

CHAPTER I

SAFETY RECORD OF INDIAN RAILWAYS

- 1.1** Indian Railways is the largest railway network under a single management in the world. It has a route kilometrage of nearly 64,015 kms, an operating fleet of 2,16,073 wagons (in terms of 8-wheelers), 52,162 coaching vehicles and 8,592 locomotives.
- 1.2** During 2008-2009, on an average, 18,518 trains, including 10,673 passenger carrying trains were run daily. Nearly 19 million passengers were booked daily and 836.49 million tonnes of freight traffic was loaded during the year. With such a massive utilisation of assets, safety is of paramount importance for operational efficiency. A very high priority is accorded to safety to enable Railways to achieve still greater heights of performance.

Consequential Train Accidents

- 1.3** The term 'accident' envelopes a wide spectrum of occurrences with or without significant impact on the system. Consequential train accidents include mishaps with serious repercussion in terms of loss of human life or injury, damage to railway property or interruption to rail traffic of laid down threshold levels and values. These consequential train accidents include collisions, derailments, fire in trains, road vehicles colliding with trains at level crossings, and certain specified types of 'miscellaneous' train mishaps.

Incidence of Train Accidents

- 1.4** The number of consequential train accidents decreased from 193 (excluding one train accident on Konkan Railway) during 2007-2008 to 177 during 2008-2009. The number of train accidents per million train kilometres, which is the universally accepted safety index, also dropped from 0.22 in 2007-08 to 0.20 in 2008-2009. The continuous reduction in the number of train accidents per million train kilometres which has fallen from 5.5 in 1960-61 to 0.20 in 2008-09, is indicative of sustained improvement in safety performance. A table showing the trend of train accidents on Indian Railways since 1960-61 is attached as **Appendix -I**.

- 1.5** Out of 177 train accidents that took place during 2008-2009, 167 took place on the broad gauge, 9 on the metre gauge and 1 on the narrow gauge. Freight trains were involved in 65 accidents and passenger trains in 112 accidents.

Damage to Railway Property

- 1.6** The cost of damage to railway track and rolling stock and interruption to through communication on account of train accidents during the last 5 years have been as under:-

Year	Cost of damages (Rs. in Lakhs)		Interruption to through Communication (in hrs.)
	Rolling Stock	Permanent Way	
2004-2005	2225.0	497.1	1,692.00
2005-2006	2443.4	941.5	1,904.47
2006-2007	2321.7	871.3	1,148.13
2007-2008	2970.0	1085.4	4380.52
2008-2009*	5011.9	1052.9	1420.08

*Excludes KRC & Metro Railway, Kolkatta.

Casualties

- 1.7** The number of casualties in train accidents is essentially fortuitous and not strictly susceptible to comparison. List of the major accidents during 2008-09 which were attended with death of 10 or more persons is attached as **Appendix-II**. Worst three accidents in each category are listed at **Appendix-III**. The position of casualties in train accidents during the last 5 years has been as under:-

<u>Year</u>	<u>Killed</u>				<u>Injured</u>			
	<u>Passengers</u>	<u>Rly. Staff</u>	<u>Others</u>	<u>Total</u>	<u>Passengers</u>	<u>Rly. Staff</u>	<u>Others</u>	<u>Total</u>
2004-2005	50	5	181	236	191	12	209	412
2005-2006	168	9	138	315	483	31	113	627
2006-2007	38	6	164	208	227	24	151	402
2007-2008	9	10	172	191	246	31	135	412
2008-2009*	52	12	145	209	257	22	165	444

*Excludes KRC & Metro Railway, Kolkatta.

Causes of Consequential Train Accidents

1.8 Broad causes of consequential train accidents which occurred on Indian Railways during the last 5 years, i.e., 2004-2005 to 2008-2009 are as under:-

S.No	Broad Causes	2004-05	2005-06	2006-07	2007-08	2008-09
1.	Failure of Railway Staff	119	120	85	86	75
2.	Failure of Persons other than Railway Staff	78	86	84	81	75
3.	Failure of Equipment					
	(a) Rolling Stock	5	1	4	4	--
	(b) Track	7	6	5	3	--
	(c) Electrical	2	--	--	--	--
	(d) S&T	--	1	--	1	--
	(e) Rolling Stock + Track	--	--	--	1	--
4.	Sabotage	4	5	8	7	13
5.	Combination of factors	1	--	1	--	4
6.	Incidental	16	11	7	8	4
7.	Could not be established	2	3	--	2	4
8.	Under Investigation	--	1	1	--	2
	Total	234	234	195*	193	177

* Including one accident on Konkan Railway.

Note: 'Incidental' causes include acts of nature like falling of boulders, sinkage of track due to heavy rain and cattle getting run over, etc.

CHAPTER II

ACCIDENT COMPENSATION

Liability

- 2.1 The liability of the railway administration in the event of a consequential train accident attended with casualties has been defined in Section 124 of the Railways Act, 1989 as under:-

“When in the course of working a railway, an accident occurs, being either a collision between trains of which one is a train carrying passengers or the derailment of or other accident to a train or any part of a train carrying passengers, then whether or not there has been any wrongful act, neglect or default on the part of the railway administration such as would entitle a passenger who has been injured or has suffered a loss to maintain an action and recover damages in respect thereof, the railway administration shall, notwithstanding anything contained in any other law, be liable to pay compensation to such extent as may be prescribed and to that extent only for loss occasioned by the death of a passenger dying as a result of such accident, and for personal injury and loss, destruction, damage or deterioration of goods owned by the passenger and accompanying him in his compartment or on the train, sustained as a result of such accident”.

- 2.2 With effect from 01.08.1994 under Section 124-A of the Railways Act, 1989, the railway administration has also become liable to pay compensation for loss of life or injury to bonafide rail passengers who become victims of untoward incidents such as terrorist acts, violent attack, robbery, dacoity, rioting, shoot-out or arson by any person in or on any train carrying passengers, waiting hall, cloak room, reservation or booking office, platform, any place within the precincts of a railway station or the accidental falling of any passenger from a train carrying passengers. Section 124-A of the Railways Act, 1989 reads as under:-

“When in the course of working a railway an untoward incident occurs, then whether or not there has been any wrongful act, neglect or default on the part of the railway administration such as would entitle a passenger who has been injured or the dependent of a passenger who has been killed to maintain an action and recover damages in respect thereof, the railway administration shall, notwithstanding anything contained in any other law, be liable to pay compensation to such extent as may be prescribed, and to that extent only for loss occasioned by the death of, or injury to, a passenger as a result of such untoward incident:

Provided that no compensation shall be payable under this section by the railway administration if the passenger dies or suffers injury due to:-
(a) suicide or attempted suicide by him;

(b) self-inflicted injury;

(c) his own criminal act;

(d) any act committed by him in a state of intoxication or insanity;

(e) any natural cause or disease or medical or surgical treatment unless such treatment becomes necessary due to injury caused by the said untoward incident.”

Explanation: For the purpose of this section, “passenger” includes

- (i) a railway servant on duty; and
- (ii) a person who has purchased a valid ticket for travelling by a train carrying passengers, on any date or a valid platform ticket and becomes a victim of an untoward incident.

Quantum of Compensation

- 2.3** Payment of compensation is governed by the Railway Accidents and Untoward Incidents (Compensation) Amendment Rules, 1997. Under these Rules, the amount of compensation payable in case of death is Rs.4 lakhs. For injuries, the amount varies from Rs.32,000/- to Rs.4,00,000/- depending on the nature of injury sustained.
- 2.4** Ex-gratia relief is given by the Railway Administration soon after an accident at the rate of Rs.15,000/- to the next of the kin of the deceased. In case of grievous injury, the ex-gratia is paid at the rate of Rs.5,000/- for upto 30 days of hospitalization. If the injured victims require indoor treatment for more than 30 days, additional ex-gratia is paid at the rate of Rs.1,000/- per week or part thereof for further six months, and if further indoor treatment is required, additional payment of Rs.500/- per week or part thereof is made for another period of six months. Ex-gratia in case of simple injury is Rs.500/-. The ex-gratia relief is intended to meet the immediate expenses and is not taken into account at the time of final settlement of compensation claims. In case of serious or special circumstances, the quantum of ex-gratia can be enhanced.

