

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 168 recommendations of both the parts have already been implemented till December, 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 period 2001-2002 to 2003-04 was Rs. 6504.36 crores against an allocation of Rs. 6060.66 crores during this period. During 2004-05, against the allocation of Rs. 3635 crores in the revised estimate, actual expenditure of Rs. 3677.80 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. 72 recommendations have been implemented up to January, 2006 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.

The Railway Safety Review Committee in their Report (August 1999) had recommended that, in the interest of railway safety, the Central Government should provide a one time grant to the railways so that the arrears in the renewal of track, bridges, rolling stock and signal gears, are wiped out within the time span of 7 years. The recommendation has since been accepted and a non-lapsable Special Railway Safety Fund (SRSF) amounting to Rs. 17000/- crore for liquidating arrears of replacement of assets, has been setup in 2001-02. about 45% of this amount is earmarked for track renewal.

4.8 A total of 16538 km of track renewal arrears was sanctioned under SRSF out of which 11741 km renewal has been completed as of 31.3.2005. In addition 2762 km of track renewal out of fresh arisings was also done during the year 2004-05 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 1.3.2005, following track structure exist on Broad Gauge(Main Line):

- ❖ Long Welded Rails are laid in about 77 % of track,
- ❖ PSC sleepers are laid in about 83 % of track and
- ❖ 52kg/60kg 90 UTS rails are laid in about 72 % 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. 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.

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 Impact Load Detectors (WILD) at several key location on Indian Railways has also been planned.

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. 29 Railway workshops, 16 Diesel Sheds & 12 ROH depots have obtained ISO 9000/9002 certification till the end of March 2005 with a view to ensure quality with standardization of practices in workshops and ROH depots.

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 2004-05, the workshops increased the POH outturn of coaches, including AC coaches and EMUs, as shown below:

<u>Rolling Stock</u>	<u>2003-04</u>	<u>2004-05</u>	<u>% increase</u>
BG Coaches	23265	24320	4.5
AC Coaches	2573	2814	9.4
EMUs	2738	2958	8.1

- 4.15 To adhere to laid down standard practices, regular quality audits of workshops are conducted by RDSO. During 2004-05, RDSO conducted quality audit of 12 workshops.
- 4.16 Several modifications were undertaken in workshops during 2004-05 to incorporate enhanced safety features in rolling stock, such as fitment of twin beam headlight, automatic flasher lights and air dryers on diesel locos, air brake conversion of coaches from Vacuum brake to Air brake system, fitment of emergency windows, Mid Life Rehabilitation of coaches, provision of

crashworthiness features in coaches, retrofitment of existing air brake wagon stock by high speed bogies, retrofitment of high capacity draft gear & 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 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 200 locomotives during 2005-06.
- 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..
- 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 1300 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.

Coaches

- 4.23** 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 brake 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 has been a cause of concern for Indian Railways. To improve the reliability and life of wheels for EMU coaches, solid wheels instead of tyred wheels have been developed and the field trial results have been found to be satisfactory . Phased introduction of solid wheels on new and existing EMUS has 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** 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.
- 4.29** Tight lock centre buffer couplers are being introduced on new coaches to prevent the coaches from climbing on top of each other during accidents. 13 rakes equipped with these couplers have already been introduced in service.
- 4.30** New fire retardant material for use in the interiors of the passenger coaches meeting with extremely stringent requirements in line with those followed by European Railways with special emphasis on toxicity index, enhanced flame retardancy and loss of visibility due to smoke are being developed. Flooring boards, curtains, polyester foam for seats, floor coverings, roof and sidewall paneling have already been developed to these upgraded specifications.

- 4.31** Suburban coaches are subjected 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. Air springs have been developed and are being fitted on all the newly built EMU and DMU coaches for sub-urban trains. These air springs replace the traditional coil springs and give a more reliable performance besides providing a more comfortable ride to the passengers. Air springs for mainline coaches have also been developed and are being fitted on newly built coaches for the purpose of trial.
- 4.32** To make future passenger coaches safer, a design of crashworthy coach is being evolved. Crashworthy designs of GS and SLR coaches have been developed in collaboration with M/s TTCI, USA. The first phase of crash tests has been successfully carried out. The stage of tests are planned to be carried out shortly.

Freight Stock

- 4.33** 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.
- 4.34** 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 Casnub bogies.
- 4.35** All new procurement of wagons is with air brake system that has helped in improving the productivity and safety of train operation.
- 4.36** All 4-wheeler CRT wagons (which were derailment prone) have been phased out.
- 4.37** 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.
- 4.38** 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.
- 4.39** 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.

- 4.40** 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 4500/6000 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 through out the run.
- 4.41** 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.
- 4.42** 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, cost effective and simple odour cum fume type hot box detectors, similar to one being used in the advanced railway systems abroad, are under development.
- 4.43** Wheel flats beyond permissible limits are undesirable and harmful for track as well as rolling stock. Wheel Flat Detectors are required for early detection of wheel flat cases to ensure safety of both track and rolling stock are under development in association with IIT/Kanpur.
- 4.44** Four Wheeler Tank wagons, being prone to derailments, are being phase out by 2012-13.

