Report of the Comptroller and Auditor General of India

for the year ended March 2015

Union Government (Railways)

No.13 of 2016

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PREFACE

The Report for the year ended March 2015 has been prepared for submission to the President under Article 151 of the Constitution of India.

The Report contains significant result of the compliance audit of the Ministry of Railways of the Union Government.

The instances mentioned in this Report are those, which came to notice in the course of test audit for the period 2014-15 as well as those which came to notice in earlier years, but could not be reported in the previous Audit Reports; instances relating to the period subsequent to 2014-15 have also been included, wherever necessary.

The audit has been conducted in conformity with the Auditing Standards issued by the Comptroller and Auditor General of India.

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Abbreviations used in the Report

AB	Autonomous Body		COS	Controller of Stores
ABS	Automatic Block Signaling		CPO	Chief Personal Officer
AC	Air Conditioned		CR	Central Railway
ADEN	Assistant Divisional Engineer		CRF	Central Road Fund
AEN	Assistant Engineer		CRS	Commissioner of Railway Safety
AGM	Additional General Manager		CS	Concrete Sleeper
ALP	Assistant Loco Pilot		CSO	Chief Safety Officer
ARME	Accident Relief Medical Equipment		CSP	Corporate Safety Plan
ARMV	Accident Relief Medical Van		CST	Chatrapati Shivaji Terminus
ART	Accident Relief Train		CSTE	Chief Signal and Telecommunication Engineer
ATM	Automatic Teller Machine		CSTM	Mumbai
ATN	Action Taken Note		CTC	Cuttack
ATVM	Automatic ticket vending machine		CTE	Chief Track Engineer
BBQ	Basin Bridge Jn. (Madras)		CTR	Complete Track Renewal
BG	Broad Gauge		CWM	Chief Workshop Manager
BTC	Basic Training Centre		DCM	Divisional Commercial Manager
CAO	Chief Administrative Officer		DEMU	Diesel Eletrical Multiple Unit
CBRN	Chemical, Biological, Radiological & Nuclear		DFMD	Door Frame Metal Detector
CC	Carrying Capacity		DG	Director General
CCI	Completion Commission of India		DL	Doubling
CCM	Chief Commercial Manager		DLW	Diesel Locomotive Works
CCTV	Closed Circuit Television		DM	Disaster Management
CE	Central Excise		DMP	Disaster Management Plan
CEE	Chief Electrical Engineer		DMRC	Disaster Management Review Committee
CENVAT	Central Value Added Tax		DMS	Disaster Management System
CETH	Central Excise Tariff Head		DMU	Diesel Multiple Unit
CLW	Chittaranjan Locomotive Works		DMW	Diesel Modernization Works
CMD	Chief Medical Director		DOM	Divisional Operations Manager
CME	Chief Mechanical Engineer		DSL	Diesel Loco
COA	Control Office Application		ECoR/ E. Coast	East Coast Railway

COFMOW	Central Organization for Modernization of Workshops		ECR	East Central Railway
COM	Chief Operations Manager		EMU	Electrical Multiple Unit
CON/CN	Construction		ER	Eastern Railway
ERM	Ernakulam Marshalling Yard		LWR	Long Welded Rail
FA&CAO	Financial Advisor and Chief Accounts Officer		MEA	Minimum Essential Amenities
FOB	Foot over bridge		MEMU	Mainline Electrical Multiple Unit
FOIS	Freight Operation Information system		MG	Meter Gauge
GAD	General Arrangement Drawings		MHA	Ministry of Home Affairs
GC	Gauge Conversion		MoR	Ministry of Railways
GCC	General Condition of Contract		MoT	Ministry of Tourism
GDR	Guard Driver Report		MOU	Memorandum of Understanding
GIS	Group Insurance Scheme		MPR	Manpower ratio
GM	General manager		MR	Metro Railway
HAZCHEM	Hazardous chemicals		NCR	North Central Railway
HCC	Higher Carrying Capacity		NDMA	National Disaster Management Authority
HLC	High Level Committee		NDRF	National Disaster Response Force
HLSRC	High Level Safety Review Committee		NEC	National Executive Committee
ICF	Integral Coach Factory		NER	North Eastern Railway
IIT	Indian Institute of Technology		NFR/NEFR	Northeast Frontier Railway
ILCAD	International Level Crossing Awareness day		NG	Narrow Gauge
IOCL	Indian Oil Corporation Limited		NGO	Non-Government Organization
IOH	Intermediate Overhaul		NL	New Line
IP	Internet Protocol		NR	Northern Railway
IR	Indian Railways		NWR	North Western Railway
IRPWM	Indian Railway Permanent Way Manual		OHE	Overhead Electrical
IRR	Internal rate of return		PA	Performance Audit
IRSDC	Indian Railway Station Development Corporation		PAC	Public Accounts Committee
ISO	International Organisation for Standardization		PC	Personal Computer
ISS	Integrated Security System		PCC	Permissible Carrying Capacity

JE	Junior Engineer		PCE	Principal Chief Engineer
JV	Joint Venture		PO	Purchase Order
LC	Level Crossing		POH	Periodical Overhaul
LD	Liquidated damage		POL	Petroleum
LHB	Linke Hofmann Busch		PPP	Public Private Partnership
LHS	Limited Height Subway		PSU	Public Sector Undertaking
LP	Loco Pilot		PW	Permanent Way
LPG	Liquefied Petroleum Gas		PWP	Preliminary Work Programme
RB	Railway Board		SPARMV	Self Propelled Accident Relief Medical Van
RCF	Rail Coach Factory		SPART	Self Propelled Accident Relief Train
RCRV	Rail-cum-road Vehicle		SPU	Signal Production Unit
RDSO	Research, Designs and Standards Organization		SPV	Special Purpose Vehicle
RFQ	Request for Qualification		SR	Southern Railway
RITES	Rail India Technical and Economic Service		Sr. DSO	Senior Divisional Safety Officer
ROB	Road Over Bridge		SSE	Senior Section Engineer
ROR	Rate of Return		SWR	South Western Railway
RPF	Railway Protection Force		TGS	Terminal Goods station
RPSF	Railway Protection Special Force		TRD	Traction Distribution
RPU	Railway Production Units		TTCI	Transportation Technology Centre Inc.
RSP	Rolling Stock Programme		TVU	Train Vehicle Unit
RTDC	Rajasthan Tourism Development Corporation		UIC	International Union of Railways
RUB	Road Under Bridge		UMLC	Unmanned Level Crossing
RVNL	Rail Vikas Nigam Limited		UVSS	Under Vehicle Scanner System
SAG	Senior Administrative Grade		VAT	Value Added Tax
SCR	South Central Railway		VHF	Very High Frequency
SE	Section Engineer		VOIP	Voice Over Internet Protocol
SECR	South East Central Railway		WCR	West Central Railway
SER	South Eastern Railway		WLL	Wireless Local Loop
SIMS	Safety Information Management System		WMS	Workshop Manufacture Suspense
SOD	Schedule of Dimension		WO	Work Order
SOP	Standard Operating Procedure		WR	Western Railway
SPAD	Signal Passing At Danger		ZR	Zonal Railway

Overview

This Audit Report contains the audit findings of significant nature detected during audit in Ministry of Railways (Railway Board) of the Union Government and its field offices for the year ended 31 March 2015. The Report has six chapters of which the first chapter is introductory in nature and also covers cross-cutting issues. The other four chapters (Chapters 2 to 5) contain audit findings related to four departments viz., Traffic – Commercial and Operation; Electrical – Signalling and Telecommunication units; Mechanical – Zonal Headquarters/ Workshops/ Production Units, and Engineering department of Indian Railways (IR). Chapter 6 viz., Disaster Management in IR, focused on the adequacy and implementation of the Disaster Management Plan of IR.

Chapter 1, of the Audit Report gives a brief introduction of the audited entities; recoveries made by Ministry/ Department at the instance of Audit; remedial actions taken in response to audit observations made in earlier Reports; and summarized position of Action Taken Notes. Chapters 2 to 5 present detailed findings/observations under the relevant department title.

This report contains five reviews and 30 individual observations with a total money value of ₹4110.82 crore. Some of the important findings included in the Report are given below:

Para 2.1 – Up-gradation of passenger amenities at stations including modernization of stations in IR

Being the most economical and convenient mode of transport, there is a continuous increase in rail passenger traffic. There has been a growth of 56 *per cent* in number of passengers since 2004-05. Accordingly, existing level of passenger amenities at stations/ terminals require continuous up-gradation and augmentation to handle growing demand and rising expectations. Funds are allotted to each Zonal Railway (ZR) every year for execution of passenger amenity works at station/ platforms. Audit review revealed that budget allotted to ZRs could not be fully utilised. On the other hand, Audit also noticed that passenger amenity works were delayed or could not be completed due to funds constraint.

Audit review revealed that even minimum essential amenities (MEA), that is to be provided at all stations, such as drinking water taps, foot over bridges, platforms at appropriate levels, platform shelters, waiting hall, urinals, lighting arrangements etc., could not be fully provided by ZRs. Shortfall in provision

of amenities for physically challenged passengers such as wheel chairs, standard ramp, exclusive toilets etc. were also noticed.

Ministry of Railway's (MoR's) initiative for modernization of stations through Public Private Partnership (PPP) was at an initial stage even after four years of the formation (April 2012) of a specific entity Indian Railway Station Development Corporation (IRSDC), for development/ up-gradation a stations as IRSDC could not even complete feasibility study at selected six stations till date (January 2016).

Review of 136 passenger amenity works estimated over ₹2.50 crore each revealed cost overrun to the extent of ₹79.05 crore in 53 contracts and time overrun up to 192 months in 132 contracts. The works remained incomplete or were completed belatedly due to non-availability of clear site and traffic blocks; lack of proper co-ordination; and inadequate monitoring mechanism, resulting in inconvenience to passengers.

During joint inspection, audit noticed deficiencies in maintaining cleanliness at platforms, waiting halls, foot over bridges, station walls etc.

Para 2.2 - Idling of productive assets (Coaches) worth ₹736.60 crore and consequent loss of earning capacity of ₹80.61 crore

Section 27 of the Railways Act, 1989, stipulates that for introduction of a new rolling stock on any section of the Railway, prior sanction of the Commissioner of Railway Safety (CRS) is required. Ten ZRs (NFR, ER, NER, SECR, SR, ECOR, NR, SWR, WR and NWR) received (August 2012 to November 2015) 373 passenger coaches of LHB variant for introducing new trains. Audit noticed that 150 coaches were not inducted in service mainly for want of clearance from CRS and remained idle. Further, 168 coaches were inducted into service belatedly and 35 inducted without obtaining clearance from CRS. Only 20 coaches were inducted within 30 days of receipt. Non-utilization/delayed utilization of the coaches had resulted in blocking up of funds of ₹736.60 crore invested on these productive assets and also loss of earning capacity of ₹80.61 crore.

Para 2.3 - Irregular award of contract

ECR Administration invited (May 2012) five open tenders for rebuilding of major bridge on pile foundation between Sakri-Nirmali and Jhanjharpur-Laukaha bazaar section by splitting the entire work into five separate works. All the five works were awarded (between January 2013 to April 2013) to a single firm, being the lowest bidder in all tenders, at a total cost of ₹56.98 crore. Audit noticed that the firm submitted the same credential certificate of

financial and technical eligibility for each of the five tenders, whereas Railway Board's (RB's) directives state that if the same firm was to be the lowest bidder in all the split works, evaluation of the firm for its fitness for award of all the works should be done for the work as a whole. Audit further noticed that though the date of completion (September 2013 to December 2014) has already passed, work did not commence in four works. Thus, awarding all the five split contracts to a single contractor without judging credentials led to undue benefit to the contractor and further delayed timely completion of works.

Para 2.4 - Introduction of Double Decker Trains without feasibility study resulted in idling of rolling stock valuing ₹ 38.24 crore and revenue loss of ₹ 37.74 crore due to continued poor patronage

ER, WCR and WR Administrations introduced three new double decker train services (one from October 2011 and two from September 2013) on Howrah-Dhanbad, Habibganj-Indore and Bhopal-Indore routes without feasibility study. Due to poor patronage on Howrah-Dhanbad route, the train services were withdrawn (December 2014) and since then the rolling stock valuing ₹ 38.24 crore were lying idle. Further, on the other two routes, train services are continuing despite occupancy of less than 30 *per cent*, in violation of RB's own policy decision, resulting in revenue loss of ₹37.74 crore.

Para 3.1 – Working of Signal Production Units in IR

Signal equipment/devices are vital components of signalling systems over IR which ensure safe running of trains. IR has six Signal Production Units (SPUs) located in Podanur (PTJ), Howrah (HWH), Ghaziabad (GZB), Byculla (BY), Gorakhpur (GKP) and Mettuguda (MFT) to manufacture signal equipment/devices. All the six SPUs were established over fifty years ago.

RB planned (July 2010) the modernization of SPUs as along with the up-gradation in technology, there was a growing demand for modern electronic signalling equipment. Audit noticed that significant modernization is yet to take place in any of the SPUs and SPUs proposals for modernization were lying with RB un-disposed.

Audit further observed that manufacture of conventional signalling devices such as Relays, Point Machines and Location boxes remains the mainstay of signal production units. Audit analysis also revealed that the rates of signaling devices at the SPUs was much higher than the market rate.

Audit also observed that the SPUs were still using very old machines that had outlived their useful life. Facilities have not been developed for in-house manufacturing of the technically advanced electronic signal equipment.

Annual Production of SPUs fell far below the annual projected production schedules. IR largely depends upon the open market for procuring the latest signal items.

Para 4.1 – Manpower Management in mechanical workshops in IR

In IR, nearly 1.55 lakh employees are engaged in 42 mechanical workshops to maintain the large fleet of rolling stock comprising 2,54,006 wagons, 68,558 coaches and 10,730 locomotives (as on March 2015). These workshops carry out periodic overhauling of diesel and electric locos, coaches, wagons and Electrical Multiple Units (EMUs) besides manufacturing and repairing of various components required for maintenance of rolling stock.

Audit noticed that there was no uniform or scientific method in place in the mechanical workshops to assess the requirement of manpower either by relating it to the installed capacity of the workshops or the time required for outturn as per installed capacity.

Audit noticed the available capacity was not fully utilized. In 28 out of 42 workshops, out of a total 1,202.29 lakh man-hours available during the year 2014-15, only 76 *per cent* of manpower (910.42 lakh man hours) was used for its main/core activity. Further, the man-hours saved by payment of incentive and the surplus man-hours on account of enhancement of periodicity of Periodical Overhauling (POH) were not utilized fully, which resulted in idling of man-power.

Audit observed that outsourcing was not consistent with the rightsizing policy of RB.

Audit also observed irregular and improper maintenance of records as majority of workshops did not book idle time.

Para 5.1 – Elimination of unmanned level crossings in IR

Unmanned Level Crossings (UMLCs) are vulnerable to accidents with resultant loss of human lives. As many as 625 casualties took place in UMLCs during the period from 2012-13 to 2014-15. As per the Vision 2020 Statement of Railways (December 2009) hundred *per cent* UMLCs were to be eliminated progressively through manning or through any of the approved methods or protected in five years' time (2010-15).

Audit analysis revealed that annual targets fixed by the RB for manning the UMLCs showed a decreasing trend (2012-13- 1101 UMLCs and 2013-14- 495 UMLCs). It was due to RB order (March 2012) that on locations where works

for creating infrastructure for manning of UMLCs had not commenced, Railway should not take up manning works until creation/sanction of requisite posts of Gatemen.

Out of 16,125 UMLCs, 11,630 that existed in 2010 were planned for elimination by 1st April 2015. Audit noticed that only 5,737 UMLCs were eliminated during the Five Year Master Plan period and still 10,388 UMLCs remained to be eliminated as on 1 April 2015. While WCR has eliminated all UMLCs in its jurisdiction, the number of UMLCs on four Zonal Railways (NER, NR, NWR and WR) was more than 1000 each.

The slow progress in construction of subways indicates that it would take several years for IR to complete all sanctioned works. Out of limited funds granted, there was surrender of underutilised funds, that established the fact that other reasons like resistance of general public also hindered the progress in elimination of UMLCs.

Para 5.2 – Procurement and utilization of stone ballast in IR

Ballast forms a major component of track sub-structure and plays a dominant role in the track performance and its maintenance. Audit reviewed the process of assessment, procurement and utilization of ballast including monitoring mechanism for the purpose.

Audit noticed that assessment of ballast for open line maintenance was not need based and there was no uniformity in assessing the requirements for procurement process. Audit analysis revealed that the assessment of ballast for projects was more/less as compared to the norms prescribed in Indian Railway Permanent Way Manual.

Audit analysis revealed lack of planning and co-ordination in execution of contracts and unrealistic fixation of completion dates in contracts which resulted in grant of liberal extensions in 532 contracts out of the reviewed 574 completed contracts involving additional expenditure of ₹88.82 crore by way of payment under price variation clause.

Monitoring mechanism and control in procurement and utilization of ballast was not effective due to several reasons viz., provision of ballast in excess of actual requirements, existence of deficiency after completion of project and non-recovery of freight charges from the contractors for under loaded quantity as per additional special conditions of contract etc. Review of procurement and utilization of ballast revealed that procurement was in excess by 19.88 lakh cum in 13 ZRs with reference to RB's target. There was short utilization of 13.09 lakh cum of procured ballast.

Para 5.3 - Injudicious decision in construction of Diesel Multiple Unit (DMU) Factory at Haldia

An amount of ₹116.52 crore has been spent by SER Administration up to July 2015 on setting up of DMU factory at Haldia. However, production could not be started due to local disturbances at DMU factory despite the fact that the construction of the factory was completed in June 2013.

Para 5.4 - Non-realization of land licence fee amounting to ₹ 11.20 crore from the plot holders of Adra Division

SER Administration failed to renew land licence agreement with the plot holders as per RB's instructions and consequently failed to revise the license fee. On account of this failure, SER Administration failed to raise demand and realize the outstanding licence fee amounting to ₹ 11.20 crore

Chapter 6 – Disaster Management in Indian Railways

The definition of Disaster Management as given by the Government of India was legislated for the first time in the Disaster Management Act, 2005 and the same concept was adopted by IR for defining a disaster in its Disaster Management plan.

The audit covering the period 2010-15 focused on the adequacy and implementation of the Disaster Management Plan of IR in addition to the compliance of the assurance of Ministry of Railways on the recommendation of Public Accounts Committee on Report No.8 of 2008 (Disaster Management in IR).

Audit observed that Zonal Disaster Management Plans of most of the zones were not updated annually. Prescribed schedules of safety inspection were not followed and all divisions were not covered equally in the inspection. The Integrated Security System was not fully implemented over 202 vulnerable stations identified by the Railway even after lapse of more than four years and surveillance mechanism was inadequate at vulnerable and crowded stations.

Provision for recovery and relief during golden hour was not adequate as Accident Relief Trains never reached the accident site during review period within golden hour. Further, most of the Central and Divisional Hospitals did not prepare their Disaster Management Plans to address a situation like fire, explosion, flooding or earthquake. Research, Designs & Standards Organisation (RDSO) did not identify vulnerable buildings, locations, rail infrastructure including bridges, sensitive locations etc. required under Indian Railway Disaster Management Plan 2009.

Chapter 1: Introduction

1.1 Audit Report outline

This Audit Report comprises results of scrutiny of transactions relating to expenditure, receipts, assets and liabilities of the audited entities under the control of Ministry of Railways (Railway Board including Zonal Railways all over India). This includes an examination of the adequacy, legality, transparency, etc. of the relevant rules to maintain and operate effective control mechanism over public expenditure and safeguard against misuse, waste and loss.

The Audit Report for the year ending March 2015 contains six chapters of which this chapter is introductory in nature and also covers issues of cross-cutting nature. The other four chapters contain audit findings related to four departments viz., Traffic – Commercial and Operation; Electrical – Signalling and Telecommunication units; Mechanical – Zonal Hqrs/ Workshops/ Production Units and Engineering of IR. Chapter 6 of the Report containing Disaster Management in IR, focused on the adequacy and implementation of the Disaster Management Plan of IR.

This Report presents audit findings of significant materiality which are intended to aid the executive in instituting corrective actions to bring about improved performance and better financial management. The detailed findings of following five reviews, covering all Zonal Railways, are presented department-wise in Chapter 2 to 5 of this Report:

(i) Up-gradation of passenger amenities at stations including modernization of stations in IR;

(ii) Working of signalling production units on IR including their modernization;

(iii) Manpower management in mechanical workshops of IR;

(iv) Elimination of unmanned level crossings in IR; and

(v) Procurement and utilization of stone ballast in IR.

In addition, detailed audit findings contained in 32 individual paragraphs covering respective Zones are presented department-wise in Chapters 2 to 5 of this Report.

1.2 Chapter outline

Paras 1.2 to 1.5 of this chapter (Chapter 1) outline the broad profile of the Ministry of Railways and its subordinate field offices, basis of selection of units and issues for audit investigation and the reporting procedure for

inclusion of audit observations in the Audit Report. Paras 1.7 to 1.11 cover response received from the Railway authorities to the Provisional paragraphs; a summary of the year-wise pendency of audit observations; and impact of audit in terms of recoveries effected and remedial actions taken.

1.3 Audited Entity

The IR is a multi-gauge, multi-traction system with a total route length of 66,030 kms (as on 31 March 2015). Presently, the IR, a premier transport organization of the country is one of the world's largest rail network under one management.

Table 1.1

	Broad Gauge (1676 mm)	Meter Gauge (1000 mm)	Narrow Gauge (762/610 mm)	Total
Route Kilometers	58,825	4,908	2,297	66,030
Running Track Kilometers	83,266	5,240	2,297	90,803
Total track kms.	1,09,535	5,929	2,532	1,17,996
Electrified Route Kms	22,224	-	-	22,224
Electrified running track kms.	41,038	-	-	41,038

The IR runs 13,098 passenger trains and 9,202 Goods trains every day. It carried 22.53 million passengers and 3.00 million tonnes freight each day during 2014-15. As on 31 March 2015, the IR has 1.33 million work force and maintains infrastructure assets and rolling stock as shown in the Table below:

Table 1.2

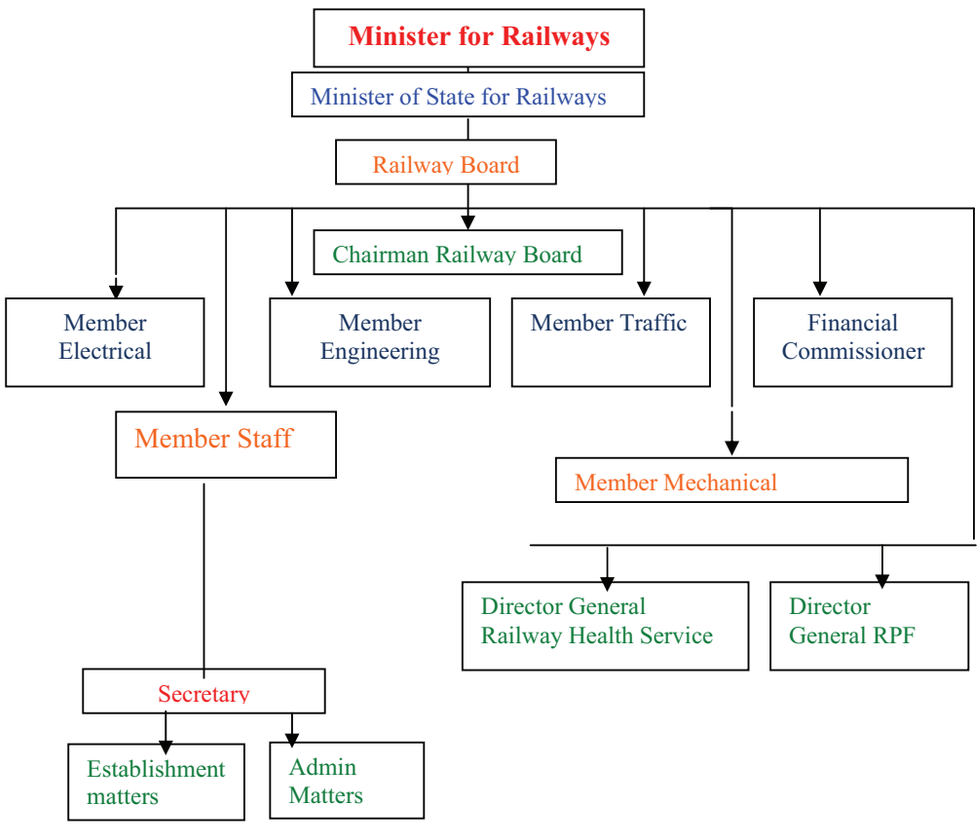
Locomotives	10,773
Coaching Vehicles	68,558
Freight wagons	2,54,006
Stations	7,137

Source – Indian Railways year book 2014-15 and Indian Railways' website

Organizational Structure

The organization structure of the IR is shown below:

Fig.1.1



The Ministry of Railways (MoR), a Ministry of the Government of India, is responsible for the country's rail transport. It is headed by a Union Minister of Railways (a Cabinet Minister). The Ministry also has a Minister of State for Railways.

The Railway Board (RB) which is the apex body of the IR reports to the Minister of Railways. The RB, comprising five Members (Electrical, Mechanical, Traffic, Staff, Engineering) and a Financial Commissioner, is headed by the Chairman Railway Board. The RB is responsible for laying down policies on all matters of operations, maintenance, finance and acquisition of assets and monitoring their implementation across zones. The RB is responsible for regulating pricing of both passenger fares and freight tariffs.

The Functional Directorates under each Member assist and aid in decision-making and monitoring of railway operation.

At the field level, there are 17 Railway Zones, one research and standards organization namely, Research, Designs and Standards Organization (RDSO) Lucknow; a Central Organization for Modernization of Workshops (COFMOW) for procurement of specialized machinery; two locomotive manufacturing units (Diesel Locomotives Works-DLW and Chittaranjan Locomotives Works-CLW) at Varanasi and Chittaranjan respectively; three coach factories at Kapurthala, Raebareli and Perambur; one wheel and axle plant at Yelahanka; and diesel modernization works at Patiala.

The names of Railway Zones with their headquarters and total route kilometers are given below:

Table 1.3

Railways	Headquarters	Route kms.
Central	Mumbai	4,042
Eastern	Kolkata	2,666
East Central	Hajipur	3,791
East Coast	Bhubaneshwar	2,679
Northern	New Delhi	7,221
North Central	Allahabad	3,216
North Eastern	Gorakhpur	3,869
Northeast Frontier	Maligaon (Guwahati)	3,996
North Western	Jaipur	5,554
Southern	Chennai	5,079
South Central	Secunderabad	5,922
South Eastern	Kolkata	2,722
South East Central	Bilaspur	2,489
South Western	Hubli	3,322
Western	Mumbai	6,440
West Central	Jabalpur	2,995
Metro Railway	Kolkata	27
Total		**66,030**

Each Zone is headed by a General Manager who is assisted by Principal Heads of Departments, such as Operating, Commercial, Engineering, Electrical, Mechanical, Stores, Accounts, Signal & Telecommunication, Personnel, Safety, Medical etc.

Besides the above, there are 35 Public Sector Undertakings (PSUs) and two Autonomous Bodies (ABs) functioning under the administrative control of the Ministry of Railways (as on 31 March 2015). The operations of these PSUs cover a wide spectrum i.e. from providing passenger and freight container services to lease financing, tourism and catering.

1.4 Integrated Financial Advice and Control

A fully integrated financial advice and control system exists both at the RB headed by the Financial Commissioner and the Financial Advisers and Chief Accounts Officers at the Zonal level. The Financial Heads are responsible for rendering advice and scrutinizing all proposals involving expenditure from the pubic exchequer.

1.5 Audit Planning

Broadly, the selection of the units for audit of the Railways was planned on the basis of a risk assessment with regard to the level of budgets planned, resources allocated and deployed, extent of compliance with internal controls, scope of delegation of powers, sensitivity and criticality of function/activity, external environment factors, etc. Previous audit findings, PAC's recommendations, media reports, where relevant, were also considered.

Based on such risk assessment, test audit of 4,498 audited entities of the Railways out of a total of 18,505 units was carried out during 2014-15.

The audit plan in particular focused on selected reviews/ long paragraphs of significant nature in terms of policy and its implementation inter-alia covering freight traffic, earnings, infrastructure development, passenger amenity activities, asset management, material management and safety works. Each study is accompanied by recommendations/suggestions on the basis of audit findings, reported under department specific chapters.

1.6 Reporting

The audits of these topics were conducted across the Zonal Railways using sampling methodology and accessing relevant records and documents of the field units including those of the RB. The audit findings were issued to the respective Zonal Managements for their response. Similarly, Audit Notes/Inspection Reports (IRs)/Special letters arising out of regular audit of vouchers and tenders were issued to the Associated Finance and Head of the unit for obtaining their replies. Audit findings were either settled or further action for compliance was advised depending upon action taken. Important audit observations, not having been complied with, were followed up through Draft Paragraphs addressed to the General Managers of Zonal Railway with

copies endorsed to the FA&CAOs and Heads of the Departments for reply within the prescribed period. Selected issues raised in these Draft Paragraphs were taken up as Provisional Paragraphs with the Ministry of Railway (Railway Board) for furnishing their reply within a period of six weeks (as prescribed by the Public Accounts Committee) before their inclusion in the Audit Report.

1.7 Response of the Ministry/Department to Provisional Paragraphs

A total of 147 Draft Paragraphs including reviews were issued to the General Managers of the concerned Zonal Railway up to December 2015. After considering the replies of Railway Administrations wherever received, 37 Provisional Paragraphs (including five reviews covering all zonal railways) proposed for inclusion in the Audit Report, were forwarded to the Chairman Railway Board, Members concerned and the Financial Commissioner, Railway Board between **13th August 2015 and 14th March 2016**. As on 31 March 2016, RB's replies have been received in respect of only two Provisional Paragraphs. Railway Board's remarks on these two paragraphs have been included in the relevant paragraphs.

1.8 Audit objections issued, settled and outstanding

During the year 2014-15, based on the results of test audit, a total of 4,446 audit objections involving financial irregularities of ₹ 13,596.99 crore were issued through Special letters, Part-I Audit Notes and Inspection Reports. Besides these, there was a carry forward of 8,372 audit objections pertaining to the previous years. A total of 4,193 audit objections were settled during the year as Railway Administration recovered/ agreed to recover the amounts involved or had initiated corrective/ remedial action. The balance 8,625 audit objections outstanding as on 31 March 2015 involved financial irregularities amounting to ₹ 37,569.82 crore.

1.9 Recoveries at the instance of Audit

Audit has pointed out the cases of under charges in realization of freight and other earnings, over payments to staff and other agencies, non-recovery of dues of the Railways etc. amounting to ₹ 4160.21 crore in the various Zonal Railways during the year 2014-15. An amount of ₹ 234.46 crore was accepted for recovery (₹ 101.26 crore was recovered and ₹ 133.20 crore was agreed to be recovered). 10 ZRs accounted for recoveries exceeding ₹5 crore each – ECR (₹123.86 crore); SECR (₹21.26 crore); NR (₹17.22 crore), NER (₹14.70 crore); NWR (₹11.07 crore); SCR (₹9.18 crore); WR (₹8.45 crore); NFR (₹7.21 crore); ER (₹5.36 crore) and SR (₹5.34 crore). Out of the total amount

of ₹ 234.46 crore recovery accepted, an amount of ₹ 60.03 crore pertained to transactions that were already checked by Accounts department of concerned Railways and ₹ 174.11 crore were other than those checked by Accounts department. As a result of further review carried out by Accounts department another ₹0.32 crore were recovered/ agreed to be recovered.

1.10 Remedial Actions

In addition, Railway Board initiated remedial action in response to audit observations by incorporating appropriate changes in freight tariffs and issuing instructions during 2013-14 for better and improved compliance. Some of the important cases are illustrated in Table 1.4 below:

Table 1.4

Para No. of the Report	Brief of the para	Changes in procedure /rule effected
Part I Inspection Report/ WR of May 2013	Irregular payment of Nursing allowance to Asstt. Nursing Officer (ANO). As per RB letter dated 04/12/96 and 01/08/1997, nursing allowance has been sanctioned for nursing staff (non-gazetted) as a compensation in consideration of night duty and other working conditions. It will not be entitled for night duty allowance. ANO, Gazetted officer working in Divisional Hospital was drawing nursing allowance at the rate of ₹4000 per month.	RB issued fresh clarification on 13.05.2014 stating that ANO are not entitled for Nursing allowances, as supervision of nursing services does not involve nursing activities.
Para 5.1 of Report No. 25 of 2013 covering all ZRs	It was observed by Audit that 'the basis on which the item has been treated as Proprietary Article Certificate (PAC) items under 'A' or 'C' certificate was not available on record.	RB issued instructions that it should be ensured that basis on which the item has been treated as proprietary item and effort that are being made/have been made to develop more sources for the item would be recorded by the indenter and maintained in their records.
3.2.3 of Report No.CA11 of 2009-10 – Idling	WR Administration needs to evolve a revised procedure for planning and execution of works which have	RB advised (January 2015) ZRs to avoid flip-flop in planning and execution of

of assets due to improper planning	significant impact on operational efficiency by identifying "Critical paths" so that timely action is taken to avoid delays and costly changes later on.	projects having significant impact on operational efficiency by identifying "Critical paths" right at the stage of project conceptualization.