Application for Compensation

2.5 Under Section 125 of the Railways Act, 1989, it has been provided :-

“(1) An application for compensation under Section 124 or 124-A may be made to the Railway Claims Tribunal-

- (a) by the person who has sustained the injury or suffered any loss, or
 - (b) by any agent duly authorised by such person in his behalf, or
 - (c) where such person is a minor, by his guardian, or
 - (d) where death has resulted from the accident, or untoward incident by any dependent of the deceased or where such a dependent is a minor, by his guardian.
- (2) Every application by a dependent for compensation under this section shall be for the benefit of every other dependent.”

2.6 The application for compensation will be decided by Railway Claims Tribunal. 21 benches of the Tribunal have been set up at different parts of the country and they are functioning from 08.11.1989.

Applicant can now file claims at Railway Claims Tribunal (i) having jurisdiction over the place of residence of the applicant, or (ii) the place where the passenger purchases his ticket, or (iii) where the accident or untoward incident occurs, or (iv) where the place of destination station lies, as against only at the place of occurrence of accident earlier.

Interim Relief by Railway Administration

2.7 Under section 126 of Railways Act, 1989, it has been provided that if a person who has made an application for compensation under section 125, desires to be paid interim relief, he may apply to the railway administration for payment of interim relief along with a copy of the application made under that section.

2.8 The table given below shows the number of passengers killed and/or injured in train accidents and the amount of compensation paid to the victims in the last five years:-

<u>Year</u>	Number of Passengers		Compensation paid
	Killed	Injured	(Rs. In Lakhs)
2004-2005	50	191	513.63
2005-2006	168	483	221.63
2006-2007	38	227	500.89
2007-2008	09	245	121.37
2008-2009	52	257	218.94

Note: The above figures exclude KRC & Metro Railway, Kolkata.

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.

Liability for Accidents at Level Crossings

2.9 No liability accrues in the case of collisions between trains and road vehicles at unmanned level crossings in which railway passengers are not involved and cases of persons run over by trains.

2.10 However, the victims or their dependants can claim compensation under Law of Torts by moving Motor Vehicle Accident Tribunals and the compensation is paid if any contributory negligence is proved on the part of railway administration. The Tribunal decides the quantum of compensation on merits of each case. The amount of ex-gratia paid is counted towards amount of compensation awarded by a Court of Law. However, Supreme Court of India in a judgment arising out of Civil Appeal No. 3033 of 1990 (Union of India Vs United Insurance Co. Ltd and Others) ruled that the driver and owner of the bus and the railways can all be joint tortfeasors, if proved.

2.11 As regards accidents occurring at manned level crossings, prima facie due to the negligence of railway staff, ex-gratia payment is made to the victims by the railway as per the following rates:-

(i)	In case of death	Rs.6,000/-
(ii)	Grievous Injury	Rs.2,500/-
(iii)	Simple injury	Nil

CHAPTER III

ACCIDENTS INQUIRED INTO

BY THE COMMISSION OF RAILWAY SAFETY

- 3.1** The Commission of Railway Safety functions independent of the Ministry of Railways under the administrative control of the Ministry of Civil Aviation and deals with matters pertaining to Safety of rail travel and train operation and is charged with certain inspectorial, investigative and advisory functions as laid down in the Railways Act, 1989. The Commission is headed by the Chief Commissioner of Railway Safety at Lucknow. Working under the administrative control of the Chief Commissioner of Railway Safety, there are 9 Commissioners of Railway Safety, each one exercising jurisdiction over one or more than one Zonal Railways and the Metro Railway, Kolkata and Konkan Railway Corporation Limited.
- 3.2** The principal functions of the Commission of Railway Safety are:
- (i) Inspection of new railway lines prior to authorisation for passenger traffic,
 - (ii) Periodical inspection of open lines or of any rolling stock,
 - (iii) Approval of new works and renewals affecting passenger carrying trains,
 - (iv) Inquiry under the Railways Act, 1989 into the cause of any accident on a railway,
 - (v) General advice on matters concerning safety in train operations.
- 3.3** Section 113 of Railways Act, 1989 requires intimation of serious accidents to be sent to the Commissioner of Railway Safety. Under the Statutory Investigation into Railway Accidents Rules, 1998 issued by the Ministry of Civil Aviation, a statutory inquiry by the Commissioner of Railway Safety is obligatory in every serious accident to a train carrying passengers which is attended with loss of human life, or with grievous hurt, as defined in the Indian Penal Code, to a passenger or passengers in the train or with serious damage to railway property of the value exceeding Rs.25 lakhs. While holding statutory inquiry, the Commission not only examines affected passengers but also invites members of the public to give evidence in person during the inquiry or to write to the Commission. Some of the serious accidents at manned or unmanned level crossings attended with loss of life or with grievous injury to persons

travelling in road vehicles are also inquired into by the Commission of Railway Safety.

- 3.4 The Commission, in its discretion, may hold inquiry into any other accident.
- 3.5 During 2008-09, the Commission of Railway Safety inquired into 24 consequential train accidents/incidents. During the year, Commission of Railway Safety inquired into 6 Collisions, 3 Derailments, 2 accidents at Unmanned level crossings, 1 accident at Manned Level Crossing, 2 cases of Fire in train and 10 cases of Unusual occurrences. Brief particulars of these accidents are indicated in **Appendix- IV**.
- 3.6 The Commissioner of Railway Safety stops or discontinues his inquiry whenever a Commission of Inquiry under the Commission of Inquiries Act, 1952 is appointed.
- 3.7 Justice Saghir Ahmed Commission was set up on 13.02.2001 to inquire into the collision of 3005 UP Howrah-Amritsar Mail with derailed wagons of DN Ajitwal – New Bongaigaon goods train on 02.12.2000 in Ambala -Ludhiana Section of Northern Railway. The report of the Commission is awaited.

CHAPTER IV

SAFETY MEASURES

- 4.1 Keeping in view the fact that the Railways will have to lift more originating traffic during the coming years, there is a growing emphasis on strengthening of infrastructure on the Railways. This is a continuous process and the investments made and strategies adopted in the past have vindicated this by way of reduction in the number of consequential train accidents over the years.

Railway Safety Review Committee - Recommendations

- 4.2 Railway Safety Review Committee set up in 1998 under the Chairmanship of Justice H.R. Khanna, a retired Supreme Court Judge, submitted Part-I of its report in August 1999, and Part-II in February 2001. Of the total 278 recommendations made in both the parts of the Report, 239 have been accepted fully or partially and 39 recommendations could not be accepted due to various reasons.
- 4.3 Out of these accepted recommendations, 208 have already been implemented till March, 2009. The remaining 31 recommendations are at various stages of implementation depending upon availability of resources and success of trials, etc.

Appropriation to Depreciation Reserve Fund (DRF)

- 4.4 After clearing the arrears of replacement of over aged assets, viz., tracks, bridges, rolling stock, signalling gears and some safety enhancement works under Special Railway Safety Fund (SRSF) of Rs.17,000 crore, Railways are consistently making adequate contribution to Depreciation Reserve Fund (DRF) year after year for timely replacement of overage assets as and when they become due. In the year 2008-09, the actual contribution to DRF was Rs.7,000 crore and in the Budget Estimate of 2009-10, this contribution was fixed at Rs. 5,325 crore.

Corporate Safety Plan (2003-2013)

- 4.5 Railway Safety Review Committee (1998) in Part-I of its report recommended that Railways should formulate a comprehensive Corporate Safety Plan. Accordingly, Corporate Safety Plan of Indian Railways for 2003-2013 was formulated. The

Corporate Safety Plan envisages following areas to be covered to enhance safety on Indian Railways:

- (a) Passenger safety
- (b) Road users safety
- (c) Quantitative reduction in accidents.
- (d) Improving asset reliability
- (e) Prompt rescue and relief operations.

The broad objectives of the Corporate Safety Plan include reduction in rate of accidents and passenger fatality, development of manpower, safety on all fronts of train operations and maintenance and adoption of fail-proof environment, etc.

