b>	16	86	**
<b>2019-20 (upto 30 September 2019)*</b>	0	5	**

**Source:** The Ministry of Railways.

\*Provisional

\*\*Under compilation in the Ministry of Railways.

## Causes of Train Accidents

Causes of train accidents are due to human failure, the failure of railway staff and due to the failure other than railway staff, failure of equipments and due to incidental factors like, falling of boulders, sinking of track due to heavy rains, cattle run over, etc.

The Table below gives the details of train accidents due to the various causes since 1995-96:

**Table 3: Broad Causes of Train Accidents**

Years	Failure of Railway Staff	Failure of Persons other than Railway Staff <sup>®</sup>	Failure of Equipments			Sabotage	Combination of factors	Incidental <sup>^</sup>	Causes could not be established	Under investigation	Grand Total
			Rolling Stock	Track	Electrical/S&T						
<b>1995-1996</b>	230 (58)	71 (18)	23	25	2	16	3	11	10	-	<b>398</b>
<b>1996-1997</b>	252 (66)	65 (17)	15	22	-	12	1	12	2	-	<b>381</b>
<b>1997-1998</b>	262 (66)	67 (17)	10	27	1	13	3	9	4	-	<b>396</b>
<b>1998-1999</b>	268 (68)	63 (16)	9	24	-	11	1	14	7	-	<b>397</b>
<b>1999-2000</b>	287 (62)	105 (23)	12	12	4	21	-	15	7	-	<b>463</b>
<b>2000-2001</b>	293 (62)	109 (23)	16	17	-	19	4	11	4	-	<b>473</b>
<b>2001-2002</b>	248 (60)	103 (25)	11	13	-	14	-	20	5	1	<b>415</b>
<b>2002-2003</b>	186 (53)	118 (37)	6	11	1	10	2	15	2	-	<b>351</b>
<b>2003-2004</b>	161 (50)	107 (33)	6	9	3	18	2	17	2	-	<b>325</b>
<b>2004-2005</b>	119 (51)	78 (29)	5	7	2	4	1	16	2	-	<b>234</b>
<b>2005-2006</b>	120 (51)	86 (37)	1	6	1	5	-	11	3	1	<b>234</b>
<b>2006-2007</b>	85 (44)	84 (43)	4	5	-	8	1	7	-	1	<b>195</b>



<b>2007-2008</b>	85 (43.81)	71 (36.59)	4	3	2	7	-	8	1	3	<b>194</b>
<b>2008-2009</b>	75 (42.37)	75 (42.37)	-	-	-	13	4	4	4	2	<b>177</b>
<b>2009-2010</b>	63 (38.18)	75 (45.45)	3	3	-	14	1	4	2	2	<b>165</b>
<b>2010-11</b>	56 (39.72)	57 (40.43)	-	5	-	16 (11.35)	3 (2.12)	4 (2.83)	-	-	<b>141</b>
<b>2011-12</b>	52 (39.69)	63 (48.10)	-	5	-	6 (4.58)	1 (0.76)	3 (2.29)	1 (0.76)	-	<b>131</b>
<b>2012-13</b>	45 (37.18)	59 (48.76)	-	6	-	3 (2.48)	-	7 (5.79)	1 (0.83)	-	<b>121</b>
<b>2013-14</b>	50 (42.73)	55 (47)	-	3	-	4 (3.42)	-	4 (3.42)	-	1 (0.85)	<b>117</b>
<b>2014-15</b>	60 (44.44)	58 (42.96)	-	4 (2.96)	-	3 (2.2)	-	8 (5.92)	2 (1.48)	-	<b>135</b>
<b>2015-16</b>	55 (51.40)	38 (35.51)	-	2 (1.86)	-	1 (0.09)	1 (0.09)	9 (8.41)	1 (0.09)	-	<b>107</b>
<b>2016-17</b>	64 (61.54)	22 (21.15)	-	2 (1.92)	-	2 (1.92)	3 (2.88)	7 (6.73)	-	4 (3.85)	<b>104</b>
<b>2017-18</b>	44 (60.3)	18 (24.7)	-	2 (2.74)	-	2 (2.74)	2 (2.74)	5 (6.85)	-	-	<b>73</b>
<b>2018-19</b>	42 (71.2)	9 (15.3)	1 (1.7)	-	1 (1.7)	-	-	6 (10.2)	-	-	<b>59</b>
<b>2019-20 (upto 30 September 2019)*</b>	22 (62.8)	4 (11.4)	-	1 (2.9)	-	-	1 (2.9)	1 (2.9)	-	6 (17.1)	<b>35</b>

**Source:** The Ministry of Railways.

\* Provisional

@ Mainly road vehicle users are responsible for the incidents at unmanned level crossings.