1.11 Paragraphs on which Action Taken Note received/pending

To ensure the accountability of the Executive on all issues dealt with in the Report of the Comptroller and Auditor General of India, the PAC had decided (1982) that the concerned Ministries/ Departments of the Government of India should furnish corrective/ remedial Action Taken Note (ATNs) on all Paragraphs contained therein and had further desired in their Ninth Report (Eleventh Lok Sabha) presented to Parliament on 22 April 1997 that henceforth corrective/ remedial ATNs, duly vetted by Audit, on all Paragraphs included in the Reports be furnished within four months after the Report was laid on the Table of the Parliament.

The position of ATNs furnished by the Railway Board (March 2016) on the Paragraphs included in the Reports of the Comptroller and Auditor General of India – Union Government (Railways) up to the year ended 31 March 2014 is given below:

Table 1.5

Year	Total para included in the Reports	No. of para on which ATN Finalized	No. of Paragraphs on which ATNs are pending				
			Not received	ATN on which comments sent to Railway Board	ATNs finally vetted	ATN under verification by Audit	Total
1998-99	106	105	0	1	0	0	1
2000-01	101	100	0	0	0	1	1
2001-02	101	100	0	0	0	1	1
2002-03	110	109	0	1	0	0	1
2003-04	114	112	0	2	0	0	2
2005-06	138	133	0	4	0	1	5
2006-07	165	163	0	2	0	0	2
2007-08	172	171	0	1	0	0	1
2008-09	104	102	0	1	1	0	2
2009-10	59	56	0	2	0	1	3
2010-11	34	24	0	6	1	3	10
2011-12	29	11	0	13	1	4	18
2012-13	30	9	0	16	1	4	21
2013-14	47	0	26	5	1	15	47
Total	**1310**	**1195**	**26**	**54**	**5**	**30**	**115**

ATNs in respect of 26 Paragraphs relating to the Report for the year 2013-14 were not received within the prescribed period of four months. 54 ATNs received for vetting by audit were returned with observations for lack of adequate remedial action. Five ATNs, vetted by audit, are yet to be finalized by Ministry of Railways. In 30 cases, the action stated to have been taken is under verification by Audit.

Chapter 2: Traffic - Commercial and Operations

The Traffic Department comprises four streams viz., Commercial, Traffic, Coaching and Catering & Tourism. The activities related to these streams are performed by the concerned directorates headed by Additional Members/ Executive Director. At the RB level, the Traffic Department is headed by Member Traffic.

The activities such as marketing, traffic development, improvements in quality of railway service provided to customers, regulation of passenger/ coaching/ freight tariffs, monitoring of collection, accountal and remittance of revenues from passenger/ freight traffic are managed by Commercial Directorate. The activities such as planning of transportation services – both long-term and short-term, management of day to day running of trains including their time table, ensuring availability and proper maintenance of rolling stock to meet the expected demand and conditions for safe running of trains is, however, managed by Traffic Directorate.

The management of passenger and parcel services is done by Coaching Directorate and activities related to catering and tourism is managed by Catering & Tourism Directorate.

At the zonal level, the Traffic Department consists of two departments, viz., Operating Department and Commercial Department. These are headed by Chief Operations Manager (COM) and Chief Commercial Manager (CCM) respectively, who are under charge of General Manager of the concerned Zonal Railway. At the divisional level, the Operating and Commercial Departments are headed by Senior Divisional Operations Manager (Senior DOM) and Senior Divisional Commercial Manager (Senior DCM) respectively who are under charge of Divisional Railway Manager of the concerned Division.

The total expenditure of the Traffic Department during the year 2014-15 was ₹ 8,431.45 crore. Total Gross traffic receipt during the year was ₹ 156710.54 crore[1]. During the year, apart from regular audit of vouchers and tenders etc., 1305 offices of the department including 787 stations were inspected.

This chapter includes one review on Up-gradation of passenger amenities at stations including modernization of stations in IR covering all Zonal Railways. This review contains audit observations on implementation of passenger amenities as per extant orders/ instructions and passenger amenity works executed by Railway Administration. In addition, 14 Audit Paragraphs

[1] Explanatory Memorandum on Railway Budget 2016-17

highlighting irregularities on idling of assets; approval of annual rate of interest on delayed payment below the prescribed IRR; splitting of work into five tenders; non-utilzation/ idling of rolling stocks wagons; inadequate/improper agreement for revenue sharing; etc. are also included

2.1 Up-gradation of passenger amenities at stations including modernization of stations in Indian Railways

2.1.1 Introduction

Indian Railways (IR) is world's fourth largest Railway network with over 66,030 Route Kms and around 7,137 stations as on 31 March 2015. In IR, during 2014-15, 13,098 trains carried 22.53 million passengers per day through long distance trains. Being the most economical and convenient mode of transport, there is a continuous increase in passenger traffic. There has been a growth of 56 *per cent* in number of passengers since 2004-05. In view of various announcements pertaining to "Improvement of Passenger Amenities at stations and Modernization of stations" have been made in budget speeches in successive years. Accordingly, existing level of Passenger Amenities at stations/ terminals are subjected to continuous process of up-gradation and augmentation to handle growing demand and rising expectations. IR have endeavoured to ensure adequate passenger amenities at stations. Towards this end, IR has categorised stations into seven categories (A1, A, B, C, D, E and F) based on the annual passenger earnings for provision of passenger Amenities commensurate with the number of passengers handled at stations.

Further, IR had identified stations for development as Adarsh Stations, World class stations and Modernisation of stations through up-gradation of existing amenities to bring about visible improvements. RB issued revised comprehensive guidelines (September 2012) for provision of Passenger Amenities at stations of various categories, followed by instructions issued in June 2013 regarding amenities for physically challenged and in August 2013 for development of stations as Adarsh stations.

2.1.2 Audit objectives

Audit conducted a review to assess;

- Status of implementation of RB's directives pertaining to up-gradation of passenger amenities for general as well as disabled/physically challenged passengers, better cleanliness and security of passengers at Stations/Terminals with special emphasis on RB's directives of September 2012, June 2013 and August 2013.
- Efficiency and economy in execution of works related to Passenger Amenities in a time bound manner,
- Maintenance of amenities provided at Stations/Terminals and their purpose.

2.1.3 Audit criteria

Provisions and instructions contained in the following documents were the source of audit criteria for conducting this review:

- Chapter IV of Indian Railways Works Manual regarding planning for provision of facilities at Railway stations
- Instructions issued by the RB in September 2008 for security of passengers
- Instructions of September 2012 and August 2013 issued by RB regarding provision of passenger amenities at various category of stations in IR;
- Instructions issued by RB from time to time for development of selected stations into World class and Adarsh Stations
- Guidelines issued by the RB in June 2013 for provision of facilities to physically challenged /persons with disability

2.1.4 Scope and Audit methodology

This review covered three years period from 2012-13 to 2014-15. Suburban stations categorized as C category were excluded. The audit methodology included collection of data from the records maintained in Commercial, Engineering, Accounts, Security, Medical and Construction Organizations of Zonal, Divisional Headquarters and their subordinate offices. Joint inspections of selected stations along with Railway officials were also conducted along with photographic evidence of deficiencies. A passenger survey was also conducted at all the selected stations of various categories through a questionnaire, results of which are placed along with the audit findings at appropriate places.

2.1.5 Sample size

For evaluating the passenger amenities, stations were selected from various categories. The sample size of stations adopted for detailed study in this review is given below:-

Table 2.1

Category of stations	No. of Stations	Percentage of stations to be selected for detailed study.	No of stations selected
1	*2*	*3*	*4*
A1	73	25 *per cent* of Col. 2 subject to minimum of 3 stations of different Divisions	44
A	283	25 *per cent* of Col. 2 subject to maximum of 4 stations of different Divisions	54
B	268	25 *per cent* of Col. 2 subject to maximum of 4 stations of different Divisions	80*

Category of stations	No. of Stations	Percentage of stations to be selected for detailed study.	No of stations selected
D	846	25 per cent of Col. 2subject to maximum of 5 stations of different Divisions	104*
E	4114	20 *per cent* of Col. 2subject to maximum of 5 stations of different Divisions	106*
F	2192	10 *per cent* of col. 2 subject to maximum of 3 stations	48
Adarsh	968	25 *per cent* of Col. 02 subject to maximum of 5 Stations (1 station from A-1,A,B,D and E category)	78
	8744	**Total**	514
*Stations under judgmental sampling were also selected on the basis of their remote geographical locations, religious, historical and tourist importance in 'B', 'D' and 'E' category of stations			

2.1.6 Earlier Audit coverage

Issues regarding passenger amenities in IR were earlier included in C&AG's Report No. 9A of 2002 (Railways) and Report No. PA 26 of 2008-09 (Railways). In these Reports, Audit commented on under-utilization of funds, deficiencies in provision of passenger amenities at stations, delay in execution of passenger amenity works and inadequate maintenance of passenger amenities at stations.

In the Action Taken Note (ATN) on Report No.9 of 2002, RB stated (September 2004) that Zonal Railways have regularly been directed that efforts should be made to fully utilize the funds allotted under Plan Head-53 'Passenger Amenities'. Zonal Railways have also been instructed to prepare Master Plans for all Stations where improvements in passenger amenities are planned and changes/modifications should be minimized to avoid delays.

Further, vide Report No.6 of 2007 (Railways), Audit also commented on the poor/inadequate maintenance of cleanliness at stations. In their ATN, RB stated (December 2008) that a monitoring and reporting system has been developed and the action taken by Zonal Railways for improvement in cleanliness is to be reported on monthly basis for RB's appraisal.

Based on the above replies and assurance given by RB, Audit reviewed the records maintained by Railways regarding provision of passenger amenities and cleanliness of the selected stations (as per sample given in Para 2.1.5 above). Audit also reviewed the utilization of funds allotted under Plan Head-53 (PH-53). Results of audit findings are discussed in the subsequent paragraphs.

2.1.7 Audit Findings

2.1.7.1 Provision and utilization of funds for Passenger amenity works under Plan Head-53

Funds are allotted to each Zonal Railway every year for execution of passenger amenity works at station/ platforms. Audit reviewed the records of budget allotted and utilization of funds over the last three years (2012-13 to 2014-15) and noted non-utilization of allotted funds over a number of Zonal Railways. Standing Committee on Railways in its Nineteenth Report (2012-13) presented before the 15th Lok Sabha also expressed their concerns on underutilization of funds allocated for passenger amenities. The details of Budget Grant (BG), Final Grant (FG) and Actual Expenditure (AE) during the last three years over Indian Railways are mentioned below:

Table-2.2- Budget Grant, Final Grant and Actual Expenditure

(₹ in crore)

	2012-13			2013-14			2014-15		
Zonal Railway	**Budget Allotted**	**Actual Expenditure**	**Excess /Saving**	**Budget Allotted**	**Actual Expenditure**	**Excess /Saving**	**Budget Allotted**	**Actual Expenditure**	**Excess /Saving**
1	*3*	*4*	*5*	*7*	*8*		*11*	*12*	*13*
CR	29	30.82	1.82	58.4	59.7	1.3	68.28	67.86	-0.42
ER	126.69	119.27	-7.42	113.3	99.61	-13.69	78.13	70.71	-7.42
ECR	41.91	35.31	-6.6	53.39	45.15	-8.24	48.39	44.89	-3.5
ECoR	33.39	29.09	-4.3	35.94	36.92	0.98	47.7	44.53	-3.17
NR	54.31	58.08	3.77	71.45	73.57	2.12	125.8	85.46	-40.34
NCR	72.36	63.18	-9.18	74.97	62.33	-12.64	81.4	72.32	-9.08
NER	14.15	13.87	-0.28	18.59	19.57	0.98	27.86	22.34	-5.52
NFR	67.23	64.82	-2.41	45	41.89	-3.11	52.62	44.71	-7.91
NWR	18.94	22.57	3.63	28.38	30.12	1.74	35.05	35.58	0.53
SR	69.81	73.14	3.33	68.12	70.25	2.13	74.83	69.87	-4.96
SCR	86	88.34	2.34	97.12	96.51	-0.61	82.97	77.28	-5.69
SER	57.85	59.33	1.48	45.72	47.26	1.54	56.71	53.23	-3.48
SECR	65.8	60.76	-5.04	42.87	44.69	1.82	36.76	36.12	-0.64
SWR	37.61	37.88	0.27	28.02	29.47	1.45	33.7	31.88	-1.82
WR	50.7	49.35	-1.35	49.84	47.64	-2.2	45.24	42.66	-2.58
WCR	30.78	31.32	0.54	53.58	48.46	-5.12	59.88	54.65	-5.23
TOTAL	**856.53**	**837.13**	**-19.4**	**884.69**	**853.14**	**-31.55**	**955.32**	**854.09**	**-101.23**

Analysis of data given in the above table revealed that-

- Over the last three years (2012-13 to 2014-15), IR had not fully utilized the funds allotted for the passenger amenities. In 2012-13, ₹19.40 crore; in 2013-14, ₹31.55 crore and in 2014-15, ₹101.23 crore were not utilized.
- In five Railways (ER, ECR, NCR, NFR and WR), funds were not fully utilized in all the three years. Non-utilization of funds more than 10 *per cent*

as against the budget allotted was noticed in four Railways (ER, ECR, NCR and NFR).

- In 2012-13, eight Railways (ER, ECR, ECoR, NCR, NER, NFR, SECR and WR) were not able to utilize the funds, whereas in 2013-14 seven Railways (ER, ECR, NCR, NFR, SCR, WR and WCR) and in 2014-15, none of Railways except NWR could utilize the funds allotted.
- Separate budget provisions for amenities/ security for women commuters had not been made by any Railway.

Above analysis clearly shows that over the review period, budget allotted could not be fully utilised. It also counters the RB's statement vide their ATN on Report No.9 of 2002, wherein it was stated that ZRs have regularly been directed to fully utilize the funds allotted for passenger amenity works. Further, on one hand fund allotted was not fully utilized and on other hand works were lying incomplete due to fund constraint. Non-utilization of allotted funds by ZRs adversely affected the timely completion of the important passenger amenity works as commented in the Para 2.1.7.10 of this Report.

2.1.7.2 Master Plan for passenger amenities

To meet the expectations of the travelling public, IR had categorized stations into seven categories (A1, A, B, C, D, E, & F). RB vide letter No.2012/LM (PA)/3/5 dated 11/09/2012 prescribed a quantitative scale for provision of minimum essential passenger amenities for each category of stations and provided norms for augmentation of recommended amenities based on actual passenger traffic handled at stations. This categorization was to remain unchanged for the next five years till next review becomes due. Master Plan in respect of the amenities assessed to be provided at a station was required to be drawn.

After conducting a survey to ascertain requirement of Minimum Essential Amenities (MEA) and desirable amenities required to be provided at each stations, ZR prepared a Master Plan to formulate action plan for providing these amenities. A web based Indian Railway Project Sanction and Management (IRPSM) module exists in each ZR to capture the data base of passenger amenities at each station. Any additions/ modifications to the passenger amenities based on the assessed requirement needs to be updated in IRPSM.

Review of records of ZRs pertaining to Master Plan and maintenance of data in IRPSM revealed that –

- NR, SER and WCR had not been prepared Master Plan for passenger amenities.

- Malda Division (ER), Visakhapatnam & Sambalpur Divisions (ECoR), Ratlam Division and Vadodara Division (WR) had not prepared the Master plans as per the provisions made by RB.
- All the Zonal Railways except WR had updated IRPSM data.
- As per chapter IV of Indian Railway Works Manual planning for provision of facilities to be provided at Railway stations is to be done by Engineering department. Available data on Ratlam Division of WR indicates that this work is pending due to inter departmental disputes between Engineering & Commercial department.

2.1.7.3 Provisions for Minimum Essential Amenities (MEA)

As per RB's directives (September 2012), MEA such as booking facility, drinking water, waiting hall, seating arrangement, platform shelter, adequate platform level, foot over bridge etc. was required to be provided at all categories of stations. Further, with a view to improving customer satisfaction, Desirable Amenities are also to be provided depending upon earnings and relative importance of the Stations.

Audit examined position regarding MEA provided at 436 selected stations of various categories (A1-44, A-54, B-80, D-104, E-106 & F-48 stations) during joint inspection (between April 2015 to June 2015) of stations on all Zonal Railways. Deficiencies noticed in provision of MEA are discussed in the subsequent paragraphs.

(i) Drinking Water Taps

Considering the importance of this amenity, Railway Administrations need to ensure proper arrangement of drinking water at all the stations.

- Review of 436 selection stations of various categories, Audit noticed that at 86 stations, drinking water taps were not provided as per the norms prescribed by the RB in its instructions of September 2012.
- In Indore and Nagda stations of WR, it was noticed that water taps were chocked and appeared very shabby as depicted in the picture mentioned below.

	
Water fountains in shabby condition at Nagda A category station (WR)	Water logging around water fountains at Indore A1 category station (WR).

- Water taps at suitable locations to serve passengers of General and Second class were not provided in two stations of A category (Rudrapur city - NER, Saharanpur – NR); six stations of B category (Kendujhar, Gorakhnath - ECoR, Ramanathpuram- SR, Narsinghpur & Shivpuri-WCR, Hapa-WR; 28 stations of 'D' category, 39 stations of E category and 37 stations of F category.

(ii) Level of Platforms

As per norms specified under MEA in RB directives of September 2012, high level Platforms were required to be provided at stations of A1 & A category, Medium level platforms at stations of B & D category and Rail level Platforms at stations of E & F category. RB also reiterated (September 2012) its directives of August 2006 that high level Platforms were to be provided irrespective of category at stations handling Mainline Electrical Multiple Unit (MEMU)/ Diesel Electrical Multiple Unit (DEMU) trains.

Audit review revealed that:

- High Level platform had not been provided at Kolhapur (CR) of A category.
- Medium Level Platform had not been provided at three stations of D category viz., Deshnok (NWR), Rajim (SECR) and Dakania Talav (WCR).
- The high level platform was not provided at B, D, E & F category of stations dealing with MEMU/DEMU trains on any of the selected stations over Zonal Railways.

Inconvenience to passengers while boarding/ alighting from EMU trains at Atul 'E' category station (WR)

From the above findings, it is evident that non-provision of adequate level of platforms as specified by RB caused difficulties to passengers in boarding and alighting from trains at such stations. This also compromises the safety of passengers.

(iii) Foot Over Bridges (FOBs)

Foot Over Bridge (FOB) is an important passenger amenity and passenger safety item, provided to facilitate movement of passengers from outside the station to any platform and from one platform to another. FOBs ensure safety by preventing trespassing of railway track by passenger. FOB of six meter width with cover were required to be provided at stations of A1 and A category, whereas these were required to be provided at all stations of B and D category during doubling/ gauge conversion works wherever they are not available.

Audit review of records of selected stations revealed that

- Covered FOBs of the prescribed size had not been provided at 18 stations of A1 category and at six stations (CR-Lonavala, Sainagar Shirdi; NCR-Banda, Aligarh, Etawah, Agra Fort) of A category.
- FOBs had not been provided at 10 stations (CR-5 and one each in ER, NR, NCR NER and NFR) of B category and 32 stations (CR-7, ECR-2, NR-1, NCR-5, NWR-3, NER-4, NFR-4, SECR-1, SWR-4 and WR-1) of D category.

(iv) Platform Shelters

In the norms specified in MEA, RB stipulated that area of platform shelter to be provided was 500 sqm in A1 stations, 400 sqm in A stations, 200 sqm in B stations and 50 sqm in D stations. Shade trees were to be provided on F category stations.

Audit examined the position in selected stations over ZRs and found that-

- Platform shelter was not provided at two stations of A category (Parasnath-ECR & Rourkela-SER); five stations of B category (Matheran, Devlali, Pandharpur & Sangli of CR and- Raiwala of NR); 12 stations (CR-4, SER-4 and one each on ECR, NR, NWR and WR) of D category.
- At three A1 category stations (Nasik Road-CR, Dhanbad-ECR and Lucknow-NR) and three A category stations (Lonavala & Sai Nagar Shirdi of CR, Rudrapur City of NER), area of platform shelters was not provided as per the norms mentioned in the RB's instructions of September 2012.
- In eight B category stations (CR-2, ECoR-1, NR-4, SER-1), eight D category stations (CR-2, SER-2, NR-1, NWR-2, SECR-1) and in 40 stations of E category (CR-7, ER-2, ECR-1, NR-1, NCR-1, NER- 1, NFR- 2, NWR-5, SECR-4, SER-7, SWR-2, WR-4, WCR-3) platform shelters were not provided as per specified norms.
- Shade trees on platforms were not found planted at 11 stations (CR-1, NCR-3, NWR-1, NER-1, SR-1, SER-3, WR-1) of F category.

	
Platform shelter not provided at the end of platform and FOB has been provided at the end of platform at Bolpur station (B category)	Platform shelters not provided at the end of platform at Mumbai Central A1 station (WR) where general as well as coaches of other important Mail/Express trains stop.

(v) Other amenities

Deficiencies noticed in other MEA to be provided at stations are mentioned in the table 2.3 below:

Table 2.3

Passenger Amenities	Category of stations, where amenities to be provided	Deficiencies noticed in stations	Railway involved
Waiting Halls	A1, A, B, D, E	Waiting hall of prescribed area were not provided in 39 stations	A1-2 (one each on NER and SWR); A–7 (two each on CR, SR, and one each on ECoR, NWR, WCR); B-10 (two each on ECoR, NR and one each on CR, SR, SCR, SECR, SWR, WR); D-10 (four in WR, two in CR and one each in ECoR, NER, SR, SWR), E-7 (CR-2, ER-1, NCR-1, SR-2 and WR-1)
Provision of Urinals	A1, A, B, D, E	14 stations	A- 1 (SR); B-2 (SR-2); D-8 (ER-1, NWR-1, SR-2, ECR-3, WR-1); E-3 (SR-2, WR-1)
Water Coolers	A1, A, B, D	13 stations of D category	ER-4, ECoR-2, NR-1, NWR-2, NFR-3, SWR-1
Lighting arrangements	All category	03 stations	ECR-Sakri of B category; NER-Palikalan & Nepalganj of D category
Public Address System	A1, A and B	03 stations of B category	CR-Devlali, NR-Raiwala, NER-Haldwani
Standard signage	A1, A and B	29 stations	A1-1 (Dhanbad-SER); A-4 (one each in CR, NWR, NCR and SWR); B-24 (CR-2, ER-1, ECR-1, ECoR-2, NR-2, NCR-3, NER-1, NWR-1, NFR-1, SR-4, SECR-1, WR-2, WCR-3)
Electronic Train Indicator Boards	A1 and A	02 stations of A category During passenger survey, 44 *per cent* passengers expressed their dissatisfaction with the location of indicator boards.	Lonavala (CR) and Ara (ECR)

Above findings show that ZR Administration was not able to fully provide even minimum passenger amenities that should be provided at all stations as per RB's instructions of September 2012. Absence of these amenities at stations as pointed above resulted in compromising passengers' safety and comfort.

2.1.7.4 Provision of Desirable Amenities

RB (September 2012) issued directives for provision of Desirable Amenities at the stations. These include Retiring Rooms, Waiting Rooms, Cloak Room, Public Address System etc required to be provided depending upon category, need and relative importance of the station.

Audit examined, status of Desirable Amenities provided at 388 selected stations of various categories on Zonal Railways (A1- 44, A -54, B-80, D-104& E-106 stations). The results of audit examinations are as under:-

(i) Pay and Use Toilets

Though provision of Pay and Use toilets at end of the platforms and in circulating area is a desirable amenity, RB instructed (June 2006) that toilets at all A1, A, B, D and E category stations should be gradually converted into pay and use toilets.

Audit scrutiny revealed that this amenity was not provided at 210 (54 *per cent*) stations of selected 388 stations. This included Delhi Cantt. (NR), Pali Marwar (NWR) Rudrapur city, Azamgarh (NER) of A category, 30 stations of B category, 74 stations of D category and all stations of E category except Khandala, Khapri (CR), Udhagamandalam, Cuddalore Port (SR) and Dodaballapur (SWR).

(ii) Stalls for Essential Goods and Medicines

As per RB's directives of September 2012, this facility was to be provided at A1, A, B and D category stations. Audit examination of records of 282 selected stations pertaining to the review period revealed that-

- Stalls for essential goods were not provided at 24 stations of A1 (55 *per cent*), 45 stations of A category (83 *per cent*), 73 stations of 'B' category (91 *per cent*) and 101 stations (97 *per cent*) of D category.
- Stalls for medicines were not found provided at 27 stations (61 *per cent*) of A1 category, 48 stations (89 *per cent*) of A category, 76 stations (95 *per cent*) of B category and all the selected stations of D category.

(iii) Separate Entry & Exit Gates

RB advised (September 2012) ZRs that in order to decongest station entrances, separate entry /exit gates are to be provided at stations. All unauthorized entry points into station irrespective of their class should be closed. Review of status in this regard revealed that:-

- Even in A1 and A category stations, separate entry and exit gates were not provided at all the stations. Out of the selected 44 A1 category stations, at eight stations (Lokmanya Tilak Terminus, Nasik Road & Nagpur of CR; Sealdah of ER; Chhapra of NER; Tirupati of SCR; Kharagpur of SER and Ernakulam of SR), this facility was not provided. Further, at 28 stations of A category (CR-4, ECoR-1, ECR-3, NCR-2, NER-4, NFR-1, NR-1, NWR-2, SCR-1, SECR-1, SR-3, SWR-1, WR-3, WCR-1), separate entry and exit gates were not available. This has deprived the passengers of a smooth and safe entry/ exit and passengers are exposed to risks of pick-pocketing and molestation. It also hampers diligent ticket checking at gates due to incoming and outgoing crowd of passengers using the same gate.
- Despite RB's instruction for closure of unauthorized entry points, Audit noticed existence of unauthorized entry points at 21 stations (CR-3, ECoR-1, ECR-1, ER-1, NER-3, NFR-1, NR-1, SCR-1, SECR-2, SR-1, SWR-2, WCR-2, WR-2) of A1 category and 30 stations (CR-4, ECoR-3, ECR-1, ER-1, NER-4, NFR-2, NR-2, SCR-1, SECR-2, SR-3, NCR-2, SWR-1, WCR-2, WR-2) of A category. Railways failure to close these unauthorized entry points meant security of the passengers at these stations is compromised.
- During passenger survey, inadequacy of entry and exit gates at stations on ER, NWR, SER, SR, SWR, WCR and WR was pointed out by passengers.

(iv) AC VIP/Executive Lounges, Food Plazas

With a view to provide value added services at a charge, Railway Minister in Budget speech 2012-13 announced setting up of AC Executive Lounges at important stations offering facilities such as Wi-Fi, internet, buffet services, wash and change, concierge services for pre-departure and post arrival assistance to passengers. RB (September 2012) further instructed Zonal Railways to provide AC VIP Lounge/ Executive Lounge at A1 category stations under desirable amenities.

Out of the 44 selected stations of A-1 category, AC VIP/ Executive Lounges were provided for public only at Bangalore City (SWR) and Tata Nagar (SER) stations. Audit further observed that VIP lounges though provided at CR, ER, ECoR, NR, NFR, NER, NWR and SCR, were not made available for public on payment basis.

(v) Modern Trolley with Rail Yatri Sevak

To assist senior citizens and women passengers in boarding and alighting from trains along with their luggage, RB instructed (December 2010) ER to provide

Modern Trolley with Rail Yatri Sevak at Howrah and Sealdah stations as pilot project for one year. Subsequently, this scheme was extended to six more stations viz., New Delhi (NR), Mumbai Central (WR), Chennai (SR), Ahmedabad (WR), Bengaluru (SWR) and Thiruvananthapuram (SR).

Audit review revealed that Modern trolleys with Yatri Sevak had been provided at New Delhi (NR), Howrah and Sealdah (ER) stations. However, the facility was yet to be provided at Chennai (SR), Bengaluru (SWR) and Thiruvananthapuram (SR) stations. Further, Yatri Sevaks were not provided at Mumbai Central and Ahmedabad (WR) though the trolleys had been provided. Due to this, difficulties in boarding and alighting from trains along with luggage continue to be experienced by senior citizen and women passengers at these stations.

(v) Other amenities

In addition to above, audit noted deficiencies in provision of other desirable amenities at the selected 388 stations of various categories, which are tabulated below:

Table 2.4

Desirable amenities	Category of stations, where amenities to be provided	Deficiencies noticed in stations	Railway involved
Cloak Rooms	A1, A and B	A-7 stations B-41 stations	NER-3, NR-2, ECR-1, ECoR-1. CR- 2, ER-1, ECR-3, ECoR-6, NR-4, NWR-3, NER-5, NFR-3, SR-3, SCR-1, SECR-4, SER-1, SWR-1, WR-1, WCR-3
Enquiry Counter	A1, A and B	A-2 stations B-35 stations	NER-1, SR-1. CR-4, ECR-1, ECoR-4, NR-3, NCR-1, NER-1, NFR-2, SR-6, SCR-1, SWR-5, WR-3, WCR-4.
Public address system	D	11 stations	ECR-1, NER-2, NWR-2, NFR-1, SR-1, WR-4
Automatic Teller Machine (ATM)	A1, A and B	Out of 178 selected stations, in 160 (90 *per cent*) stations.	All Railways involved
Train Coach Indicator System	A1	2 stations	Chhapara-NER and Chennai Central-SR
Automatic Vending Machines	A1	31 stations	CR-3, ER-2, ECR-2, ECoR-3, NR-2, NCR-3, NWR-3, NER-3, NFR-2, SCR-1, SECR-2, SER-2, SWR-2, WR-1
Water vending machines	A1 and A	Out of 44 selected A1, stations, in 42 stations and in all the 54 selected A stations.	All Railways involved

Deficiencies in provision of passenger amenities under desirable norms specified in the comprehensive instructions issued by RB (September 2012) indicates lack of proactive approach on the part of Zonal Railway Administrations in implementing RB's directives. Further, this also indicates lack of monitoring and control mechanism at RB level. This compromises the passenger comfort and safety at stations.

2.1.7.5 Facilities for physically challenged passengers

RB in its directives of September 2012 and June 2013 prescribed guidelines for the facilities required to be provided for physically challenged passengers at stations. These primarily included facilities like ramp, non-slippery walkway, drinking water taps, exclusive toilets etc. The long term facilities included exclusive parking, inter-platform transfer facility, engraved platform edges, medical assistance booths, escalators/lifts and Battery Operated Cars for disabled and old age passengers at Railway Stations.

Audit reviewed the amenities provided for physically challenged passengers at 178 selected stations of A1 (44), A (54) and B (80) categories and noticed that most of these amenities had not been provided. Some of the issues are highlighted as under:

(i) Wheel chairs: Wheel chairs were provided at all the selected stations of A1, A and B category. However, at Malipur station (NR) and Cansaulim station of SWR, wheel chairs though provided were found to be in dilapidated and unusable condition.

Defective Wheel Chair at Malipur Station.

Wheelchair in a dilapidated condition at Cansaulim station of SWR

(ii) Standard ramps: Standard ramp was not provided at 21 stations of A1 category (48 *per cent*), at 44 stations of A category (81 *per cent*) and 71 stations of B category (89 *per cent*).

(iii) Exclusive toilets: At seven A1 category stations (16 *per cent*), 15 A category stations (28 *per cent*) and at 49 B category stations (61 *per cent*), exclusive toilets for physically challenged passengers were not provided.

(iv) Separate ticket window: At 10 A1 category stations (23 *per cent*), 30 A category stations (55 *per cent*) and 65 B category stations (81 *per cent*), exclusive ticket window for physically challenged passengers was not provided.

(v) Non- slippery walkway from parking lot to station building: This had not been provided at eight A1 category stations (18 *per cent*), nine A category stations (17 *per cent*) and at 30 B category stations (38 *per cent*).

As evident from above, due to non-provision of facilities earmarked for physically challenged passengers at stations, they continue to face hardships during their movement at stations despite specific instructions issued by RB in this regard.

2.1.7.6 Development of Adarsh Stations

While presenting Railway Budget (2009-10), Minister of Railways announced (July 2009) that selected stations shall be developed as Adarsh Stations where improvement in ticketing, circulating area, signage, easy access and exit will be focused upon, with a view to provide enhanced level of passenger facilities within a year.

Accordingly, RB had issued instructions from time to time on Adarsh Stations Scheme, the latest being Circular No. 2009/TG-IV/10/PA/Adarsh Station dated 13/08/2013 prescribing facilities to be invariably provided at 1,052 stations identified for development as Adarsh Stations.

Audit noticed that 968 stations were declared as Adarsh stations over IR as of March 2015, where passenger amenities works have been upgraded as required for Adarsh station. RB also advised to change the focus from mere beautification to utility, comfort, cleanliness and security. Out of these 968 stations, Audit test checked 78 stations of various categories (A1- 6, A-27, B-18, D-16 and E-11).

Audit noticed that amenities such Pay & Use toilets, High level platforms, FOBs, Signages etc were not provided as per the norms prescribed by RB in their circular dated August 2013. Out of the selected stations, Pay & Use toilets were not provided on 38 stations; High level platforms were not provided on four stations; FOBs were not provided on seven stations. Details deficiencies were mentioned in **Annexure I**.