A periodical review of Corporate Safety Plan has been carried out in 2009. The target set for reduction in derailments by 60% by the year 2012-13 and the targets for reduction in level crossing accidents have already been achieved. The target set for reducing the accidents per million train kilometres to 0.17 in 2012-13 is also expected to be achieved before 2013 as accidents per million train kilometres have come down from 0.44 in 2002-03 to 0.20 in 2008-09. However, the targets set for collisions and miscellaneous accidents are yet to be achieved. Out of the total planned outlay of Rs. 31,835.01 crore for the works under Corporate Safety Plan, Rs. 24677.61 crore, (about 77.50%) has been spent and 75% works have been completed by 31.03.2009.

- 4.6** A high level committee was constituted in September, 2002 to review Disaster Management system over Indian Railways and to give recommendations for its strengthening and streamlining. The committee has given 111 recommendations, all of which have been accepted for implementation. 94 recommendations have since been implemented upto December, 2009 and the balance recommendations are at the various stages of implementation. Subsequently, Disaster Management Review Committee was constituted on 27.02.2007 under the chairmanship of Shri Gajendra Narayan, former Director General (Police), and the committee submitted its report in December, 2008. The recommendations of the committee are under consideration.

Track

- 4.7** The track forms the backbone of railway transportation system and therefore needs to be maintained in a safe and fit condition. To this end, it is essential to carry out not only the track maintenance operations, but also to renew the track as and when it becomes due for renewal. Out of the total Special Railway Safety Fund of Rs. 17,000 crore, Rs.7670 crore (45%) was earmarked for track renewal and an amount of Rs.8071.96 crore was spent on track renewal upto March, 2008.
- 4.8** The track renewal/replacement arising after 01.04.2001 (track renewal upto 01.04.2001 was included in SRSF) are being carried out under Depreciation Reserve Fund. Sufficient funds are being made available under Depreciation Reserve Fund every year to cater for such annual accruals.
- 4.9** Track structure is upgraded at the time of renewals. Sleepers are being upgraded from wooden, steel and CST-9 to PSC sleepers. Heavier section and high tensile strength rails are being used. Presently 52 kg/60 kg 90 UTS rails are being used in place of 90 R 72 UTS rails. Similarly, welded rails are used in place of earlier fish plated joints. As on 31.03.2009, out of 71,774 Kms. of Broad Gauge track on main lines, about 60,489 Kms of the length is covered by long welded rails, 67,618 Kms with PSC sleepers and 69,731 Kms with 52 Kg/60 Kg 90 UTS rails.
- As on 31.03.2009 following track structure exist on Broad Gauge (Main Line):
- ❖ Long Welded Rails are laid in about 84% length.
 - ❖ PSC sleepers are laid in about 94% length.
 - ❖ 52kg/60kg, 90 UTS rails are laid in about 97% length.

For improving the quality of track, various types of on-track machines are in use. For improving maintenance and better asset reliability, Railways are continuing to eliminate fish plated joints on tracks by welding the joints to convert all single rails into long welded rails to the extent possible. During relaying/construction of new lines/gauge conversion also, long welded rails are laid on concrete sleepers to the extent possible. Mobile Flash Butt Welding is introduced in construction projects for this purpose. Turnouts are also being improved systematically. Concrete sleepers are being used for turnouts alongwith Cast Manganese Steel (CMS) crossings and curved switches made of heavier rail sections for greater reliability, durability and higher permissible speeds. It is also

planned to lay Thick Web Switches on Group 'A' routes and routes having annual GMT more than 20 and where CC+6+2T or CC+8+2T loaded wagons are plying.

- 4.10** Other measures taken in this direction include use of modern diagnostic aids like Ultrasonic Rail Flaw Detectors (USFD), track recording cars, use of on-track machines for maintenance of track to higher standards, controlling/reducing rail and weld failures and ensuring quality of rails during manufacture. Mechanised Maintenance Units (MMU) are also under trial. To monitor impact of loaded wheels on track, installation of in-motion Wheel Impact Load Detectors (WILD) at several key locations on Indian Railways was planned and these have been commissioned at 9 locations.

Rolling Stock

- 4.11** All diesel/electric sheds and major ROH Depots have been equipped with ultrasonic testing equipment for timely detection of flaws developing in the axles.
- 4.12** Some workshops have organised special training courses to train staff in correct procedure of carrying out ultrasonic tests.
- 4.13** To ensure and improve quality of repairs for better reliability of rolling stock, most of the workshops and some of the sheds/depots have achieved ISO: 9001 certification for their Quality Management System.

Workshops

- 4.14** Periodic overhauling of coaches, wagons, electric locos, diesel locos, EMUs, tower cars and break down cranes, which is vital for ensuring their reliability and safety, is undertaken in workshops. During 2008-09, the workshops increased the POH outturn of coaches, including AC coaches and EMUs, as shown below:

<u>Rolling Stock</u>	<u>2007-08</u>	<u>2008-09</u>	<u>% increase</u>
BG Coaches	27110	27990	3.24
BG AC Coaches	3446	3703	7.46
BG Diesel Elect. Loco	409	528	29.1
BG Elect. Loco	411	414	0.73
BG Wagons*	44073	41422	- 6.0

- 4.15** To adhere to laid down standard practices, regular quality audit of workshops are conducted by RDSO. During 2008-09, RDSO conducted quality audit of 10 workshops.
- 4.16** Several modifications were undertaken in workshops during 2008-09 like fitment of air dryers on diesel locos, rehabilitation and up-gradation of BOXN wagons to BOXNR using stainless steel, air-brake conversion to freight stock, complete rehabilitation of end wall and side wall of wagons, provision of crashworthy features in coaches, mid-life rehabilitation of coaches, upgraded material in coaches, retrofitment of high capacity draft gear and high tensile coupler in wagons.

Locomotives

- 4.17** Flasher lights have been installed on all diesel locomotives to give indication to drivers of train approaching from the opposite direction on double line sections in case of mishap for prevention of accident. All main line locomotives have been provided with auto flasher lights, which start blinking and brakes apply automatically whenever there is any discontinuity in the brake pipe due to train parting or any other reason. Air dryers have also been fitted on all main-line diesel locomotives for removing moisture from the compressed air system
- 4.18** All BG main line locomotives have been provided with Microprocessor based Speed Recorders. Microprocessor based Speed Recorders, on account of having digital memory instead of paper recording, have higher reliability as compared to the conventional electromechanical speed recorders. Second-to-second analysis of driver's actions performed during the preceding three hours can be carried out in case of any eventuality.
- 4.19** 4000 Horse Power GM Locomotives are equipped with Multi Resetting Vigilance Control Device, which monitors the alertness of the driver through all normal actions performed by him while driving, such as use of throttle handle, braking, horn, etc. If driver performs no action for 20 seconds at a stretch, he gets an audio-visual indication, and if he does not react even after this, the brakes are applied automatically within 10 seconds. For conventional ALCO locomotives, this

feature, as part of the Microprocessor based control, is being provided in all new locomotives and in existing locomotives in a phased manner. It is further planned to provide Vigilance Control Device on all the ALCO locomotives which are not fitted with microprocessor based speed recorders. So far, 950 ALCO Locos have been provided with Microprocessor based control.

- 4.20** An ergonomic design of loco cab has been developed by DLW in association with NID Ahmedabad to provide easy approach to various control handles/buttons. New Locomotives have already been manufactured with improved design. Existing locomotives' cabs are also being upgraded in a phased manner. About 1050 locomotives have been provided with new design of loco cab. It is also proposed to provide TFT screen in the new loco cabs being developed for ALCO Locos.

Bullet proof cabs have been provided for the first time on diesel locomotives working in Lumding – Badarpur Section to counter the threat to running staff in sensitive areas.

- 4.21** Self Propelled Accident Relief Trains (SPARTs) and Accident Relief Medical Vans (ARMVs) have been introduced and stationed at strategic locations for speedy relief operations in case of train accidents. Speed of Accident Relief Medical Vans (ARMVs) have been upgraded to the speed of Mail/Express trains. One new Self Propelled Accident Relief Train has been manufactured by ICF and it is proposed to induct new technology in SPART so that it may be fit to run at a speed of 160 kilometres per hour.