^ Incidental causes include acts of nature like falling of boulders, sinking of track due to heavy rains, cattle run over, etc.

## Collisions and Derailments:

The position regarding total number of collisions and derailments and those caused by the failure of railway staff since 1965-66 is given in the following Table. Since 1990-91 data is available year-wise and before 1990-91 data is available for five-year period.

**Table 4: Collisions and Derailments**

Year	Number of collisions and derailments	No. of collisions and derailments attributed to failure of railway staff	Percentage
1965-66	1036	688	66
1970-71	707	464	66
1975-76	832	571	69
1980-81	894	573	64
1985-86	634	466	74
1990-91	487	358	74
1991-92	474	371	78
1992-93	454	363	80
1993-94	451	358	79
1994-95	423	351	83
1995-96	325	237	73
1996-97	312	252	81
1997-98	324	247	76
1998-99	324	252	78
1999-2000	349	269	77
2000-01	370	280	76
2001-02	310	--	--
2002-03	232	182	78
2003-04	211	143	68
2004-05	151	110	73
2005-06	140	106	78
2006-07	104	75	72
2007-08	108	75	69.44
2008-09	98	64	65.30
2009-10	89	57	64.04
2010-11	85	51	60.00
2011-12	64	48	75
2012-13	55	37	67.2
2013-14	57	44	77.19
2014-15	68	52	76.47
2015-16	68	53	77.94
2016-17	83	63	75.90
2017-18	63	40	70.2
2018-19	46	35	76.00
2019-20 (upto 30 September 2019)*	27	21	77.80

Source: The Ministry of Railways.

\* Provisional

## Derailments

Year-wise number of consequential train derailments since 1965-66 with percentage of the total consequential train accidents in each year are given below. Since 1990-91 data is available year-wise and before 1990-91 data is available for five-year period.

**Table 5: Derailments**

Year	Total Accidents	Derailments	Percentage
1965-66	1201	962	80
1970-71	840	648	77
1975-76	964	768	80
1980-81	1013	825	81
1985-86	717	588	82
1990-91	532	446	84
1991-92	530	444	84
1992-93	524	404	77
1993-94	520	401	77
1994-95	501	388	77
1995-96	398	296	74
1996-97	381	286	75
1997-98	396	289	73
1998-99	397	300	76
1999-2000	463	329	71
2001-02	414	280	68
2002-03	351	216	62
2003-04	325	202	62
2004-05	234	138	59
2005-06	234	131	56
2006-07	195	96	49
2007-08	194	100	51.55
2008-09	177	85	48.02
2009-10	165	80	48.48
2010-11	141	80	56.74
2011-12	131	55	41.98
2012-13	122	49	40.16
2013-14	118	53	44.92
2014-15	135	63	46.67
2015-16	107	65	60.74
2016-17	104	78	75.00
2017-18	73	54	74.00
2018-19	59	46	77.90
2019-20 (upto 30 September 2019)*	35	24	68.60

**Source:** The Ministry of Railways.

\* Provisional

## Damage to Railway Property

Details of the damage to railway property and interruption to communications caused by train accidents since 1965-66 are given below. Since 1990-91 data is available year-wise and before 1990-91 data is available for five-year period.

**Table 6: Damage to Railway Property and Interruption to Communications**

Year	Cost of Damage (Rs. In lakhs)		Interruption to communication (in hours)
	Rolling Stock	Permanent Way	
1965-66	61.0	39.3	6,640
1970-71	134.7	79.7	6,741
1975-76	255.0	198.6	10,275
1980-81	705.0	657.4	14,035
1985-86	835.9	291.3	5,075
1990-91	3818.2	710.5	6,156
1991-92	1896.2	462.8	5,291
1992-93	4227.5	1365.7	5,117
1993-94	2547.6	1427.4	4,546
1994-95	3110.0	1005.0	4,218
1995-96	4219.5	2067.7	4,404
1996-97	2983.5	1896.9	4,048
1997-98	3235.0	2027.0	3,939
1998-99	4519.0	2005.0	3,492
1999-2000	7255.0	1909.0	4,100
2000-01	3693.0	1831.0	4,045
2001-02	3234.6	1647.0	3,224
2002-03	3158.4	617.3	2,388
2003-04	4348.6	826.0	2,806
2004-05	2225.0	497.1	1,691
2005-06	2443.4	941.5	1,904
2006-07	2321.7	871.3	1,148
2007-08	2970.0	1085.4	4380.52
2008-09	5011.9	1052.9	1420.08
2009-10	4216.48	1244.99	1105.01
2010-11	4584.52	1311.37	1455.05
2011-12	8210.49	771.99	1041.16
2012-13	4142.21	1281.78	1131.41