2.1.7.7 Development of World Class Stations/ Modernization of stations

For development of stations into World Class stations, RB issued guidelines (November 2006) and initially identified 19 stations. Further, RB issued (March 2009) master circular advising the ZRs about management of various activities

connected with development of World Class stations. Number of stations identified for development of world class stations was increased to 50 stations in June 2010.

The MoR in budget speech (February 2011) stated that not much headway could be achieved in development of stations as World Class Stations because of their high costs. The Expert Group on Modernization of IR, constituted (September 2011) by MoR, recommended (February 2012) modernization of 100 major stations at a cost of ₹1.10 lakh crore in five years under Public Private Partnership (PPP). Consequently, Indian Railway Station Development Corporation Ltd (IRSDC) was developed (April 2012) for development/ re-development of stations, up-gradation of passenger amenities to serve the Passenger needs through PPP mode.

Audit noticed that though ZR Administrations had taken initiatives such as nomination of dedicated project team, preparation of inspection reports, appointment of architect and technical consultants etc., no concrete action was taken to develop the 50 identified stations into World Class stations.

Audit further reviewed the records of IRSDC and noticed that initially five stations viz. Bijwasan (NR), Habibganj (WCR), Anand Vihar (NR), Chandigarh (NR) and Shivajinagar (CR) were entrusted to IRSDC as pilot project for modernization. Subsequently, three more stations namely, Surat (WR), SAS Nagar (Mohali-NR) and Gandhi Nagar (WR) were also entrusted to IRSDC for modernization. Audit noticed that:

- Agency/ consultants for conducting feasibility study have been awarded for six stations (Chandigarh, Habibganj, Shivajinagar, Bijwasan, Anand Vihar and Surat) at the cost of ₹24.87 crore during the period September 2012 to October 2014. The feasibility reports which were targeted to be completed during June 2013 to January 2016, has not been completed in respect of any station (January 2016).
- The reasons for delay in submission of feasibility report as stated by IRSDC were frequent revisions in Master Plan; delays in approval of Master Plan by Railways and local authorities.

Even feasibility study for any of the selected stations has not been completed though more than three years have passed since the creation of IRSDC.

2.1.7.8 Development of Railway Stations in association with Ministry of Tourism (MoT)

As per joint directives issued (October 2012) by the Ministry of Railways and MoT, it was decided to develop stations having tourist/pilgrim importance. The cost of development was to be shared equally by these two ministries. RB

identified following 24 stations in 10 Zonal Railways in association with MoT and directed the concerned ZRs to prepare suitable detailed estimates for individual works at each station.

Table-2.5 Name of stations identified for joint development

Zonal Railways	Name of Stations
ER	Belur, Tarapith, Tarkeshwar & Farfura Sharif
NR	Amritsar, Haridwar, Raebareli & Varanasi
NFR	Dooars,Guwahati & Kamakhya
SR	Madurai, Rameswaram & Thiruvananthapuram
SCR	Aurangabad, Hyderabad, Nanded and Tirupati
ECR	Gaya
ECoR	Puri
NCR	Agra
NWR	Ajmer & Jaipur
SWR	Hospet

As per consent given by MoT, approximate cost of work for each station under various categories was taken as ₹12 crore (for A1 category), ₹11 crore (for A category), ₹5 crore (for C category), ₹9 crore (for D category) and ₹6 crore (for E category). A variation up to 20 *per cent* of the cost of the work for each station could be allowed subject to the total cost not exceeding the estimated cost as mentioned in the guidelines.

Audit reviewed the status of work of joint development of above identified stations and important audit findings are discussed Zone wise in following paragraphs:

Eastern Railway:- An outlay of ₹42.50 lakhs was provided and the work was sanctioned during 2012-13. Audit however, noticed that the work of joint development of four identified stations on ER is still in initial stage. It was also noticed that for the development work, neither were funds received from Ministry of Tourism nor ER Administration had incurred any expenditure during 2013-14 and 2014-15 despite the work appearing in Works Programme of 2013-14 and 2014-15.

Northern Railway:- Four stations viz., Amritsar, Haridwar, Raebareli and Varanasi have been identified for joint development. However, neither detailed estimate was prepared for executing works on these stations nor fund allotments were made by MoR or MoT since October 2012.

Northeast Frontier Railway:-Initially, three stations viz., Kamakhya, Dooars and Guwahati were identified for joint development in the year 2012-13. Subsequently, Dooars station was replaced with New Jalpaiguri in the year 2014-15. Audit observed that neither detailed estimates were prepared to execute works nor fund allotments made since October 2012.

Southern Railway:-The work of development of Madurai, Rameswaram and Thiruvananthapuram stations was sanctioned during the year 2012-13 at a cost of ₹33 crore. As against the share of ₹16.50 crore, MoT has so far released only ₹4 crore for all the three stations. Three contracts were awarded in July 2014 and December 2014 only in respect of Thiruvananthapuram station with completion date of March 2015, January 2015 and June 2015 respectively. However as on date, audit noticed progress of 2.32 *per cent* only. Further, detailed estimates for Madurai and Rameswaram stations are yet to be sanctioned even after a lapse of two years.

South Central Railway:- The work of development of Tirupati, Hyderabad, Nanded and Aurangabad Stations was sanctioned during the year 2012-13 at a cost of ₹47.22 crore. Release of funds by either of the Ministries was not found on record. Further, even after lapse of more than two years, detailed estimates for the development works at these four stations are yet to be sanctioned.

East Central Railway:- Only Gaya station of A1 category has been identified for joint development at an anticipated cost of ₹11 crore with both the Ministries contributing ₹5.50 crore each. Though ECR Administration prepared estimate of ₹6.60 crore for completion of work by February 2015, physical progress of the work was only five *per cent* till September 2015. Further, the details of amount released by MoT were not on record.

East Coast Railway:- Construction of Tourism Complex at Puri station was awarded in September 2014 which was to be completed by June 2015. The work, awarded at a total cost of ₹12.96 crore, comprising civil engineering works (₹11.54 crore), S&T works (₹1.13 crore) and electrical works (₹0.29 crore). However, the work is still not complete (as on December 2015). Further, though the project to be executed on a 50:50 cost sharing basis by MoR and MoT, the MoT has not released any fund for the project by the end of December 2015.

North Central Railway:- Work at Agra station was sanctioned in 2012-13 at a cost of ₹11 crore for completion by December 2015. Audit noticed that physical progress in work was only 50 *per cent* whereas financial progress was 38 *per cent* as on September 2015. Against the share of ₹5.50 crore, only ₹2 crore has been received from MoT.

North Western Railway:- Work for joint development of Jaipur and Ajmer stations was sanctioned in the year 2012-13 at an estimated cost of ₹22.45 crores (₹11.81 crores for Ajmer and ₹10.64 crore for Jaipur). Despite, receiving funds of ₹5.20 crore from MoT in September 2014 for the work at Jaipur station, no progress in this regard was observed by Audit till March 2015.

South Western Railway- Hospet station was identified for joint development in October 2012. However, the development work is in initial stage as the approval of General Arrangement Drawings (GAD), submitted (September 2014) to RB is still awaited (December 2015).

From the above findings, it may be concluded that delay in finalization of estimates of development works for stations on SWR, NER and NR; and slow progress of works at stations on ECR, NWR, SR and NCR reflects laxity on part of Zonal Railway Administrations in project execution. As a result, joint development of stations of tourist importance to give intended amenities to tourists coming from various parts of the country and the world could not be achieved. This is adversely affecting the image of the country as these stations are frequented by foreign tourists and need to be developed to attract more tourists.

2.1.7.9 Passenger amenities through MPLADS, individuals, NGOs, Trusts, Charitable Institutions, Corporates etc.

As per directives (October 2013 and November 2014) of RB, ZRs were to execute passenger amenity works on Deposit terms under the Member of Parliament Local Area Development Scheme (MPLADS) in consonance with the guidelines (September 2012) for provision of various passenger amenities. These included construction of approach roads to railway stations, circulating area, additional toilets for passenger, platforms, FOBs, platform shelters, provision of drinking water, escalators, solar lighting at stations, provision of firmly fixed waiting chairs/benches, amenities for physically challenged persons (ramps, separate toilets, etc). RB also instructed that a proper account of such works taken up under MPLADS was required to be maintained by Zonal Railway.

In addition, RB issued (September 2014) guidelines for provision of passenger amenities through various individuals, NGOs, Trusts, Charitable Institutions, Corporate, etc. on deposit terms within one year of deposit of funds by the sponsoring party after signing of MoU permitting the party to put up a board acknowledging contribution.

Audit observations on passenger amenities to be provided under the above schemes are as below:

- Although funds were released or consent given by the MPs to the extent of ₹5.72 crore through MPLADS during the period from December 2014 to March 2015 to eight Zonal Railways (ER, ECoR, NCR, NER, SWR, SR, WR and WCR), the amenities were found partially provided/ work initiated only in five Zonal Railways (ER, ECoR, SR, SWR and WCR). In other three Railways, funds deposited by the concerned MPs could be utilized.
- Provision of Passenger Amenities like water coolers, dustbins, wheel chairs, stretchers, RCC benches, air conditioners, battery car etc. were found provided by individuals/NGOs/Trusts etc. at selected stations on all Zonal Railways except in NER, NFR, NR, SCR, SWR and WCR. However, no data base of such facilities created were found maintained by Zonal Railways as directed by RB.

In particular cases as mentioned below, audit noticed laxity on part of Railway Administrations in providing amenities under the above schemes:

Eastern Railway:- Indian Oil Corporation Ltd (IOCL) has given a proposal (January 2015) to provide RO based water treatment plant at Sealdah station. However, this could not materialize due to non-pursuance of the matter by Zonal Railway authorities.

Western Railway:- An amount of ₹4.11 crore had been sanctioned /released (30 March 2015) through MPLADS by Minister of Finance and eight MPs for provision of 5,911 seats at various stations of WR. However, only 111 benches had been provided under MPLAD scheme as of December 2015.

In case of a proposal made (February 2014) by an individual for installation of water cooler at Nimbahera station of Ratlam Division, the work was delayed by more than one year (March 2015) for want of civil engineering/ electric works despite the necessary charges having already been deposited by the donor. Due to this, passengers were deprived the benefits of this facility.

From the above, it is evident that these schemes have not taken off primarily due to Railway Administration's laxity in getting the work done on priority basis. This resulted in non-commencement of works and thereby intended purpose of the scheme is not being served.

2.1.7.10 Execution of works related to passenger amenities

After the assessment of requirement for development of passenger amenity or for upgrading the passenger amenities at any station, ZRs initiate action for execution of work based on the funds allotted by RB.

Audit selected 136 passenger amenity works (in-progress/ completed) costing ₹2.5 crore and above over IR during the period under review for detailed examination. Audit noticed cost overrun to the extent of ₹79.05 crore in 53 contracts and time overrun up to 192 months in 132 contracts as detailed below -

- In 30 contracts, cost overrun was more than ₹0.50 crore; in five contracts, it ranged between ₹0.25 crore to 0.50 crore; and in 18 cases it was upto ₹0.25 crore.
- In four contracts, the time overrun of more than five years was noticed; in 66 contracts, it ranged between two and five years and in 62 contracts, time overrun was up to two years.

Audit analysis of the reasons of cost overrun and time overrun revealed that delays were mainly due to:

- Non availability of funds (CR, ER, ECR, NR, NFR, SR, SCR, SWR and WR)
- Non-availability of clear site (CR,ER, ECoR, NR, NCR, NWR and SER)
- Non-availability of Traffic blocks (CR, NCR, NFR, SR and SER)
- Delay in approval of General Arrangement Drawing (GAD)/non finalization of drawing/change in design or change in the scope of work (CR, ER, ECR, NCR, NFR, SR, SWR and WR)
- Procedural delays in tendering process and subsequent delays in award of work (ER, NWR, SR and WCR)
- Termination of contract due to dropping of work and recast of estimates (ER)
- Non-availability of material, labour (ECR, NFR and SER)
- Slow progress of work by the contractor and grant of frequent extensions on Railway account (NR, SR , NCR and WR)
- Unauthorized encroachments at work site (NFR)
- Inclusion of new items, local public interference, heavy rains, delay in inspection by RITES, etc. (NCR)

Review of records of passenger amenity works revealed that 16 works over eight ZRs[2] could not be completed or were completed with significant delays due to funds constraints. Audit noticed that –

- Nine works (one each on CR, ECR, NR, NCR, NFR, SWR, WR and two on WCR) could not be completed within the scheduled time and the time overrun ranged between 8 and 72 months from original date of completion.
- Seven works (one each on CR, ECR, NFR and two each on NCR, SWR) have been completed belatedly and time overrun ranged from 9 to 51 months.

It is evident that while on the one hand Railways are not utilizing the funds allotted for execution of the passenger amenity works (as commented on in Para 2.1.7.1 earlier), on the other hand, works related to passenger amenities, as commented above, could not be completed or got delayed due to funds constraints. ZRs need to ensure the proper utilization of funds allotted through a efficient and effective monitoring mechanism.

During the review, audit noticed some important cases involving significant deficiencies in execution of passenger amenity works over ZRs, which are discussed in the subsequent sub-paragraphs.

South Western Railway:-A work for construction of new station building (Phase-I) and construction of cover over platform & development of circulating area (Phase-II) at Hubli station was sanctioned in two phases at an estimated cost of ₹6.70 crore in 2007-08 and ₹11.27 crore in 2008-09 respectively. The estimated cost of phase – II was revised from ₹11.27 to ₹13.96 crore in 2012-13.

Audit noticed that the contract awarded (September 2009) under phase-I with completion date as September 2010 was actually completed (April 2013) with a delay of 31 months. Similarly, another contract under Phase-II awarded (April 2012) with completion date of July 2012 was stated to have been completed (April 2013) after a delay of nine months. The reasons for delay, stated by SWR Administration, were non-availability of approved drawings and designs, change in scope of the work and paucity of funds etc. The overall expenditure on both the works was ₹21.35 crore leading to cost overrun of ₹7.39 crore (89 *per cent* with reference to estimated cost).

[2] CR-2, ECR-2, NR-1, NCR-3, NFR-2, SWR-3, WR-1, WCR-2

	
Incomplete Work of provision of ramp connecting Entrance to Station Building at Hubli on SWR	Incomplete work of Provision of Pathway connecting circulating/ Parking area to the Station Building in Hubli on SWR.

Further, this work was reportedly completed in all respects as per records. However, Audit observed during joint inspections that the said works were not completed in all respects as evident from the above Photographs. As such, SWR Administration was maintaining false records for which responsibility has not been fixed. Due to non- completion of said works, passengers continue to suffer much inconvenience.

North Western Railway:

(i) Work for provision of four escalators at Jaipur station was sanctioned in the year 2012-13 at an estimated cost of ₹3.73 crore. However, the contract was awarded (April 2014) after more than one year of sanction. Though the completion date of the work was fixed as September 2014, the work could not be completed as of December 2015. Audit observed that physical progress was 68 *per cent* while financial progress was only 60 *per cent*. This indicates laxity on part of the NWR Administration in ensuring timely award of work.

(ii) Contract for construction of "Second High level Platform" at Sirsa station was awarded (December 2013) at a cost of ₹3.80 crore with completion date as August 2014. Despite giving four extensions up to 15 January 2016, the work could not be completed as of January 2016. Reason for delay was stated as due to non-shifting of goods siding to a new place. The delay reflects poor planning of the NWR despite RB's directives regarding awarding of contract only after availability of clear site.

Southern Railway:

The work "Reconstruction of steel Foot Over Bridge (FOB)" with five landings at Madurai Junction in lieu of existing low level steel FOB was sanctioned during 2012-13 at a cost of ₹3.80 crore which was revised as ₹5.44 crore during

2014. Though an amount of ₹2.60 crore had been provided in Budget Grant during the years 2012-13 to 2014-15, the work could not be executed. As such, SR Administration's delay in taking up the execution of work after two years of its sanction defeated the intended objectives of sanctioning the work.

South Central Railway:-

Work of "Acquisition of land and development of infrastructure, parking facilities at Tirupati station on Guntkal Division" was sanctioned in 2011-12 at an estimated cost of ₹8.53 crore. The justification for sanction of said work was inadequate parking space outside the station and public complaints. Due to delay in depositing the amount with the state government authorities the cost of the land increased to ₹19.70 crore which was deposited in three installments (October 2013, February 2014 and March 2015). This was mainly due to lack of proper co-ordination with the State revenue authorities and court cases by the affected parties. The land acquisition process has not been completed even after lapse of 3 years of sanction. This resulted in escalation of cost and non-redressal of the problem of inadequate parking space faced by passengers at Tirupati station.

Western Railway:-

(i) The work of "Augmentation of Coach Watering Facilities at Ahmedabad station" was sanctioned in 2008-09 at a cost of ₹ 3 crore, which was revised (July 2011) to ₹3.87 crore due to inclusion of the mode of execution of the work as per CAMTECH System[3]. The work was awarded in October 2013 for completion by February 2014. However, the work has not been completed as of December 2015, despite four extensions having been granted on account of non-provision of traffic block, non-availability of material. This has led to continuance of inadequate filling of water tanks in passenger coaches causing inconvenience to passengers.

(ii) Work of "Providing FOB at Vatva Station' on Ahmadabad Division sanctioned in 2007-08 was stopped midway in June 2013 due to paucity of funds for a contract awarded in December 2010. This has resulted in continuance of unauthorized track crossings by the passengers endangering their lives as shown below.

[3] Centre for Advanced Maintenance Technology

Incomplete FOB at Vatva station (WR) and Passengers compelled to cross the track.

Thus, the works related to passenger amenities were not given due priority, as a number of works remained to be completed or completed belatedly, which resulted in inconvenience to passengers. This clearly showed lack of proper co-ordination and effective monitoring mechanism.

2.1.7.11 Maintenance of passenger amenities at stations

RB in its circular (September 2012) directed ZRs to maintain the amenities provided at all the stations in good working order at all times. As such, it is the responsibility of ZR Administration to ensure that the amenities provided at stations remain in working condition. Arrangements should be in place for operation and maintenance of facilities like, pay & use toilets, mobile charging points, coolers/ fans, lighting equipment, escalators/lifts, coach indicator boards, public address system, air conditioners, water coolers and taps and televisions provided in waiting halls etc.

During joint inspection (April 2015 to June 2015) of stations on ZRs, Audit observed that various amenities were found out of order. Issues noticed by Audit during the joint inspections are summarized as under:

- At Vijaywada station (SCR) the escalator had been out of order since 26/09/2014,
- The Train Coach Indicators system was found out of order at two stations, Vapi (WR) and Bhivandi Road (CR) for period ranging between three months to two years.
- Electronic Train Indicator Boards installed at Ernakulam (SR), Kharagpur (SER), Banda & Orai (NCR), Nagda (WR) and Nougachiya (ECR) stations

had been out of order for periods ranging between two months to three years.

- Automatic Ticket Vending Machines (ATVMs) installed at Tatanagar and Kharagpur (SER) were out of order since December 2014 and 2012-13 respectively.
- Even basic amenities like water coolers were found out of order for periods ranging between two months to five years at Indore, Vapi & Meghnagar (WR), Hubli (SWR), Sivakasi, Podanur & Mannargudi (SR), Harpalpur (NCR), Shankargarh (NCR), Ramgarh Cantt. (SER) and Ranibennur (SWR).

Absence of robust monitoring mechanism in Zonal Railways to ensure maintenance and upkeep of the assets created for passenger facilities led to regular breakdown of such assets causes inconvenience to passengers. Further, regular breakdown of assets defeated their intended purpose of their creation.

2.1.7.12 Cleanliness at Stations/Terminals

Cleanliness at stations/ terminals is the responsibility of Commercial, Civil Engineering, Medical and Mechanical departments of Railways. RB issued various directives for cleanliness /monitoring of cleanliness at stations from time to time. RB directed (January 2007) that mechanized cleaning was to be provided at all A & B category stations, exclusive Health Inspectors were to be provided round the clock at A1 category stations, adequate cash imprest was to be provided to Station Manager/Station Master for cleanliness, rag picking contracts were to be awarded at all A1, A, B category stations and action was to be taken to make visible improvement in the standard of cleanliness at Railway Station/Terminals.

In the ATN on Report No.6 of 2007, RB stated (December 2008) that all the Zonal Railways have awarded mechanized cleaning contracts for improvement in cleanliness at stations. Further, RB assured to devise uniform guidelines for standards of cleanliness. Directives were also issued (May 2011) by RB for construction of washable aprons with water jet system, where trains stop for longer duration in morning hours.

In the context of above, Audit further examined the status of cleanliness at selected stations which revealed the following:

- Mechanized cleaning was to be introduced at A1, A & B category stations. It was observed that mechanized cleaning was yet to be introduced at 10 (23 *per cent*) out of 44 stations of A1 category, 22 (41 *per cent*) out of 54 stations of A category and 57 out of 80 (71 *per cent*) stations of B category.

- Washable CC Aprons with jet cleaning as a desirable amenity was to be provided at A1, A & B category stations. This facility was, however, not provided at Nasik Road station (CR) of A1 category, at 17 stations of A category and at 68 stations of B category (85 *per cent*). Further, CC apron provided at Mumbai Central (WR) of A1 category was in dilapidated condition resulting in huge accumulation of waste on the tracks.
- Rag picking contract work was to be outsourced on A1, A & B category stations. Audit, however, found that these activities had not yet been outsourced at Lokmanya Tilak Terminus (CR) and Hyderabad (SCR) stations of A1 category, at 11 stations of A category and at 29 stations of B category (36 *per cent*).

2.1.7.13 Status of Cleanliness on day of Joint Inspection

The status of cleanliness at platforms, waiting halls, CC aprons, FOBs, Concourse Halls, station walls up to six feet in respect of selected stations of A1, A, B, D, E and F category stations was examined during the joint inspections conducted during April 2015 to June 2015. Audit noticed deficiencies at a number of major stations as detailed in the following table:

Table 2.6

Places where cleanliness were examined	No. of stations were deficiencies noticed	Category of stations/ Railways involved
Platforms	41 stations	A1 (ER-2); A (SWR-1); B (SR-1); D (ER-2, NR-1, NFR-2, SWR-1, WR-2); E (ER-2, NR-1, NER-1, NFR-2, SR-1, SWR-3, WR-1, WCR-1); and F (ER-1, ECoR-1, NR-1, NCR-1, NWR-1, NFR-3, SR-1, SECR-1, SER-1, SWR-1, WR-2, WCR-3)
Waiting halls	31 stations	B (NCR- 1, SWR-2); D (CR-1, ER-1, NFR-2, SWR-3, WR-1); E (CR-1, ER-1, NR-1, NER-1, NFR-2, SWR-2, WR-1, WCR-1) and F (ECoR-1, NFR-2, SR-1, SECR-1, SER-1, SWR-2, WR-2)
CC Aprons	7 stations	A1 (CR-1, ER-1, SWR-1); A (NR-1SWR-1, WR-1); B (SWR-1)
Foot Over Bridges	29 stations	A1 (ER-1); A (SWR-2, WR-1); B (NER-1, SR-1); D (CR-1, NFR-3, SR-1, SER-1, SWR-1, WR-2); E (ER-1, ECoR-1, NR-1, NCR-1, NER-1, NFR-1, SER-2, SWR-2, WR-1); F (ECoR-1, NCR- 1, SR-1)
Concourse Hall	34 stations	A (NR-1, NWR-1, WR-1); B (ECoR-1, SWR-1); D (NR-1, NWR-1, NFR-2, SER-1, SWR-2, WR-2); E (CR-1, NR-1, NER-1, NWR-3, NR-2, NFR-2, SER-1, WR-1, WCR-1); F (ECoR-1, NCR-1, NWR-1, SER-2, SECR-1, WR-1)

Stations walls up to 6 feet	66 stations	A1 (ER-1, SER-1); A (ECoR-1, WR-1, WCR-1); B (CR-1, ECoR-2, NCR-1, NFR-2, SECR-1, SR-1, SWR-2); D (CR-1, ER-1, ECoR-2, NR-1, NFR-4, SER-4, SWR-5, WR-2); E (ECoR-3, NR-2, NCR-1, NER-1, NFR-3, SER-1, SWR-7, WCR-2); F (ECoR-2, NCR-1, NWR-1, SER-1, SECR-1, SWR-3, WR-2)

Out sourced arrangements for cleaning Platform line of Mumbai central (A-1) station (WR)

Poor cleanliness of line on PF No. 2 & 3 of Vadodara A-1 station (WR)

Garbage accumulation in concourse at Saharanpur station of A category (NR).

Water logging in Subway/Underpass at Kolkata station of A category (ER)

Audit further noticed that cleanliness in toilets and urinals at stations was not up to the mark irrespective of the fact that cleanliness activities were carried out departmentally or by outsourced agency indicating lack of monitoring by the concerned officials at all levels as depicted in the photographs below:

	
Platform of Meghnagar station Departmental arrangements for cleaning	Toilet provided at Derol station Departmental arrangements for cleaning

During the passenger survey at the selected stations regarding maintenance of cleanliness at stations, 40 *per cent* passengers expressed their dissatisfaction with the cleanliness and condition of toilets at stations. On ER, ECoR, NCR, NFR and WR, dissatisfaction level was more than 50 *per cent*. Further, 51 *per cent* passengers were not satisfied with the quality and quantity of disinfectants used during cleanliness of station premises.

2.1.7.14 Safety and security of passengers

With a view to enhancing security by ensuring multi- screening of passengers and their baggage along with surveillance, Railway Minister in budget speech (February 2007) announced adoption of Integrated Security System (ISS) at sensitive stations. This was conceptualized after the 2006 serial bomb blasts in Mumbai as a complete security scheme at identified vulnerable stations over IR. Accordingly, RB issued instructions (September 2008) specifying guidelines and technical specifications for installation of ISS at 202 stations over IR. The ISS envisaged an integrated package of CCTVs, baggage scanners, Door Frame Metal Detectors (DFMD), Handheld Metal Detectors, under vehicle scanners etc. to be provided at A1, A and C category stations.

It was observed that security at stations other than A1, A class stations is arranged through manned outposts/ chowkis provided at stations with specified jurisdictions. Further, Hon'ble Minister of Railways desired installation of CCTVs for security at all important stations. Accordingly, CCTVs were required to be installed at stations to ensure adequate security coverage, especially in passenger area (Platforms & Concourse, waiting halls, ticket counters, parcel/ booking area, entrance to parking lots).

Audit found that complete ISS as prescribed, had not been provided at 18 stations (39 *per cent*) out of 44 selected A1 category stations and at seven stations (13 *per cent*) out of 54 selected A category stations. Details of deficiencies, as noticed by Audit, in installation of components of ISS are given below:

(i) Installation and utilization of CCTVs

Status of CCTV cameras provided and their utilization at 98 selected stations of A1 (44) and A (54) categories revealed that:-

- CCTV cameras had not been provided at Dhanbad, Gaya (ECR) and Chhapra (NER) of A1 category and at 25 stations of A category (46 *per cent*). Further, analytical software facility was not provided along with CCTV cameras at 13 stations of A1 category and 10 stations of A category, as a result of which CCTV cameras cannot be used as an intelligent and effective detection and alert systems.
- CCTV cameras were not installed on 45 platforms of 15 selected stations of A1 category and 103 platforms of 35 selected stations of A category indicating partial implementation of orders in this regard.
- CCTV cameras at 129 stations of 10 Zonal Railways (ECR, CR, ECoR, NR, NCR, NWR, NER, SWR, WR and WCR) had not been installed at specified locations of the stations defeating the very purpose of installation.

(ii) Availability and utilization of X-Ray Baggage Scanners

Examination of provision of X-ray baggage scanners over selected stations revealed that

- X-Ray baggage scanners were not provided at 22 stations of A1 category and at 49 stations of A category.
- X-Ray baggage scanners under maintenance by outsourced agency were not in working condition for a long time at Sealdah (ER) and Hyderabad (SCR) of A1 category.
- Despite existence of more than one authorized entry point, only one baggage scanner was provided at Bhubaneswar, Cuttack and Visakhapatnam stations (ECoR). Due to this, the very purpose of installation of baggage scanner at these stations was defeated.

(iii) Door Frame Metal Detectors (DFMDs)

Audit of provision of Door Frame Metal Detectors (DFMDs) and their utilization at selected stations of A1, A and B category, revealed that:

- DFMDs had not been provided at 11 stations of A1 category, 34 stations of A category and at 72 stations of B category.
- Out of 221 DFMDs provided at selected stations of A1, A and B category, 98 (44 *per cent*) were found non- functional.
- Out of 221 DFMDs provided at selected stations of A1, A and B category, 131 (59 *per cent*) had not been manned defeating the very purpose of installing these DFMDs.

Failure on part of Zonal Railway Administration in installing the security components and in ensuring their regular maintenance led to compromising the safety and security of passengers and Railway assets.

2.1.7.15 Railway Users Consultative Committees

Zonal Railway Users' Consultative Committee (ZRUCC) and Divisional Railway Users' Consultative Committee (DRUCC) have been constituted at Zonal and Divisions level respectively to represent railway users. These committees are required to give suggestions/ proposals inter-alia for provision of amenities, improvement of services and facilities provided by the Railways and any subject of general public interest or public convenience or such matter affecting the services and facilities. Meetings of ZRUCC and DRUCC are required to be held once in a quarter but not less than three times in a year.

Audit examined minutes of ZRUCC meetings held at Zonal level and of DRUCC meetings of selected Divisions of each Zonal Railway held during the period of review. Audit noticed that-

- Shortfall in ZRUCC meetings were observed on all Zonal Railways while these were not held at all on NFR during 2012-13 to 2014-15. In SCR, ZRUCC meeting was held only during 2014-15. As regards DRUCC meetings, shortfall was noticed on all Zonal Railways during 2014-15 due to delay in formation and approval of committees.
- Suggestions made during ZRUCC/DRUCC meetings mainly pertained to shortage in provision of FOB, escalators, providing additional platform and entry points, increase in height of platform, provision of well ventilated ladies waiting room, provision of platform shelters, enquiry counters, more seating arrangements, potable drinking water facilities, toilets, waiting rooms, adequate lighting, cleaning of track after immediate departure of train, facilities for physically challenged passengers, etc.

- In addition to above, issues related to extension of platforms length, inadequate security arrangements for female passengers, lack of cleanliness at stations were also raised.

Inadequate platform length at Hapa (WR) causing inconvenience to passengers.

Inadequate platform length at Billimora (WR) causing inconvenience to passengers.

- Out of 5,569 proposals accepted in 16 ZRUCC and 32 DRUCC meetings held during the period under report, only 2,075 (37 *per cent*) proposals were implemented in eight Zonal Railways (CR, ER, ECR, ECoR, NWR, SCR, SER & SWR). It indicates tardy implementation of accepted suggestions. Progress made in implementation of accepted proposals/ suggestions made by the members of the committee was not available in eight Zonal Railways (NR, NCR, NER, NFR, SR, SECR, WR & WCR).

Shortfall in regular meetings of the ZRUCC and DRUCC and non-acceptance of proposals made by these committees resulted in non-provision or shortfall in required passenger amenities at stations causing inconvenience to passengers. Further, non-implementation of the accepted proposals defeats the very purpose of constitution of these committees at Zonal and Divisional level for the safety and comfort of passengers.

2.1.8 Conclusion

Considering the continuous increase in passenger traffic, adequate facilities are required to be provided at stations for passengers' safety and comfort. Besides, up-gradation of these facilities from time to time and proper maintenance of facilities created are also required.

Inadequacies were noticed even in provision of MEA such as water taps, platforms at appropriate level, FOBs, platform shelters, train indicator system, provisions of urinals etc. at the selected stations reviewed. Further, contrary to RB's directives (September 2012), inadequacies in provision of desirable amenities such as pay & use toilets, separate entry and exit gates, stall for

essential goods and medicines etc. have also been noticed. Facilities to be provided for physically challenged passengers at stations were found inadequate/improper.

MoR's initiative for modernization of stations through PPP was at an initial stage even after four years of the formation (April 2012) of a specific entity (IRSDC), for development/ up-gradation a stations as IRSDC could not even complete feasibility study at selected six stations till date (January 2016). This defeated the purpose of formation of a new entity.

Audit also observed delay/non-completion of passenger amenity works, which resulted in non-provision of intended benefits to passengers. Delays/non-completion were mainly due to non-availability of funds; non-availability of clear site and traffic blocks; and procedural delays in approval and tendering process. Non-utilization of allotted funds were also noticed by Audit.

Cleanliness at stations was another area which continued to be a reason for passenger dissatisfaction. Though this issue was highlighted in an earlier Audit Report visible improvement was not noticed in this regard. During joint inspection, cleanliness issues were noticed at platforms, waiting halls, CC aprons, FOBs, station walls etc.

Improper and inadequate maintenance of passenger amenities provided at stations indicated lack of proper monitoring and internal control mechanism at Zonal as well as RB level.