- 4.22** As part of continuous efforts of IR to improve the productivity of its assets, the schedule periodicity of diesel locomotives has been increased from 20 to 30 days. Already over 700 diesel locos are working on 30 days schedule and it is planned to put an additional 300 locos on 30 days schedule by March, 2010. This will increase their availability by 2% and also permit flexibility of operations for two months without touching the home shed.

Coaches

Improving Fire Retardancy in Coaches

4.23 Indian Railways have always endeavoured to enhance fire worthiness of coaches by using more and more fire retardant furnishing materials such as Compreg board for coach flooring, fabric upholstery for seats and berths, curtains, laminated sheets for wall & partition panelling, roof ceiling, PVC flooring, Cushion's material for seats and berths, Rexine for seats and berths, FRP Window, UIC Vestibule, etc. While the efforts to incorporate fire retardancy in coach furnishing materials began in mid 1990's, specifications of such furnishing materials have been periodically upgraded/revised so as to incorporate the following fire retardancy parameters in line with UIC/other international norms:

- (i) Loss of visibility due to smoke.
- (ii) Toxicity Index.
- (iii) Resistance to spread of flame
- (iv) Limiting Oxygen Index

Action is also underway for conducting trials of a comprehensive fire and smoke detection system in one Rajdhani Rake of Northern Railway before considering universal implementation.

It is also planned to set up fire testing laboratory facilities at RDSO to have better understanding and testing of fire worthiness of various materials that go in the coach furnishing. This facility shall also help RDSO to develop better fire retardant materials for coaches.

4.24 Two emergency windows per AC coach have been provided to facilitate quick evacuation of passengers in the unfortunate event of an accident. The number of emergency windows in new manufacture of non-AC coaches has been increased from 2 to 4 per coach. All existing Non-AC coaches have also been retrofitted with two extra emergency windows.

Fitment of Tight Lock CBC for Enhancing Safety

- 4.25** Progressive fitment of tight lock Centre Buffer Couplers (CBC) in lieu of screw coupling on new manufacturing of ICF design coaches has been carried out with a view to prevent the coaches from climbing over each other in the unfortunate event of an accident. So far, 670 LHB coaches and 1510 ICF design coaches have been manufactured with Centre Buffer Couplers (CBC).

Air Spring for Improving Ride Coupler & Safety

- 4.26** For enhancing safety and reliability of passenger coaches, the suspension systems are being redesigned with air springs at secondary stage capable to maintain constant height at variable loads. Air springs have been developed and are being fitted in all the newly built EMU & DMU coaches for sub-urban trains. Air springs have now been developed for main line coaches as well and manufacture of such coaches has already commenced during 2008-09.

Crashworthy Coach Design

- 4.27** To improve upon the standards of safety, design of passenger coaches with features of crashworthiness which enables absorption of significant amount of energy during the impact/collision leaving the passenger area unaffected, has been developed. Manufacture of such coaches has commenced and about 430 crashworthy coaches have been manufactured so far.

On similar lines, design for a crashworthy LHB coach has also been developed by RDSO and the prototype is under manufacture at ICF. Orders for manufacture of 1200 numbers of High Energy Capacity Side Buffers with built-in crash elements for passenger coaches have been placed.

Freight Stock

- 4.28** Cast Iron Brake Blocks have been phased out and Composite Brake Blocks have been inducted. These give much higher service life and are more reliable and cost effective.

- 4.29** Vacuum brake wagons with fabricated UIC bogies, which are less reliable and less efficient, are being phased out and these are being replaced with more reliable and efficient air brake stock with Cast Steel Casnub bogies.
- 4.30** All new procurement of wagons is with air brake system. This has helped in improving the productivity and safety of train operation.
- 4.31** All 4-wheeler CRT wagons (which were derailment prone) have been phased out.
- 4.32** All Air Brake stock and Guard's Brake Vans have been equipped with quick coupling arrangement that permits quick coupling of detachable gauge (forming part of personal equipment of Guards) for checking the brake pipe continuity and air pressure thus ensuring safety of train before starting the journey.
- 4.33** Presently, the air brake system provided on wagons is under- frame-mounted types. This system is susceptible to dropping of long components like pull/push rods. In order to overcome this problem, Bogie Mounted Brake System (BMBS) is being provided on wagon stock. Procurement of around 50% of the wagons will be with BMBS during 2009-10 and from next year onwards 100% of the wagons will be with BMBS.
- 4.34** All the close-circuit rakes are provided with 100% brake power at the time of intensive examination. Such close-circuit rakes are permitted to run upto 6000/7500 kms. or 30/35 days, whichever is earlier, on nominated circuits, subject to certain checks after unloading/loading.
- 4.35** Reliability of rolling stock depends on the quality of spares and repair work. Zonal Railways have been directed to procure safety related materials from RDSO approved sources only. The performance of the approved sources is monitored periodically.
- 4.36** Occurrence of hot boxes is a cause of concern since each case is a potential safety hazard and may lead to serious accident. For timely detection of hot axle cases, "Acoustic Bearing Detectors" are being provided.

- 4.37** Four Wheeler Tank wagons, being prone to derailments, are being phased out by 2012-13.
- 4.38** New wagons of 25 tonne axle load are being provided with state of art new track friendly bogie and bottom shelf type coupler with higher class of draft gear.
- 4.39** New design of 23 tonne axle load wagons of higher capacity is being provided with better quality coupler/draft gear from OEMs.
- 4.40** Bogies of existing wagons are being upgraded by provision of additional suspension springs, etc. for higher load capacity.

Training of Running Staff

- 4.41** Emphasis has been given to practical training of loco running staff and training courses have been reviewed to incorporate additional practical training. New training modules like 'Good Loco Driving Techniques' have been incorporated in the promotional courses which give emphasis on safety and energy conservation.
- 4.42** With the induction of sophisticated technology in locos and rolling stock, training of staff has been given thrust with better training facilities. Supervisors/staff are being sent for induction/refresher courses to improve their skills. Simulators are also being provided in a phased manner for better appreciation of train-track dynamics by the loco running staff.
- 4.43** To provide conditions conducive for the running staff to take proper rest at outstations, the running rooms are being upgraded by providing improved ventilation, cooling arrangements, two bed cubicals, reading light for individual beds, clean toilets, clean linen, etc.
- 4.44** Railway Servants (Hours of work and Period of Rest) Rules, 2005 are being followed while preparing the crew links and assessing requirement of running staff.

Signalling

- 4.45** Signalling plays a vital role in not only promoting safety and minimizing the impact of

human error in train operation, but also in enhancing line capacity through the introduction of modern signalling systems. Indian Railways have therefore undertaken technological upgradation in signalling.

- 4.46** In order to enhance safety by reducing human dependence for verification of clearance of track, track circuiting of the complete station section has been taken up. Track circuiting has been done at 26221 locations up to March 2009.
- 4.47** In order to increase efficiency and enhance safety in train operations, modern signalling systems with Route Relay/Panel/Electronic Interlocking along with Multi Aspect Colour Light Signalling in replacement of over-aged Mechanical/Multi Cabin signalling system have been provided progressively. 4250 Stations have been provided Route Relay/Panel/Electronic Interlocking as on March, 2009.
- 4.48** Interlocking of level crossing gates is being done based on the volume of road-cum-rail traffic to enhance safety. The interlocking of 8,903 level crossing gates has been completed upto March, 2009.
- 4.49** Provision of telephones at manned level crossing gates improves safety as it enables gatemen to communicate with the station master. Telephonic communication has already been provided at 16,641 level crossing gates upto March, 2009.
- 4.50** In order to enhance safety by automatic verification of complete arrival of train and increase line capacity by reducing block closure time, Block Proving Axle Counters (BPACs) are being provided progressively. 1929 Block Sections have been provided with Block Proving Axle Counters upto March, 2009.
- 4.51** In order to improve reliability and visibility of signals, outdated filament type signals are being replaced by long life highly durable LED signals. 2695 stations have been provided with LED signals upto March, 2009.

