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 – 1998 set up 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 Committee, 240 have been accepted fully or partially and 38 recommendations could not be accepted due to various reasons.

4.3 Implementation of the accepted recommendations is in progress and 126 recommendations of both the parts have already been implemented till January, 2005. Implementation of remaining accepted and partially accepted recommendations is at various stages depending upon availability of resources and success of trials etc.

Special Railway Safety Fund

4.4 In one of the major recommendations, Railway Safety Review Committee had recommended that the Central Government should provide a one-time grant to the Railways to wipe out arrears in renewal of over-aged assets within a fixed time frame. In order to implement this recommendation, Central Government has set up a non-lapsable “Special Railway Safety Fund” of Rs.17,000 crore to wipe out arrears in renewal of over-aged assets of track, bridges, signalling gears and rolling stock, etc. within a fixed time frame of 6 years. It also includes certain safety enhancement measures such as track circuiting of maximum number of stations, aids necessary for improving safety of rolling stock, up-gradation of
training facilities including training aids in training institutions, simulators for locomotive drivers, development of computer based training modules, etc.

4.5 This fund became operational with effect from 1st October 2001. For this the Central Government has agreed to provide about Rs 12,000 crores over a period of 6 years (dividend free) and about Rs 5,000 crores are to be mobilised by Ministry of Railways through levy of a ‘Safety Surcharge’ on passenger fares. The actual expenditure under SRSF, during the year 2001-2002 and 2002-03 was Rs. 1434.28 crores and Rs. 2486.31 crore respectively against an allocation of Rs. 1400.00 crores and Rs. 2310 crores during these years. During 2003-04 against the allocation of Rs. 2350.66 crores in the revised estimate, actual expenditure of Rs. 2583.77 crores (Provisional) has been incurred under SRSF.

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. This committee has given 111 recommendations, all of which have been accepted for implementation. 45 recommendations have been implemented up to January, 2005 and balance recommendations are in various stages of implementation.

**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. On the goods traffic side, operation of longer and heavier freight trains with increased trailing load, progressive increase in the number and size of diesel and electric locomotives result in higher braking and tractive forces. These factors contribute towards higher track stresses.

4.8 A total of 16538 km of track renewal arrears was sanctioned under SRSF out of which 8938 km renewal has been completed as of 31.3.2004. In addition 1881 km of track renewal out of fresh arisings was also done during the year 2003-04 under DRF.
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 and high tensile strength rails are being used. Presently 52 kg/60 kg 90UTS rails are used in place of 90R,72 UTS rails used earlier. Similarly, welded rails are used in place of earlier fish plated joints.

As on 1.4.2004, following track structure exist on Broad Gauge(Main Line):

- Long Welded Rails are laid in about 74 % of track,
- PSC sleepers are laid in about 80 % of track and
- 52kg/60kg 90 UTS rails are laid in about 66 % of track.

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. 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.

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 control, the failure of rails, installation of in-motion wheel flat detectors at several key location on Indian Railways has also been planned.

Rolling Stock
4.11 Locomotives, coaches and wagons are run as long as they are serviceable. On becoming old and uneconomical to repair, they are condemned and phased out.

4.12 All diesel/electric sheds and major ROH Depots have been equipped with ultrasonic testing equipment for timely detection of flaws developing in the axles.

4.13 Some workshops have organized special training courses to train staff the correct procedure of carrying out ultrasonic tests.

**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 2003-04, the workshops increased the POH outturn of coaches, including AC coaches and EMUs, as shown below:

<table>
<thead>
<tr>
<th>Rolling Stock</th>
<th>2002-03</th>
<th>2003-04</th>
<th>% increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>BG Coaches</td>
<td>22724</td>
<td>23265</td>
<td>2.38</td>
</tr>
<tr>
<td>AC Coaches</td>
<td>2351</td>
<td>2573</td>
<td>9.44</td>
</tr>
<tr>
<td>EMUs</td>
<td>2688</td>
<td>2738</td>
<td>1.86</td>
</tr>
</tbody>
</table>

4.15 To adhere to laid down standard practices, regular quality audits of workshops are conducted by RDSO. During 2003-04, RDSO conducted quality audit of 26 workshops.

4.16 Several modifications were undertaken in workshops during 2003-04 to incorporate enhanced safety features in rolling stock, such as fitment of twin beam headlight, automatic flasher lights and air driers on diesel locos, air brake conversion of coaches from Vacuum brake to Air brake system, fitment of emergency windows, retrofitment of existing air brake wagon stock by high speed bogies, retrofitment of casnub bogies and air brake system on BCX 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 future 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.