2.1.9 Recommendations

- Railways need to improve and strengthen their monitoring mechanism so that the fund allotted under PH-53 for passenger amenities are fully utilized to give maximum benefit to the passengers by providing adequate facilities at stations.
- RB needs to regularly monitor adequate and proper provision of minimum essential amenities and desirable amenities wherever required**.** Further, monitoring mechanism at Zonal as well as RB levels is required to be put in place to ensure that amenities provided at stations are properly maintained to minimize asset failures.
- Cleanliness at stations is an issue which needs to be addressed on priority by Railway Administration to bring visible difference. RB also needs to regularly monitor improvement of cleanliness at stations.
- Projects for modernization of stations need to be given due priority for early completion so that objective of rendering utmost satisfaction to the travelling public and change in public perception is achieved.

2.2 Southern, Eastern, East Coast, North Eastern, Northeast Frontier, Northern, North Western, South East Central, South Western and Western Railways	***:***	***Idling of productive assets (Coaches) worth ₹736.60 crore and consequent loss of earning capacity of ₹80.61 crore***

Zonal Railways received (August 2012 to November 2015) 373 passenger coaches of LHB variant for introducing new trains. Of these, 150 coaches were not inducted in service mainly for want of clearance from Commissioner of Railway Safety (CRS) and still remain idle. 168 coaches were inducted into service belatedly and 35 inducted without obtaining clearance from CRS. Only 20 coaches were inducted within 30 days of receipt. Non-utilization/delayed utilization of the coaches had resulted in blocking up of funds of ₹736.60 crore invested on these productive assets and also loss of earning capacity of ₹80.61 crore.

As per Section 27 of the Railways Act, 1989, for introduction of a new rolling stock on any section of the Railway, the previous sanction of the Central Government shall be obtained for which the Central Government shall obtain a report from the Commissioner of Railway Safety (CRS). It was decided in the conferences of Chief Mechanical Engineers held in May 2012 and April 2013 that:

- Concerned Railways (originating, passing through and terminating Railways of trains with new design of rolling stock) must plan in a timely manner and seek CRS sanction and organize necessary infrastructure for maintenance and operation of such new rolling stock.
- The owning Railways may coordinate the process for respective trains
- CRS sanction should be regularly monitored to avoid delays in introduction of trains announced in the budget.

Audit review revealed that 10 Railways[4] received (August 2012 to November 2015) 373 coaches of LHB[5] new variants from Rail Coach Factory (RCF), Kapurthala and Integral Coach Factory (ICF), Chennai for induction in new trains. The cost of these 373 coaches was ₹736.60 crore as detailed below:

[4] NFR (12), ER (62), NER (87), SECR (85), SR (88), ECOR (1), NR (8), SWR (7), WR (12) and NWR (11)

[5] Linke Hofmann Busch (LHB) coaches are the passenger coaches of Indian Railways that have been developed by Linke-Hofmann-Busch of Germany. These coaches are made of stainless steel and the interiors are made of aluminium which makes them lighter as compared to conventional rakes. They are considered to be "anti-telescopic", which means they do not get turned over in case of a collision (chiefly head-on).

Table 2.7			
Coach tye	**No. of coaches**	**Rate (₹. in crore)**	**Total Value of coaches lying idle (₹. in crore)**
LWRRM	14	3.2	44.8
LS-3	107	1.9	203.3
LWSCN	194	1.75	339.5
LWACCN	29	2.5	72.5
LWACCW	19	2.5	47.5
LWCBAC	5	3	15
LWCZAC	2	2.5	5
LWFAC	3	3	9
Total	**373**		**736.6**

Of these 373 coaches, 107 coaches are of LS3[6] type, 19 coaches of LWACCW[7] type, 29 coaches of LWACCN[8] type, 14 coaches of LWRRM[9] type, 194 coaches are of LWSCN[10] type and the remaining ten coaches of other types. Audit examined the position of induction of these new coaches into service in the concerned Railways and noted that:

- Due to non-availability of mandatory clearance from CRS, non-availability of required infrastructure for maintenance and operation of the coaches and other reasons, 150 new coaches (NFR-13, NER-32, SECR-17 and SR-88) were not inducted into service and were still lying idle (November 2015) in the respective Railways.
- 35 coaches (ECoR-1, NR-8, SWR-7, WR-8 and NWR-11) were inducted into service without obtaining the sanction of CRS compromising passenger safety. Of these 35 coaches, in respect of 17 coaches (ECoR-1, NR-8 and WR-8), sanction of CRS has since been obtained subsequently after 35 days to 521 days of coach operation.
- Out of the 188 coaches (SECR-68, ER-62, WR-4 and NER-54) inducted into service after obtaining sanction of CRS, only 20 coaches (SECR-6, WR-1 and NER-13) were inducted into service within a period of 30 days

[6] A second class non-AC LHB variant coach.
[7] AC 2tier sleeper of AC LHB variant coach
[8] AC 3tier sleeper of ACLHB variant coach
[9] Generator cum brake and luggage van of LHB variant coach
[10] A three tier sleeper non-AC LHB variant coach

from the date of receipt of coaches. Delay in induction after allowing a cushion of 30 days ranged from 17 days to 390 days in respect of other 168 coaches.

Zonal Railway Administration attributed delay in obtaining CRS sanction to belated receipt of initial approval from RB to undertake mandatory clearance process from CRS. Though Zonal Railways started receiving LS3 coaches in 2013-14, the initial approval from RB was received by Zonal Railway (WCR) only in February 2015. Other reasons cited by Railway Administrations for delay in inducting new coaches of different variants are:

- Delay in obtaining CRS sanction by adjoining Railway
- Want of sufficient complement of coaches to form rakes
- Non-availability of maintenance facilities.
- Absence of RB's approval for introduction of new trains.

Besides, in reply SR Administration stated (January 2016) that

- New coaches were idling not for want of action from SR Administration but for complying with procedures dealing with CRS.
- CRS sanction is not necessary for inducting LWSCN coaches as CRS sanction for LHB shell on FIAT bogies already existed.

Further, SECR administration contended (June 2015) that

- Eight LWSCN coaches were sent to NWR
- Six LWSCN coaches were kept as spare.

Replies of SR and SECR Administrations are not tenable in view of the following:

- RB and Zonal Railways failed to take advance action for obtaining CRS clearance from CCRS Lucknow and Regional CRS.
- The new coaches can be put to use only after getting mandatory clearance and hence keeping the coaches as spares without mandatory CRS sanction was not in order
- Even though CRS sanction is available for running LHB shell on FIAT bogie, separate CRS sanction does not exist for LWSCN coaches. However, the fact remains that new LWSCN coaches have not yet been inducted into service in SR.

Thus, due to lack of coordination among Zonal Railways, RB and Chief Commissioner of Railway Safety (CCRS), new variant modern light weight LHB coaches could not be inducted into service immediately on receipt and coaches worth ₹736.60 crore were lying idle for a period ranging from 30 to 693 days. This has resulted in loss of earning potential of ₹80.61 crore.

The matter was brought to the notice of Railway Board in March 2016; their reply has not been received (May 2016).

2.3 East Central Railway (ECR): Irregular award of contract

Violation of RB's directives in evaluation of contractor's credential in case of splitting of tenders resulted in non-completion of contracts worth ₹ 56.98 crore and undue benefit to the contractor through award of all split contracts to him

For rebuilding/ jacketing of major bridges on existing/ temporary/ permanent diversion (excluding rebuilding of pile/ well foundation substructure) and other related work in connection with gauge conversion work of Sakri-Nirmali-Jhanjharpur-Lauaha bazaar section of EC Railway, a contract was awarded (February 2010) at a total cost of ₹7.68 crore with date of completion as May 2012. However, the contract had to be closed (March 2012) as RB had changed (August 2009) the planning of the work and decided that the work be executed by rebuilding all bridges on pile foundation with 25 MT loading. By that time physical progress of the work was 55.6 *per cent*.

Audit noticed that at the time of awarding of contract (February 2010), decision regarding change in planning for rebuilding of bridges was already taken by RB (August 2009). ECR should have been aware of latest instructions of RB before awarding of contract.

Subsequently, ECR Administration invited (18-05-2012) five open tenders for the same work i.e. rebuilding of major bridge on pile foundation between Sakri-Nirmali and Jhanjharpur-Laukaha bazaar section by splitting the entire work into five separate works with tender value ranging between ₹9 crore to ₹15 crore for each tender. Audit noticed that all the five works were awarded (between January 2013 to April 2013) to the same firm, which was the lowest bidder in all the five tenders, at a total cost of ₹56.98 crore against the total advertised value of ₹57.62 crore. The date of completion of these contracts was between September 2013 and December 2014.

In RB directives (April 2001), it was stipulated that –

(i) If sub-sectioning has been done with a view to expedite the work, then only one tender will be awarded to one firm. Or alternatively,

(ii) If the same firm becomes L-1 in all the sub-sections, evaluation of the firm for its fitness for award of all the work should be done for the work as a whole. This will avoid over-loading of the firm beyond their financial capability.

Audit observed that ECR Administration awarded all the contracts to one firm as it was L-1 in all the cases. However, the credential of the firm had not been evaluated in terms of above directives of RB. As per eligibility criteria for awarding of contract, the tenderer should have

(a) completed in the last three financial years at least one similar work for minimum value of 35 *per cent* of advertised tender value, and

(b) received a contractual payment of 150 *per cent* of advertised tender value during last three years and in the current financial year up to the date of opening of tender.

In this case, for satisfying the eligibility criteria, as per RB's directives (April 2001), the five parts of the works should be treated as one whole work and the tenderer should have (a) completed work amounting to ₹20.16 crore (35 *per cent* of advertised value) and (b) received a contractual payment of `₹86.43 crore (150 *per cent* of advertised value).

Audit, however, noticed that the firm submitted the same credential certificate of (a) completion of bridge work with a total cost of ₹8.61 crore and (b) same certificate of receiving payment of ₹50.12 crore. As such, the firm fulfilled the eligibility criteria for each of the five tenders separately on the basis of single set of works executed, which was contrary to the RB's directives of April 2001. It is evident that if the tender was invited for the work as a whole, as invited earlier (February 2010), this contractor would not have fulfilled the eligibility criteria by submitting those certificates, which were produced by him for each tender separately. It is also evident that the contractor had been given undue benefit by splitting of work and by accepting the same credentials of the contractor for each tender.

In reply, ECR Administration stated (June 2015) that

(i) There was no specific condition laid down in tender notice that a tenderer has to furnish separate credential for each tender in support of eligibility criterion. Further the contractor (M/s Maa Kali Construction, Patna) became L-1 in all the five tenders and if the said firm was bypassed merely on the ground that they became L-1 in all tenders, it would not be justified.

(ii) The Sakri-Niramali and Jhanjharpur-Laukaha Bazar section is too long i.e. 94 km and if one tender was processed, it would lead to difficulties like monitoring of work.

The reply of ECR Administration is not tenable in view of the fact that –

(i) RB's directives (April 2001) clearly state that evaluation of the firm for its fitness for award of all the works should be done for the work as a whole to avoid overloading of the firm beyond their financial capability. Also, using one credential certificate showing one contract executed separately for each of the five contracts amounts to extrapolation of capability and financial capacity of the contractor. ECR Administration should frame the tender notice as per RB's directives of April 2001, especially when the work was split into five tenders. Then the credentials of the contractor would be judged considering the work as a whole as per RB's directives.

(ii) It is not clear as to what difficulties were envisaged in monitoring of work in single large tender by Railways. It is a fact that earlier the same contract was awarded (February 2010) as a single work, which had to be short closed due to change in planning by RB. It is further seen that the work has not even commenced after a lapse of 30 months (up to June 2015) in case of four contracts and in case of one contract the physical progress was only 25 *per cent*. The date of completion (September 2013 to December 2013) of all the contracts has already expired. This indicates audit concern on the improper evaluation of the firm's credentials resulting in awarding work to the firm beyond their financial and technical capabilities.

Thus, ECR Administration violated RB's directives on evaluation of contractor's credential especially in case of splitting of works. This resulted in non-completion of contracts worth ₹ 56.98 crore. Also, awarding all the five split contracts to a single contractor without judging credentials led to undue benefit to the contractor.

The matter was brought to the notice of Railway Board in January 2016; their reply has not been received (May 2016).

2.4 Eastern, West Central and Western Railways (ER, WCR and WR)	**:**	***Introduction of Double Decker Trains without feasibility study resulted in idling of rolling stock valuing ₹ 38.24 crore and revenue loss of ₹ 37.74 crore due to continued poor patronage***

Introduction of new train services on three different routes, without any justification led to idling of rolling stock valuing ₹ 38.24 crore in respect of one route and further continuance of train services, in violation of their own policy decision resulted in revenue loss of ₹37.74 crore in respect of two other routes.

In compliance with Railway Budget for year 2009-10 one new train (No. 12383/12384) Howrah-Dhanbad AC Double Decker Express (route 1) and in line with Budget of 2012-13, two new trains, Habibganj-Indore AC Double Decker Express train (No. 22183/22184) (route 2) and Bhopal-Indore AC Double Decker Express train (No. 22185/22186) (route 3) were introduced.

The train service of route 1 started (October, 2011) with composition of seven LWCZDAC[11] and two LWLRRM[12] coaches. The number of coaches available with ER was increased to eleven (LWCZDAC-9 and LWLRRM-2) in April, 2011 and then to seventeen (LWCZDAC-14 and LWLRRM-3) in October 2011.

1. Audit observed that owing to poor patronage it was decided by Zonal Railway Administration (March, 2012) to run the train with only five LWCZDAC and two LWLRRM coaches. During the period from October 2013 to September 2014, the average occupancy of the train in the 'Up' direction and 'Down' direction was 27.85 per cent and 19.30 per cent respectively. This compelled Railway Administration (November 2014) to request RB to withdraw the service. The Railway Administration suspended the service from 26.12.2014 and since then 14 LWCZDAC coaches valuing ₹ 38.24 crore were lying idle.

Railway Administration clarified (May, 2015) that no survey was conducted by them prior to introduction of the train service. The reply indicates that the action taken by Railway was in contravention of Para 205 (f) of Indian Railway Finance Code that requires financial viability to be assessed before introduction of new services like Passenger Trains.

The services of route 2 and 3 were commenced (September, 2013) with a composition of eleven LWCZDAC and two LWLRRM coaches.

2. Audit observed that as the occupancy of these trains were found to be less than 10 *per cent* of the overall capacity since introduction, it was decided by GM (Comml.), Jabalpur to run them with only three coaches along with one dummy coach with effect from 06-10-2013. However, due to continuous poor patronization of train, WR and WCR Administrations proposed to the RB in November 2013 and in January, 2014 respectively, for cancellation of services of these trains. The reasons for these proposals were stated as low occupancy and availability of cheaper, frequent and less time consuming bus services on this route. This proposal was in pursuance of the directives of the RB vide letter dated 26.05.2005, which inter alia required train to be shortlisted for cancellation if the earning potential is below 30 *per cent* on an average for the whole year in both directions, keeping in view availability of convenient alternate service. After considering the proposals of WR and WCR the RB (June

[11] LHB type AC chair car double decker
[12] Brake, Luggage cum Generator Car

2014) initially directed cancellation of the trains with effect from 13 August 2014. RB, however, reversed its decision and directed the Zonal Railway Administration to continue operations from 13.08.2014 till further advise vide its letter (through Fax) dated 12.08.2014. By continuing to run these trains RB overlooked its own policy decision regarding cancellation of services with earning potential below 30 *per cent*.

In response to an audit enquiry (October 2014), WCR Administration intimated (June 2005) that they had not submitted any proposal to RB for introduction of these trains. Rather, based on the monitoring of poor occupancy, they had proposed their cancellation. Scrutiny of the records at RB relating to introduction of trains also revealed that there was no justification for introduction of the trains. These trains were introduced by violating the provisions of paragraphs 204 and 205 (f) of Indian Railway Finance Code, which states that proposal for introduction of new passenger trains must pass the prescribed test of financial viability.

Audit further observed that in a reply to the Action Taken Note to Para No. 1.9 of C&AG's Report No. PA-26 of 2008-09 (Railways), RB had intimated (November 2011) that introduction of new trains is announced in the Railway Budget, based on the proposals submitted by the Zonal Railways after duly including assessment of likely occupancy and competing modes of transport viz., roadways etc. It was further stated that the occupancy of trains was constantly reviewed to deaugment/ cancel the poorly patronized (low occupancy) trains. Audit, however, observed that this was not followed in the introduction of the services of Double Decker train, as these trains were introduced without any justification and assessment of operational and commercial aspects. Further, such assurances were also not followed while deciding on cancellation of train.

Thus introduction of these three trains without any justification, and continuing operation of two trains in violation of their own policy decision, resulted in idling of rolling stock valuing ₹ 38.24 crore acquired for train on route 1 and the revenue loss of ₹ 37.74 crore during the period from September 2013 to December 2015 to IR on account of running trains on route 2 and 3, which will continue till their cancellation.

The matter was brought to the notice of Railway Board in January/ February 2016; their reply has not been received (May 2016).

2.5 South Central Railway (SCR): Non-utilization of new BCFC[13] wagons

Allotment of BCFC wagons to SCR without any demand and assessment of requirement besides non-resolution of issue related to free time resulted in idling of newly designed wagons and loss of earnings capacity of ₹ 40.19 crore

Research, Designs and Standards Organization, Lucknow (RDSO) had designed (2009-10) a new type of covered Railway wagon viz. BCFC for exclusive transportation of loose cement/fly ash in bulk. These wagons had more carrying capacity than Bogie Covered Cement Wagons (BCCW) wagons, the existing privately owned wagons with cement/ fly ash manufacturers providing traffic to SCR. It was estimated that a rake of BCFC wagons would have an earning capacity of ₹ 21.36 crore and ₹ 15.55 crore per year for cement and for fly ash respectively.

In this connection, Audit observed that-

- Although cement manufacturers in SCR had their own fleet of BCCW wagons, 125 BCFC wagons were allotted (August 2009) by RB to SCR, out of which 124 wagons (cost- ₹24 crore), had been received between May 2012 and April 2014.
- Although almost one rake of these wagons had been despatched (May 2012) to SCR, the PCC of wagon, free time allowed for loading/unloading of commodity and minimum rake composition for availing train load rate had not been prescribed simultaneously by RB. However, on a request of SCR, RB fixed (August 2013) on experimental basis for six months, the free time as six hours each for loading and unloading activities and advised Zonal Authorities to furnish the details of actual time taken for loading and unloading within three months. RB also prescribed (October 2013) the PCC and minimum rake composition for charging freight at train load rates.
- During first trial by SCR (November 2013) for loading and unloading loose cement utilising 10 BCFC wagons, the time taken for actual loading and unloading was 5:45 hours and 15:50 hours respectively against the allowed free time of six hours for each activity for 58 BCFC wagons prescribed by RB on experimental basis.
- The Divisional Authorities, Secunderabad Division intimated (December 2013) SCR Administration that there were constraints[14] in marketing these

[13] Bogie Covered Fly ash Cement wagons
[14] such as inadequate free time, not allowing train load rate for lesser composition of wagons etc..

new type of wagons. General Manager also brought to the notice of the RB (February 2014) that customers were not coming forward to use the BCFC wagons since the allowed free times were not achievable and suggested to them to form joint teams of Railway officers and customers for fixing realistic free times for loading and unloading. Despite this, RB extended (February 2014) the free time fixed on experimental basis up to 12.08.2014 and requested SCR to furnish feedback by end of May 2014.

- SCR informed (February 2015) RB that average time for loading/ unloading activities was 10 hours for loose cement and for fly ash, seven hours for loading and 30 hours for unloading. RB did not consider the input of SCR and continued (July 2015) the free time of six hours for loading/ unloading.

Since cement companies providing traffic to SCR had their own fleet of privately owned BCCW wagons and the issue relating to free time for loading and unloading activities for BCFC wagons was unresolved, two rakes of newly designed wagons remained grossly unutilized. During the period from May 2012 to September 2014, these wagons were loaded only eight times and freight earned was only ₹1.09 crore. In view of meagre utilization of 116 wagons (two rakes), wagons had to be transferred (June 2014 and October 2014) to SECR under the orders of RB. These were being utilised there.

The requirement of wagons was not assessed keeping in consideration the availability of fleets of privately owned BCCW wagons with cement companies. In fact, the companies were reluctant (May, 2014) to utilise BCFC wagons. Further, RB did not fix free time for loading and unloading while putting the wagons for traffic. Even for traffic on trial basis they took 16 months for fixing free time. Even after three years of introduction of BCFC wagons, the issues related to fixing of free time and rake composition for allowing trainload rate had not been resolved by RB.

Thus, allotment of BCFC wagons to SCR without any demand and assessment of requirement and non-resolution of issue related to free time resulted in idling of newly design wagons and loss of earnings of ₹ 40.19 crore.

When this issue was taken up (June 2015) with SCR Administration, they stated (June, 2015) that fixation of free time for loading and unloading of newly introduced BCFC wagons was the policy decision of RB and did not relate to SCR Traffic Accounts Office. Their contention is not valid as no step was taken by SCR Administration to resolve issue related to free time when the wagons were allotted and later despatched to them.

The matter was brought to the notice of Railway Board in January 2016; their reply has not been received (May 2016).

2.6 Eastern Railway (ER): Loss of freight due to failure to explore alternate CC+8 route

Railway Board/Zonal Railways failed to explore an existing alternate CC+8 route for rationalization resulting in lesser carriage of commodities with consequential loss of freight to the tune of ₹ 39.34 crore

Indian Railways (IR) Tariff Rules[15] provide that goods will normally be despatched by route operationally feasible and freight will be levied for the shortest route. However, goods can be carried and charged by an operationally convenient specified route even if it is not the shortest route.[16] In view of such provision, RB issue from time to time General Orders under the Rationalisation Scheme to notify specific routes for carrying as well as charging freight between originating and destination points and vice versa.

Railway wagons are important Rolling Stock of IR which when operated provide precious freight earnings. However, there is always scarcity of various types of fit wagons. With a view to maximize the freight earnings utilizing the existing tracks and wagons, RB decided (2007) to declare/ notify certain routes[17] of IR to transport commodities in Goods trains having wagons loaded up to four/six/eight tonnes in excess of their marked carrying capacity (CC). This increases the freight earnings by way of enhanced loading of commodity in each wagon and also makes possible the availability of spare wagons.

A review of records in Audit (2015) revealed that from ER[18] Iron and steel (I&S) traffic were being regularly booked to various destinations over NR[19], distance ranging between1210 and 1267 kms. The entire route[20] had been notified as CC+8 route except for a small stretch of four kms from Yamuna Bridge (JAB) to Raja-ki-mandi (RKM) via Agra City (AGA) (all stations in Agra) over NCR which was a CC+6 route[21]. As a small stretch of four kms was in CC+6 route, the entire traffic from ER was being charged at freight admissible for CC+6 route.

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[15]Rule 125 (i) of IRCA Goods Tariff Part I Vol. I
[16]Rule 125 (iii) of IRCA Goods Tariff Part I Vol. I read with Section 71 (1) (b) of the Railways Act 1989
[17](i) Excepted CC+6 (i.e., CC+4+2) route, (ii) CC+6 route, (iii) CC+8 route and (iv) 25 t axle load route
[18]Durgapur Steel Exchange Yard (DSEY) and SCOB siding
[19]Ballabgarh, SAIL siding / Ballabgarh, Hindustan Steel Limited / Tuglakabad and Tuglakabad Mineral Goods Siding
[20] DSEY/SCOB-MGS-MZP-ALD-JAB-AGA-RKM-Destination
[21] Mughal Sarai (MGS)-Muzzafarpur (MZP)-Allahabad (ALD) route is CC+8 route that is already rationalised

There was also another route from Yamuna Bridge (JAB) to Raja-ki-mandi (RKM) via Agra Fort (AF), Idgah (IDH) and Agra Cantonment (AGC) having distance of 9.38 kms that was a notified CC+8 route. Although this route was about six kms longer than the shortest route, it had no effect on the rate of freight per tonne as the chargeable distances of the traffic fell in the same distance slabs leading to no extra burden on the rail-users. The rationalization of this alternative route for the traffic, only about six kms longer than shorter route, could have enabled ER Administration to enhance the CC of each wagon by two tonnes leading to extra freight earnings for extra loading in each wagon.

ER Administration's failure in exploring the alternative route for the said stream of traffic resulted in loss due to lesser loading of commodity for transport. An assessment in Audit revealed that non-exploration of the alternative CC+8 route resulted in a loss of additional freight of ₹ 1.10 crore in respect of 2595 wagons booked from ER to the destinations over NR during April 2012 to March 2015.

A further review conducted over the traffic booked from Bokaro Steel Plant and Tisco Works Site of SER, *via* the said CC+6 route, to different destinations on NR and NWR revealed that loss of additional freight on these accounts was ₹38.24 crore[22]. Such loss would continue till rationalization of the route.

On the issue being taken up with the ER Administration (June 2015), it was stated (September 2015) that charging of freight traffic was done by ER on the basis of shortest/rationalized route defined in the Rates Branch System (RBS) controlled by RB. They had no discretion in the matter. Also, the rationalization of routes is done by RB primarily based on the recommendation of the Zonal Railways concerned.

Their reply is not acceptable. Neither the RB nor any of the Zonal Railways (like ER and SER) involved in the traffic explored this route for rationalization which would have enabled loading of two additional tonnes of commodity in each wagon and resulted in additional freight earnings. ER Administration's contention that rationalization of routes can only be mooted by the Zonal Railway concerned where the route belongs does not appear correct as Audit has observed in earlier instances where ECR and ER had proposed in November 2011 and July 2013 respectively for rationalization of routes involving other Railways and their proposals were accepted by RB.

Thus, failure of the Railway Administration to explore the alternative route that would enable Railways to carry more tonnage of traffic and earn additional

[22]as obtainable in respect of 28136 and 59418 wagons booked from Bokaro Steel Plant and Tisco Works Site respectively during April 2012 to March 2015.

revenue without putting burden to the customers resulted in a loss of revenue to the tune of ₹39.34 crore.

The matter was brought to the notice of Railway Board in February 2016; their reply has not been received (May 2016).

2.7 North Western: Delay/Non-realization of shared earning of Palace on Wheels and non-levy of applicable interest on delayed payment Railway (NWR)

Laxity on the part of NWR Administration in obtaining its share of revenue in time and failure to levy applicable interest on delayed payments despite provision for the same in the Agreement between Railway and RTDC resulted in non-realization of dues of shared earnings, amounting to ₹26.20 crore and ₹8.51 crore on account of interest (since 2008)

The Palace on Wheels (POW) was introduced by RB on Broad Gauge section between New Delhi-Jaipur, Sawai Madhopur, Udaipur, Jaisalmer, Jodhpur, Bharatpur and Agra in September 1995 on cost sharing basis between Railways and Rajasthan Tourism Development Corporation (RTDC), a Government of Rajasthan undertaking. As per clause 9.1 of the agreement the revenue sharing was to be 56:44 between IR and RTDC respectively with effect from 01 June 2006. While determining the shareable revenue, the commission to the agents and the 1 *per cent* earmarked for publicity and promotion was to be deducted from the total revenue. The RTDC was to sell package tickets, which would include the rail tariff and also catering, housekeeping, sightseeing and entertainment services. As per Clause 9.2 of the Agreement executed on June 2009 between Railways and RTDC, the RTDC should render accounts and remit Railway share quarterly by crossed cheque to FA&CAO, NWR, Jaipur. The cheque would be issued on or before the forty fifth day after each quarter, failing which 18 *per cent* interest per annum shall be payable by the RTDC on the amount payable to IR with effect from the date of default. The RTDC was required to render accounts, to the FA&CAO, NWR, each quarter showing the number of tickets sold, total revenue and commission payable to each Agency along with other accounts. This rate of 18 *per cent* was further revised to 12 *per cent* in the agreement executed on 27 May 2013 which has been made effective from 01 June 2011.

Review of records revealed that the payment of shared earnings was not made within the stipulated time period of 45 days and RTDC has been remitting the share of Railways revenue beyond the scheduled period on a continuing basis. Railway Administration even failed to levy any interest on the delayed remittances as prescribed in the agreement from time to time which has

encouraged RTDC to continue delayed remittance of money to the Railways. This resulted in non-realization of dues of shared earnings, amounting to ₹ 26.20-crore as on 31st March 2015 and accumulation of interest of ₹ 8.51 crore accrued on delayed payment of shared earnings as on 31st March 2015.

The position of dues on 1st April of 2010, 2011, 2012, 2013, 2014 and 2015 as given under clearly indicating a rapid increase in outstanding amount:-

Table 2.8

Sl. No.	Year	Position of dues (in ₹)
1.	01.04.2010	22,11,152
2.	01.04.2011	75,71,527
3.	01.04.2012	1,25.84,459
4.	01.04.2013	14,74,44,815
5.	01.04.2014	29,52,95,704
6.	01.04.2015	34,70,95,500

Review of records further revealed that while demanding the outstanding payment from RTDC, the NWR Administration had, in its various letters to the RTDC, stated that interest at the rate of 18/12 *per cent* as applicable from time to time on the delayed payment is to be paid instead of calculating the interest amount and raising the demand against the RTDC. Thus, failure to demand outstanding payment of shared amount of earnings from RTDC and levy interest for non-remitting its share amount within stipulated period of time of 45 days resulted in accumulation of arrear of interest amounting to ₹ 8.51 crore as on 31st March 2015.

The matter was brought to the notice of Railway Board in January 2016; their reply has not been received (May 2016).

2.8 Northern Railway (NR): Non-realization of Railway dues towards cost of Railway Protection Special Force staff deployed for election duty

Non-realization of dues from Ministry of Home Affairs towards the cost of deployment of Railway forces for election duties deprived the Zonal Railway Administration of ₹25.80 crore

Railway Protection Special Force (RPSF) is a special Force which is well organised and trained. This better equipped Force is readily available to Ministry of Railways (MoR) at a very short notice to handle the situation in a restrained manner with minimum use of the force permissible under the law.

The Force is meant exclusively for IR and employed staff is earmarked to various Zonal Railways (ZRs) which bear their Pay and Allowances. However, when there is any contingency/ shortage of Forces, RPSF staff are deputed to hold peacefully the Parliamentary and State Assembly Elections also. In such case, the cost of deployment[23] is required to be realised by their ZR Administration from Ministry of Home Affairs (MHA) by submitting bills in this respect.

Audit examined the records of Delhi and Lucknow Division of NR and observed that during the years 2007-15 (eight years) RPSF Battalion under Lucknow Division were deployed for 36 elections for State Assemblies/ Union Territories and election duties in different States during Lok Sabha Elections in 2009 and 2014 as shown below:

Table 2.9

Battalion No.	**Period**	**Deployment on election duty**	**Amount due for recovery (in crore of Rupee)**
3rd Battalion, Lucknow	April 2007 to December 2013	Gujarat, Uttar Pradesh, Chhattisgarh (2), J&K, Karnataka (2), Rajasthan (2), Punjab, Maharashtra, Jharkhand, Bihar, Tamil Nadu (2), West Bengal, Madhya Pradesh and Assam	10.99 crore
3rd Battalion., Lucknow	March 2014 to February 2015	Uttar Pradesh, Bihar, Jharkhand, Dadra Nagar Haveli, Maharashtra, Haryana, Jammu & Kashmir and Delhi	8.35 crore
6th Battalion at Dayabasti, Delhi	April 2007 to March 2011	Uttar Pradesh, Gujarat, Bihar, and Assam	2.01 crore
6th Battalion at Dayabasti, Delhi	December 2012 to July 2013	Gujrat, Uttar Pradesh, Manipur, Rajsthan, Madhya Pradesh, Chhatisgarh, Karnataka and West Bengal	4.45 crore

It was observed that no bills had been raised (February 2015) by ZR to realise from MHA the cost of these deployments (₹ 25.80 crore). Only on 25 March 2015 the bills amounting to ₹16.86 crore vetted by Financial Authority of Lucknow Division had been sent to Chief Safety Commissioner/RPF of ZR for arranging realisation. Also, the monitoring by Divisional Accounts offices for the recovery of outstanding amounts was inadequate as they had not noted the outstanding amounts in the Bills Recoverable Register for effective monitoring.

[23] Pay, allowances and contingent expenditure

Thus, NR Administration failed to raise bills (₹ 25.80 crore) against MHA. As a result, the cost of deployment of Railway forces for election duties remained unrealised for many years. This deprived Zonal Railway Administration of precious funds of ₹25.80 crore that could have been utilized on important priority works.

The matter was taken up with the NR Administration at Lucknow and Delhi Division in October 2013 and June 2014 respectively. No action taken up by Railway was communicated (April 2015 & August 2015).

The matter was brought to the notice of Railway Board in February 2016; their reply has not been received (May 2016).