New Initiatives

- 4.52 Train Protection and Warning System (TPWS):** Train Protection Warning System (TPWS) has been commissioned on Chennai Central - Gummidipundi

suburban section (50 Route KMs) of Southern Railway in May, 2008 as a pilot project. This system prevents ‘Signal Passing At Danger’ (SPAD) cases and enforces implementation of speed restriction. Second pilot project of Train Protection Warning System over 200 Route Kilometres on main line (Delhi-Agra Section of Northern/North Central Railway) is also underway.

4.53 Anti Collision Device (ACD) : To prevent collision cases and to minimize the damages caused by collisions, Anti-Collision Device has been installed and operationalized on 1736 route kilometers of North East Frontier Railway. Due to initial teething problems experienced in operationalisation of Anti-Collision Device on North East Frontier Railway, revised specifications for Anti-Collision Device are being framed. Improved Anti-Collision Device system with revised specifications is planned to be installed for trial on Southern, South Central and South Western Railways covering 1,600 route kilometers.

4.54 Train Management and Information System (TMS): This system provides efficient rail services and gives the commuters information about running of trains on a real time basis. All train movements are displayed on a video screen in control room. TMS on Mumbai suburban section of Western Railway has been commissioned. The work of TMS on Central Railway is in progress.

4.55 Progress made in respect of provision of important safety aids as on 31-3-2009 is as under:

	System	As on 31-3-2008 (Reconciled)	As on 31-3-2009
1.	Track Circuits (No. of locations)	24567	26221
2.	Provision of RRI/PI/EI (No. of Stations)	3914	4250
3.	Interlocked Level Crossings Gates(Nos.)	8428	8903
4.	Gates provided with Telephones (Nos.)	16263	16641
5.	Last Vehicle check by Axle Counters (No. of Block Sections)	1437	1929
6.	LED Signals (No. of stations)	1785	2695

Telecommunication

Mobile Train Radio Communication

- 4.56** Mobile Train Radio Communication (MTRC) system for providing full duplex communication system for operational and maintenance purposes has been sanctioned on 3475 Route Kms. out of a total of all A, B & C routes of 16,000 Route Kms approximately. This system has been successfully commissioned on Howrah-Pradhankunta (260 RKMs) of Eastern Railway, Mathura-Jhansi (270 RKMs) of North Central Railway and Guwahati - New Bogaigaon (156 Rkms) of Northeast Frontier Railway and it is working satisfactorily. Mobile Train Radio Communication system on New Bogaigaon- Katihar/Malda Town (525 RKms) of Northeast Frontier Railway, Pradhankunta- Mugalsarai (400 RKms) of East Central Railway and Delhi - Ambala (198 RKMs) of Northern Railway has been completed and will be commissioned soon.

Communication for Managing Disasters and Crisis

- 4.57** For establishing communication in case of emergency, Railways have decided to provide all modern telecom facilities such as Satellite phones, ISD connection, Railway helpline numbers, etc. Now, Railways have provided Closed User Group (CUG) Mobile phones to officers and supervisors in the field so that the same can be used in case of accidents for relief and rehabilitation work. This has been implemented on all Zonal Railways and Production Units. It has also been decided to provide WLL (Wireless in Local Loop) exchange in all the Divisional ARTs (Accident Relief Trains). In addition, provision of video streaming and internet facility at disaster site is planned using Railway's own V-SAT hub and small V-SAT terminals to be provided in each ART.

Improving reliability of Safety related Communication Circuits

- 4.58** To improve the reliability of safety related communication systems, the old overhead alignments are being replaced with cable based communication system. For this purpose, optical fibres and copper cables have extensively been laid to provide communication backbone for train operation. Initially, 42,000 RKMs overhead alignments were available on Indian Railways. As the overhead

alignment is having poor reliability and low efficiency, this has already been replaced with 36,000 RKMs of OFC and 40,000 RKMs of Under Ground Quad Cable. About, 10,000 RKMs of OFC and 10,000 RKMs of Quad Cable works are in progress and are at different stages of completion.

Electrical Rolling Stock and Allied Infrastructure

- 4.59** All electric locomotives and EMUs/MEMUs have been provided with twin beam headlights for improving the visibility of the drivers during night time.
- 4.60** All electric locomotives have been provided with flasher light which gets automatically switched on in case of train parting due to derailment or otherwise. RDSO has finalized the scheme so that LED based flasher light automatically switches ON due to uncoupling of electrical jumpers in case of parting/derailment in EMUs/MEMUs. Further a decision has been taken to incorporate signal from pneumatic circuit in addition to electrical jumper for switching on flasher light for which trials are being undertaken.
- 4.61** All newly manufactured electric locos & EMUs/MEMUs are provided with air dryers for removing moisture from the compressed air system resulting in improved reliability of the braking system. The air dryers are also being fitted on existing electric locos and EMUs/MEMUs retrospectively.
- 4.62** Energy-cum-Speed Monitoring Systems (ESMON) having digital memory are being provided on electric locomotives and EMUs/MEMUs which shall help in monitoring the performance of the drivers with regard to their skills in controlling speed and energy conservation.
- 4.63** All Wheels & Axles of electric locomotives and EMUs/MEMUs are tested with ultrasonic flaw detectors at specified intervals for detection of flaw in the material, if any.
- 4.64** In order to arrest failure of the tyres, solid wheels are being progressively provided on EMUs/MEMUs. From 1st April, 2008 onward, solid wheels are being used in all new EMU/MEMU rakes and also for replacing tyres in existing EMU/MEMU rakes whenever tyres of these EMUs/MEMUs need change.

- 4.65** Detailed instructions regarding maintenance practices and use of fire retardant materials on electric locos, EMUs/MEMUs and passenger coaches have been issued and reiterated.
- 4.66** Cable Head Termination System is being progressively provided on electric locomotives and EMUs/MEMUs replacing the old generation condenser bushing to avoid fire in Locos/ EMUs /MEMUs.
- 4.67** Vigilance Control Device (VCD) for keeping drivers vigilant exists on all 3-phase locomotives. After successful trial of this device on 30 conventional locomotives, decision has been taken to provide VCD System on all conventional locos.
- 4.68** Auxiliary Warning System (AWS) has been provided in EMU trains in Mumbai suburban area so that motorman maintains speed as per aspect of the signal. TPWS (Train Protection Warning System) is being provided in EMUs working on Southern Railway. Till date 38 EMU rakes have been provided with this system.
- 4.69** Regenerative braking exists along with pneumatic braking system on 3-phase locos for the smooth control and enhancement of brake power thereby reducing the normal braking distance. On similar lines, Dynamic Braking Resistance (DBRs) are being progressively provided on all conventional electric locomotives. AC/DC EMU stock plying in Mumbai suburban area are having regenerative braking system.
- 4.70** Simulator based training is being imparted for improving upon the driving skills and the reaction time of drivers.
- 4.71** Ergonomically designed Loco cabs already exist on 3-phase electric locos and are being provided on all conventional electric locomotives for comfort of the crew.
- 4.72** Layout of driving cab has been standardized and is being implemented on newly built AC EMU, MEMU & AC/DC EMU stock. Railways have also been advised to modify the driver cab of existing EMU/MEMU stock having the residual life of 15 years, in their respective workshops during periodical overhaul.
- 4.73** Improvement in running rooms is being provided for stress free environment to the outstation crew.

- 4.74** Emergency light with separate battery back up is being provided in all new main line coaches to provide illumination in case of accident and other eventualities. Such provisions are also being made in existing coaches having residual life of more than 10 years.
- 4.75** All new EMU stock are being provided with air springs in secondary stage for enhancing safety and reliability. The existing EMU coaches with helical springs in secondary stage are also progressively being provided with air spring.

Accident Relief Medical Equipment

- 4.76** Indian Railways have an efficient disaster management system consisting of 174 mobile accident relief vans out of which 13 are self propelled vans. Another 325 Accident Relief Medical Equipment Scale –II (ARMES) are located at strategic locations to provide relief. The mobile units are stabled in Railway yards ready to move out at short notice. The Accident Relief Medical Vans (Scale-I) are well equipped having facility, inter-alia, of carrying out emergency procedures also. Railway Hospitals and health units also have POMKA kits (Portable Medical Kits for Accidents) for use by medical teams at the accident site.