4.18 Micro Processor Controlled 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. It is planned to retrofit 250 locomotives during 2004-05 besides new manufacture.

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 still, he does not react, the brakes come on automatically within 10 seconds. For conventional ALCO locomotives, it is planned to have this feature as part of the Microprocessor based control and is under development.

4.20 Air dryers are being fitted in diesel locomotives for removing moisture from the compressed air system resulting in better functioning and reliability of the air brake system of loco as well as trailing stock. About 1100 locomotives have already been fitted with air dryers.

4.21 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.

4.22 Self- propelled Accident Relief trains (ART) and Accident Relief Medical Vans (ARMV) have been introduced for speedier relief operation. Accident Relief Medical Vans (ARMV) have been upgraded to speed of Mail/Express trains.
4.23 **Coaches**
Non asbestos type *composition brake blocks* for main line coaches have been developed to provide more reliable braking compared to cast iron brake blocks. These brakes blocks are light weight and have a significantly lower wear rate.

4.24 To upgrade the fire worthiness of the coaches  RDSO specifications pertaining to coach building materials were upgraded to include features of toxicity test, enhanced flame retardance and loss of visibility due to smoke. Materials for which specifications were upgraded include compreg (wood board) for flooring, curtains, upholstery polyester foam for seats and PVC flooring.

4.25 In the unfortunate event of an accident, passengers need to be evacuated from coaches quickly. Design of emergency windows were developed for all kinds of coaches and provided on all coaches.

4.26 Existing EMU wheels are tyred wheels and breakage of EMU tyres have been a cause of concern for Indian Railways. **Solid wheels for EMU coaches** were developed after field trials and phased introduction has been started.

4.27 Progressive fitment of Centre Buffer Couplers, in place of screw coupling on coaches has been started to prevent coaches climbing over each other in the unfortunate event of an accident.

4.28 To make future passenger coaches safer a design of crashworthy coach is being evolved. Prototype testing of this design through a simulated crash is planned to be undertaken shortly by RDSO.

4.29 Suburban coaches are subjective to heavy loading by passengers and the spring suspension system needs an improvement to give reliable service. The **pneumatic suspension** having air springs at secondary stage capable to maintain constant height at variable loads has been designed and implementation of the same has been started.
4.30 Failure of wheel discs has been a major cause of concern on Indian Railways. To arrest this problem by upgrading quality system of Durgapur Steel Plant, an updated specification including control of carbon content, vacuum degassing, ingot cropping, rim quenching, ultrasonic testing etc. has been implemented.

Freight Stock

4.31 Cast iron brake blocks have been phased out and Composition Brake Blocks have been inducted. These give much higher service life and are more reliable and cost effective.

4.32 Vacuum brake wagons with fabricated UIC bogies, which are less reliable and less efficient are being phased out with more reliable and efficient air brake stock with cast steel Casnbog bogies.

4.33 All new procurement of wagons is with air brake system that has helped in improving the productivity and safety of train operation.

4.34 All 4-wheeler CRT wagons (which were derailment prone) have been phased out.

4.35 All air brake 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.

4.36 The conventional under frame mounted air brake system is prone to dropping of long pull/push rods endangering the safety of operation. Bogie Mounted Brake System (BMBS) developed by RDSO with fewer brake rigging components is more reliable. Rakes fitted with BMBS are under field trial.

4.37 To improve riding behavior of present high speed bogies (CASNUB 22 HS), it has been decided to develop and induct more safe, reliable and technologically superior self steering bogies like other developed countries. A suitable self steering bogie design will be adopted for IR based on satisfactory oscillation and field trials.
4.38 All the close circuit rakes are provided with 100% brake power at the time of intensive examination. Such closed circuit rakes are permitted to run upto 4500 kms on nominated circuits, subject to certain checks after unloading/loading. As loss of brake power on such closed circuit rake is not more than 10%, it ensures 90% brake power throughout the run.

4.39 Reliability of rolling stock is a function of quality of spares and repair work. The zonal railways have been directed to procure safety related materials from RDSO approved sources only. The performance of the approved sources is monitored periodically.

4.40 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. 29 Railway workshops, 16 Diesel Sheds and 5 ROH depots have obtained ISO 9000/9002 certification till the end of March 2004 with a view to ensure quality with standardization of practices in workshops and ROH depots.