2.9 Northeast Frontier: Railway (NFR) — Avoidable expenditure due to haulage of empty DEMU rakes

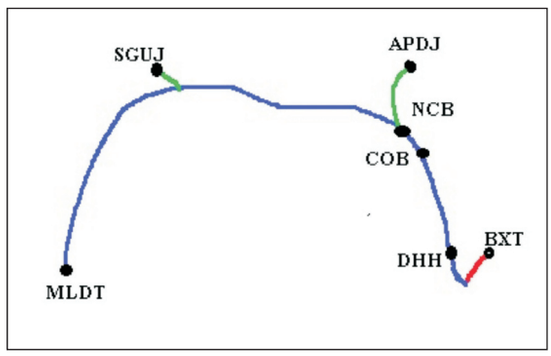
Due to non-completion of 'Absolute Block Section' work in a small segment between DHH-BXT of APDJ- BXT section, NFR Administration integrated DEMU services through interchange of rakes at a station leading to avoidable haulage of empty DEMU rakes daily resulting in avoidable expenditure of ₹ 15.36 crore

In Alipurduar Jn (APDJ)- Bamanhat (72.34 Kms) section of Alipurduar Division, Bamanhat Station (BXT) is the terminal station for passenger traffic. A part of this section from New Coochbehar (NCB) – Bamanhat (BXT) for 49.91 Kms has a single line track on which trains work under 'One Train Only System'. Train could be terminated at BXT as this station has a running room for the stay of crew members. The running of multiple trains on the APDJ-BXT route required provision of 'Absolute Block System' (ABS)[24] on NCB-BXT section. A portion of this section from NCB to Dinhata (DHH) measuring 27.47 Kms was provided with ABS and commissioned on 28 June 2013. To facilitate the running of multiple trains on the total route[25] provision of ABS on remaining portion DHH-BXT- 22.44 kms was essential for which Railway executed contract agreement (June 2012) for civil engineering work at a cost ₹15 crore with target date of completion as 18 December 2012. This has not been completed (June 2015) delaying the working of multiple trains on the entire section.

Audit observed that:

[24] ABS refers to a system where the track has a series of sections on which when one train occupies a section of track, no other train is allowed to enter that section. ABS facilitates movement of multiple trains.

[25] MLDT to BXT and back to MLDT



- Railway put in service (January 2011) Diesel Multiple Unit (DEMU) service (No.75401/75402) from Malda Town (MLDT) to Coochbehar (COB) and back to MLDT, the portion already provided with ABS. The scheduled primary maintenance of DEMU rake was to be done at APDJ which required daily haulage of empty DEMU rake between COB and APDJ (27.04 kms) for 54.08 kms.

- Later on, Railway introduced (July 2012) another DEMU train (No.75717/75718) between NJP/Siliguri Jn. (SGUJ) to BXT and back to SGUJ, with scheduled primary maintenance at SGUJ.

- Since NFR Administration was unable to introduce multiple trains in the APDJ- BXT section due to non-completion of work for provision of ABS in DHH-BXT segment, they decided to integrate both DEMU services through their interchange at NCB and provide for scheduled maintenance of rakes at SGUJ. Consequently, the number of DEMU train between MLDT– COB and back to MLDT was changed to 75719/75720 since July 2012. As a result of the integration, empty DEMU rakes had to be hauled for 109.04 Kms daily between destination points (BXT and COB) and rake interchange point (NCB) during 12.07.2012 to 01.08.2013.

Further, after the provision of 'ABS' in NCB-DHH section (28 June 2013), NFR Administration extended (2 August 2013) DEMU service (No.75719/75720) between MLDT and COB up to DHH. Subsequently, the empty DEMU rakes belonging to services (Nos. 75717, 75718, 75719 & 75720) were to be hauled daily for 154.76 kms[26].

Thus, even after three years period the work for providing 'ABS' in a small segment between DHH- BXT section (22.44 kms) was incomplete (July 2015) due to which NCB-DHH section (27.47 kms) was still being utilised under 'One Train System Only' and working of multiple trains was not possible. To overcome the situation, NFR Administration had to integrate DEMU services

[26] No.75717 after termination at BXT, was being moved to NCB and then brought back to DHH for commencing fresh run as 75720 next morning. In the same manner, the empty DEMU rake of train No. 75719, after termination at DHH was being moved to NCB and then brought back to BXT for commencing fresh run from there as 75718 next morning thereby involving empty run of 154.76 Kms daily.

through exchange of rakes at an intermediate station instead of at BXT, the terminal station. When NFR Administration decided to extend DEMU services, they had to integrate them again through their interchange resulting in expenditure of ₹15.36 crore[27] towards empty haulage of DEMUs till 30 June 2015. This avoidable expenditure would continue till the provision of ABS in complete route and multiple trains put on service.

When the matter was brought to the notice of the NFR Administration (December 2013), they stated (February 2016) that;

- Keeping in consideration the constraints related to time and path and also to minimise the empty rake movement, integration of rakes was done. The rakes were integrated for maintenance purpose at Siliguri because DEMU Shed at Siliguri had better maintenance facilities.
- Had the maintenance been continued at APDJ, the major problems would have remained unattended resulting in failure of DEMU service besides creation of operational problem in "One Train Only System" section and congestion in main line section. This would have further cumulative effect on both Passenger and Goods services.
- DHH was commissioned (June 2013) as a 'B' Class station without provision of crew rest room. With the commissioning of 'B' Class station ahead, the train could not be taken back from mid of the section. Hence, extension of 75719/72720 from COB to DHH was inevitable from Operational point of view. As there was no crew rest room available at DHH, the rakes were taken to NCB as empty for integration/interchange. Empty haulage of rakes was continued because BXT station had not been converted to Class-B station having ABS. Further, better maintenance of rakes was possible through their interchange at NCB. Also, had the empty rakes been put for passenger service, their timing would not have suited the passengers.

NFR Administration reply was not acceptable because-

The rake of DEMU No. 75401/75402 ex MLDT – COB was scheduled for primary maintenance at APDJ since its inception in January 2011 till 12 July 2012 and this could have been continued till the provision of 'ABS' on NCB-BXT section.

The maintenance of the components of the DEMU was given on contractual basis and as such there would not have been much difficulty in attending any major failure like at APDJ. Further, unnecessary daily empty run of two sets of

[27] ₹3.27 crore for period prior to extension of DEMU service up to DHH and ₹12.09 crore after extension up to DHh

DEMU rakes was actually contributing to more path constraints and congestion in 'One train only system' section and 'main line' section.

The extension from COB to DHH would have been suitable only if ABS had been provided in DHH-BXT section to derive the benefits of interchanging the rakes at BXT instead of NCB because BXT station was already provided with Crew Rest Room. However, DHH-BXT section is yet to be provided with ABS although more than three years have elapsed. This resulted in avoidable expenditure of ₹15.36 crore on empty haulage of DEMU rakes till June 2015.

The matter was brought to the notice of Railway Board in February 2016; their reply has not been received (May 2016).

2.10 Eastern Railway (ER): Short realization of siding charges

Fixing the rate of siding charges on the basis of Engine hour cost of 'Shunting Engines' instead of 'Train Engines' in respect of Quarry Sidings at a serving station resulted in short realization of siding charge of ₹11.92 crore during 2012-15

As per Indian Railway Code for Traffic (Commercial) Department (Para 1807), in respect of sidings where freight is charged from and to the serving station, siding charges are levied by Railway for haulage of wagons between the serving station and the siding. For the purpose, RB circulates rates of Engine hour cost every year for different types of Engines. Consequently, Railway Administration revises the siding charges from time to time on the basis of revised rates of Engine hour cost. Siding charges in respect of 'Train Engine' is always higher than that of 'Shunting Engine' as the Engine hour cost of the former happens to be on the higher side. RB has clarified (October 1977) that when an engine is actually detached from a train for 'Shunting' and is attached to the train when returning after completing 'Shunting' work, it would be treated as a "Train Engine".

Audit observed (2014-15) that although four Quarry Sidings were being served by Railway at Pakur, no specific Pilot Engine[28] had been made available at Pakur. As a result, the 'Diesel Train Engines' bringing inward rakes to Pakur were being detached for 'Shunting' activities related to Quarry Siding and thereafter attached with outward rakes.

Audit observed (2014-15) that the recovery of 'Siding charges' at Pakur Serving station had been made taking into consideration Engine hour cost for 'Diesel

[28] An Engine used to draw/send a load from / to Siding

Shunting Engines' instead of 'Train Engines'. This resulted in short recovery of siding charges to the tune of ₹ 11.92 crore during the years 2012-15.

When the matter was taken up (April 2015) with the ER Administration through a formal Audit objection, they replied (May 2015) that Pakur Station did not have any fixed Pilot Engines and locomotives carrying loads/empties to Pakur Station were being used as Pilots Engines. However, since Engines were utilised for performing Shunting operations, those were treated as 'Shunting Engines'. Their contention is not valid in view of the fact that such Engines were detached from inward rakes and thereafter used for Shunting operations inside the sidings and finally attached with outward rakes. As such, these should have been treated as 'Train Engines' as per Railway Board's clarification of October 1977 and siding charges fixed accordingly.

The matter was brought to the notice of Railway Board in January 2016; their reply has not been received (May 2016).

2.11 Southern Railway (SR): Under-utilization of overhead electrical (OHE) assets and avoidable recurring expenditure on maintenance of diesel traction over electric traction

Chengalpattu-Arakkonam section of SR was electrified in March 2004 at a cost of ₹8.95 crore leaving a small stretch beyond Takkolam due to objections raised by MoD. A diverted line with electrification beyond Takkolam at the cost of MoD is progressing for 14 years. Due to delay in land acquisition and non-resolution of the issue of MoD bearing the escalated cost, assets created could not be put to effective use for the past 14 years. Besides, recurring expenditure of ₹1.08 crore per annum was incurred by SR Administration towards maintenance of diesel traction

The gauge conversion (GC) of the branch line viz., Chengalpattu (CGL) – Arakkonam (AJJ) of SR was sanctioned in September 1997 and commissioned in December 1999 at a cost of ₹87.81 crore. For this branch line (CGL – AJJ), electrification was sanctioned in November 1999.

Audit noticed that the electrification work was completed between CGL and Takkolam (TKQ) in March 2004 at a cost of ₹8.95 crore, but commissioned for traffic only upto Tirumalpur (TMLP) in July 2004. The electrification beyond TKQ was not done due to objection raised (April 1999) by the Ministry of Defence (MoD). The objection was raised on account of the following reasons:

- The BG track alignment was at a distance of about 120 meters from the beginning of runway of the Naval Air station and ran perpendicular to the direction of runway.
- As per the extant instructions pertaining to the Air Routes and Aerodromes, High Tension lines are not permitted within 3000 meteres of the point of take off. The electrification of Railway track within 120 meters of the beginning of runway would infringe the movement of Naval aircraft.

Records revealed that in the meeting (October 1999) between Railway and MoD, it was agreed to lay new line in a diverted alignment (detour) between TKQ and AJJ. It was also decided in the meeting that the cost of laying new detour line would be borne by MoD. The work could only commence in 2004 after MoD deposited the amount (₹25.76 crore) in December 2003. Had Railway earlier consulted MoD before taking up Gauge conversion/ Electrification work, delay in completion of electrification work and consequent gross under-utilization of assets (BG track) created would have been avoided.

This issue was earlier pointed out in C&AG's Audit Report (Para 3.1 of Report No.8 of 2004). In response, SR Administration accepted (May 2012) the audit comment on gross under-utilization of assets created and assured that the detour works would be completed in two years. However, the detour works and electrification between TKO and AJJ have not yet (June 2015) been completed.

Records of construction organization of SR further revealed that

- The estimate for the detour line was sanctioned (February 2003) for ₹25.73 crore and MoD deposited ₹25.76 crore by December 2003.
- Though the work was commenced in 2004 for completion by June 2006, the same could not be completed due to delay in land acquisition especially in a small stretch of 500 meters in Melpakkam near AJJ. There was lack of coordination between State Government and Railways in arranging alternate site to persons occupying land provided free by the Government. Finally, the land was acquired in November 2014.
- Meanwhile, the estimated cost of the detour work increased to ₹54.57 crore. The issue of bearing the extra cost by MoD is yet to be resolved and hence work was not progressing.
- Existing contractors are not willing to execute the work due to time and cost overrun. SR Administration decided (January 2015) to foreclose the contract and to call for fresh tenders after receipt of extra cost from MoD.
- SR Administration failed to enter into an agreement with MoD that any extra cost involved during execution and on completion of work would have

to be borne by the MoD. Hence, even after acquiring the land, work could not progress.

Due to the above lapses/ deficiencies, SR Administration could not reap the benefits of electrical assets created at a cost of ₹8.95 crore 10 years back as the electrification work could not be completed on whole section (CGL-AJJ). Also, investment of ₹27.52 (₹23.76 crore made by MoD in 2003 and ₹3.76 crore by SR) could not be put to effective use so far.

Besides, additional expenditure of ₹1.08 crore per year towards cost of maintenance of diesel traction over electric traction is being incurred by the SR Administration for the past 14 years, as the Mail/Express and passenger trains with conventional coaches are operated between CGL and AJJ with diesel locomotives.

The matter was taken up with the SR Administration in July 2015; in reply, they stated (November 2015) that

- Defence authorities need not be consulted before gauge conversion work as Railway line was existing prior to construction of Naval base. As it was only a GC, and the MG alignment was changed to BG, the necessity for entering into an agreement with MoD did not arise.
- The OHE assets have been installed and trains are running from CGL to TMLP. In TMLP-TKO section, OHE has been installed and energized with 25kv as an anti theft measure. TKO-AJJ detour line electrification will be taken up after laying of track which could be executed after MoD deposits the extra cost.

The reply is not tenable in view of the fact that

- Indian Railway code for Engineering department (Para 259, 507) provides that the local military authorities should be consulted before taking up any project for execution. As such, SR Administration should have consulted Defence authorities before gauge conversion and electrification work between CGL and AJJ.
- Though EMU trains are being operated upto TMLP, Mail/Express train between CGL and AJJ are running in diesel traction due to non completion of electrification between TKO and AJJ. This resulted in under utilization of OHE in CGL-AJJ section, constructed at a cost of ₹8.95 crore.
- The issue of bearing of extra cost by MoD is yet to be resolved, which delayed the work of laying of detour line and consequently delayed the electrification work in TKO-AJJ section. Further, foreclosure of contract

due to time and cost overrun and calling of fresh tender would further increase the cost and delay completion of work.

The matter was brought to the notice of Railway Board in February 2016; their reply has not been received (May 2016).

2.12 Northern Railway (NR): Excessive detention to wagons at Terminal Goods station

Avoidable excessive detention of wagons beyond detention targets resulted in loss of earning capacity of wagons to the tune of ₹6.53 crore

Efficiency of a yard/ terminal goods station directly relates to the effectiveness in control over detention to wagons at various levels of operations. Detention to wagons beyond reasonable admissibility leads to delays in loading & unloading of commodity and despatch of wagons/ rakes affecting adversely the productivity of wagons. With a view to minimizing the detention of wagons, detention targets, beyond which detention of wagons should not exceed, are fixed by Railways and approved by RB.

Audit reviewed the records of Terminal Goods Station (TGS) at Varanasi (BSB) and observed that for "All Wagons" handled in TGS/BSB, Zonal Railway Administration fixed (prior to 1998) target of 16 hours per wagon for average detention. Audit earlier commented (Para 2.3.1 of Report No.8 of 2004) on the excess detention of wagons beyond fixed target resulting in loss of earning capacity. In the Action Taken Note, Ministry of Railways (Railway Board) stated that the stiff target of 16 hours, though impractical, had played a definite and useful role in bringing down the average detention. However, the target for wagons detention had been revised (April 2008) to a more realistic target of 30 hours.

A further scrutiny of records in Audit revealed (2015) that during the year 2014-15, all the wagons (15404 No.) handled at TGS/BSB were detained in excess of revised enhanced permissible detention of 30 hours per wagon. The detention of wagons ranged between 30.35 hours and 52.35 hours. This resulted in loss of earning capacity of ₹6.53 crore.

When the matter was taken up with NR Administration (August 2013), they stated (September 2015) that the excessive detention over and above the revised enhanced permissible limit was attributable to constraints like shortage of power, non-availability of shunting engine, late release of inward rakes etc.

The reasons attributed by Railway were not acceptable as the detention targets of 16 hours per wagon were revised to 30 hours per wagon on more realistic basis in year 2008 taking into consideration all types of constraints. In fact, the

excessive detention could be avoided by efficient rolling stock management and manpower management and co-ordination between Operating and Mechanical Departments.

Thus, avoidable excessive detention of wagons beyond detention targets fixed on operational requirement resulted in loss of earning capacity of wagons to the tune of ₹6.53 crore.

The matter was brought to the notice of Railway Board in February 2016; their reply has not been received (May 2016).

2.13 East Coast Railway (ECoR): Irregular extension of trainload class rate resulting in undercharges of freight

East Coast Railway extended the benefit of Trainload class rate for Block Rakes without adhering to the instructions of RB resulting in loss of freight of ₹ 6.01 crore

Ministry of Railways (Railway Board) issued Policy Guidelines on Freight Incentive Schemes and Transportation of Products vide Rates Circular No. 62 of 2009 dated 10 November 2009. Para 5.1 of the circular stipulates that single point Block Rake[29] with wagon composition as notified by RB will be booked at Trainload Class rate in accordance with the conditions prescribed therein.

Train load rate can be extended even in case where the minimum number of wagons qualifying for Block Rake cannot be supplied by the Railway against trainload indent due to operating or any other constraint arising out of unforeseen circumstances in a specific instance such as accident, blockade, etc., provided the detailed reasons for non-supply of indented number of wagons constituting a Block Rake is recorded by concerned Station Manager/Yard Master, and confirmed in writing by a Gazetted Officer. If the prescribed conditions are not fulfilled, wagon load rate should be charged which is more than Trainload class rate.

As per the Ministry of Railways (Railway Board) Circular of 10 November 2009, BOXN/BOXNHS, BOXNHSM1, BOXNHA, BOXNEL, BOXNLW and BOXNM1 type wagons were grouped together whereas BOXNHL was shown as a separate group. BOXNHL type wagons cannot be grouped with other types of wagons to form mixed rake. Similarly, BOBR and BOBRN were shown as two separate groups of Block Rakes and mixed rakes are not allowed in these groups.

[29] It is a train carrying wagons for a single destination

ECoR issued a Circular (07-02-2013) followed by a clarification (26.02.2013) stating that if a mixed rake of BOBR/BOBRN, BOBRN/BOBRNHS or BOXN group/BOXNHL is loaded with prescribed minimum number of wagons of one type, trainload rate benefit may be granted. In cases where the minimum trainload condition is not satisfied for any particular type of wagons, trainload facility can be granted on the basis of a certificate issued by the Operating Branch.

Scrutiny of records under Chief Goods Supervisor/Talcher for the period from February 2013 to December 2013 revealed that total 247 mixed rakes comprising of BOBR/BOBRN/ BOBRNHS/BOBRNEL wagons and 99 mixed rakes consisting of BOXN/ BOXNHL/BOXNR/ BOXN group wagons were booked from various sidings at Talcher to 27 different destinations to carry coal. The condition of loading the prescribed minimum number of wagons was not fulfilled in any of these cases, but trainload benefit was extended instead of charging wagon load rate. The certificates issued by Operating Branch did not record detailed reasons for non-supply of indented number of wagons constituting a Block Rake as required in Rates Circular No.62 of 2009 of RB. This resulted in irregular extension of trainload rate benefit and resultant undercharging of freight of ₹ 5.17 crore.

Audit also noticed similar cases of irregular extension of trainload rate benefit and undercharging of ₹83.85 lakh for 55 mixed rakes consisting of BOXN/BOXNHL/ BOXNR/ BOXN group wagons for carriage of coal in seven other loading stations, viz.,VSPV, RGL, MGPV, MVAA, NMVK, JKPR and NINS during the period from February 2011 to November 2014**.** Thus due to irregular extension of trainload rate benefit instead of wagonload rate, ECOR incurred a loss of ₹ 6.01 crore due to undercharging of freight.

When the matter was taken up in Audit (April 2014), the ECoR Administration stated (October 2014) that trainload rate can be allowed as per Para 5.1.4 of Rates circular 62 of 2009 when the ECoR Administration fails to supply the standard rake due to operating or any other constraint.

The reply of ECoR Administration is not tenable due to the following reasons:-

- Certificates by the Operating Department were given in a routine manner without recording detailed reasons for non-supply of minimum number of wagons of standard Block Rake.
- In some cases the date of allowing the Trainload class rate is not mentioned. In one case it was even noticed that the certificate was issued long after the preparation of RRs.

- RB had not agreed (November2012) to a specific request from ECoR (September 2012) to allow trainload rate benefits for mixed rake of BOBR/BOBRN wagons for moving coal from Talcher for Tamil Nadu Electricity Board.
- In 10 similar cases where trainload conditions were not satisfied, ECoR Administration had raised undercharges towards difference between trainload rate and wagon load rate.
- It was also noticed that even the ECoR's circular of 7 and 26 February 2013 regarding allowing trainload benefit if 56 nos. of BOBRN or 50 BOBR or 57 BOBRNHS and 58 nos. Of BOXN or 57 BOXNHL are loaded were also not followed.
- Moreover, the refusal of the RB to extend trainload rate benefit to block rakes of mixed BOBRN and BOBR wagons further clearly justifies the audit contention that the ECoR failed to follow the RB directions and unduly extended trainload rate.

Thus extending the benefit of Trainload class rate without following the RB's directives, ECoR led to loss of freight of ₹ 6.01 crore.

The matter was brought to the notice of Railway Board in February 2016; their reply has not been received (May 2016).

Chapter 3 – Electrical – Signalling and Telecommunication units

The Electrical department is responsible for safe train operations and maximizing the utilization of fixed and moving assets such as train rakes, locos and tracks etc. At RB level, the Electrical department is headed by Member (Electrical) who is assisted by three Additional Members for Electrical, Telecommunication and Signalling.

At Zonal level, the Electrical department is headed by Chief Electrical Engineer (CEE) who is responsible for operation and maintenance of Electric Locos, Electric Multiple Unit train (EMU), Mainline Electric Multiple Unit train (MEMU), Overhead Electrical Equipment (OHE) its maintenance and operation, planning, electrical coaching stock, operation & maintenance and electrical general power supply, air conditioning, diesel generating set operation and maintenance and water supply. The Signalling & Telecommunication department is headed by Chief Signal & Telecommunication Engineer (CSTE) who is responsible for maintenance of signaling assets.

The total expenditure of the Electrical and Signal department during the year 2014-15 was ₹ 22,356.21crore. During the year, apart from regular audit of vouchers and tenders, 573 offices of Electrical and Signalling & Telecommunication department of Railways were inspected by Audit.

This chapter includes one review on 'Working of Signal Production Units on Indian Railways including their modernization' wherein Audit reviewed the working and performance of six Signal Workshops, manufacturing S&T equipment/ items for use on IR. In addition, a paragraph pertaining to East Central Railway is also included on lack of inter-departmental co-ordination for replacement of old and worn out lever frames.

3.1 Working of Signal Production Units in Indian Railways

3.1.1 Introduction

A controlled, smooth and safe running of trains on Indian Railways (IR) requires an effective signalling and telecommunication (S&T) system. Signalling System is essential for safe and smooth train operations and optimum utilization of available line capacity whereas telecommunication system plays an important role in train control, operation and safety of travelling passengers. IR has been relying progressively upon advanced signalling systems and state-of-the-art telecommunication network to increase the efficiency as well as safety of train operations. A number of special/ specific equipment is utilized in various installations. With up-gradation in technology and shift towards electrical/electronic system, the demand for modern electronic equipment/devices has gone up.

On IR, the requirements of S&T equipment / devices are met through production at Signal Workshops established at various Zonal Railways or through procurement from open market. There are 10 Signal Workshops in IR. Out of these, six[30] are major Workshops and they have been classified as Signal Production Units (SPUs) by RB (RB). The remaining four[31] have been notified as Repair and Overhauling Centers/Workshops.

3.1.2 Background

The SPUs over IR were producing signalling items routinely used in existing S&T system. Production of different signalling items was assigned to different SPUs. As such, the product mix of one PSU was largely different from the other SPUs. Changing global trends and rapid technological advancements taking place in S&T system of Railways necessitate switchover to equipment of higher reliability to mitigate the risk of obsolescence and to keep pace with international developments.

The Working Group on Railway Programmes for XI Five Year Plan (2007-2012) recommended up-gradation and modernisation of Signal workshops in areas such as:

- automated assembly lines for manufacturing relays[32]
- facilities for manufacturing clamp lock type point machines[33]

[30] Podanur (PTJ) at SR, Ghaziabad (GZB) at NR, Gorakhpur (GKP) at NER, Byculla (BY) at CR, Howrah (HWH) at ER and Mettuguda (MFT) at SCR.
31 Ajmer at NWR, Pandu at NEFR, Sabarmati at WR and Kharagpur at SER.
32 Electromagnetic switching devices used in Railway Signalling and interlocking circuits.
33 Electronic device used to operate railway turnouts with clamp lock.

- facilities for integration, simulation, testing and certification of Electrical and Electronic systems such as,
  - Axle Counters (ACs)[34]
  - Audio Frequency Track Circuits (AFTC)[35]
  - Electronic interlocking (EI)[36].

The Working Group also recommended that the procedures and activities performed at Workshops like assembly lines for relay manufacturing required to be automated. Capacity augmentation was also required for manufacturing certain items like IRS point machines[37], token-less block instruments[38], special purpose Relays and Electric lifting barriers[39].

The thrust areas identified in the XII Plan (2012-17) included complete track circuiting of stations (CTC), increasing line capacity through use of technology option such as Automatic Block Signalling (ABS)[40], intermittent block signalling (IBS)[41], Cab signalling (CS) and integrating train control and signal system. The desired advancement would require switch over to systems and equipment of higher reliability in regard to safety.

High Level Safety Review Committee (Anil Kakodkar Committee) set up by RB (September 2011) to review safety on the Indian Railways, observed (February 2012) that demands of Railway system were growing rapidly without commensurate investment & up-gradation of technology and modernization consistent with modern times. The Committee strongly recommended adoption of an advanced Signalling system based on continuous track circuiting and cab signalling similar to European Train Control system Level II on the entire trunk route of IR (19,000 KMs).

The **Expert Group on modernization of IR (Sam Pitroda Committee)** set up in September 2011 for suggesting measures for improvement in the safety of IR workers and travelling passengers, recommended (February 2012)

34 A device used to detect passing of train between two points on a track.
35 A device unaffected by the interface on account of traction harmonics in electrified area and suitable for longer length track sections and automatic signalling sections.
36 Micro processor based interlocking equipment to read the yard and panel inputs, process them in fail-safe manner as per selection table and generate required output.
37 A device used to operate railway turnouts.
38 Instrument used to control and ensure absolute safety of running trains by admitting only one train at a time into the section from either of the two ends.
39 An electrically operated barricade kept in Railway level crossings to prevent passage of pedestrians and vehicles at the time of passing of train.
40 A system consisting of a series of signals that divides a railway line into a series of sections, or blocks which allow trains operating in the same direction to follow each other safely without risk of rear and collision.
41 A technique which splits a block section between two adjoining stations into two through provision of an additional signal, remotely controlled from the station.

- implementation of ABS on all A & B routes[42] with train management system;
- provision of communication based train control system such as moving block system[43] on C class routes(Suburban section) of CR and WR;
- deployment of on-board train protection system[44] with CS system on A and B routes;
- introduction of GSM based mobile train control communication system on A, B and C routes;
- establishment of centralized maintenance control centers.

The Vision 2020 Document of IR sets out the road map for quantum increase in capacity creation and technological up-gradation of infrastructure. It envisaged banishing accidents from IR operations through, inter-alia, use of advanced Signalling technology and improved communication. This document stated that IR has adopted the route of technology transfer in several areas including Signalling and that a conscious strategy to mitigate the risk of obsolescence and to continuously stay ahead in the technology race would be put in place.

To keep pace with the requirements of changing trends and technological advancements and comply with various recommendations brought out above, the Signal workshops were required to reorient their product mix and acquire advanced production technology.

Audit conducted a review (2004) of the working and performance of Signal Workshop, Gorakhpur at NER and findings were included in the report of the CAG of India (Railways) - Report No.9 of 2005. In their Action Taken Note (ATN), Ministry stated (April 2006) that-

- production capacity of the workshop had not been evaluated
- there was no costing system in the workshop

Later, to assess the overall performance of S & T department in IR, Audit conducted (2008) Performance Audit (PA) on 'Signalling and Telecommunication in Indian Railways' As regards Signal Workshops, the coverage was very limited and the aspects like non-utilization of man-hours and uneconomical manufacture of S&T items were investigated. The findings of PA

[42] 'A' route – speeds up to 160 km/hour; 'B' route – speeds up to 130 km/hour
[43] A system where computers calculate a 'safe zone' around each moving train wherein no other train is allowed to enter.
[44] system that provides an automatic application of emergency brakes if the loco pilot overshoots the red signal.

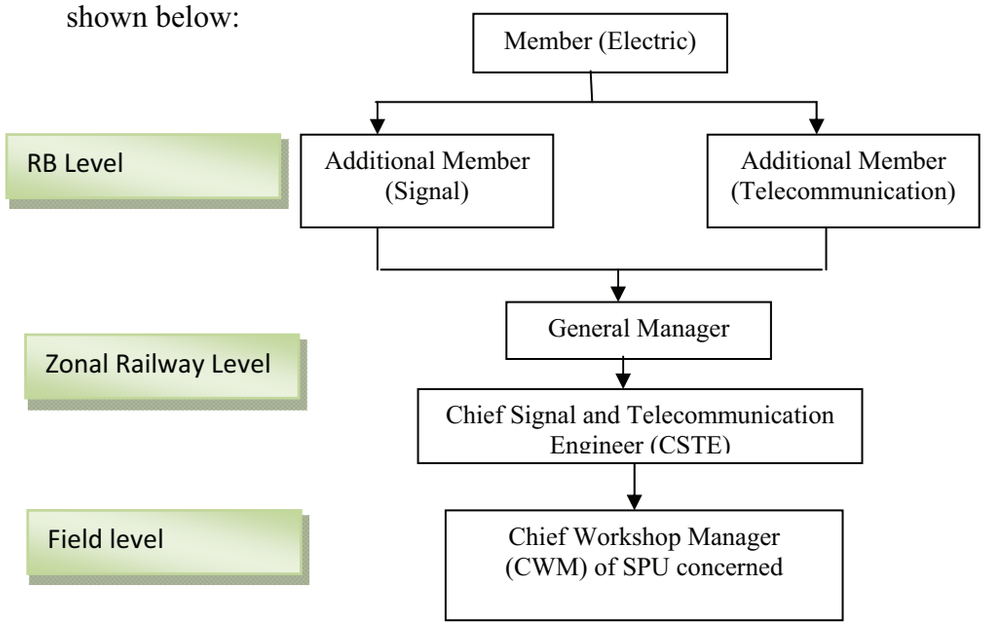
were communicated to the Ministry through the report of CAG of India (Railways) - No.PA 26 of 2008-09.

Audit had also reviewed (2011-12) 'Performance efficiency of Signalling assets in Indian Railways'. During examination of records the failure of Signalling assets was not linked with the Workshops who manufactured them. These findings were communicated to Ministry vide the report of CAG of India - Report No.11 of 2013.

In the above noted background, Audit conducted (2015) a Performance Review on 'Working of SPUs on IR including their modernisation'.

3.1.3 Organizational structure

The organization chart relating to signaling and telecommunication function is shown below:



At the RB Level, the policy decisions on S&T matters are taken by S&T Directorate which is headed by Member (Electrical). He is assisted by Additional Member (Signal) and Additional Member (Telecommunication). At Zonal level, S&T department is headed by Chief Signal and Telecommunication Engineer (CSTE) under the overall control of the General Manager. Signal Workshops (SPUs) are headed by the Chief Workshop Manager (CWM).

3.1.4 Audit objectives

The Performance Review on working of SPUs was conducted with a view to assess the following:

- The extent of modernization and product line changes undertaken in SPUs to meet the challenges of technological advancement.
- Capability of SPUs to meet the present day requirements of IR.
- Whether the performance of SPUs was economical.

3.1.5 Audit criteria, methodology and scope

3.1.5.1 Audit criteria

RB has issued instructions (July 2010) for modernization of SPUs. These instructions have been made the main criteria for the study. Besides, examination of various provisions on job costing system, incentive and Overtime Allowance (OTA) schemes in the Workshops contained in IR Code for Mechanical department were adopted as criteria for this Performance Review.

3.1.5.2 Scope and Audit methodology

Audit reviewed the working and performance of all the six Signal Workshops (SPUs) manufacturing S&T equipments/ items for use on IR during 2011-15. The methodology followed for the study involved, inter-alia examination of the records related with the guidelines and instructions issued by RB on modernization and working of SPUs. Besides, the records available in the office of CSTE of Zonal Railways, CWMs /Dy. CSTE/WM at SPUs and at Signal Stores Depots of Railway Projects & Construction Organisations related with the requirements on Zonal Railways and their availability through production in SPUs and open market were also examined.

3.1.6 Sample size

The S&T items manufactured at six SPUs are utilized at Railway Divisions or at Construction Projects. The sample size adopted for studying the Working and Performance of SPUs was as under-

Table 3.1

No.	Nature of Check	Sample Selection	Extent of check
1	Collection of data to assess the share of contribution of SPUs against the actual requirement of IR.	35 Divisions, 13 Signal Project Stores Depots and 17 Signal Stores Depots of Construction Organization	Eight items as given below: i) Relay (all types) ii) Colour Light Signalling Units iii) Single Section Digital Axle Counter (SSDAC)[45] iv) Universal Axle Counter (UAC) v) Control Panel/Panel vi) LED signal units (all types) vii) Point Machines (all types) viii) Block instruments (all types)

3.1.7 Audit findings

Audit examined the evolution of SPUs, their production trend, extent of modernization, their contribution to present day needs of IR and their overall performance.