Data base on Medical Facilities:

- 4.77** A data base regarding non railway medical facilities available along the railway tracks, has been compiled along with details such as distance, address, telephone numbers, the capacity and nature of facilities available, etc. The data is kept with Divisional Headquarters, Control Offices, etc. which can be accessed at short notice. This information is also available on Railnet. This measure has helped in establishing expeditious relief even before Railway teams could reach the accident spot.

162 nominated long distance superfast trains, having limited stoppages and 156 ‘A’ class stations have been provided with upgraded First aid facilities in the form of Augmented First aid boxes with added medicines, injectables and few resuscitative equipments. Front line staff are being trained in first-aid so that they can render first-aid taking the help of these augmented first-aid boxes at times of need. On the recommendations of Railway Safety Review Committee (RSRC-98), instructions have been issued for imparting first aid training to ticket checking staff, both at initial and refresher stages, as per guidelines and schedule devised by Health Directorate of

the Ministry of Railways, and first aid has been included in the duty list of ticket checking staff.

Checks against miscreant activities in train and passenger areas

4.78 An Integrated Security System has been approved to strengthen surveillance mechanism over 195 sensitive and vulnerable stations of the Indian Railways. The system consists of following four broad areas:-

- a) IP based CCTV surveillance system,
- b) Access control,
- c) Personal and baggage screening system,
- d) Bomb detection and Disposal System

In Works Programme 2009-10, approval has been accorded for implementation of this scheme at 195 sensitive stations of the country at an estimated cost of Rs. 344.31 crore.

4.79 12 training centres and one Centralized Training Institute (CTI) are presently imparting training to RPF/RPSF personnel. To constantly upgrade professional skills of RPF personnel, training programmes are being conducted at the prestigious training institutes of the country. Some of the recent training programmes undergone by the RPF personnel include Bomb Detection & Disposal Course with NSG and Disaster Management Course with NISA, Hyderabad.

4.80 Security equipments (30 categories) with detailed norms and scales have been identified for the use of RPF personnel. Rs. 67.09 crore have been allocated for procurement of above modern security related equipment.

4.81 On an average, 1257 trains are being escorted by RPF daily. A total of 14.20 lakh offenders were prosecuted by RPF during the year 2008-09 under various sections of the Railways Act. During the year 2008-09, 48 cases of drugging, 145 cases of luggage lifting, 33 cases of carrying illegal arms, 40 cases of chain snatching, 123 cases of pick pocketing, 227 cases of trafficking of contraband goods, 11 cases of offences against women and 250 cases of other criminal offences were detected by RPF and 722 offenders were arrested and handed over to GRP for legal action. 2794 minor girls and boys (destitutes) were rescued by RPF and handed over to their parents or Non- Governmental Organizations.

4.82 A proposal for creation of 1688 non-Gazetted posts in RPF/RPSF, in addition to 973 posts created earlier, is under consideration of the Ministry of Finance for sanction. Ministry of Railways has also provisionally concurred creation of 5134 posts in Non-Gazetted cadre which is being forwarded to Ministry of Finance for sanction. To enhance representation of Women in RPF/RPSF, eligible female candidates are to be recruited for filling up 10% of the vacancies in the direct recruitment of the rank of Sub Inspectors and Constables.

Development of Human Resources

4.83 Human resource development plays an important role, especially in training of staff with “state-of-the-art” equipments and specialization in their nature of work. Development of human resources is a continuous process and due to fast changes in the systems and processes, training has assumed greater importance. Some of the steps taken in this direction are as under:-

- (i) A comprehensive training needs analysis is usually done in respect of all the staff through a series of meetings.
- (ii) Training Modules for Induction, Refresher, Promotional and Specialized courses are reviewed after every 3-4 years.
- (iii) Special emphasis is being given to training for some of the safety categories which include competency based training.
- (iv) Yoga and meditation lessons have been introduced in training centres especially for safety categories staff to cope with stress involved in their job.
- (v) Training has been made more interesting and interactive for the running staff and supervisory staff.
- (vi) Special emphasis is given in adopting latest training methodologies such as on the job training, simulator training, multi-media interactive packages on the PC as well as computer based tutorials, etc.
- (vii) The concept of multidisciplinary training is being actively promoted and efforts are being made to set up new training facilities on multidisciplinary lines. This would help train the key functionaries in more than one skill and faculty which would help them in ensuring safety and crisis management.

TRAIN ACCIDENTS ON INDIAN RAILWAYS SINCE 1960-61

Year	Collisions	Derailments	Level Crossing Accdts.	Fire in trains	Misc.	Total	Million Train Kms.	Incidence of accidents per million train kms.
1960 - 61	130	1415	181	405		2131	388.1	5.50
1961 - 62	124	1433	160	236		1953	396.2	4.90
1962 - 63	98	1316	168	55		1637	408.3	4.00
1963 - 64	93	1300	161	81		1635	421.9	3.90
1964 - 65	81	1035	146	31		1293	433.2	3.00
1965 - 66	74	962	123	42		1201	450.8	2.70
1966 - 67	67	876	104	50		1097	451.7	2.40
1967 - 68	66	892	111	42		1111	455.3	2.40
1968 - 69	47	684	129	48		908	460.1	2.00
1969 - 70	54	751	111	47		963	473.0	2.00
1970 - 71	59	648	121	12		840	466.5	1.80
1971 - 72	57	667	118	22		864	474.4	1.80
1972 - 73	59	598	131	25		813	473.1	1.70
1973 - 74	66	578	125	13		782	432.8	1.80
1974 - 75	66	696	140	23		925	430.1	2.20
1975 - 76	64	768	105	27		964	487.4	2.00
1976 - 77	45	633	86	16		780	511.6	1.50
1977 - 78	54	705	93	14		866	526.1	1.60
1978 - 79	55	778	86	12		931	504.1	1.80
1979 - 80	72	692	115	21		900	503.4	1.80
1980 - 81	69	825	90	29		1013	504.5	2.00
1981 - 82	87	936	84	23		1130	516.6	2.20
1982 - 83	54	653	70	20		797	530.9	1.50
1983 - 84	48	621	82	17		768	541.7	1.40
1984 - 85	39	678	65	30		812	541.1	1.50
1985 - 86	46	588	62	21		717	570.4	1.30
1986 - 87	28	538	65	13		644	582.3	1.10
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	414	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	667.1	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 - 00	20	329	93	21		463	717.7	0.65
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	810.1	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

Major accidents during 2008-2009**(Attended with death of 10 or more persons)**

<u>S.No</u>	<u>Brief Particulars</u>	<u>Killed</u>	<u>Injured</u>
1.	Incident of fire in train No.2738 Dn Gautami Express between Kesamudram - Tadlapusalapalli stations on Kazipet - Vijayawada section of Secunderabad Division of South Central Railway on 01.08.2008.	31	05
2.	Dashing of a truck with 112 Dn Kanpur-Allahabad Passenger train at Manned Level Crossing Gate No. 44-A after breaking the safety chain in Unchahar Yard on Rai Bareli- Allahabad section of Lucknow Division of Northern Railway on 25.01.2009.	12	43
3.	Dashing of a Bolero Jeep with 2894 Express train at Unmanned Level Crossing No. JT-49 between Barapalli and Baragarh Road stations on Jharsuguda – Balangir section of Sambalpur Division of East Coast Railway on 22.02.2009.	15	01
4.	Dashing of a Bus with 134 Up Tanakpur - Kasganj Passenger at Unmanned Level Crossing No. 271-C between Ghatpuri-Badaun stations on Bareilly - Kasganj section of Izzatnagar Division of North Eastern Railway on 28.02.2009	11	17

Appendix - III

Worst accidents in each category during the year are listed below :-

(A) Collisions

<u>S.No</u>	<u>Brief Particulars</u>	<u>Killed</u>	<u>Injured</u>
1.	Head-on-Collision between two pairs of Coupled Engines at Ghorpari Yard on Pune - Daund section of Pune Division of Central Railway on 07.07.2008.	03	02
2.	Rear End collision of Dn Goods Train CC 934 with CC 16737 Dn BOXN Empty in Jhingura Yard on Mughalsarai-Allahabad Section of Allahabad Division of North Central Railway on 08.12.2008.	03	-
3.	Rear End Collision of 4207 Up Pratapgarh -Delhi, Padmawati Express with 4723 Up Kanpur-Bhiwani, Kalindi Express between Sahibabad and 'A' Panel of Shahadara Station on Ghaziabad – Delhi section of Delhi Division of Northern Railway on 12.08.2008.	01	05