**Training of Running Staff**

4.41 Training of drivers on simulators facilitates monitoring of their response and reaction time, which can be relayed to them for guidance and improvement. 4 simulators have been installed for training of drivers. 12 more are under supply, out of which one has been commissioned at GOC and similar is under commissioning for Siliguri. Balance simulators are programmed for delivery every alternate month. Training on this equipment exposes drivers to the intricate problems in the complex train-track dynamics and thus, will help in improving driving techniques.

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.
4.43 To provide right ambience for the running staff to take rest at outstations, the running rooms are being upgraded by providing proper ventilation, dessert coolers, reading lights for individual beds, clean toilets, phones etc.

4.44 HOER provisions are being followed and proper rest is being ensured before booking the drivers for train duty. 100% checking is being done. Railways have also been asked to undertake surprise checks on the run both by day and night.

**Signalling**

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 signaling systems.

4.45 **Progress of Technological upgradation for enhancing safety in train operation through signaling inputs.**

4.46 Track Circuit is a device which detects the presence of a train on a track section at the station thereby prevents reception of a train on an occupied line due to human error. A total of 26953 locations on interlocked stations are to be provided with track circuiting. The work has so far been completed on about 20500 locations and the works are in progress at about 5000 locations. Track circuiting at all stations on A, B, C and D spl routes is likely to be completed by March, 2007.

4.47 In order to improve efficiency and safety in train operations at the stations and to reduce human error, replacement of overaged signaling systems is being done on priority with modern signaling systems such as Panel Interlocking or Electronic Interlocking along with Multi Aspect Colour Light signaling. Out of a total of 5592 interlocked stations as on Nov 2004, 3181 stations have already been provided with Panel Interlocking or Electronic Interlocking Systems. Replacement works are in progress at further about 1250 stations including 900 stations being done under Special Railway Safety Fund (SRSF).
Verification of complete arrival of train is done by the station staff manually. With the increased traffic, manual verification of last vehicle has become difficult. Block proving through axle counter electronically verifies the clearance of block section. The important sections of Indian Railways on A, B, C and D spl routes and selected sections on other routes as per traffic requirements have been planned for the provision of such a system. The system has already been installed on about 390 block sections as on Nov, 2004 and sanctioned works are in progress at about 1550 block sections. These are likely to be completed in next 4 years.

Continuous track circuiting with automatic block signaling is being provided for improving safety and enhancing line capacity. This system has been provided on about 1400 RKms and works are in progress at about 2200 RKms sections which are likely to be completed by 2008-09.

Interlocking of level Crossing Gates is being done based on road cum rail traffic to enhance safety. The interlocking of 7291 Level Crossing Gates has so far been completed out of 16741 manned level crossing gates. Works are in progress at about 1000 level crossing gates which shall be completed during 2006-07.

Provision of Telephones at manned level crossing gates improves safety as it enables gatemen to communicate with the station master. Out of 16741 manned level crossing gates, telephonic communication has already been provided at 15463 level crossing gates. Works are in progress at about 400 additional gates which will be completed during 2005-06.

New Initiatives

Anti Collision Device is being installed on Northeast Frontier Railway. The system is being installed on 1736 Route Kms of BG section consisting of 183 stations and 214 locomotives. The system is designed to prevent collisions, especially at high speeds.

Train Protection and Warning system, to prevent Signal Passed at Danger (SPAD) by drivers shall be introduced on 280 Track Kms on New Delhi-Agra
and Madras Beach – Gummidipundi sections of North Central and Southern Railways respectively during the year 2005-06.