3.1.7.1 Evolution, production pattern and need for modernizing SPUs

Signalling items (equipment /devices) are vital components of Signaling system. Their installation ensures safe running of trains. Signalling system is maintained by Signal department and operated by the Operating department.

All the six SPUs had been in existence for over 56 years (HWH-1901, BY-1911, MFT-1916, GZB-1947, GKP and PTJ-1958). SPU/Podanur (PTJ) at SR is the biggest SPU. The total staff strength of these six SPUs as at end of March 2015 was 2,461(HWH-275, GZB-276, MFT-298,BY-332, GKP-570 and PTJ-710).

The total outturn of all the six SPUs during 2014-15 was ₹171.22 crore wherein the minimum share was of SPU/HWH /ER (₹12.03 crore-seven *per cent*) and maximum of SPU/PTJ/SR (₹60.48 crore- 35 *per cent*). The share of other four SPUs ranged between 10 and 20 *per cent* . During the period under review (2011-15), the value of outturn in all SPUs increased year after year except for SPU/GKP at NER where the outturn was less in 2013-14 (₹19.63 crore) in comparison to 2012-13 (₹26.74 crore).

RB decided (July 2010) to modernize the SPUs to meet the challenges of technological advancement of Signalling department and consequent need for modern electronic signalling items. They, with the objective of formulating an Action Plan to achieve Vision 2020 goals and to develop in-house capacity in

[45] This equipment is used for detecting the presence of a train in a block section based on the principle of axle counting..

manufacturing electronic based signalling equipment to manage technical obsolescence, envisaged (July 2010) modernization programs for SPUs.

Modernization Plan (2010) was to be implemented in two phases. Phase I of the Plan was to meet the requirements of IR up to the year 2015 and Phase II to meet the requirements of IR for five years 2015-2020. In order to develop core competency and develop specialization in manufacture of specific Signal items, RB designated six Signal Workshops as Signal Production units (SPUs). These required inputs and resources to meet the changed product line required by IR. Audit analysed the major products of these SPUs and their product mix and our findings are given below:

These six SPUs manufactured 134 signalling items. Out of these some items were major items. RB has assigned the production of different signalling items to different SPUs. As such, the items manufactured in one SPU are different from those manufactured in other SPUs. SPU-wise major products (production ₹ 3 crore or above per year) are given below:

Table 3.2 – Major products of SPUs in Indian Railways

SPU	Major products
Podanur (SR)	Relays, Point machines and Apparatus cases
Gorakhpur (NER)	Relays, Points machines, Apparatus cases and Lifting barrier gate,
Ghaziabad (NR)	Apparatus cases and Sliding booms.
Mettuguda (SCR)	Apparatus cases, Lifting barrier gate, and Colour light signal aspect.
Byculla (CR)	Block instruments
Howrah (ER)	Block Instruments,

The product mix of six SPUs for the year 2014-15 was as given below:

Table 3.3 – Product mix of SPUs – 2014-15 (in crore)

No.	Equipments/devices	PTJ/SR	HWH/ER	GZB/NR	BY/CR	GKP/NER	MFT/SCR
1	Relays (all types)	27.64	0	0	0	3.24	0
2	Apparatus/Location boxes (all size)	3.96	1.67	3.19	1.31	4.92	4.07
3	Point machines	14.16	0	0	0.00	4.52	0.00
4	Lifting Barrier Gate (all types)	0.22	0	1.88	0.36	7.67	6.32
5	Block Instruments (all types)	2.32	9.14	0.00	4.26	0	0.06

6	CLS (all aspects)	0.00	0.00	1.07	2.43	0	3.02
7	Sliding booms	1.85	0.34	3.53	1.94	0.72	0
8	Other equipment/items	10.33	0.88	7.85	24.2	0	12.2
	Total Outturn	**60.48**	**12.03**	**17.51**	**34.51**	**21.07**	**25.62**

Out of the total items outturned at a cost of ₹171.22 crore during 2014-15, 'Relays' with outturn value of ₹30.88 crore (18 *per cent*), manufactured at PTJ/SR and GKP/NER, emerged as the main product. Next to it were 'Apparatus cases/ Location boxes' (₹19.12 crore- 11 *per cent*), Point machines (₹18.68 crore- 11 *per cent*), Lifting barrier gate (₹16.44 crore - 10 *per cent*) and Block instruments, CLS units, Sliding booms constituted less than 10 *per cent* each. Miscellaneous items manufactured in five PSUs (except GKP/NER) contributed to ₹55.41 crore (32 *per cent)*.

Product mix of items manufactured during 2014 -15 indicated that the six SPUs were still focusing on the manufacture of conventional signalling items instead of producing items of advanced technologies, as envisaged. This indicates that development of in-house facilities and technology acquirement in SPUs for manufacturing modernized electronic based signalling items[46] was poor making SPUs' Administration helpless to utilize production capacity on manufacture of conventional S&T items.

3.1.7.2 Modernization of SPUs

As per RB instructions (July 2010), for Phase I of modernization proposed by RB, the six SPUs were required to submit comprehensive modernization proposals for:

- upgrading the infrastructure
- requirement of assembly line equipment
- requirement of testing and measurement equipment
- up-gradation of skills of existing staff, supervisors and engineers
- requirement of technology transfer documents
- substantial improvement of productivity index

RB instructed SPUs of four ZRs (SR, ER, NER, and CR) to submit proposals for inclusion in Works Programme (Machinery & Plant) on an out-of-turn basis. Railway Administration of remaining two SPUs (NR and SCR) was advised that proposals may be sent through the regular works programme.

[46] equipment such as SSDAC, EI, LED signal units etc.

Audit examined in detail the efforts made and progress of modernization undertaken in six SPUs in Phase I as well as the preparatory action taken by ZRs Administration to implement Phase II. Audit also examined modernization proposals other than those specified in Phase I and II of Modernization Plan. Results of Audit examination SPU-wise are furnished below:

- Of the four SPUs that were required to submit modernization proposal on out-of-turn basis, no comprehensive modernization proposal was made by three SPUs (PTJ-SR, HWH-ER, GKP-NER).
- Although required to submit modernization proposal on out-of-turn basis, SPU/BY (CR) submitted a proposal for ₹6.66 crore to RB in November 2014 after a delay of four years. The proposal related only to procurement of Plant & Machinery necessary for the SPU to enhance the capacity for production/value addition. The proposal indicated that the modernisation would result in enhancement of 40 *per cent* of its current production level. Further, cost reduction of 3*0 per cent* was expected. However, the desired benefits could not be realised as approval of the RB was awaited (October 2015).
- Modernization proposal at a cost of ₹7.86 crore was submitted (September 2010) by SPU/GZB (NR) to RB. The proposal was incomplete as it did not contain details for developing automated assembly lines, up-gradation of skills of existing staff, supervisors and Engineers, requirement of technology transfer documents and proposals for substantial improvement of productivity index. The estimated cost was subsequently revised (June 2011) to ₹11.05 crore. However, sanction for taking up modernisation works was awaited (October 2015).
- SPU/MFT (SCR) submitted (January 2012) a proposal for Modernisation at cost of ₹2.48 crore for up-grading of infrastructure. During 2011-12 to 2014-15, RB allotted a sum of ₹1.96 crore out of which ₹1.12 crore was utilized (March 2015) and balance amount (₹0.84 crore) surrendered (March 2015). Even after three years of sanction, none of the works had been completed (October 2015).
- For modernization Phase II, none of the six SPUs submitted (till October 2015) any proposal.

Modernization proposals other than those specified in Phase I and II are discussed in subsequent paragraphs-

(i) SPU/ Podanur (PTJ) at SR

- Although MOU of transfer of technology for manufacture of SSDAC was signed in March 2000, the technology was obtained in July 2015 only. Manufacture of SSDAC has not yet commenced (October 2015) as brought out in Para 3.1.7.5.
- SPU initiated no proposals related to requirement of assembly line equipment, requirement of testing and measurement equipment, up-gradation of skills of existing staff, supervisors and engineers etc. SPU made a proposal (2011-12) to RB for construction of Research and Development (R&D) facilities at an estimated cost of ₹4.69 crore to customize proposed manufacture of hardware and software of sophisticated electronic items. The proposal had not been approved (October 2015).
- Centralized Enterprise Resource planning (ERP) was to be developed by SPU/Byculla at the earliest. However as this was not developed as brought out in sub-Para (iv) below, SPU/ PTJ proposed (2013-14) to develop and commission an ERP system at a cost of ₹4.67 crore. The proposal had not yet been approved by RB (October 2015).

(ii) SPU /Howrah (ER)

A proposal for augmentation/renovation of Electrical and Engineering set-up (cost of ₹1.47 crore) was made in 2011-12. The proposal was modified (cost ₹1.02 crore) during 2014-15. RB sanction to the proposal was awaited (October 2015).

(iii) SPU/Gorakhpur (NER)

SPU Administration stated that adequate infrastructure was available with them to manufacture new products. However, despite availability of infrastructure, regular production of new items was yet to commence (October 2015) as brought out in Para 3.1.7.5

(iv) SPU, Byculla (CR)

To manage production planning and control, RB entrusted under Modernization Phase I the development and implementation of Enterprise Resource Planning (ERP) and its interlinking with all SPUs to SPU/Byculla (July 2010). No centralized ERP had been developed (October 2015). SPU/BY Administration stated that the implementation of ERP depended on the standardization of procedures for all workshops and, therefore, would entail obtaining expertise of IT firms experienced in implementing such modules across various units. Due to non-development of ERP, the

intended benefits like centralized management of production planning and control over SPUs could not be achieved.

The SPU–wise developments under Modernisation Plan under Phase I and II indicate that proposals for modernization of SPUs did not take off and no funds were sanctioned specifically for comprehensive modernization. SPUs proposals for modernisation sent to RB for approval and funds allotment were lying with RB as un-disposed.

Audit further noticed that:

- Although the progress of implementation of modernization was stated to have been monitored through meetings of Chief Workshop Managers of the SPUs and three meetings were held (May 2012, July 2013 and January 2015), no follow-up was done by RB to ensure implementation of Modernization Plans.
- SPUs did not have their own Research and Development facilities. No proposal for setting up R&D facilities was sent to RB by any of the six SPUs.
- ERP system was yet to be established and interlinked among SPUs. As a consequence, proposals for modernization were not actively pursued resulting in SPUs not being geared up to develop in-house capacity for manufacturing electronic based signalling equipment to manage technical obsolescence.

These findings indicate that due and sincere efforts were not being made at any level to modernize SPUs to manufacture electronic based signalling equipment of improved/modern technology. Also, the production of conventional signalling items suiting the existing infrastructure continued and some signalling items, production of which was decided to be discontinued in phased manner, were still being produced.

3.1.7.3 New establishment for production of Electronic Components

RB approved a proposal (2010-11) on out-of-turn basis to set up Rail Electronic Component Factory at Cooch Behar, West Bengal at a cost of ₹78.38 crore. The factory was to manufacture various signalling items. The foundation stone for the Factory was laid on 29.01.2011. Ministry of Railways invited (November 2012) Request for Qualification (RFQ) to pre-qualify the prospective bidders for setting up of the factory through Public Private Partnership (PPP). Even after four years of sanction no work except construction of a shed at a cost of ₹1.13 crore had been executed. No work was in progress (March 2015). Thus,

commissioning of the factory at Cooch Behar has not yet gained any momentum.

3.1.7.4 Modern electronic items not manufactured in SPUs

Audit reviewed the records of SPUs, Zonal Headquarters and RB (2015) to see as to what extent the production of modern electronic S&T equipment had started in SPUs. An analysis revealed that following items had gained wide acceptance in IR during previous five years –

- Data Logger
- Single Section Digital Axle Counter (SSDAC)
- Multi Section Digital Axle Counter (MSDAC)
- Electronic Interlocking (EI)
- Integrated Power Supply (IPS)
- Train Protection and Warning System (TPWS)
- Anti Collision Device (ACD)
- Block Proving by Axle Counter Units (MUX & SM Panel)
- Audio Frequency Track Circuiting (AFTC)
- LED main signalling units.

Audit examined the production schedules of all the six SPUs and observed that none of SPU was producing these identified items (October 2015). All items were being procured from open market to fulfil IR requirements.

RB communicated to Audit (August 2015) that Data Logger, TPWS and MSDAC were electronic based proprietary items and the knowhow and technical aspects thereof required to manufacture them in Railway SPUs were not available. This indicates lack of knowhow and technical aspects of IR regarding important electronic based items. As a result, IR had to depend on private firms which have monopoly on manufacture of these items.

Audit also observed that:

- Although as per RB's Planning (July 2010) manufacture of Single Section Digital Axle Counter (SSDAC) at SPU/ PTJ at SR and SPU/BY at CR was a part of Modernisation Plan Phase I, SSDAC were not being manufactured there and only some initiatives had been taken since December 2012 by SPU/PTJ.

- As per Phase II (2015-20) of Modernisation Plan, SPU/ PTJ (SR), SPU/HWH (ER), SPU/BY (CR) and SPU/GKP (NER) were required to manufacture units for EI, IPS, AFTC and BPAC. Production of these items was yet to commence (October 2015).

- Although LED signalling units were being manufactured at SPU/PTJ (SR) since 2011, their use was limited to 'Road warning signals' in level crossing gates because these were not usable as main signalling units for want of approval from RDSO. The issue of approval was pending with RDSO since December 2012 on account of non- submission of improved sample by SPU/PTJ at SR as brought out in Paragraph 3.1.7.7.

- Cables like Quad cables, Optical Fiber Cables widely used in IR were also not being manufactured by SPUs. There were successive proposals (2013-14 and 2014-15) from Sabarmati workshop/ Ahemdabad (WR) to establish a cable manufacturing Unit at a cost of ₹15.55 crore. This proposal was not approved by finance department of Zonal Railway and kept pending for want of adequate feasibility and financial studies.

  RB stated (August 2015) that there was adequate manufacturing capacity for cables in the country and cut throat competition existed. Moreover, an item like cable was highly process intensive requiring major infrastructure and machinery not justifying it only for railway requirements. RB's contention was not tenable as it was justified in the proposal that there was continuous demand for signalling cables and procurement of cables from trade which led to large lead time resulting in time overrun in signalling works.

It may be concluded that IR limited its role in manufacturing mainly the conventional items, specifically for want of technical knowhow. SPUs were yet to move into the area of manufacture of any of the signalling equipment of latest technology to meet the requirements of IR. SPUs indeed required a conscious strategy to manufacture at least some of the advanced signalling items through technology transfer etc., as visualised in Vision 2020.

3.1.7.5 Product line change

RB planning (July 2010) contains a list of new items to be introduced at the six SPUs under Modernization Plan. It also specified capacity enhancement of existing items. RB had also planned to discontinue production of certain items. As per recommendations of the Working Group on Railway Programmes for the XI Five Year Plan (2007-2012), capacity augmentation of SPUs was also required for manufacture of certain items such as IRS point machines, token-less block instruments, special purpose and Electric lifting barriers.

Audit reviewed the records to evaluate the efforts made in this regard by IR and noticed that:

I. Introduction of new items

New signal items that were to be manufactured by each SPU under Phase-I and Phase-II were as under-

Table 3.4 - New items proposed under modernization of SPUs

SPU	New items to be manufactured under modernization	
	Phase I	**Phase II**
PTJ at SR	(1) SSDAC	(1) AFTC (2) IPS (3) EI
HWH at ER	(1) Block instruments – Tokenless push button type (Non-RE)	(1) Block Proving by axle counter units (MUX and SM Panel)
GZB at NR	No new items were specified	(1) Pre-wired porta, cabins for ABS/IBS/LC Gate works (2) Electric Lifting Barriers
BY at CR	(1) SSDAC (2) Workshop ERP including networking of all workshops (3) Electric Lifting Barriers	(1) Block Proving by axle counter units (MUX and SM Panel) (2) Pre-wired porta, cabins for ABS/IBS/LC Gate works
GKP at NER	(1) Relay QB3 (2) Relay LED ECR	(1) Pre-wired porta, cabins for ABS/IBS/LC Gate works (2) IPS
MFT at SCR	(1) FRP based items like markers and warning boards	(1) Block Proving by axle counter units (MUX and SM Panel) (2) IPS

Audit examined the progress made so far by SPUs in manufacturing new signal items and findings are given under Sub-Para 'A' and 'B':

A. Progress on production of new items identified for Phase I

(i) Single Section Digital Axle Counter (SSDAC)

As per instructions of RB, production of SSDAC was to be commenced in SPU/PTJ (SR) and SPU/BY (CR) during Phase I (2010-15). The progress made by SPU/PTJ and SPU/BY to develop and commence production of SSDAC was negligible as narrated under:

RB had entered into (April 2000) an agreement (cost- to ₹1.46 crore) with Central Electronics Limited, Sahibabad (CEL) for developing technology for manufacturing SSDAC with the assistance of Department of Scientific Industrial Research (DSIR) within 24 months. There was inordinate delay in transfer of technology (TOT) from CEL as they were not able to develop the requisite cards required for manufacturing SSDAC. CEL informed in a meeting (July 2013) with RB that the delay in in-house development of cards was on account of paucity of resources. It added that in order to maintain the continuity

in manufacturing and supply of SSDAC, the cards were developed by another agency (using their own resources) which had the Intellectual Property rights for these cards.

As there was demand for SSDAC from all zonal Railways, a Purchase Order was placed (October 2012) on a firm for ₹1.73 crore for supplying 50 Nos. of populated Printed Circuit Boards and sub-assemblies required for SSDAC as per RDSO specification. As per terms and conditions, five sets were to be supplied by 10.12.2012 and the balance by 15.06.2013. The firm supplied five cards in February 2015 and the balance supply of 45 items was still awaited (December 2015).

Meanwhile, technical details required for manufacture of SSDAC was transferred by CEL to SPU/PTJ (July 2015). However, CEL was unable to develop the requisite cards (event logger card, modem card and inter-face card) necessary for manufacturing SSDAC and thus violated the MoU signed among DSIR, CEL and RDSO due to non-furnishing of technical details of requisite cards for SSDAC. RDSO had not decided on the issue of breach of contract by CEL and approval of final design of SSDAC (December 2015).

Thus, even after the transfer of technology to SPU/PTJ for production of SSDAC SPU/PTJ could not commence mass scale production of the item as approval of RDSO to final design and specification was awaited.

Thus, although the process for developing technology for manufacturing SSDAC commenced in April 2000, the manufacturing of SSDAC by SPU/PTJ did not commence even after fifteen years due to delay in developing and transferring the technology. Besides, the facilities for testing SSDAC created at SPU/PTJ at a cost of ₹0.35 crore could not be put to effective use.

SPU/PTJ Administration stated (July 2015) that the facilities were utilized for testing various new electronic products manufactured at SPU/PTJ. However, they did not furnish details of electronic products tested there.

SPU/Byculla had not included manufacture of SSDAC in its production plan so far.

The development and supply of the new item (SSDAC) proposed to be manufactured as a part of Vision 2020 had not materialized (December 2015) even after lapse of 15 years from signing of the agreement for TOT and IR still depends upon the market for supply.

(ii) Block Instrument – Tokenless Push Button Type (Non – RE)

As per instructions of RB (July 2010), SPU/Howrah (ER) was to manufacture Block Instruments – Tokenless Push Button Type (Non-electrified section). Audit noticed that production of the item had not been commenced there in view of a decision (May 2012) in CWMs meeting that the requirement of this item was diminishing and there was enough capacity for production of the subject item in SPU/PTJ.

It indicates that the RB's planning and instructions (July 2010) related to new items to be taken up for production in SPUs were based on inadequate inputs of demand on IR and the existing capacity of SPUs to meet these requirements.

(iii) Electrical lifting barrier

Manufacture of Electrical lifting barrier was to be added in the production line of SPU/BY (CR) during Phase I of Modernization Plan. However, manufacture of the item could not commence (October 2015) for want of RDSO's approval due to reasons brought out under Para 3.1.7.7.

(iv) ERP including networking of all SPUs

Under Phase I of Modernisation Plan, SPU/ BY was to develop and implement Enterprise Resource Planning (ERP) and interlink all SPUs for managing production planning and control over it. Audit observed that no centralized ERP had been developed so far (October 2015) as brought out in Para 3.1.7.2

(v) Relay QB3

Production of Relay QB3, a new item was to be introduced in SPU/GKP (NER) and adequate infrastructure was available there for manufacturing the new item, However, RB decided (May 2012) not to take up production in view of no demand from Zonal Railways.

(vi) Relay LED ECR

Relay LED ECR (Electronic Control Relay) was to be manufactured by SPU/ GKP (NER) for which infrastructure was available there. Although manufacture of this item commenced during 2014-15, mass scale regular production was yet to start due to non-availability of adequate magnetic and moulding components.

(vii) Fibre Re-inforced Plastic (FRP) based markers and warning boards

Fibre Re-inforced Plastic (FRP) based markers and warning boards were to be manufactured by SPU/MFT (SCR). The SPU viewed (September 2015) that markers and warning boards made of FRP were easily susceptible to wear and tear and may not last long when exposed to open wind. In view of this, SPU Administration did not manufacture the item. Audit observed that the cited

constraints were not brought to the notice of the RB by the SPU. Instead of FRP based markers, markers and sign boards made from Mild steel (MS) Sheets were supplied to end users. This is indicative of inadequate monitoring by RB of compliance with its instructions.

It may be seen that none of the seven items identified by RB as new items for manufacture in Phase I of Modernisation Plan had been taken up so far (October 2015) for regular production.

Audit noticed that although the period specified for implementation of Phase I of Modernization Plan was already over (March 2015), production of new items as envisaged for this Phase was yet to commence in any of the SPUs. Also, SPUs were not geared to manufacture already envisaged new signal items under Phase-II of Modernization Plan.

B. Preparedness for manufacturing new items under Modernization Phase II

As per RB instructions six new items were to be manufactured at SPUs during Phase II of Modernisation Plan (Table No.3.4). Audit reviewed the records of SPUs to know the status of commencement of production/ actual production in respect of these items and observed that:

(i) AFTC and Electronic Interlocking

Production of these new items was assigned (July 2010) to SPU/PTJ. However, SPU/PTJ Administration conveyed to RB that developing of EI and AFTC was not within the capacity of SPU and requested RB to give clear directions regarding acquiring of technology for manufacture of such item.

(ii) Block Proving by axle counter units (MUX and SM Panel)

The manufacture of this new item was assigned (July 2010) to SPU/HWH (ER), SPU/BY (CR) and SPU/MFT (SCR). No proposals were made by SPU/BY (CR) and MFT (SCR) in this regard. However, at SPU/HWH (ER) only test room facility had been developed under Phase I Modernisation Plan. The measuring instruments under Machinery & Plant Programme were yet (December 2015) to be procured.

(iii) **Integrated Power Supply (IPS)**

IPS was to be manufactured by SPU/PTJ (SR), SPU/GKP (NER) and SPU/MFT (SCR). SPU/PTJ (SR) took initiatives to commence the manufacture of item. Although the Chief Workshop Manager sanctioned (June 2014) the Estimates for manufacturing 100 sets of IPS, the regular production of this item

was yet to start (October 2015). No proposals were made by SPU/GKP (NER) and SPU/MFT (SCR) for manufacturing IPS.

SPU/PTJ (SR) Administration stated that the tender for procurement of populated PCBs and sub-assemblies were discharged due to non-resolving of issues related to procurement process and non-allotment of sufficient funds by Zonal Railway.

(iv) Pre-wire porta cabins for ABS/IBS/LC

Production of Pre-wire porta cabins for ABS/IBS/LC was assigned to SPU/GZB (NR), SPU/BY (CR) and SPU/GKP (NER). No proposals were made by these SPUs to manufacture the subject item.

(v) Electric lifting Barrier

SPU/GZB (NR) was advised to add in their production line the production of Electric lifting Barrier. No action for manufacture of this item was taken up so far (October 2015) by SPU.

Thus, preparedness for manufacture of new items in Phase II of Modernisation Plan was not at all adequate. Only conventional items were being manufactured in SPUs and it was unlikely that any of the identified new items would be manufactured by the SPUs in the near future.

II Progressive discontinuance of existing items from production

In order to meet the changed product line, RB specified (July 2010) a list of 12 items the production of which was to be discontinued /phased out by six SPUs. Audit observed that six items were still being produced by five SPUs. A detailed examination of the position in this regard revealed the following:

(i) SPU/PTJ (SR)

Production of GRS Apparatus cases continued till 2014-15 and the production of Apparatus Boxes (Half) was in fact enhanced from 200 in 2010-11 to 330 in 2014-15. During the review period, SPU manufactured 6,339 Apparatus Cases (both full and half) worth ₹15.10 crore.

The production of Control Panels was also continued and 165 Control Panels worth ₹5.26 crore were manufactured during review period.

Audit observed that there was no recorded reason for continuing the manufacturing of Control Panels. No target had been set by SR to reduce the production progressively.

SPU/PTJ (SR) Administration stated that production of GRS Apparatus Cases would continue till such time SPU/ GKP (NER), SPU/GZB (NR) and SPU/

MFT (SCR) augment their production capacity and were able to cater the requirements. Regarding Control Panel, SPU/PTJ stated that production of Control Panels would be phased out within a year as it was decided by Open Line to provide visual display units (VDU) in lieu of Control Panels for all new installations.

Audit contention is that non-augmentation /non-enhancement of production capacity of two SPUs has resulted in the continuance of production of Apparatus cases in SPU/PTJ. Further, the production of these metallic boxes did not involve any sophisticated process. As such, there production might be outsourced and production capacity saved utilised on production of other important items.

(ii). SPU/HWH (ER)

In SPU/HWH (ER), manufacture of Apparatus Cases was to be discontinued. However, 528 Apparatus Cases were manufactured during the review period at a cost of ₹2.32 crore.

(iii). SPU/GZB(NR)

SPU/GZB (NR) did not discontinue the manufacture of CLS units. SPU manufactured over 600 CLS units at a cost of ₹3.51 crore during review period. It would be important to mention that the manufacturing cost of CLS units was higher by ₹2.80 crore than the prevailing market price.

(iv). SPU/BY (CR)

SPU/BY (CR) continued to manufacture Point machine ground connection in view of demands from Railway consignees. Around 1348 Nos. of item worth ₹3.32 crore were manufactured by the SPU during the review period.

(v). SPU/GKP (NER)

In SPU/GKP (NER), production of three items (CLS base, 'A' type foundation and track feed charger) was planned for discontinuance. Audit noticed that during 2011-15, these items were manufactured (total value ₹1.09 crore).

(vi). SPU /MFT (SCR)

In SPU/MFT (SCR), Double Line Block Instrument and Lifting Barriers were identified for discontinuance. However, production of these items had not been discontinued and Lifting Barriers costing (₹0.10 crore) and Double Line Block Instruments (`0.04 crore) were manufactured during 2011-15.

It is clear from the above that the main objective of discontinuation of the items with a view to focus on manufacturing modern electronic signalling equipment

was not achieved notwithstanding RB's instruction (July 2010) to the effect that high value items like SSDAC, Block instruments – (UFSBI) were not focused for manufacture.

However, all the items that were identified for discontinuation but produced by these six SPUs were issued to end users and not lying in SPU premises.

III Capacity enhancement of certain existing items

RB specified (July 2010) a list of existing items in respect of which the capacity of production of SPUs was to be enhanced to meet the increased safety needs. Audit examined the progress of enhancement of production capacities in respect to these existing items and observed that:

- In SPU/PTJ (SR), although the production of Block Instruments was to be augmented from 562 (March 2010), the actual production of the instruments after 2010 reduced drastically (344 in 2011-12, 174 in 2012-13, 40 in 2013-14 and 60 in 2014-15).

  SPU/PTJ Administration stated (July 2015) that the TLBs manufactured were suitable for single line non-electrified sections only. Due to this demand for TLB had drastically come down. The reply suggests that RB's July 2010 instructions to augment the production of TLB at this SPU were not based on adequate inputs about present and future requirements of IR.

  Further, though the SPU was scheduled to manufacture during 2013-14 and 2014-15 as many as 200 TLB Instrument with Universal Fail Safe Block Instrument (UFSBI) interface, a new version of Block Instrument, the new version was not approved for large scale production from RDSO (March 2015). It is important to mention here that this new version would be an essential requirement for double line and electrified routes.

- In SPU/HWH (ER), the production of Block Instruments was to be enhanced. However, as against the annual target of 180 for years 2011-12, 2012-13, 2013-14, the actual production was 98, 112 and 123 respectively. For the year 2014-15, the target was reduced to 120 from 180 and the achievement was 122. The shortfall in production during 2011-12 to 2013-14 was attributed to non-availability of materials.

- In SPU/GZB (NR), production of two items viz. Point Machine roddings (Ground connection) and Lifting Barrier was to be increased. The target for production of point machine roddings (Point fittings for point machine) for 2011-12 was increased to 1200 from 600 in 2010-11. The target could not be achieved as actual production during 2011-12 was 390 only. The target was reduced from 1200 to 720 in 2012-13 against which the achievement was

365. Then the target was again brought down to 600 against which the actual production was 255 and 186 in 2013-14 and 2014-15 only.

Similarly, the target for manufacture of lifting barriers was increased from 120 in 2010-11 to 180 in 2011-12 against which the production was 68 only. For 2012-13, the target was again brought down to 120. The actual production against the revised target was 59, 92 and 42 during 2012-13, 2013-14 and 2014-15 only. Thus, instead of enhancing the production, the target was reduced and there was shortfall in achieving even the reduced target. No reasons for shortfall in production were available on records.

- In SPU/BY, the production of UAC was to be enhanced. However, there was shortfall in the production of this item during the review period. The target was set as 60 for 2012-13 and 2013-14 and 72 for 2014-15. Against it, the production was 58, 34 and 51 respectively.

  SPU/BY Administration stated that UAC was manufactured as per demands from the consignees and the item was being phased out. It indicates that the decision to enhance the production capacity under RB planning of July 2010 was not based on adequate input for needs for present and future requirements of IR.

- In SPU/GKP (NER), production of two items Panel Domino type and Point Machines (clamp type & IRS) with ground connections was to be enhanced. The Panel Domino was not manufactured for want of demand. For Point Machines (Clamp type & IRS) with ground connections, the production target was increased from 600 in 2010-11 to 720 in 2013-14. It was further decreased to 600 in 2014-15. Against these, the actual production was 362, 484, 503 and 469 during 2011-12, 2012-13, 2013-14 and 2014-15 respectively.

  SPU/GKP Administration stated (January 2015) that the shortfall in production was due to non availability of required material from trade. This, however, indicates inadequate planning on the part of SPU.

- In SPU/MFT (SCR), three items viz. Electrical Lifting Barrier (EOLB), Track Feed Battery Charger (TFBC) and FRP Track Lead Junction Boxes (FRPTLJ) were identified for enhancement of production in SPU/MFT. The target for production of EOLB fixed at 120 in 2011-12 was increased to 180, 200 and 240 for the years 2012-13, 2013-14 and 2014-15 whereas actual production was 128, 92, 112 and 182 during 2011-12, 2012-13, 2013-14 and 2014-15 respectively. The target could be met during 2011-12 only.

The target for manufacture of TFBCs was increased from 1,800 in 2010-11 to 2,400 in 2011-12 and 2012-13 and further to 5000 in 2013-14. However, the target was reduced to 3,600 in 2014-15.The target was not achieved during 2011-12, 2013-14 and 2014-15 as actual production was 1500, 2300, 1725 during 2011-12, 2013-14 and 2014-15 respectively. The target was achieved during 2012-13 where the production was 2905.

The target for manufacture of FRPTLJ Boxes increased from 16000 in 2010-11 to 18000 in 2011-12 but reduced to 12000 during 2012-13 and 2013-14. Subsequently during 2014-15, the target was further reduced to 10000. The target was not achieved during 2011-12, 2012-13, 2013-14 as actual production was 3749, 930 and 8600 respectively. However, the target was achieved in 2014-15 with a production of 12850. Shortfall was attributed to non-availability of stores (raw materials).

Thus, the objective of increasing the production of identified items had not materialized in any of the SPUs. RB had not properly assessed the items required for enhancement.

3.1.7.6 Development of new products

With the advancement in technology and increase in safety requirements, the needs of Signalling items on IR are ever changing. This necessitates in-house manufacture of improved version of signalling items in SPUs. The prototype of the item is manufactured in the SPU and RDSO approves it. They conduct various tests and field trials to evaluate the performance of the item. After RDSO approval, SPU commences large scale production of the item duly procuring materials required for the production through Stores department.