(B) Derailments

<u>S.No</u>	<u>Brief Particulars</u>	<u>Killed</u>	<u>Injured</u>
1.	Derailment of 2841 UP Howrah-Chennai Coromandal Express in Jajpur Keonjhar Road Station Yard on Bhadrak-Vishakhapatnam Section of Khurda Road Division of East Coast Railway on 13.02.2009.	09	127
2.	Derailment of 253 Up Kalka-Shimla Holiday Special Express train between Sonwara and Dharampur Stations on Kalka-Shimla Section of Ambala Division of Northern Railway on 21.12.2008.	01	04
3.	Derailment of 6309 Dn. Ernakulam-Patna Express between Baruva -Sompeta stations on Khurda Road-Palasa section of Khurda Road Division of East Coast Railway on 04.12.2008.	-	08

(C) Manned Level Crossing Gate Accidents

S.No.	Brief Particulars	Killed	Injured
1.	Dashing of one truck with train No.112 Dn Kanpur-Allahabad Passenger at manned level crossing No.44-A in Unchahar Yard of Rai Bareli – Allahabad section of Lucknow Division of Northern Railway on 25.01.2009.	12	43
2.	Dashing of one truck with train No.483 Up Passenger and two trucks with train No.1601 Dn Express at manned level crossing No.41-C between Chhapra – Goldenganj stations of Chhapra Kacheri – Sonapur sections of Varnasi Division of North Eastern Railway on 02.09.2008.	01	06
3.	Dashing of one school/college bus with train No.7233 Secunderabad - Bhagiyanagar Express at manned level crossing No.20 between Uppal– Jamikunta stations of Kazipet – Ballarshah section of Secunderabad Division of South Central Railway on 05.12.2008.	01	04

(D) Unmanned Level Crossing Gate Accidents

S.No.	Brief Particulars	Killed	Injured
1.	Dashing of one jeep with train No.2894 Express at unmanned level crossing No.JT-49 between Barapalli – Baragarh Road stations of Jharsuguda – Volangir section of Sambalpur Division of East Coast Railway on 22.02.2009.	15	01
2.	Dashing of one bus with train No.134 Up Tanakpur-Kasganj Passenger at unmanned level crossing No.271-C between Ghatpuri – Badaun stations of Bareilly – Kasganj section of Izzatnagar Division of North Eastern Railway on 28.02.2009.	11	17
3.	Dashing of one auto rickshaw with train No.2992 Express at unmanned level crossing No.66-C between Mandal - Bhilwara stations of Ajmer – Chittaurgarh section of Ajmer Division of North Western Railway on 15.04.2008.	05	06

(E) Fire Accidents

S.No.	Brief Particulars	Killed	Injured
1.	While the train No.2738 Gautami Express was on run between Kesamudram - Tadalapusalapalli stations of Vijayawada-Kazipet section of Seuncderabad Division on South Central Railway, its 5 coaches (S-9 to S-13) caught fire on 01.08.2008	31	05

(F) Miscellaneous

S.No.	Brief Particulars	Killed	Injured
1.	Grazing of tractor trolley, which moved on the newly constructed formation of third line, with train No.4005 Lichchavi Express at Sikandarpur station on Kanpur-Tundla Section of Allahabad Division of North Central Railway on 31.08.2008	09	07
2.	Dashing of push trolley (Engineering) with Goods train No. INS 14 (Empty) between Chhiteni – Beohari stations of Katni – Singrauli Section of Jabalpur Division of West Central Railway on 13.03.2009	02	05
3.	Grazing of under construction gate leaf with train No.5 LCM EMU between Amaosi - Piparsand station on Lucknow - Kanpur Section of Lucknow Division of Northern Railway on 05.02.2009	01	05

**PARTICULARS OF ACCIDENTS DURING 2008-09
INQUIRED INTO BY COMMISSION OF RAILWAY SAFETY.**

S. No.	Date	Brief particulars
1.	09-Apr-08	Dashing of an unnumbered tractor trolley with 467 Up Passenger at construction worksite between Jasoda-Gursahaiganj stations of Kanpur Central -Farrukhabad section of Izzatnagar Division of North Eastern Railway.
2.	01-May-08	Unusual occurrence of grazing of 0895 Howrah-Puri Special by a Dumper at Gopalpur Balikunda station yard on Bhadrak - Duvada Section of Khurda Road division of East Coast Railway causing injuries to travelling passengers.
3.	05-Jun-08	Dashing of truck with 5610 Avadh Assam Express at Unmanned Level Crossing No. 95-C between Narayanpur Anant and Silout stations on Muzaffarpur-Samastipur section of Sonepur Division of East Central Railway.
4.	08-Jun-08	Dashing of tractor trolley with 318 Dn. Darbanga-Katihar Passenger at construction worksite between Sahebpur Kamal and Umesh Nagar stations on Barauni-Katihar section of Sonepur Division of East Central Railway.
5.	04-Jul-08	Unusual occurrence of falling of roof of Platform Shed on one coach of BL-07 EMU Suburban Local Passenger train at Ambernath station of Kalyan-Karjat section of Mumbai Division of Central Railway.
6.	06-Jul-08	Dashing of truck with 4059 Up Delhi – Jaisalmer Express at Unmanned Level Crossing No. C-128 between Umed - Sathin Road stations of Merta Road-Jodhpur section of Jodhpur Division of North Western Railway.
7.	07-Jul-08	Head-on-Collision between two pairs of Coupled Light Engines at Ghorpari Yard on Pune-Daund section of Pune Division of Central Railway.
8.	01-Aug-08	Incident of fire in five coaches of train No.2738 Dn Goutami Express between Kesamudram-Tadlapusalapalli stations on Kazipet - Vijayawada section of Secunderabad Division on South Central Railway.

9. 05-Aug-08 Unusual incident of dashing of road lorry with train No. 387 Dn. Coimbatore-Mangalore passenger between Podannur Junction - Madukarai stations on Coimbatore Jn. - Shoranur section of Salem Division on Southern Railway.
10. 12-Aug-08 Rear-end Collision of 4207 Up Pratapgarh-Delhi, Padmawati Express with 4723 Up, Kanpur-Bhiwani, Kalindi Express between Sahibabad and 'A' Panel of Shahadara stations on Delhi-Ghaziabad section of Delhi Division of Northern Railway.
11. 31-Aug-08 Unusual occurrence of dashing of tractor trolley with 4005 Up Lichchivi Express at West Cabin of Sikanderpur station of Tundla-Ghaziabad section of Allahabad Division of North Central Railway.
12. 29-Sep-08 Unusual occurrence of hitting of Dn. Starter Signal ladder of Line No. 1 with 4016 Dn. Sadbhavana Express at Tezpur Dehma station between Ghazipur City- Chapra Kachehri section of Varanasi Division of North Eastern Railway.
13. 30-Sep-08 Rear-end collision of MEMU Train No. M-165 (Kazipet-Hyderabad) with train No. 355 Passenger (Wadi-Hyderabad) at Lakdi Ka Pul Yard between Hussainsagar - Hyderabad stations in Automatic Signalling territory of Secunderabad Division of South Central Railway.
14. 02-Dec-08 Explosion in Coach of 901 Up (Lumding-Tnsukia) at Diphu Station in Lumding- Dimapur section of Lumding Division of Northeast Frontier Railway.
15. 04-Dec-08 Derailment of 6309 Dn. Ernakulam-Patna Express between Baruva - Sompeta stations of Khurda Road-Palasa section of Khurda Road Division of East Coast Railway.
16. 08-Dec-08 Rear End collision of Dn. Goods Train No. 934 with CC 16737 BOXN Empty Dn on Dn. Main Line in Jhingura Yard of Mughalsarai-Allahabad Section of Allahabad Division of North Central Railway.
17. 21-Dec-08 Derailment of 253 Up Kalka-Shimla Holiday Special Express train between Sonwara and Dharampur Himachal Railway Stations on Kalka-Shimla Section of Ambala Division of Northern Railway.