Training of Running Staff

- 4.45** Training of drivers on simulators facilitates monitoring of their response and reaction time, which can be relayed to them for guidance and improvement. Training on this equipment exposes drivers to the intricate problems in the complex train-track dynamics and thus, will help in improving driving techniques.
- 4.46** 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.

- 4.47** 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.
- 4.48** 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.

- 4.49** Progress of Technological upgradation for enhancing safety in train operation through signaling inputs.
- 4.50** 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 20805 locations as on March, 2005 and the works are in progress at about 4500 locations. Track circuiting at all stations on A, B, C and D spl routes is likely to be completed by March, 2007.
- 4.51** In order to improve efficiency and safety in train operations at the stations and to reduce human error, replacement of over-aged 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 5741 interlocked stations as on March, 2005, 2994 stations have already been provided with Route Relay Interlocking or Panel Interlocking or Electronic Interlocking Systems. Further, replacement works on about 800 stations are likely to be completed upto Mach, 2007.
- 4.52** Interlocking of level Crossing Gates is being done based on road cum rail traffic to enhance safety. The interlocking of 7331 Level Crossing Gates has been

completed upto March, 2005 out of 16607 manned level crossing gates. Further, works of interlocking at about 600 level crossing gates are likely to be completed upto March, 2007.

- 4.53** Provision of Telephones at manned level crossing gates improves safety as it enables gatemen to communicate with the station master. Out of 16607 manned level crossing gates, telephonic communication has already been provided at 15333 level crossing gates upto March, 2005.
- 4.54** 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 system has already been installed on about 443 block sections as on March, 2005 and sectioned works are in progress at about 2515 block sections. These are likely to be completed in next 8 years.

New Initiatives

- 4.55** **Anti Collision Device (ACD)** has been developed by Konkan Railway Corporation to prevent collisions at high speed. (ACD) system has been deployed covering 1736 km of North East Frontier Railway. Initial Site Acceptance Test (SAT) has been performed from 31.07.2005 to 18.08.2005 on Rajdhani Route upto Guwahati and Konkan Railway Corporation has been advised to rectify deficiencies noticed during test. Further sanctioned works of provision of ACD about 1750 Rkms of section of Northern, Southern, South Central and South Western Railways will be taken in hand after the successful completion of North East Frontier Railway pilot project.
- 4.56** In conformity with the accepted recommendations of Railway Safety Review Committee (RSRC), Railway have taken initiative for provision of **Train Protection and Warning System (TPWS)** for providing an aid to driver to prevent cases of Signal Passed at Danger (SPAD). TPWS work has already been awarded on North Central Railway and Southern Railway.
- 4.57** Progress made in respect of provision of important safety aids as on 31-3-2005 is as under.

S.No.	Name of the work	Total as on 31-3-2004	Added during 2004-05	Total as on 31-3-2005
1	Track circuits.			
	Fouling mark to Fouling mark .	4355	232	4587
	Fouling mark to BSL (St.)	3516*	243	3759
	Fouling mark to BSL (T/O)	2991	274	3265
	Fouling mark to Home(St.)	3390	292	3682
	Fouling mark to Home(T/O)	2992	250	3242
	Loop Line	2940	105	3045
2	L.C. Gates (Interlocking.)	7006*	325	7331
	Telephone at L.C. Gates.	14953*	380	15333
3	Centralised electrical operation of Points & Signals.	2670*	324	2994
4	Auxiliary warning systems (T.Kms.)	677	29.22	406.22
5	Block proving by Axle counters.	296	147	443
6	Second distant signals (Stns)	999	16	1015
7	Data Loggers (Stns.)	800	377	1177

* Revised

Telecommunication

Mobile Train Radio Communication:

4.58 Mobile Train Radio Communication (MTRC) system is being installed for providing full duplex communication between Driver, Guard, ASM, LC Gate & approaching trains as well as maintenance staff as per the accepted recommendation of RSRC on A, B & C routes of Indian Railways. Railways are in the process of setting up of Mobile Train Radio communication (MTRC) system based on GSM-R technology for a total 3200 Route Kilometers on Northern, North Central, Eastern, East Central and Northeast Frontier Railways. The pilot project on Howrah-Dhanbad section is expected to be commissioned by March/06. The system can also provide communication for track side maintenance staff for traffic blocks as well as other emergency requirements.

Communication for managing disasters and crisis:

4.59 For establishing communication in case of emergency, from the site, Railways had decided to provide two satellite phones on each Zonal & Divisional headquarters. With these, it will be possible to mobilize 4-6 satellite phones to the accident site from the concerned Division, neighboring Divisions and

Headquarters. The satellite phones have been found useful for setting up quick voice communication required for sending information from the site of accident regarding help needed, condition of the victims etc.

Other measures for crisis management include the provision of ISD connection at each Zonal & Divisional headquarter and specific Railway helpline number (1072) at major stations for Railway accident information. SMs of all the stations have been empowered to hire cell phones as per the requirement in case of disasters and crisis. Accident Relief trains have been provided with sufficient number of walkie-talkie and VHF sets. 50-line WLL exchange has been provided on one Division of each Zonal Railway for providing local communication and for contacting various agencies in the Divisional/Zonal headquarters. Trials are on for providing voice/data communication from disaster spots through domestic satellite with the help of V-SAT terminals; these sets can be useful at places where no other communication facility is available.