3.1.7.7 Items pending approval with RDSO

SPUs send proposals to RDSO/Lucknow for approval of new products for future production. Audit examined the position of items pending for RDSO's approval and observed that the pendency in most cases was with the Zonal Railway as explained below:

- In SPU/PTJ (SR), the initial approval of RDSO in respect to seven new signalling items was pending at various stages for six to 28 months. A review of records at RDSO revealed that reasons for pendency were as under:
  - Deficiencies pointed out (November 2015) by RDSO were yet to be addressed in respect of Handle type diado block instrument;

- In respect of QNIK and QNAIK relays the sample failed in initial type test. SPU/PTJ was requested (February 2015) by RDSO to submit improved sample;
- RDSO accorded permission (November 2014) for extended field trail of three months in respect of 'Double line block instrument with BPAC using UFSBI and MUX combiner'. The extended field trial was still being continued (October 2015).
- In respect of DC motor for point machine, the case was closed (March 2015) by RDSO as STR submitted by SPU/PTJ was incomplete.
- Deficiencies pointed out (November 2015) by RDSO in respect of Track feed battery chargers were to be addressed by SPU/PTJ.
- Sample of LED signals submitted (December 2012) by SPU/PTJ failed in testing by RDSO. They advised (October 2013) SPU to carry out safety validation as per CENLEC SIL-4 standards for LED main signalling units. SPU/PTJ (SR) had failed to obtain this validation so far (October 2015). Improved samples had also not been submitted by SPU/PTJ to RDSO so far (October 2015).

- SPU/HWH(ER) forwarded a proposal for manufacturing of "Battery Charger Track Feed" in October 2014. RDSO approval was pending (October 2015) as deficiencies pointed out (June 2015) by RDSO were yet to be addressed by SPU/HWH.
- SPU/BY had developed two types of Electrically Operated Lifting Barriers viz. EOLB 110 V AC and 24V DC. SPU submitted the prototypes in July 2014 for RDSO approval. Although the acceptance tests had been completed, approval was awaited (October 2015). As a result, the manufacture of the item could not commence (October 2015). RDSO's approval for 24V DC) EOLB was pending for want of complete acceptance test report. In respect of EOLB (110V AC), RDSO had permitted (October 2014) SPU/BY to submit EOLB but the same was awaited in RDSO (October 2015).
- SPU/GKP had developed Relay QT-2 ant submitted it to RDSO for approval in May 2013 along with Quality Assurance Plan (QAP) and other relevant documents. RDSO approval was accorded only during October, 2015.

Although ongoing developmental activities at different SPUs was a positive aspect, up-gradation of infrastructure and modernisation of manufacturing process, as envisaged by RB did not make much headway. Facilities had not

been developed for in-house manufacturing of advanced electronic signalling items and IR largely depended upon the open market for the procurement of major signalling systems/ devices. In fact, lack of Research and Development (R&D) facilities and time taken by SPUs in addressing the issues raised by RDSO for approval of the designs and prototypes were the constraints in developing new items. Unless these developmental effort gains momentum, the SPUs' share in the fulfilling the requirements of the Signal department of the Indian Railways might not go up significantly in coming years.

3.1.8 Capability to meet day-to-day requirement

Whenever a demand for a signalling equipment/ device arises at open line for maintenance and at Construction Organisation for creation of new assets, demand is placed on SPUs through an indent. To meet the requirement, ZRs also procure items from open market through Purchase Orders and Works Contracts. Thus, the items are either manufactured by SPUs or purchased from open market. Signal equipment/parts manufactured by SPUs are utilized by Open Line Divisions, Signal Construction units and Signal Project units of ZRs.

Audit examined the details of annual production, share contribution of SPUs in meeting the requirement of end users. Results of Audit examination are furnished in the succeeding sub-paragraphs.

3.1.8.1 Share of contribution by Signal Production Units

In order to augment capacity of SPUs, it is essential that estimated annual requirement of signal items and proposed contribution by SPUs is required to be assessed. However, Audit noted that annual requirement of signal items for IR / ZR as a whole and share of contribution of SPUs in manufacture and supply of various signal equipment against the actual requirement of Railways had not been assessed.

Audit examined the contribution of SPUs in meeting the requirement of ZRs in respect of selected eight signal items consisting of both conventional and modern electronic based signal items in 35 Signal Stores Depots of Railway Divisions, 13 Signal Stores Depots of Railway Projects and 17 Signal Stores Depot of Zonal Railways' Construction Organization in all ZRs including Metro Railway/Kolkata. One or more of these items are manufactured in all six SPUs. Shares of procurement from Railway SPU and from open market by these signal depots during 2011-12 to 2014-15 are given below:

Table No.3.5 - Contribution of SPUs

Sl. No.	Name of the signal items	Sources of Supply		Contribution by SPUs (in per cent)
		SPUs	Trade	
1	Relays (all types)	114023	288513	28
2	Colour Light Signal (CLS) aspects	1560	9999	13
3	Single section digital axle counter (SSDAC)	0	1820	Nil
4	Universal Axle Counter (UAC)	344	95	78
5	Control Panels	42	256	14
6	LED signal units	7307	79285	9
7	Point machines (all types)	4152	5131	45
8	Block instruments (all types)	1228	161	88

Source: Ledgers of concerned Stores Depots

A further analysis of the details of contribution by SPUs in Audit revealed the following:

- In respect of modern advanced electronic equipment, contribution of SPUs was meagre[47]. RB had emphasized that SPU/PTJ (SR) would be the frontline SPU to develop electronic signalling equipment such as SSDAC, AFTC and IPS. However, SPU/PTJ (SR) did not equip itself adequately to manufacture and supply these electronic signalling items.
- In respect of Block Instruments (all types), SPUs were able to meet major portion (88 *per cent)* of the requirement. Audit further noticed that the requirement of Tokenless Block Instruments (TLBs) in IR was decreasing continuously due to doubling and electrification. The mass scale production to meet present day requirement of advanced Block Instruments such as Tokenless Block (TLB) instrument with Universal Failsafe Block Instrument (UFSBI) interface was yet to start in designated SPUs.
- It is relevant to note that FA & CAO, SR had pointed out (June 2015) that the manufacture of TLB-UFSBI in SPU/PTJ (SR) was a mere assembling of components and the process involved was of insignificant importance. Mere assembling of manufactured components may not be cost effective as observed by Finance and SPU/PTJ needs to acquire technology for manufacturing components so that value addition by SPU would be substantial.
- SPUs are able to meet major requirement (78 *per cent*) of UAC. But UAC is the analog version of axle counter. Present day requirement for major

[47] SSDAC: Nil, LED Signal units: Nine per cent, CLS aspects: 13 per cent, Control panels: 14 per cent

track circuiting works, BPAC works is advanced digital version i.e. SSDAC. But SPUs were not able to meet the requirement of SSDACs.

- Relays and Point Machines formed major share of the outturn of SPUs. However, in respect of these items also, ZRs had to depend heavily upon Trade. Around 72 *per cent* of requirement of Relays and 55 *per cent* of requirement of Point Machines were met from Trade.
- It is pertinent to mention here that CSTE/SR expressed (July 2015) inability to meet the current requirement of demand of Point machines and Relays in view of inability of COS/SR in making available in time the raw materials. This indicated the poor material planning at Zonal Railway level.
- On ECoR, the share of procurement in respect of all the eight items from open market was more than 90 *per cent*. The reasons for this unique pattern stated by the Zonal Railway were short supply/ delayed supply of materials unavailability/ unsuitability of materials transportation and shortage of staff for collection of bulk materials from distant workshops.

It is quite obvious from the above mentioned instances that the contribution of SPUs towards the requirement of modern electronically advanced items was inadequate. Apart from this, items that were not being manufactured in SPUs[48] were procured fully from open market by ZRs.

3.1.8.2 Production capacity and production schedule of Workshops

Assessment of installed production capacity is essential for production planning and control. Production capacity is required to be assessed taking into account the available infrastructure and manpower. However, in none of the six SPUs the production capacity was assessed. Instead, production schedule for each year was based on budgeted outturn and demand and

Table No.3.6 - Achievement of Production schedule (2011-12 to 2014-15)

Name of SPU	Targeted Outturn (₹ in crore)	Actual Outturn (₹ in crore)	Shortfall (₹ in crore)
PTJ (SR)	374.45	225.56	148.89
HWH (ER)	66.14	42.30	23.84
GZB (NR)	108.10	51.07	57.03
BY (CR)*	58.94	48.21	10.73
GKP (NER)	105.84	87.25	18.59
MFT (SCR)	109.97	94.64	15.33
Total	823.44	549.03	274.41

* Figures pertain to 2012-13 and 2014-15 as details were not available for 2011-12. In 2013-14, the Actual Outturn was more than Targeted Outturn by ₹7.25 crore.

[48] Data loggers, Integrated Power Supply equipment, latest type of Relays, LED main signalling units, Cables etc.

the approval of CSTE.

Audit examined the details of actual production vis-a-vis Annual production schedule fixed for the SPUs. Results of Audit examination are furnished below:

- Actual quantity manufactured fell short of quantity projected in Annual production schedule in respect of all SPUs. The average shortfall in achievement of annual production schedule by all SPUs was 33 *per cent,* the lowest being one *per cent* in SPU/MFT (SCR) and the highest 62 *per cent* in SPU/GZB (NR).
- During 2013-14, none of the SPUs achieved the targeted Outturn except SPU/ BY (CR).
- During the review period, the shortfall in actual outturn over the scheduled outturn by the SPUs was ₹ 276.44 crore.

Table No.3.7 - Statement showing pending Work Orders

Name of the SPU	Total number of pending Work Orders	Value of the WOs (₹ in crore)	Oldest WO pending from
PTJ	11	13.71	March 2011 (over four years)
HWH	2	22.65	2012 (over three years)
GZB	18	124.29	July 2008 (over six years)
BY	84	10.00	October 2010 (over four years)
GKP	7	87.04	March 2008 (over seven years)
MFT	498	37.71	November 2010
Total	620	295.40	

Since the production schedules were prepared taking into consideration the available infrastructure, men and materials, the non-achievement of target fixed for production indicates underutilization of available resources. Of course, the actual outturn fell short by ₹276.44 crore of budgeted outturn during the review period and the consignees had to depend upon outside suppliers to meet their requirement.

3.1.8.3 Pending Indents and Work Orders

(i) Work Orders

Based on the indents received from various ZRs, SPU prepares work order (WO) for manufacture and supply of items. After the issue of WO, the manufacture of item for the mentioned quantity is taken up in SPU. Audit observed that there was delay in completing the production as per WOs by all the SPUs.

Table No. 3.8 - Statement showing item wise pending work orders

Sl. No.	Name of Signal item	No. of W.O.s pending	Amount (₹ crore)
1	Apparatus case/SS Location Box	89	18.77
2	CLS (all aspects)	54	75.87
3	LB Gate	18	32.94
4	Relays (all types)	7	28.23
5	Point Machine	2	45.4
6	Block Instruments (all types)	5	24.93
Total		175	226.14

As on March 2015, manufacture of Signal items against 620 WOs worth ₹295.40 crore were pending in the SPUs. The oldest pending WO pertained to 2008. In SPU/GZB (NR), 18 WOs valuing ₹124.29 crore were pending. In SPU/MFT, there was pendency of 498 WOs valuing ₹37.71 crore.

Audit further noticed that out of total pending 620 WOs valuing ₹295.40 crore the major portion of 175 WOs related to production of six items only (Value ₹226.14 crore).

Since these items were in use in IR since long time and were not new/ latest or technologically advanced items, SPUs should have manufactured them speedily.

Indents

Work Orders are prepared based on the indents placed by the consignees. Audit examined the details of compliance of indents by SPUs and noted that –

- SPU/PTJ (SR) was able to comply with only four *per cent* of total indents in 2014-15. In respect of other SPUs, the compliance ranged between 15 (GKP) and 62 *per cent* (GZB).
- The value of indents complied by SPUs ranged from 13 (MFT) to 49 (GZB) *per cent* during 2014-15.
- Out of 3,20,586 indents to be complied for the year 2014-15, 21,082 indents were complied and 2,99,504 indents were pending by the end of March 2015. Value of indents not complied with was ₹354 crore.

- The average compliance of indents was only 29 *per cent* by SPUs.

Table No.3.9 - Statement showing pending indents as on 31st March 2015

Name of SPU	Total No. of indents in 2014-15	No. of Indents complied	No. of indents pending	Value of pending indents (` in crore)	Percentage of indents complied with (per cent)	Value of indents complied (in per cent)
PTJ	248921	9993	238928	111.27	4	36
HWH	721	218	503	22.65	30	29
GZB	128	79	49	0.25	62	49
BY	1559	457	1102	70.00	29	18
GKP	68496	10098	58398	87.04	15	19
MFT	761	237	524	62.68	31	13
Total	**320586**	**21082**	**299504**	**353.89**		

- Delay in timely completion of WOs ultimately results in non-achievement of scheduled annual production and extra expenditure to consignees on account of revision of rate by SPUs. The delay in completing the WOs will result in short receipt of vital and safety signal equipment by various consignees and affect the maintenance of signal system adversely.

Non-compliance of indents indicates that SPUs were unable to meet the present day requirement of end users. As there are more demands from consignees, the SPUs have to take all efforts to enhance their core competence to meet the requirement of open line and construction organization. Share of contribution of SPUs in respect of selected items identified for manufacture in SPUs was not adequate and major requirement was being met from open market. SPUs are concentrating on conventional signalling items only. Actual production of SPUs is far below projected annual production schedules.

3.1.9 Performance of workshops

3.1.9.1 Financial position

Important indicators of financial position of SPUs are:

- availability and utilization of funds
- credit realized from manufacture
- WMS turnover ratio - Ratio of average investment in WMS to credit realized on account of outturn i.e. achieving optimum production with minimum investment.

Audit examined the financial position of SPUs and the results of examination are as under:

(i) Utilization of funds by SPUs

Workshop Manufacture Suspense (WMS) of a Workshop/ Production Unit is intended to book cost of manufacture of products temporarily till they are transferred to end users. Whereas credit to WMS means the value of items dispatched by SPUs and accepted by consignees, a debit includes the cost of manufacturing such as labour, material and overheads. A credit to WMS can be equated to 'sales' in a trading firm.

Audit observed that funds required to meet the cost of production viz. cost of raw materials, labour and overheads are provided under the head 'Workshop Manufacture suspense – debit'. During the review period, out of ₹730.29 crore allotted as budget grant for this head, SPUs utilized only ₹635.64 crore.

Audit examined the details of utilization of funds by SPUs and observed the following:

- There was no underutilization of funds in SPU/GZB.
- The total under-utilization of allotted fund during review period (2011-15) in remaining five SPUs was to the tune of ₹116.97 crore[49]. Shortfall in utilization of funds provided in budget grant for these five SPUs ranged between three *per cent* (SPU/MFT) and 35 *per cent* (SPU/PTJ). In SPU/GZB, SPU/BY and SPU/MFT there was excess over the budget grant to the tune of ₹22.32[50] crore.
- In SPUs PTJ (SR), SPU/HWH (ER) and SPU/BY (CR) there was under-utilisation of funds provided in the budget grant during all the four years

Under-utilisation of allotted funds against budget grant indicates inadequate efforts by SPUs not only in production of conventional items but also new items required during planning for modernisation.

(ii) Credit to Workshop Manufacture suspense

Audit examined the position of credit to WMS in SPUs and observed the following:

- Credit to WMS showed an increasing trend[51]. This indicated that the overall turnover of six SPUs was increasing year after year.

[49] PTJ- ₹77.36 crore, HWH-₹7.70 crore, BY-₹1.85 crore, GKP- ₹27.04 crore and MFT-₹3.12 crore
50 SPU/GZB ₹14.99 crore (2011-12 to 2014-15), SPU/BY ₹4.36 crore (2014-15), SPU/MFT ₹2.97 crore (2014-15)
[51] 2011-12- ₹ 122.07 crore,2012-13-₹157.90 crore, 2013-14- ₹164.63 crore and 2014-15-₹194.01crore

- During the review period, there was a total shortfall of ₹130.04 crore[52] in realisation of credit from production (WMS credit) in five SPUs compared to the projection made in budget. This indicated that the outturn was not up to the projected level.
- In SPU/BY(CR), there was excess realization of credit to the extent of ₹5.21 crore during 2013-14 and 2014-15.

There were no reasons available on records for less credit to WMS in comparison to budget credit. This indicated that SPUs' Administration had not identified the factors contributing for lower financial performance. There was no monitoring on the issue by RB also.

(iii) Workshop manufacture suspense turnover ratio

WMS outturn ratio is the ratio of 'value of issues to end users during the year' to balance under the head 'WMS' as at the end March of that year'. This is the percentage of WMS closing balance at the end of March to the WMS credit during the year. RB has directed that WMS outturn ratio should not exceed 3.5 *per cent* for repair Workshop and six *per cent* for Production Shops. Thus, in the case of SPUs, rate of six *per cent* will be applicable.

Table No.3.10 - WMS Turnover ratio

Year	PTJ	HWH	GZB	BY	GKP	MFT
2011-12	3.19	100.88	43.44	NA	98.00	1.69
2012-13	-4.6	104.96	57.06	19.94	95.00	1.23
2013-14	0.47	106.95	46.64	5.06	101.00	1.72
2014-15	-2.5	NA	43.88	2.48	70.00	1.58

Balance under the head 'WMS' would generally refer to amount invested in 'work in progress'. Funds should be in rotation and not be blocked up under 'work-in-progress' for a long time. For this, products should be manufactured and delivered to users with adequate pace and bills got accepted as expeditiously as possible.

Audit examined the details of outturn ratio of SPUs and observed the following:

- WMS turnover ratio of SPU/ MFT (SCR) was within the prescribed limit.
- WMS turnover ratio of SPU/HWH (ER), SPU/ GZB (NR), SPU/BY (CR) and SPU/GKP (NER) was alarmingly high (332 *per cent* to 1783 *per cent*) in comparison to the benchmark limit (six *per cent*) fixed by RB. This denoted the alarming position of blocking up of funds in these SPUs in 'WMS'.

[52] PTJ-₹ 73.55 crore, HWH-₹8.84 crore, GZB-₹6.11 crore, GKP-₹39.58 crore and MFT-₹2.26 crore

- Reasons for high turnover ratio were-
  - Non-availability of raw materials in time (SPU/HWH –ER)
  - Decline in production (SPU/BY-CR)
  - Non-receiving of transfer certificates from consuming departments (SPU/GZB-NR)
  - Finished products lying in workshop (SPU/GKP-NER)
- WMS closing balance at the end of the financial year reflects the expenditure incurred on the unfinished products. As per Indian Railway Code for Mechanical department (Para 1224) there should not be any credit item under WMS closing balance.

  Audit observed that in SPU/PTJ (SR) the closing balance of WMS at the end of 2012-13 and 2014-15 was (-) ₹2.67 crore and (-) ₹1.49 crore during 2012-13 and 2014-15 respectively. This indicated that the SPU's manufacturing accounts were not properly prepared /reviewed and credit item (s) adjusted to WMS. Although the review of balances was being carried out by Accounts Officer, the same was ineffective as it failed to analyze and bring out the reasons for the negative balance.
- Para 1225 of the ibid code stipulates that WMS balances are required to be reviewed by Accounts officer. A Workshop General Register (WGR) is also required to be maintained by Accounts department.[53] Audit observed that-
  - In SPU/BY-CR, neither WMS balances were reviewed nor Workshop General Register maintained.
  - In SPU/PTJ-SR and SPU/MFT-SCR, WMS balances were reviewed by Accounts Officer and submitted to FA&CAO. Workshop General Register was maintained by these two SPUs.
  - In SPU/GZB-NR, no records were available showing that results of review were submitted to FA&CAO. However, Workshop General Register was maintained.
  - In SPU/GKP-NER, Workshop General Register was not being maintained. However, WMS balances were being reviewed by Accounts officer and results submitted to FA&CAO.

- In SPU/HWH-ER, Workshop General Register was not being maintained. Although WMS balances were being reviewed, the results of review were not submitted to FA&CAO.

- Para 1204 of the ibid code stipulates that charges appearing in WGR against various Work Orders are required to be summarized in out-turn statements Part I and Part II[54] which are also meant for raising debits and effecting recoveries. Both these statements are meant for a review with WMS balances.

Audit observed that WMS outturn statement Part I and II were not prepared in all the six SPUs clearly indicating that the codal provisions were not being followed in SPUs resulting in non-ensuring the correctness of WMS balances.

Thus, there was inefficient utilization as well as monitoring of funds by all SPUs except SPU/GZB (NR). This resulted in very alarming turnover ratios. The amounts blocked up under 'work- in -progress' exceeded the prescribed limit in all SPUs except SPU/MFT. Further, credit to WMS fell short of projection in all SPUs.

3.1.9.2 Costing in Signal workshops

(i) Costing system in SPUs

As per Para 902 of IR Code for Mechanical department, the main objectives of a job costing system is to compare the cost of similar articles manufactured from time to time in the Workshops, to determine reasons for variation in cost and comparison between the cost of articles manufactured in the Workshops with those manufactured by other Railways/open market.

RB issued (September 1962) guidelines and instructions for the introduction of Job Costing in SPU/PTJ (SR). GM, SR informed (July 1987) RB that there were difficulties in introduction of Job Costing in SPU/PTJ, considering the higher number of operations involved in production of many items and requested to continue the existing system of costing. RB instructed (May 1990) SPU/PTJ (SR) to adopt the system of Assembly Costing (as stipulated in para 943 of the ibid code) instead of components wise Job Costing. Audit observed that Assembly costing was not implemented in SPU/PTJ (SR).

Audit observed that RB had not communicated any instructions applicable across all SPUs in regard to the method of costing to be adopted. As such, there was no proper costing system in SPUs as the deficiencies listed below would indicate:

[54] Part I statements indicate details for completed Work Orders and Part II statement is meant for details related to Work Order under process.

- Route card, the authority for the shops to undertake manufacture of the component/assembly (para 916 of the ibid code) was not prepared except in SPU/HWH (ER) and SPU /MFT (SCR).
- No idle time card was prepared in all SPUs except GZB where the causes for idle time were stated to be power failure, non-working of crane and want of materials etc.
- In all SPUs, the cost card and working sheet for Final Costing were not being prepared. Comparison between estimated cost and actual cost was also not being carried out.
- The reconciliation between Cost Accounts and Finance Accounts (refer para 943 of the ibid code) was not being done except at SPU/MFT (SCR). However, documents in support of reconciliation were not made available to Audit by SPU/GZB (NR).
- Cost sheet was not prepared for work orders/job orders in all SPUs except PTJ
- Cost components of selected products were not analyzed and compared with trade cost/ cost of products of other SPUs.

All the irregularities stated above establish the fact that there was no proper costing system in SPUs

(ii) Analysis of components of cost in SPUs

Audit analyzed the position of components of cost (labour, material and overhead) prevailing in SPUs and noted the following:

- Details of cost of each component was not being worked out at SPU/HWH (ER), and SPU/ BY (CR) in absence of which the data was not available with Audit for comparison with other SPUs.
- Position of components of cost in respect of SPU/PTJ (SR), SPU/GZB (NR), SPU/GKP (SER) and SPU/MTF (SCR) was as under.

Table No.3.11 - Components of cost (value ₹ in crore)

Components of cost	SPU PTJ		SPU/GZB		SPU/GKP		SPU/MFT	
	Value	per cent	value	per cent	value	per cent	value	per cent
Labour	51.82	24	37.44	50	70.85	50	22.89	22
Material	130.52	62	6.27	8	52.83	36	48.85	48
Overheads	29.06	14	31.05	42	19.32	14	31.18	30
Total	**211.40**	**100**	**74.76**	**100**	**143.00**	**100**	**102.92**	**100**

It may be seen that Labour emerged as major component (50 *per cent*) of cost in SPU/GZB (NR) and SPU/GKP (NER), Material in SPU/PTJ (SR)- 62 *per cent* and SPU/MTF (SCR)- 48 *per cent*. Further, Overheads as a *per cent* of total ranged from 14 per cent (SR and NER) to 30 to 42 per cent (NR).

SPUs are material oriented Production Units where production is through assembling of various components purchased from open market instead of their individual manufacture in the Workshop at lesser rates. As such, the cost of material component should be major. Taking into account this aspect, it may be understood that:

(a) Costing components in respect to SPU/PTJ (SR) were realistic.

(b) At SPU/GZB (NR) the cost of labour and overheads did not seem to be reasonable keeping in view the cost of material utilized for production.

(c)In comparison to material utilized on production, the labour cost at SPU/GKP (NER) and overheads at SPU/MFT (SCR) were on some higher side denoting under-utilisation of labour and over-utilisation of overheads respectively.

(iii) Comparison of cost – rates of SPU vis-à-vis open market

Audit attempted to compare the cost of production in SPU with rates obtained from trade in respect of 17 widely used signalling items. Results of comparison made by Audit are furnished below:

- Rates obtained from open market during comparable period were cheaper than rates of SPUs in respect of all products selected for comparison. However, only during the year 2011-12 the cost of production of Lifting Barrier was cheaper in SPU/MFT compared to the open market rates. Position of rates of SPU as well as open market in respect of 17 products was as under-.

Table No. 3.12 - Trade cost vs SPUs' rate (Amount in ₹)

Name of signal item	SPU rate	Rate purchased from open market	Excess rate	Excess perc-entage	Name of SPU/Year
Relay QTA 2	5890	3534	2356	67	PTJ (2012-13)
Relay plug in type 4F/4B	4635	3044	1591	52	PTJ (2013-14)
Relay QTA2 2F/1B	6032	2363	3669	155	PTJ (2013-14)
Relay QSPA1 8F/4B	6990	3465	3525	102	PTJ (2013-14)
LED signalling units	9224	7500	1724	23	PTJ (2012-13)
Steel Apparatus Case	47660	12724	34936	275	HWH (2014-15)
Apparatus Case GKP-Single	39577	11110	28467	256	MFT (2014-15)

Color Light Signal 3 Aspects	65895	12000	53895	449	GZB	(2014-15)
Color Light Signal 3 Aspects	57000	21209	35791	169	BY	(2014-15)
Color Light Signal 3 Aspects	47785	15029	32756	218	MFT	(2014-15)
Color Light Signal 2 Aspects	37844	11263	26581	236	MFT	(2014-15)
Lifting Barrier (10 mtr)	446826	155220	291606	188	GZB	(2014-15)
Electric Lifting Barrier Gate	381487	341033	40454	12	MFT	(2013-14)
Lifting Barrier Boom	8501	4851	3650	75	BY	(2014-15)
Winch Gear Assembly E Type	52316	39953	12363	31	GZB	(2014-15)
Relay QN1	3950	2287	1663	73	GKP	(2014-15)
Route Indicator 4Way	106326	24079	82247	342	MFT	(2014-15)

It is evident from the above table that price of production of these 17 items in SPUs was higher than that of the rate available from open market. The excess rate ranged between 12 per cent and 449 per cent.

Since these 17 items were available in open market at cheaper rates, their production in SPUs at higher production costs resulted in extra expenditure of ₹22.99 crore[55] . In the prevailing conditions either SPUs' Administration could have explored the possibilities for cost reduction (particularly in cost of labour and overheads) or the extra expenditure could have been avoided by procuring the component from open market.

- In respect of following two products for which production was yet to commence, the estimated cost of production in SPU was higher than the trade rate.
  - The estimated cost of "Single Section Digital Axle Counter" in SPU/PTJ (SR) was ₹5.70 lakh (from 2011-12 onwards). Signal Project Organisation at PTJ had procured the same item, in July 2012, for ₹4.35 lakh through a works contract for a work being executed by them.
  - The estimated cost of "Block Instrument Diado Type" in SPU/PTJ was ₹4.50 lakh (2012-13). Controller of Stores/SR had procured the same item in September 2012 for ₹3.10 lakh only.
  - It is pertinent to note that the SPU rate of 'Color Light Signal 3 Aspects' in 2014-15 varied widely between SPU/GZB, SPU/BY and SPU/MFT (item No. 8,9 and 10 of Table No.3.12) . Also, the rate at which this item was procured from trade by these three SPUs varied widely.

(iii) Comparison of position of cost of production among SPUs

With the idea to compare the costs of production in 2014-15 of certain items among the SPUs Audit selected five items widely used. The results of comparison are summarized below-

[55] PTJ – ₹1.28 crore, HWH -₹1.63 crore, GZB -₹7.39 crore, BY -₹0.66 crore, GKP -₹2.04 crore and MFT - ₹9.99 crore

Table No.3.13 - Cost of production of selected products

Name of SPU	Name of the item manufactured	Workshop Rate (2014-15) (amount in ₹)			
		Direct labour	Direct material	On-cost	Total
Apparatus case					
PTJ	GRS Apparatus Case Full	10653	9318	6629	26600
HWH	Steel apparatus case	10686	16740	20228	47654
GKP	Apparatus case (single)	5841	11072	21688	38600
MFT	Apparatus Case(Single)	11754	11831	15992	39577
CLS units 3 aspects					
BY	CLS units 3 aspects	19464	16125	21411	57000
MFT	CLS units 3 aspects	14276	15271	18238	47785
Lifting barrier					
GZB	Lifting barrier	70786	182288	193752	446826
GKP	Lifting barrier	58056	126300	175644	360000
MFT	Lifting barrier	68108	121089	93835	283032
Relay QN series					
PTJ	RelayQN1 8F/8B	1417	1971	815	4203
PTJ	RelayQNA1 8F/8B	1221	2246	704	4171
GKP	Relay QN-1	452	2030	1468	3950

Source: Records of Accounts office of SPUs

It may be seen that:

- There was significant difference in rates of 'lifting barrier' among SPUs. Whereas the production cost at SPU/MFT was ₹ 2.83 lakh per barrier, it was ₹ 4.47 lakh per barrier at SPU/GZB (158 *per cent*).
- Comparison could not be made in respect of some products as there was no uniformity in description/ specification of items among SPUs.
- Percentage of Overheads (on cost) on direct labour was higher in SPU/GKP in respect of all the products as brought out in Table No.3.13.

Costing is a tool for effective management and introduction of appropriate costing system facilitates cost management, cost control and cost reduction. It brings out the exact cost incurred for manufacture of various items in SPU, so that the rate of products of SPU can be compared with the cost of items manufactured in other SPUs or by outsiders. However, no proper costing system was available in any of the SPUs.

SPU/PTJ Administration stated (July 2015) that justification for manufacturing signal items in SPUs was not solely based on cost consideration, but to achieve self-sufficiency and self-reliance in manufacturing signalling products. This would avoid total dependence on outside firms and would take care of

emergency situations occurring due to non-availability of supply and services in the event of closing down of firms. They also stated that in the long run it might work out to be beneficial for Railways in getting the products manufactured from SPUs. Audit is of the view that in such conditions, IR needs to analyze the reasons for higher cost of manufacture in SPU duly introducing appropriate costing system in SPUs and take suitable cost reduction measures.

3.1.9.3 Value additions made in respect of certain items

Value addition may be derived by deducting from the total cost of finished product the cost of raw material inclusive of cost of material and services outsourced. In case of some items, the cost of value addition in SPUs is very less. Audit examined the details of value addition in respect of selected advanced electronic items.

- In SPU/PTJ, in respect of the three electronic items (LED signalling units, SMS alert equipment and LED torch light) test-checked, the value addition by the SPU during the review period was very low (three to 11 *per cent* of the total cost). Though the value addition by the SPU was very low, manufacture of such items would inflate the turnover of the SPU as the bought out cost of the raw material/ product forms major portion of the output and value addition was not significant.
- In SPU/BY, in respect of four electronic items (Gate Warning Bell, Rx coil, TX coil and LED signal shunt) test-checked, the value addition by the SPU during 2014-15 was 44, 80, 84 and 49 *per cent* of total cost respectively.
- In SPU/MFT, in respect of Track Feed Battery charger and LED signals, the value addition by the SPU was 62 *per cent* and 66 *per cent* of the total cost respectively.
- No test- check of value addition could be done in SPU/ HWH, SPU/GZB and SPU/GKP\ as no advanced electronic item was manufactured there.

3.1.9.4 Productivity index

Productivity is an average measure of the efficiency of production. It can be expressed as the ratio of output to inputs used in the production process, i.e. output per unit of input. Results Frame work documents (RFD) for the year 2011-12 of Ministry of Railways fixed a target turnover of ₹10.64 lakh per employee per annum for the staff of workshops and production units. But, no such target was fixed since 2012-13. As per Results Framework Document

(RFD) of Ministry of Railways, rating is as per norms depicted in the table (Column 2) below:

Table No.3.14 - Rating of labour productivity

Rating	Turnover per employee in lakh of Rupees per employee per annum	Method of calculating turnover per employee
(1)	(2)	(3)
Excellent	11.00	Credit to WMS during the year divided by total number of employees in the workshop.
Very good	10.64	
Good	10.37	
Fair	10.10	
Poor	9.90	

RB instructions (July 2010) based on Vision 2020 envisaged substantial improvement in productivity index of all the Workshops by introducing required automation, outsourcing of parts, components and sub-systems and production of high value items in larger volumes. It was proposed during meeting of CWMs of SPUs at RB on 18.5.2012 that turnover of the Workshop has to be three to four times of the staff wages. To achieve this, the production capacity needs to be increased by choosing right mix of high value items at the same time the cost of the product needs to be optimized and the cost of the material produced should be competitive with the trade.

Audit examined the productivity of SPUs and noted the following:

- No benchmark productivity index had been fixed and monitored. Even the RFD norms had not been communicated to the SPUs.
- No specific action for improving productivity such as automation and outsourcing for the purpose of improving productivity was initiated.