18. 22-Dec-08 Unusual incident of hitting of BS 262A Up EMU Local by steel strip of overhead equipment between Jogeshwari - Andheri stations on Churchgate-Virar Section of Mumbai Division of Western Railway.
19. 16-Jan-09 Side Collision of Light Engine with train No. 6128 Up Guruvayur-Chennai Egmore Up Express at Tiruchirapalli Junction station of Tiruchirapalli Division of Southern Railway.
20. 31-Jan-09 Dashing of a tractor with Train No.636 Dn. at Manned Level Crossing Gate No. KJ-72 between Jogbani and Bathnaha stations of Katihar - Jogbani section of Katihar Division of Northeast Frontier Railway.
21. 05-Feb-09 Unusual occurrence of hitting of Train No. 5 LCM LJN-CNB MEMU passenger by Gate Leaves provided at construction/work site at Unmanned Level Crossing No.8-C between Amausi and Piparsand railway stations of Lucknow-Kanpur section of Lucknow Division of Northern Railway.
22. 13-Feb-09 Derailment of Train No. 2841 UP Howrah-Chennai Coromandal Express in Jajpur-Keonjhar Road Station yard on Bhadrak-Vishakhapatnam section of Khurda Road Division of East Coast Railway.
23. 14-Feb-09 Head-on Collision of 530 Dn Gorakhpur-Muzaffarpur Passenger with Train Engine of 405 Up Raxaul-Sagauli Passenger during shunting at Sagauli station of Narkatiaganj-Muzaffarpur section of Samastipur Division of East Coast Railway.
24. 21-Mar-09 Fire in Pantry Car of 2310 Dn. New Delhi-Patna Rajdhani Express between Mughalsarai and Kuchman stations on Mughalsarai Division of East Central Railway on 21.03.2009.

C O N T E N T S

<u>Chapter</u>	<u>Subject</u>	<u>Pages</u>
I	Safety Record of Indian Railways	38-40
II	Accident Compensation	41-44
III	Accident inquired into by the Commission of Railway Safety	45-46
IV	Safety Measures	47-64
	Appendices	65-72

**GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)**

No. 2009/Safety(A&R)/10/1

New Delhi, dt. .02.2010

**The Manager,
Government of India Press,
Ring Road, Mayapuri,
New Delhi.**

Sub: Printing of the Booklet ‘Indian Railways Safety Performance- 2008-09’.

Like every year this year also a Booklet of “Indian Railways Safety Performance – 2008-09 will be printed. This is a Railway Budget document to be laid in Parliament. In connection with the above work, following quantity of papers are being delivered to you for printing of 5000 copies of above booklet.

- | | | |
|------|---|----|
| (i) | 65 reams (500 sheet each) of Art Paper, Imported (100 GSM) of size
cm. x 91 cm. (25” x 36”). | 65 |
| (ii) | 5 reams (500 sheet each) of Art Card Paper, Imported (220 GSM) of size
cm. x 91 cm. (25” x 36”). | 65 |

A copy of last year booklet is enclosed.

Kindly acknowledge receipt of the above quantity of papers.

**(R.K. Sinha)
Deputy Director/Safety(A&R)
Railway Board
Tel: 23303998
9971691954 (M)**

**GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)**

No. 2009/Safety(A&R)/10/1

New Delhi, dt.

.02.2010

**The Manager,
Government of India Press,
Ring Road, Mayapuri,
New Delhi.**

Sub: Printing of the Booklet 'Indian Railways Safety Performance-2008-09'.

The Directorate of printing have nominated Government of India Press, Ring Road, Mayapuri, New Delhi for printing the above referred booklet vide their Job No. 63 dated 09.02.2010. Paper for printing of this booklet has already been supplied to your Press.

The following items are being sent herewith:-

1. Manuscript of about 80 pages.
2. 5 pages of coloured charts to be inserted between the Hindi Portion and English portion (5 sheets without colours are also being enclosed).
3. One sample copy of the booklet printed last year.
4. One Cover of the Booklet without colour.

Since the above booklet is a part of the documents to be presented along with Railway Budget. It may please be printed on **TOP PRIORITY by 19.02.2010 positively.**

D.A: As above.

(R.K Sinha)
Dy. Director/Safety (A&R)
Railway Board
Tel. 23303998
23303580
Mob. 9971691954

Sub: Printing of the Booklet on Indian Railway Safety Performance- 2008-09.

Booklet on Indian Railway Safety Performance (2008-09) was laid in Parliament alongwith Rail Budget 2010-11. 5000 copies of the booklet was printed for this purpose by the Government of India Press, Mayapuri, New Delhi. A copy of the printed booklet is placed below at **F/X**. Press voucher for despatch of 5000 copies of the booklet is placed at **F/Y**.

The Government of India Press had earlier furnished a bill of Rs 3,67,277/- for printing of 5000 copies of the above booklet. Since the above bill was found to be on the higher side in comparison to previous years, GOI Press was requested (**F/Z**) to examine the bill & submit a fresh bill for arranging payments.

GOI Press has now submitted a fresh bill (**PUC**) of Rs. 2,84,767/- with the following break-up:-

Re-Printing charges-	22,087. 53
Printing Charges-	1,48,892. 80
Binding & Misc. charges -	1,13,786. 24

Total- 2,84,766. 57 (Rounded to Rs. 2,84,766)

It may be mentioned that for same quantity of printing of 5000 copies of the booklet on 'Indian Railway Safety Performance' (consisting of similar number of about 80 pages) in 2005-06 and 2006-07 amount of Rs 2,68,236 and Rs.2,16,694 were paid respectively. (Copy of sanction orders placed at **F/A & F/B**)

The revised bill submitted by GOI Press for Rs. 2,84,767/- for printing of the booklet on Safety Performance (2008-09) is placed below in triplicate. Finance Directorate may please accord their approval for payment of the amount of Rs 2,84,767/- to GOI Press. The amount is chargeable to Demand No. 1, Railway Board.

Draft sanction order is placed below for approval.

(R.K.Sinha)
Dy. Director/Safety(A&R)-I

JD/Safety-II

JDF(X)- I

**GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)**

No. 2009/Safety(A&R)/10/1

New Delhi, Dated- .08.2010

Sub: Printing of Indian Railways Safety Performance-2008-09.

Post-facto Sanction of the Ministry of Railways is hereby communicated to the payment of Rs 2,84,767(Rs Two lakh eighty four thousand seven hundred sixty seven only) to the Manager, Government of India Press, Ring Road, Mayapuri, New Delhi-110064 against their Bill No. RRP/A/cs-III/683/09-10 dated 02.03.2010/22.05.2010 towards printing of 5000 copies of captioned booklet.

The amount is chargeable to Demand No. 1, Railway Board.

The cheque may please be drawn in favour of the Accounts Officer (Printing), Ministry of Urban Development and Poverty Alleviation, New Delhi and sent to the Assistant Manager (Admn.), Government of India Press, Ring Road, Mayapuri, New Delhi-110064.

This issues with the concurrence of Finance Directorate of the Ministry of Railways.

(R.K. Sinha)
Deputy Director/Safety(A&R)
Railway Board

Pay & Accounts Officer,
Railway Board.
New Delhi.

Copy forwarded for information to:-

- (i) FA&CAO, Northern Railway, New Delhi.
- (ii) Principal Director of Audit, Northern Railway, New Delhi.
- (iii) Deputy Comptroller and Auditor General of India (Railways), 224, Rail Bhavan, New Delhi.

For Financial Commissioner/Railways

No. 2009/Safety(A&R)/10/1

New Delhi dt. .08.2010

Copy forwarded for information to the Manager, Government of India Press, Ring Road, Mayapuri, New Delhi with reference to their Bill No. RRP/Acs/III/683/09-10 dated 02.03.2010/22.05.2010 & Letter No. RRP/Acs/III/639/09-10/1479 dated 09.06.2010.

(R.K. Sinha)
Deputy Director/Safety(A&R)
Railway Board

Copy to Budget, F(X)I & Cash-III Branches, Railway Board.