Improving reliability of Safety related Communication Circuits:

- 4.60** 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 fibre and copper cable have extensively been laid to provide communication backbone for train operations. Out of a total of 41,000 RKMs overhead alignment, replacement works have been sanctioned on 30,000 RKMs, out of which approx 25000 Route Kilometers works have been completed and works are under progress on the balance sections.

Communication between Driver and Guards and Station Masters:

- 4.61** 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 2-line sections have been provided with 25W VHF sets.

Communication from accident site – Satellite Phones:

- 4.62** For establishing communication in case of emergency, from the site, Railways had decided to provide two satellite phones on each Zonal & Divisional headquarters. The satellite phones have been found useful for setting quick communication required for sending information from the site of accident regarding help needed, condition of the victims etc. with these, it will be possible to mobilize 6-8 satellite phones to the accident site-2 from the concerned Division, 4 from neighboring Divisions and 2 from the Headquarters.

Accordingly instructions were issued to the Railways to compile this recommendation but when Railways applied for the permission to use RBGAN satellite modem for high speed data transfer, Department of Telecom refused to issue NOC for RBGAN terminals due to security reasons. In view of the importance of real time transmission of text and visual data uniformly and expeditiously to & from accident site, there is a need to examine and explore the alternative means and technologies to achieve the objective. Accordingly RDSO has been advised to suggest a suitable system.

Electrical Rolling Stock and allied Infrastructure

- 4.63** 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.
- 4.64** 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.
- 4.65** Air dryers 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. Similarly, all newly manufactured electric locos, EMUs & MEMUs will be provided with Air Dryers. All existing electric locomotives and EMU/MEMUs are expected to be provided with Air Dryers by 2007-08.

- 4.66** Microprocessor controlled speed recording and energy monitoring system having digital memory instead of paper recording is being provided on electric locomotives and EMU/MEMUs. The system is capable of monitoring the performance of drivers not only in controlling speed but also in other related parameters as brake applications and energy consumption of the locomotives during the run.
- 4.67** All electric locomotives turned out of CLW will be provided with crew friendly cab to create a stress-free environment of work . The system is capable of monitoring the performance of drivers not only in controlling speed but also in other related parameters like brake applications and energy consumption of the locomotives during the run.
- 4.68** 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.
- 4.69** Based on 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.
- 4.70** 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.
- 4.71** Public address system with Guard and Driver communication has been provided in case of the EMU rakes in Mumbai area . This will gradually be extended to other suburban and MEMU trains so that communication between passenger and crew will be established for tackling emergency situations.
- 4.72** 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.
- 4.73** In order to arrest the failure due to en route tyre cracks in EMU coaches, solid wheels are being provided in EMU/MEMU in a limited manner initially.
- 4.74** In order to improve the fire safety provisions, Cable Head Termination System and e-beam irradiated cables have been introduced in electric locomotives and EMU/MEMU Motor Coaches.

Accident Relief Medical Equipment

- 4.75** Indian Railways have an efficient disaster management system consisting of 172 mobile accident relief vans out of which 12 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. 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

- 4.76** 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 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

- 4.77** "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:

- 4.78** Anti-social elements are being apprehended and removed from Railway premises and trains by RPF implementing the amended RPF Act and the Railways Act.
- 4.79** Sharing of special intelligence and crime intelligence between RPF and GRP is being done at all levels. Co-ordination with State Police and Intelligence agencies maintained for safety of the Railways.
- 4.80** Announcement is made through Public Addressed 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 and to alert the passengers to the risk of drugging when snacks / tea / cold drinks are accepted from strangers.
- 4.81** Wherever required intensive security checks are carried out at Railway stations buildings, platforms and in the trains/rakes to prevent any untoward incident. All such checks are co-ordinated between the GRP, RPF and the Railway Departments.
- 4.82** The rakes and under frames are jointly checked for explosives by RPF, Police and Carriage and Wagon personnel in washing lines and coaching yards and the rakes are escorted upto the platforms in vulnerable stations.
- 4.83** RPF sniffer dogs, wherever available, are being deployed at Railway platforms and trains to sniff out explosive substances and to assist the State Police in preventing any untoward incidents on the trains and in Railway premises.
- 4.84** Periodic High Level co-ordination meetings with Government Railway Police and Local Police are being conducted to focus on the incidents and pattern of crime which endanger the safety of train and passengers on the Railways, with a view to take appropriate preventive measures.

4.85 Amendment to the RPF Act and Railways Act have been passed so that RPF has better control over minor crimes and offences. Thus, GRP and State Police get more manpower and time to concentrate on heinous crimes.

4.86 Cases registered under sabotage related crimes (sections 150, 151 and 152 of the Railways Act) by the State Police/GRP are followed up for their investigation and prosecution.

Development of Human Resources

4.87 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) 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.