2013-14	2003.29	1798.61	745.38
2014-15	6313.06	894.45	946.27
2015-16	5089.42	834.33	923.05
2016-17	3554.24	2674.09	902.77
2017-18	4186.43	474.75	698.53
2018-19	1517.08	832	602.12
2019-20 (upto 30 September 2019)	**	**	**

**Source:** The Ministry of Railways.

\*\* under compilation in the Ministry of Railways

### Allocation of Funds

The year-wise allocation of funds under the 'Railway Safety Fund' (RSF) from 2013-14 onwards is given in the table below:

**Table 7: Year-Wise Allocation of Funds under 'Railway Safety Fund (RSF)'**

Year	Amount (Rs. In crore) (RE)
2013-14	2000.00
2014-15	2200.00
2015-16	2661.40
2016-17	10780.00
2017-18	11375*
2018-19	3000.21
2019-20	5250.00

**Source:** The Ministry of Railways.

\* The total amount appropriated to RSF is Rs. 11,375 crore out of which Rs. 10,000 crore has been transferred to Rashtriya Rail Sanraksha Kosh (RSSK). In the Budget 2017-18, an exclusive fund called (RSSK) has been made with a corpus of Rs. 1 lakh crore over for a period of 5 years for giving a major boost to safety related works.

### Accident Compensation

The scale of compensation as specified in Railway Accidents and Untoward Incidents (Compensation) Amendment Rules, 2016 is Rs. 800,000/- for death and Rs. 64,000/- to Rs. 800,000/- for injury depending upon the gravity of injury.

The amount of compensation paid to the victims for deaths/injury in train accidents from the year 1985-86 onwards is given in the following Table:

**Table 8: Compensation paid by Railways<sup>@</sup>**

Year	Compensation Paid (Rs. In lakhs)
1985-86	220.88`
1986-87	168.6`
1987-88	149.9`
1988-89	191.33`
1989-90	53.88`
1990-91	228.95
1991-92	275.94
1992-93	237.16
1993-94	178.01
1994-95	176.69
1995-96	535.95
1996-97	709.31
1997-98	240.89
1998-99	489.65
1999-2000	1095.64
2000-01	886.12
2001-02	482.46
2002-03	489.19
2003-04	757.07
2004-05	513.16
2005-06	221.63
2006-07	500.89
2007-08	121.37
2008-09	218.94
2009-10	265.81
2010-11	585.79
2011-12	510.77
2012-13	319.63
2013-14	149.22
2014-15	127.48

2015-16	262.96
2016-17	264.33
2017-18	188.52
2018-19	641.15
2019-20 (upto 30 September 2019)*	340.18

@ The amount of compensation paid during the year relates to the number of cases settled and payment made during that year and not the accidents that occurred during the year

Source: The Ministry of Railways.

\*Provisional

### Accidents at Unmanned Level Crossings

The number of accidents/causalities, due to Unmanned Level Crossings in the country, from 2010-11 to 2018-19 are given in the following Table. Data for the current year 2019-20 is under compilation in the Ministry of Railways.

**Table 9: Accidents at Unmanned Level Crossings (UMLCs)**

Year	Number of Accidents at Unmanned Level Crossings	As percentage of total number of consequential train accidents
2010-11	48	34.04
2011-12	54	41.22
2012-13	53	43.44
2013-14	47	39.83
2014-15	50	37.04
2015-16	29	27.10
2016-17	20	19.23
2017-18	10	13.70
2018-19	3	5.08
2019-20	**	**

Source: The Ministry of Railways

\*\* Under Compilation in the Ministry of Railways

There are 21,340 Manned Level Crossings and 1048 Unmanned Level Crossings in the country as on 01.04.2018. State-wise number of Manned and Unmanned Level Crossings are given in the following Table:

**Table 10: Number of Manned and Unmanned Level Crossings**

Sl. No.	State	As on 1.4.2016		As on 1.4.2017		As on 1.4.2018		As on 1.4.2018	
		Number of Manned Level Crossings	Number of Unmanned Level Crossings	Number of Manned Level Crossings	Number of Unmanned Level Crossings	Number of Manned Level Crossings	Number of Unmanned Level Crossings	Number of Manned Level Crossings	Number of Unmanned Level Crossings
1.	Andhra Pradesh	1096	361	1140	272	1133	171	1192	0
2.	Assam	708	225	771	141	821	72	877	0
3.	Bihar	1293	898	1339	809	1380	742	1868	0
4.	Chandigarh	4	0	4	0	4	0	4	0
5.	Chattisgarh	286	61	285	40	265	25	264	15
6.	Delhi	32	1	31	1	28	1	27	0
7.	Goa	10	0	10	0	10	0	10	0
8.	Gujarat	1534	1985	1543	1895	1564	1700	1879	361
9.	Haryana	590	159	602	92	579	48	602	0
10.	Himachal Pradesh	49	6	49	6	50	4	50	4
11.	Jammu & Kashmir	34	1	34	1	34	1	34	0
12.	Jharkhand	486	172	511	113	525	34	518	0
13.	Karnataka	727	300	702	253	711	179	813	0
14.	Kerala	440	7	431	7	425	0	412	0
15.	Madhya Pradesh	1104	452	1019	382	982	255	877	137
16.	Maharashtra	1249	335	1236	268	1169	214	1108	154
17.	Manipur	0	0	0	0	0	0	0	0
18.	Mizoram	1	0	1	0	1	0	1	0
19.	Nagaland	1	0	1	0	1	0	1	0
20.	Odisha	601	370	687	223	723	125	793	0
21.	Puducherry	20	3	21	2	21	2	22	0
22.	Punjab	1026	395	1024	334	998	228	1163	0
23.	Rajasthan	1292	940	1263	805	1194	464	1322	153
24.	Tamil Nadu	1374	611	1390	444	1429	269	1428	0
25.	Telangana	423	72	421	37	420	9	406	0
26.	Tripura	15	0	15	0	15	0	15	0
27.	Uttar Pradesh	3226	1357	3180	1112	3165	912	3669	57
28.	Uttarakhand	145	47	147	35	153	23	173	0
29.	West Bengal	1501	582	1623	429	1707	314	1812	167
	<b>Total</b>	<b>19267</b>	<b>9340</b>	<b>19480</b>	<b>7701</b>	<b>19507</b>	<b>5792</b>	<b>21340</b>	<b>1048</b>
		<b>28607</b>		<b>27181</b>		<b>25299</b>		<b>22388</b>	

**Source:** The Ministry of Railways



All UMLCs on Broad Gauge (BG) have been eliminated on 31.01.2019. So far as elimination of UMLCs on Meter Gauge (MG) and Narrow Gauge (NG) is concerned, it has been planned to be eliminated during gauge conversion.

### **BOX 2: Elimination of Unmanned Level Crossings (UMLCs)**

Unmanned Level Crossings (UMLCs) have been eliminated by adopting the following four methods:

- **Closure** - Closing unmanned level crossings having NIL/ negligible Train Vehicle Unit (TVU). This was carried out with the specific approval of District Magistrate (State Government).
- **Merger** - Merger of UMLCs with nearby level crossings (LCs)/grade-separators by construction of diversion road. This was carried out with the specific approval of District Magistrate (State Government).
- **Provision of Subways/RUBs/ROBs** in lieu of level crossings. This was carried out with the specific approval of District Magistrate (State Government).
- **Manning** - Though manning is not an ideal and cost economic proposition, unmanned LCs which could not be eliminated by above methods, were manned.

### **BOX 3: Rashtriya Rail Sanraksha Kosh (RRSK)**

Funds under **RRSK** are deployed to finance identified works under Plan heads such as, Track Renewal, Bridge Works, Signalling & Telecommunication Works, Road Safety Works of Level Crossing and Road Over/Under Bridges, Rolling Stock, Traffic Facilities, Electrical Works, Machinery and Plant, Workshops, Passenger Amenities, Training/HRD and Other Specified Works.

#### **BOX 4: Recommendations of the Kakodkar committee**

A **High Level Safety Review Committee** was constituted by the Ministry of Railways on 16.09.2011 under the chairmanship of **Dr. Anil Kakodkar**. The Committee submitted its report on 17.02.2012.

Three important recommendations of the Committee are:

- Advanced Signalling system to prevent collision with increased line capacity.
- Elimination of all level crossings (manned and unmanned) by grade separation (Road Under Bridges (RUB)/Limited High Subway/Road Over Bridges (ROB).)
- Switching over to production of all new coaches to Link Hofmann Busch (LHB) design.

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