4.54 Progress made in respect of provision of important safety aids as on 31-3-2004 is as under.

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Name of the work</th>
<th>Total as on 31-3-2003</th>
<th>Added during 2003-04</th>
<th>Total as on 31-3-2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Track circuits.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fouling mark to Fouling mark.</td>
<td>4130</td>
<td>225</td>
<td>4355</td>
</tr>
<tr>
<td></td>
<td>Fouling mark to BSL (St.)</td>
<td>3428</td>
<td>425</td>
<td>3853</td>
</tr>
<tr>
<td></td>
<td>Fouling mark to BSL (T/O)</td>
<td>2882</td>
<td>109</td>
<td>2991</td>
</tr>
<tr>
<td></td>
<td>Fouling mark to Home (St.)</td>
<td>3063</td>
<td>327</td>
<td>3390</td>
</tr>
<tr>
<td></td>
<td>Fouling mark to Home (T/O)</td>
<td>2815</td>
<td>177</td>
<td>2992</td>
</tr>
<tr>
<td></td>
<td>Loop Line</td>
<td>2675</td>
<td>265</td>
<td>2940</td>
</tr>
<tr>
<td>2</td>
<td>L.C. Gates (Interlocking,)</td>
<td>6708</td>
<td>387</td>
<td>7095</td>
</tr>
<tr>
<td></td>
<td>Telephone at L.C. Gates.</td>
<td>14717</td>
<td>471</td>
<td>15188</td>
</tr>
<tr>
<td>3</td>
<td>Centralised electrical operation of Points &amp; Signals.</td>
<td>2696</td>
<td>255</td>
<td>2951</td>
</tr>
<tr>
<td>4</td>
<td>Auxiliary warning systems (T.Kms.)</td>
<td>599</td>
<td>78</td>
<td>677</td>
</tr>
<tr>
<td>5</td>
<td>Block proving by Axle counters.</td>
<td>222</td>
<td>74</td>
<td>296</td>
</tr>
<tr>
<td>6</td>
<td>Second distant signals (Stns)</td>
<td>982</td>
<td>17</td>
<td>999</td>
</tr>
<tr>
<td>7</td>
<td>Data Loggers (Stns.)</td>
<td>569</td>
<td>231</td>
<td>800</td>
</tr>
</tbody>
</table>

Telecommunication

Communication between Drivers and Guards and Station Masters

4.55 To enable better communication, Walkie-Talkie sets have been provided to drivers and guards of all the trains. To extend this communication from the train crews to the station masters of the nearest station, the stations on double line, multiple line on Broad Gauge, single line on Broad Gauge and mixed two line sections have been provided with 25 W VHF sets.

Communication from accident site – Satellite Phones

4.56 For establishing communication in case of emergency, from the site, Railways had decided to provide two satellite phones on each and Zonal and Divisional Headquarters. The Satellite phones have been found useful for setting quick communication required for sending information from the site of accident...
Mobile Train Radio Communication

4.57 Mobile Train Radio Communication (MTRC) system is required for providing full duplex communication between Train Crew, Station Master and Control. Railways are in the process of setting up of Mobile Train Radio Communication (MTRC) Systems based on GSM-R technology. Works for a total of 2415 RKMs on Northern, North Central, Eastern, East Central and Northeast Frontier Railways have been sanctioned and are in progress. Based on the success of the system under installation, system will be extended to busy A, B and C routes on Indian Railways.

Electrical Rolling Stock and allied Infrastructure

4.58 An elaborate system exists for ensuring safety in operation and maintenance of Electric locomotives, Electrical Multiple Units (EMUs), Mainline Electrical Multiple Units (MEMUs) and passenger coaches etc.

4.59 All Electric locomotives, EMUs and MEMUs have been provided with flasher lights to be operated by the driver/ assistant driver/motorman in case of any emergency. However, in case of electric locomotives, flasher lights get automatically switched on, due to train parting or alarm chain pulling.

4.60 Air driers are being fitted in electric locomotives for removing moisture from the compressed air system resulting in better functioning and reliability of the air brake system of loco as well as trailing stock. About 932 electric locomotives will be fitted with air driers during 2004-05. Newly manufactured EMU/MEMU motor coaches will also be provided with air driers.

4.61 Microprocessor controlled speed recording and energy monitoring system having digital memory instead of paper recording is being provided on electric locomotives and EMU/MEMU. The performance of driver in observing speed for a period of 45 days can be monitored through this system. More than 700 locomotives and 50 EMU/MEMU rakes have been already provided with this equipment.
4.62 Design for crew friendly locomotive cabs to provide easy approach for driver to various control handles/buttons has been finalised. These modifications have been carried out by CLW in one locomotive no. 22591 and will be standardised in all future built locomotives after taking feedback from running and maintenance staff.

4.63 All wheels and axles of Electric locomotives, EMUs and MEMUs are tested with ultrasonic flaw detectors at specified regular intervals to detect any defects developing on account of material flaw/fatigue.

4.64 Based on detailed case studies by RDSO, detailed instructions have been issued to incorporate and monitor various fire prevention measures on Electric Locomotives/ EMUs /MEMUs and passenger coaches.

4.65 Drivers Vigilance Control Device has been provided in imported three phase drive ABB locomotives and the system is also provided by CLW in newly built three phase locos. The VCD is put on trial in 30 conventional locomotives in Central Railway.

4.66 Public address system with Guard and Driver communication has been provided in case of the EMU rakes in Mumbai area.

4.67 In order to arrest failures of bogie frames, springs and other components due to super dense crush load conditions, air suspension system is being provided by ICF on all new EMU coaches.

4.68 Blending of regenerative braking in three-phase locomotives is an additional feature to function alongwith the pneumatic braking system for smooth control and enhancement of the brake power of the locomotive. This greatly reduces strain on the pneumatic brake system and reduces the normal braking distance.

4.69 In order to arrest the failure due to enroute tyre cracks in EMU coaches, solid wheels are being provided in EMU/MEMU in a limited manner initially.
4.70 It has been decided to use e-beam cross linked cables having less propensity of fire in all newly built EMU stock.

4.71 ICF and RCF have been advised to use cable head termination system in place of existing oil type bushings in all newly built EMU stock.

4.72 State-of-the-art 3 phase AC/DC EMUs with regenerated braking features resulting into 30% energy saving, faster acceleration/deceleration, reduced running time, improved availability and higher reliability have been introduced in Mumbai area.

**Accident Relief Medical Equipment**

4.73 Indian Railways have an efficient disaster management system consisting of 172 mobile accident relief vans and 325 Accident Relief Medical Equipment Scale –II (ARMEs) located at strategic locations to provide relief. The mobile units are stabled in Railway yards ready to move out at short notice. These Accident Relief Medical Vans (Scale-I) are well equipped having facility, inter-alia, of carrying out emergency procedures also. Recently, Twelve self-propelled Accident Relief Medical Vans (ARMVs), which can move at high speed independently, have been added to the fleet. Besides, 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**

4.74 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.

158 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 equipment. 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.

Checks against miscreant activities

4.75 “Policing” being a State subject, Security of passengers and their belongings in the running trains and railway premises is the constitutional responsibility of the State Government concerned. However, the Railways pro-actively co-ordinates and assists the State Administration and have also taken the following measures to check miscreant activities:

4.76 Anti-social elements are being apprehended and removed from Railway premises and trains by RPF.

4.77 Sharing of special intelligence and crime intelligence between RPF and GRP is being done at all levels.

4.78(i) Announcement is made through Public Address System and CCTV at important Railway Stations to alert the travelling passengers against theft of their belongings and to take precautions in respect of unidentified and suspicious objects in trains and railway premises, to alert the passengers.

(ii) Wherever required intensive security checks are carried out at railway station buildings and platforms etc. especially in the sensitive areas like toilets, waiting halls and booking counters etc.

(iii) The rakes and under frames are jointly checked for explosives etc. by RPF, Police and Carriage and Wagon personnel in washing lines, coaching yards, etc. and are escorted upto the platforms in vulnerable stations.

(iv) RPF sniffer dogs, wherever available, are being deployed at railway platforms, trains, etc. to sniff out explosive substance and to assist the State Police.

(v) Periodic High Level co-ordination meetings with Government Railway Police and Local Police are being conducted to focus on the incidents of crime which endanger the safety of train and passengers on Railways with a view to take suitable preventive measures.

(vi) Amendment to the RPF Act and Railways Act have been passed so that RPF has better control over minor crimes and offences, and GRP and State Police can concentrate on heinous crimes. The recent amendment made in the RPF Act 1957 and Indian Railways Act 1989 came into being wef 01.07.2004 vide which RPF
have been given additional responsibilities to safeguard the passengers and the Railway areas.

**Development of Human Resources**

In view of the fact that a majority of accidents on Indian Railways have been taking place due to the failure of Railway staff, the Railways are following the twin policy of development of human resources and providing better and fail-safe equipment. Development of human resources is a continuous process on the Railways. Some of the steps taken in this direction are:-

(i) Emphasis is laid on the initial and refresher training of staff. Training curricula are reviewed from time to time and training to the staff is given with modern aids. The duration of various courses has also been rationalised.

(ii) Recently uniform, standard training modules for Induction, Refresher and Promotional Courses for loco Running Staff have been introduced.

(iii) Staff connected with train operations are specially screened from time to time, and those found deficient are given crash courses at the training centres.

(iv) Stress is laid on inspections and checks. Surprise checks, especially during night, are being carried out by supervisors and officers. Those found deficient in knowledge or adopting short-cut methods are suitably counselled and taken up.

(v) Regular safety drives are launched to educate the staff and check their alertness.

(vi) Motivation is kept at a high level by the system of awards and punishments.