Table No.3.15 - Productivity vis-à-vis staff wages

SPU	(₹ in crore)			
	Wages	3 times of wages	Actual production	Shortfall
PTJ	23.43	70.29	60.48	9.81
HWH	12.95	38.85	12.03	26.82
GZB	11.05	33.15	17.51	15.64
BY	15.92	47.76	34.51	13.25
GKP	21.87	65.61	21.07	44.54
MFT	14.25	42.75	25.62	17.13
Total	**99.47**	**298.41**	**171.22**	**127.19**

- Actual production was less than three times of staff wages and the shortfall was ₹127.19 crore.

- Turnover of SPU/PTJ was less than three times the staff wages as against the target of three to four times of wages. Turnover of SPUs/MFT, BY and GZB was less than two times of wages paid to staff. The turnover was less than annual wages paid in SPUs at HWH and GKP. This indicated that the productivity of staff was very poor in HWH and GKP

Average turnover per employee of SPUs during the review period was ₹5.48 lakhs; far less than the target set in RFD document in 2011-12. As per the rating mentioned in RFD documents, the productivity of SPUs was poor.

Table No.3.16 - Average Outturn per employee per annum

Name of SPU	Range of Outturn per employee in lakh of Rupees per employee per annum during the review period	Average Turnover per employee per annum (₹ in lakh)
PTJ	6.6 to 8.2	7.63
HWH	3.4 to 4.7	3.98
GZB	2.3 to 5.7	4.21
BY	3.1 to 7.5	4.74
GKP	3 to 7	4.30
MFT	6 to 8	6.66
IR		5.48

- Though average turnover per employee was the highest in SPU/PTJ among SPUs in IR, yet it was poor as per ratings of RFD document. Average turnover per employee of other SPUs is lower than that of SPU/PTJ.
- Average outturn per employee per annum was less than ₹five lakhs in SPUs/HWH, GKP, GZB and BY.

3.1.9.5 Human Resource Management

(i) Strength of staff

Right sizing of manpower is essential to achieve economy in labour cost.

Audit examined the size of staff working in all the six SPUs and observed that there were 757 vacant posts (PTJ-150, HWH-198, GZB-36, BY-116, GKP-148 and MFT-109) which worked out to 20 *per cent* of staff strength during 2014-15.

(ii) Non-Revision of allowed time

Allowed Time was fixed for each operation in five SPUs (PTJ, HWH, GZB. BY, MFT). Of the five SPUs,

- The Allowed Time was not revised after taking into account Automation/Outsourcing, in two SPUs viz. SPU/GZB-NR and SPU/BY/CR.

- In SPU/GZB-NR, the basis of fixation of allowed time for manufacture of various items was not found on record.
- In SPU/HWH-ER, details of revision of allowed time was not maintained.
- In SPU/PTJ, the "allowed time" fixed as 70 hours in 1998 for manufacture of IRS Point Machine was revised to 37 hours in 2009 as some activities for manufacture of Point Machine were outsourced. The allowed time was revised as 26.66 hours from September 2014 based on the time study as recommended by AGM under the supervision of CSTE/CN/N/MS. It was stated by Workshop Administration that the allowed time for Q Relays, TLB Instruments, and Control panels was not revised as no operation was outsourced. No time study was conducted for the above items during the last 25 years.
- In SPU/MFT-SCR, the allowed time was re-fixed by reducing five *per cent* each time on 1.10.2005 and 1.12.2009.

(iii) Labour utilization

Instructions relating to maintenance of records of utilization of labour (recording time and allocation of labour) are contained in chapter 5 of IR code for Mechanical department. Audit examined the records of labour utilization and noted that –

- Man-hours unutilized in four SPUs (other than HWH and GKP) were 31 lakh hours equivalent to ₹39.43 crore approx.[56] during the review period.
- In SPU/HWH-ER, the man hours utilized/unutilized as per GA card were not maintained.
- In SPU/MFT, punching of cards for idle time for various purposes was not being done. The total idle cost was not distributed and allocated to concerned Job cards. This practice hindered the exercise of mandatory checks by the Accounts Office as prescribed in Para 423 and 433 of IR code for Mechanical department. Audit could not review the reasons for the idle time booked that caused production loss.

Thus, labour utilization was not adequate and maintenance of records for booking of idle time etc was lacking.

[56] PTJ- ₹10.94 crore, GZB - ₹0.33 crore, BY - ₹24.22 crore and MFT₹ 3.94 crore

3.1.9.6 Availability of machinery and plants

Effective utilization of Machines and Plants (M&P) items is very important in running a production unit efficiently. Audit examined the availability of M&P in the SPUs and observed that:

- Majority of the M&P items in SPUs outlived its codal life. Out of the 317 M&P items in SPU/PTJ, 241 items (76 *per cent*) had completed their code lives and were still in operation. Interestingly, 39 machines which were installed in 1958 at the time of commissioning of the SPU were still being operated. One machine viz; Injection Molding Machine installed in 1972 (codal life 15 years) installed in Machine Shop was not working since 2005.
- In SPU/HWH, 98 *per cent* of the machines were over-aged and crossed their codal lives. Also, 57 *per cent* machines had exceeded 50 years of operational existence. Although 32 machines became out of order during 2010 to 2014, no action for their condemnation or replacement had been initiated.
- In SPU/GZB, two machines were not in working condition. A machine worth₹10.31 lakh has not been commissioned since procurement in 2012. Another machine costing ₹19.94 lakh commissioned in the year 2008 was not in working condition since commissioning.
- In SPU/BY, out of 76 machines, 60 machines had outlived their codal life. No proposal to replace/commission plant and machinery had been made by the SPU during the review period, except for the modernization proposal during the year 2014-15. There were six machines which were over 50 years and had outlived their codal life of 15 years.
- In SPU/GKP, two machines were over-aged and not in working condition. Out of this, one 'Old Sand Mixture' machine and one 'Engraving Machine' required replacement for which the proposal was sent during year 2014 and 2013 respectively and was sanctioned in 2014.
- In SPU/MFT, three machines had not been working for the last one year and one machine for more than five years. All the four machines had outlived their codal lives of 15 years. Replacement process of these machines had not yet been started. Further, out of 204 machines, more than 50 *per cent* (106 machines) had served for more than 30 years and only 25 *per cent* of machines was less than 15 years old.

Operation of obsolete machines which had completed its code life might result in utilization of more materials and more time for completion of the process. In other words, production of items with old machines will result in incurrence of extra expenditure.

3.1.10 Conclusion

The latest pattern of production of Signalling items in all the six SPUs on IR showed that SPUs were still focusing on the manufacture of conventional signalling items instead of producing items of advanced technologies.

The efforts made by ZRs as per RB's decision (2010) to modernize SPUs to meet the challenges of technological advancement of Signal department and consequent need for modern electronic signalling items were insignificant. As a result, the Modernisation Plan (Phase I and Phase II) formulated to achieve goals of Vision 2020 and develop in-house capacity to manufacture electronic based signalling equipment for managing technical obsolescence was badly affected leaving SPUs' Administration with no option but to utilize production capacity to manufacture conventional S&T items.

The SPU–wise developments under Modernisation Plan (Phase I & Phase II) indicated that proposals for modernization did not take off and no funds were sanctioned specifically for comprehensive modernization. SPUs proposals for modernisation sent to RB for approval and funds allotment were lying with RB un-disposed.

The product line changes in SPUs were very little as some signalling items, production of which was decided to be discontinued in phased manner, were still being produced and also the introduction of new items for large scale production was awaited.

Development of new items was very slow specifically on account of approval of the prototypes by the RDSO.

The shortfall in actual outturn over the scheduled outturn by the SPUs during three years covered in review was ₹276.44 crore and as on March 2015, manufacture of Signal items against 620 Work Orders worth ₹295.40 crore was pending out of which 175 WOs related to production of six items only (Value ₹226.14 crore). Out of 3,20,586 indents to be complied for the year 2014-15, 2,99,504 indents were pending by the end of March 2015, value of indents not complied with being ₹354 crore. Thus, actual production of SPUs fell far below the projected annual production schedules and SPUs were not able to meet the present day requirement of IR.

There was no proper costing system in SPUs. Rates obtained from trade during comparable period were cheaper than rates of SPUs. SPUs are working with

over-aged machines. Thus, the performance of SPUs was not economical. Further, IR largely depends upon the open market for procuring latest signal items.

3.1.11 Recommendations

- MoR should take urgent steps to enhance the core competence and commercial viability of the SPUs
  - By evolving a mechanism for speedy modernization of SPUs and up-gradation of infrastructure to manufacture advanced signalling equipment/devices.
  - By reviewing the product line changes equipping SPUs to commence production of high value electronic items on a significant scale to contribute in a more meaningful way to the requirements of IR and by ensuring an efficient costing system in SPUs to facilitate variance analysis, value engineering, cost control, cost reduction and cost management.
- Alternatively, MoR may explore the feasibility of closure of commercially unviable SPUs.

3.2 East Central Railway (ECR): Unproductive expenditure due to improper planning in signaling works

Railway's indecisiveness in deciding the scope of signaling works and lack of inter-departmental co-ordination for replacement of old and worn out lever frames by Panel Interlocking (PI) led to unproductive expenditure of ₹6.97 crore

With a view to replace age old and worn out lever frames[57] and to maintain punctuality & safe running of trains, RB sanctioned the work for providing Panel Interlocking (PI) through replacement of worn out lever frames at Jhajha, Danapur and Kiul stations of ECR vide Pink Book for the year 2000-01.

Audit reviewed the records relating to works in Construction department and noticed that the detailed estimates for these works were sanctioned in October 2002, November 2002 and May 2003 respectively at a total cost of ₹19.62 crore. However, contracts against them were awarded between June 2007 and January 2008. The details of execution of these three works are as under:

Table 3.17

Stations	Date and cost of detailed estimate sanctioned	Date and cost of revised estimate sanctioned	Date and cost of contracts awarded for signaling works	Original date of completion and extended date of completion	Date of termination / short closure of contracts	Amount paid to the contractor on account of supply of materials
Jhajha	October 2002 at ₹5.14 crore	March 2007 at ₹5.76 crore	June 2007 at ₹3.26 crore	December 2007/ January 2010	January 2010	₹2.28 crore
Danapur	November 2002 at ₹4.49 crore	NA	July 2007 at ₹3.75 crore	January 2008/ April 2011	May 2014	₹2.18 crore
Kiul	May 2003 at ₹9.99 crore	December 2006 at ₹11.88 crore	January 2008 at ₹4.03	July 2008/ June 2011	May 2013	₹2.51 crore
	Total					**₹6.97 crore**

ECR Administration revised the estimates after 3.5 years to 4.5 years after the date of sanction of detailed estimate to accommodate the price and quantity

[57] Lever frames function as signal interlocking for safe and smooth movement of trains.

variations through inclusion of new items as well as actual site requirement. Also, even after giving extensions of two to three years to the contractors, works could not be completed and had to be terminated/ short closed. Further, material worth ₹ 6.97 crore supplied by the contractors for the above three works remained unutilized since December 2010. Audit analyzed the reasons for delay in awarding and termination of contracts and noticed that –

(i) Initially, the work of replacement of worn out lever frames was sanctioned (Pink Book of the year 2000-01) for PI works at Jhajha, Danapur and Kiul stations. Later General Manager (GM), ER decided (June 2000) for provision of Route Relay Interlocking (RRI) works at Jhajha and Danapur being bigger stations. But Chief Operation Manager (COM)/ER separately took a decision (July 2001) for providing PI with end panel for Jhajha station and RRI at Danapur station. Despite decision of higher authority (GM/ER) for RRI at these two stations (Jhajha and Danapur), the detailed estimate for work was sanctioned for PI by Chief Signaling and Telecommunication Engineer (CSTE)/ER in October - November 2002 for above two stations. After formation of ECR (October 2002), GM/ECR also decided to propose (January 2003) RRI works at Jhajha station by replacing lever frames. Due to this indecisiveness on the part of Railway Administration, the scope of works was changed and consequently awarding of contracts was also delayed.

(ii) The signaling work of replacement of worn out lever frame by PI at Kiul stations was awarded in January 2008 after four and half years of sanctioning of detail estimates (May 2003). The work was short closed in May 2013 due to non-completion of civil engineering work and signaling plan. As of March 2015, no tender has been processed for this work.

(iii) Further, the contracts were extended a number of times (four to eight times) as the S&T contracts for all the three stations were awarded without completion of civil engineering work and approval of signaling plan.

Due to change in scope and non-approval of Engineering and signaling plans, the contracts were terminated mid way and the works of PI/RRI at these stations are still not completed even after lapse of 15 years of the sanction of work by the RB (2000-01).

In this connection the following audit observations are made:

(i) The contractor had received payment for supply of materials worth ₹6.97 crore till December 2010 which proved unfruitful as the materials remained unutilized for more than four years due to non-commissioning of PI/RRI at

these stations. Besides, the warranty period (18 months) for these materials had already lapsed and repair and replacement against any future defects after their commissioning is at risk.

(ii) From the above findings, it could be concluded that S&T works were awarded without completion of primary works of preparation of Engineering and Signaling plans. This was contrary to RB's instructions (August 1980), wherein it was stipulated that contracts should be awarded after completion of all preliminary works.

(iii) Further, delay in commissioning of PI/RRI works at these stations also affected smooth movement of trains compromising the safety of train operation as stated in justification of work that due to extensive use of lever frames of these stations, gears had worn out and lever frames had out lived their codal life of 25 years long back.

Thus, indecisiveness in planning and lack of co-ordination between Civil and Signaling department of Railway led to un-productive expenditure of ₹6.97 crore besides compromising the passenger safety.

On the matter being referred to Railway Board in January 2016, they contended (February 2016) that -

(i) Payment to contractor for the whole amount of ₹6.97 crore has been made only against supply of material, which have been utilized for other projects within the warrantee period. Credit to the works for utilization of the material in other projects will be done in a normal course.

(ii) Delay in execution of these projects took place primarily due to dovetailing of other sanctioned works along with the work of replacement of existing signaling system and executing them together as a composite work. This resulted in short closure of earlier tender and issue of fresh tender with the comprehensive scheme. Going ahead with earlier approved plan/scheme would have resulted in permanent shortcoming/ bottleneck and also compromised safety and efficiency in train operation causing recurring loss. Any attempt to remove these bottlenecks at later stage would have resulted in much larger infructuous expenditure – almost redoing the whole work again including multiple round Non-Interlocking working.

The above contention is not accepted in view of the following:

(i) During inspection, Audit noticed that in the depot of Deputy CSTE/Danapur, where material was received, there were no records to show the issue of such material to other works.

(ii) Contrary to the decision taken by GM/ECR (January 2003) to undertake RRI works at Kiul and Jhajha stations, the ECR's construction organization awarded contacts for PI work at these stations. Thus, indecision in ECR on whether to replace the worn out lever frames by PI or by RRI at these stations before awarding the contract resulting in termination of contract mid-way.

Chapter 4 – Mechanical – Zonal Hqrs/Workshops/ Production units

The Mechanical Department is mainly responsible for management of –

- Train operations by ensuring motive power availability, crew management, rolling stock management and traffic restoration in case of accidents
- Workshops set up for repair, maintenance and manufacturing of rolling stock and related components
- Production Units engaged in production of locomotives, coaches, wheel sets etc.

The Mechanical Department is headed by Member Mechanical at Railway Board (RB) who is assisted by Additional Members/ Advisor for Mechanical Engineering, Production Units and Rolling Stock/ Stores.

At Zonal level, the Department is headed by a Chief Mechanical Engineer (CME) who reports to the General Manager of the concerned Railway. The office of the Member Mechanical of the RB guides the CME on technical matters and policy. At the divisional level, Senior Divisional Mechanical Engineers are responsible for implementation of the policies framed by RB and Zonal Railways. The Workshops are headed by Chief Works Managers who report to the CME of the concerned Zone. Production Units are managed independently by General Managers reporting to the RB.

The total expenditure of the Department during the year 2014-15 was ₹41,155.36 crore. During the year, apart from regular audit of vouchers and tenders, 640 offices of the Department were inspected.

This chapter includes one review on Manpower management in mechanical workshops in Indian Railways. Audit noticed that in the workshops of Indian Railways, there was no uniform or scientific critria to assess the manpower requirement. Benchmarking for improvement was not being adopted in the workshops.

In addition, this chapter includes five individual paragraphs related to delay in commissioning of diesel locomotives; wasteful/ unproductive expenditure on procurement of EMU bogies/ high capacity bogies etc.

4.1 Manpower Management in Mechanical Workshops

4.1.1 Introduction

Indian Railways (IR) is a labour intensive industry having a workforce of over 13.26 lakh regular employees with an annual wage bill amounting to about ₹ 84,748 crore as on March 2015. Of these, nearly 1.55 lakh employees are engaged in 42 mechanical workshops of IR, maintaining the large fleet of rolling stock of IR comprising 2,54,006 wagons, 68,558 coaches and 10,730 locomotives (as on March 2015). These 42 mechanical workshops spread across the sixteen zonal railways across the country, carry out periodic overhauling of diesel and electric locos, coaches, wagons and Electrical Multiple Units (EMUs) besides manufacturing and repairing of various components required for maintenance of rolling stock in field units of IR.

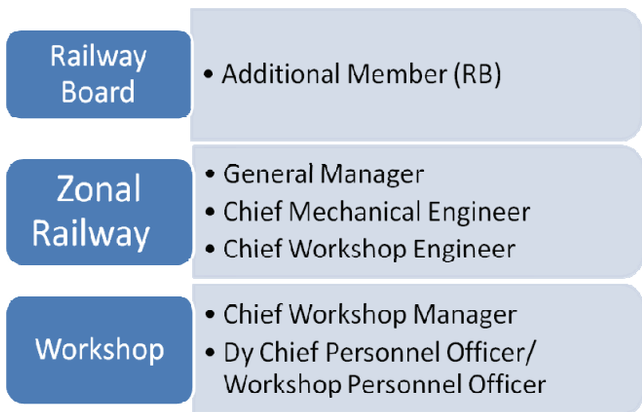
Each workshop prepares its periodical overhaul (POH) programme two years in advance indicating the out-turn that they would be able to achieve, taking into account the number of coaches/wagons/locomotives that would fall due for POH. The proposals sent by Zonal Railways are examined by RB which then sets the annual targets. Optimal utilization of rolling stock is largely dependent on effective management of workforce in these workshops. The broad purpose of manpower management is to maximize the return on human capital investment and minimize manpower related financial, operational and regulatory risks. As such man-power management touches virtually every aspect of operations of IR as these workshops deal with the maintenance of the prime assets i.e. rolling stock which are at the core of their operations. Financial incentive schemes were introduced in workshops as a tool to increase productivity by boosting the morale of the staff, in which employees are assured of getting incentive based on the time saved on the job under Chittaranjan Locomotive Works (CLW) Scheme or outturn achieved under Group Incentive Scheme (GIS) scheme.

4.1.2 Organizational structure

At RB level, the workshops come under administrative control of Additional Member (Production Unit & Workshops).

At Zonal level the workshops function under the overall control of the General Manager assisted by Chief Mechanical Engineer and Chief Workshop Engineer. The Chief Workshop Manager is responsible for the day to day functioning of the Workshops.

The Chief Workshop Managers are assisted by various Dy. Chief Engineers (mechanical and electrical) on the technical side and Workshop Accounts Officer and Workshop Personnel Officer on administrative side. Workshop Personnel Officer, who while reporting to the CWM is under the administrative control of the Chief Personnel Officer at Zonal Level. Manpower management at workshops is the joint responsibility of the Production Engineer and the Personnel Department.



A Planning Branch, under the control of CPO, also functions in each Zonal Railway. The Planning Branch comprises the Efficiency Cell & Staff Inspection Units, (also called Work Study Cells). The Efficiency Cell conducts work studies and suggests steps for improving efficiency, effectiveness and economy. In Zonal Railways, Senior Deputy General Manager (SDGM) implements the policies relating to the manpower management. Zonal Railways annually send their annual work study programme to the RB. Apart from the work studies approved by the RB, General Managers/SDGMs of Zonal Railways also approve some work studies covering different areas/wings in the Zone.

4.1.3 Audit objectives

This review was conducted to check whether:

- Assessment of manpower requirement was related to the infrastructure facilities available;
- Available manpower was utilized efficiently and economically;
- The RB's instructions on rightsizing and recommendations of work study reports were implemented and training provided was adequate.
- Incentive schemes achieved the desired results of increased production with minimum manpower.

4.1.4 Audit criteria

The provisions contained in Chapter IV of Indian Railway Code for Mechanical Department (Workshops) and RB instructions relating to manpower management viz. recruitment, benchmarking, rightsizing, modernization, implementation of incentive schemes and training were adopted as criteria.

4.1.5 Audit scope, methodology and sample size

Both Mechanical and Electrical Departments of all workshops undertaking POH of rolling stock (wagons, coaches and locomotives) were covered in the study for a period of three years from 2012-13 to 2014-15.

Records at Zonal Railway Headquarters, workshops and Personnel Branch were examined and data pertaining to manpower utilization, targets set and achieved, incentive schemes in place and trainings was collected for analysis in arriving at conclusions.

4.1.6 Audit findings

4.1.6.1 Manpower assessment and its revision

Basis for assessment of manpower: Assessment of right requirement of manpower is the primary step in manpower management of any organization. The manpower required in the workshops is to be assessed by analyzing the activities, jobs, skills and time required for execution of jobs, availability of infrastructure etc.

As directed by RB [58], the workshops are required to furnish their POH programme two years in advance indicating the out-turn that they would be able to achieve, taking into account the number of coaches/wagons/locomotives that would fall due for POH (i.e. arisings), capacity of POH with reference to availability of manpower and any enhancements in capacity due to augmentation works. The workshops are also required to indicate their capacity to undertake works of manufacture/rehabilitation of various items and to undertake Rolling Stock Program (RSP) works.

As per Para 111 of Mechanical code, efficiency of a workshop is largely dependent on the planning and production control organization of the workshop which is required to maintain data of installed capacity, booked load, spare capacity etc., The basic requirement, would thus be, to assess the installed capacity of the workshops with reference to the plant and machinery available. The details pertaining to the installed capacity of the workshop, targets fixed

[58] No.2012/M(W)/814/1 dt 5-9-2011, 20-9-2012 and 14-10-2013

and basis of assessment of requirement of manpower of the mechanical workshops on IR are summarized below:

Table 4.1

Sl. No	Details	Number of workshops
1	*2*	*3*
1	Total number of mechanical workshops	42
2	Number of workshops where installed capacity was assessed	26
3	Number of workshops where installed capacity was not assessed till date	16
4	Number of workshops where requirement of manpower was re-assessed as per installed capacity prior to March 2015	20
5	Basis for assessment of target of the workshop	
a	Arisings and targets fixed by RB	34
b	Capacity of workshop	2
c	Availability of manpower as per RITES study	4
d	Data not furnished(ER-Jamalpur & NWR-Jodhpur)	2

Note: Annual workload of the workshop was categorized in the table based on whether it is assessed based on
(a) arisings of POH due rolling stock for that year
(b) capacity of the workshop or
(c) Scientific assessment based on infrastructure and availability of the manpower as per RITES study

Capacity of Workshops: From the table above, it can be observed that out of 42 mechanical workshops examined in audit, installed capacity was assessed in only 16 shops and subsequently re-assessed in 10 shops. Installed capacity was yet to be assessed in 16 workshops on IR.

Assessment of requirement of manpower: Audit also observed that no norms are laid down in case of mechanical workshops though norms of requirement of manpower based on workload is prescribed in case of maintenance of rolling stock in open line sheds. Requirement of manpower was stated to have been assessed based on installed capacity in 15 out of 42 workshops. In 20 out of 42 workshops, it was stated that the requirement of manpower was re-assessed subsequently. Thus in 22 out of 42 workshops, basis of assessment of manpower provided was not known and neither was any subsequent study

conducted to re-assess the requirement of manpower either based on installed capacity of the workshops or target required to be achieved based on needs of IR

Basis of fixation of outturn to be achieved: It was observed that there was no uniform or defined basis for fixation of targets. Targets were stated to have been fixed on assessed capacity of the workshops only in 2 workshops viz., Parel and Nagpur. In respect of 4 workshops[59] fixation of targets was based on studies conducted as part of introduction of Group Incentive Scheme which took into account both installed capacity and availability of manpower. In the remaining 36 workshops, fixation of targets was based on factors such as assessment by the shops themselves based on achievement of earlier year's targets, anticipated arisings and targets fixed by RB etc.

Thus, audit observed that in the absence of specific norms prescribed, there was no scientific or uniform method in place to assess the requirement of manpower in workshops based on installed capacity of the workshops and time required for the outturn as per installed capacity.

IR needs to put in place a scientific basis of assessing the capacity of manpower and ensure that manpower as required is provided to enable effective utilization of infrastructure created in the workshops.

Segregation of staff for core activity and maintenance activity - There are three different types of repair and maintenance units on Railways viz.,

(1) Carriage and Wagon Workshops and
(2) Running Sheds, Sick Lines and Train Examining Stations.
(3) Locomotive Workshops

POH activity is carried out in Carriage and Wagon Workshops, activity relating to maintenance is carried out in running sheds/sickliness or train examination points. Activity of manufacture is generally outsourced unless a workshop is specifically set up for this purpose like spring shop at Sithouli, or manufacture of wagons as at Samastipur.

Para 107 of the mechanical code also lays down that the main locomotive workshops of the railway in addition to the repairs and reconditioning of rolling stock, plant and machinery, and the manufacture of the spare parts for the repair thereof, may also carry out work of manufacture and assembly of locomotives, coaching and goods vehicles, manufacture of articles required for use by stores department of the railway and other government departments, foreign railways and others.

[59] Mancheswar, Bhopal, Tirupati and Rayanapadu

However, it was observed that even in Para 107 of the Mechanical Code, no specific provision for subsidiary activities is made for Carriage and Wagon workshops. It was observed that while the workshops working under GIS scheme undertook only the core activity of POH of rolling stock, the workshops under CLW scheme (where payment of incentive was based on job work), in addition to the core activity of POH of rolling stock, took up many subsidiary activities and maintenance activities such as Intermediate Overhaul (IOH)/ Premature POH (NPOH), heavy repairs of wagons (C-Category) and other repair and miscellaneous manufacture activities.

Out of total man-hours of 1,202.29 lakh available during the year 2014-15, only 76 *per cent* was used (i.e. 910.42 lakh man hours) for undertaking main/core activity of the workshop and the remaining 24 *per cent* (i.e. 291.88 lakh man hours) was utilized on subsidiary activities in 28 out of 42 workshops. Of the remaining 14 workshops, no details of utilization of man-hours were furnished by the eight workshops[60] and no subsidiary activity was stated to be carried out in five workshops[61].

Audit also observed that in 20[62] out of 28 workshops where data was made available, man-hours ranging from 2 to 78 *per cent* were utilized on subsidiary activities, instead of being done in open line sheds or outsourced as per instructions of RB on outsourcing of non-core activity, leading to inefficient-utilization of available skilled manpower of workshops for POH activity.

IR needs to lay down specific and uniform guidelines across the workshops to ensure that only core activities are assigned to the workshops as per extant provisions of the Mechanical Code to ensure effective utilization of infrastructure created for the core activity.

Benchmarking - Benchmarks serve as standards for comparing current performance levels and provide useful feedback to executives to improve their performance. They firmly establish a process of review and analysis on a consistent basis with the objective of "getting more out of less". As the organization improves, and as technology and external environment undergoes changes, these benchmarks must continuously be reviewed, inspected and, if required, mid-course corrections applied to reflect higher levels of expectations and achievements. RB issued instructions (March 2009) regarding benchmarking analysis of man power productivity ratios of various activity

[60] Charbagh, Tindharia, Jamalpur, Parel, Kurduwadi, Mancheshwar, Liluah and Gwalior
[61] Nagpur, Mahalakshmi, Rayanapadu, Kharagpur and Jhansi.
[62] Matunga, New Bongaigon, Alambagh, Jagdhari, Kalka, Ajmer (loco), Bikaner, Raipur, Perambur (Carr), Kharagpur, Samastipur, Ajmer (carr), Jodhpur, Tirupati, Lallaguda, Perambur (Loco), Goldenrock, Hubli, Mysore, Bhavnagar

centres such as loco sheds, engineering offices etc., but mechanical workshops were excluded from these benchmarking norms.

Most of the workshops in IR carry out multifarious activities in addition to the main activity of POH such as refurbishment of coaches, intermediate over haul (IOH) of bogies, rehabilitation of coaches, rebuilding and heavy repair of wagons damaged in operation etc. In addition to this, the workshops also undertake rebuilding/production work under Rolling Stock Programme (RSP) as decided by RB. While a system of assessing productivity based on standard units of production was evolved in respect of four workshops in which GIS bonus payment was introduced, it was however observed in audit that no such system of assessment of quantum of work in terms of equated or standard units was evolved for the other 38 mechanical workshops.

In the absence of a measuring standard or benchmarking norms prescribed by Railways themselves for mechanical workshops, Audit attempted to compare Manpower Ratio (MPR) in respect of comparable mechanical workshops (i.e. the manpower engaged is divided by the quantity of output turned out) in workshops with comparable workloads where only POH of Coaches or POH of wagons was being carried out.

Audit observed that 11 workshops carried out activity of POH of Coaches as their major activity during the period of review and manpower ratio[63] in these workshops ranged from 1.08 at Tirupati to 1.92 at Hubli. Similarly, in five workshops where the activity was restricted to POH of Wagons, manpower ratio in these workshops ranged from 0.19 at Pratapnagar to 0.39 at Jhansi.

Audit also observed that while activities in these select workshops were focused and restricted to either POH of coaches or wagons and only 2 to 3 related activities were carried out, in the remaining workshops, the activities were mixed and no comparable standards were evolved. Audit also observed that in units where mixed activities of POH were taken up, there was no system of assessing standard or equated unit which would have enabled least Man Power Ratio (MPR) i.e. highest productivity with least staff among the workshops to be adopted as benchmark for comparison of the performance of other workshops.

In view of the varied nature of work handled, IR needs to evolve a standard measurement unit to assess and measure the quantum of workload that can be handled by the workshops based on available manpower and capacity to enable effective utilization of available resources.

[63] Manpower Ratio (MPR) in respect of comparable Mechanical workshops (i.e. the manpower engaged is divided by the quantity of output turned out)

Lack of uniformity in strength of non-production employees - Manpower employed in workshops are categorized in four main groups' viz., Officers, Production, Ministerial and others. The main category of manpower in a workshop is that involved in Production and the other categories provide supervision, direction, control and support. A comparison of percentage of the category of ministerial and support staff to that of production staff across workshops of IR was made by audit**.**

It was observed that the percentage of "ministerial staff" to total production staff ranged from 2.73 *per cent* (Bhopal) to 11.23 *per cent* (Dahod) and that of "other staff" to total production staff from 0.72 (Kurduvadi Workshop/CR) to 10.06 *per cent* (Bikaner Workshop/NWR) of the production staff. Audit thus observed that there was no uniform assessment of manpower requirements of "ministerial" and "other staff". Adopting an average of 6.7 and 2.8 *per cent* respectively in respect of "ministerial" and "other" staff, it is observed that there was excess operation of 1881 men per annum on an average on 24 workshops.

IR needs to make a realistic requirement of staff in respect of "ministerial" and "other" categories of staff based on best practices across workshops of IR and ensure that requirement of these categories is fixed accordingly to avoid operating excess men and also adopt principles of benchmarking.

Outsourcing and its impact on manpower - The RB issued broad policy guidelines (February 2005) for outsourcing various activities. As per these guidelines, Railways as a department would deal mostly with the core activities of a national transport organization in line with its responsibilities. Railways would implement non-core activities through outsourcing consistent with the agenda of planned rightsizing of the organization. The activities identified for outsourcing were also identified in these instructions. In compliance with above instructions, various activities such as coach/wagon cleaning, rehabilitation of wagons, fitting of electrical items etc. were outsourced in workshops and substantial expenditure is being incurred in outsourcing.

A review of records of workshops of IR revealed outsourcing was resorted to in 14 out of 16 Zones (no outsourcing was done in ECR and NFR). A total of 378 activities were outsourced at a value of ₹ 229.81 crore, against which an expenditure of ₹ 149.50 was incurred till 31 March 2015. 149 outsourced activities were core activities and remaining 229 were non-core activities.

Audit observed that outsourcing of core activity was contrary to extant instructions of the RB (February 2005). Railways stated that these activities were taken up through original equipment manufacturer (OEM) firms due to non-availability of infrastructure facilities and expertise. In respect of

outsourcing of non-core activities, it was observed that no manpower was proposed for reduction though guidelines issued required that outsourcing of non-core activities should be implemented with the agenda of planned rightsizing.

IR thus, needs to evolve a clear policy on outsourcing as regards core activity consistent with its guidelines.

Works of RSP carried out in Mechanical Workshops - Annual RSP[64] is a follow up of the Five Year Plans, formulated for the IR in respect of acquisition of rolling stock. This programme also considers major modifications to be carried out on rolling stock primarily involving change their class, i.e., conversion of coaches into Accident Relief Trains, conversion of electric Loco rectifiers etc., These works are programmed by RB based on proposals received from Zonal Railways.

Para 1524 of Mechanical code lays guidelines that works which are normally repair items and do not involve any modernization/ conversion of the stock and those which do not affect the category of the rolling stock or class should not be proposed under RSP and should normally be carried out by the Railway. The items of works which do not form part of RSP should be carried out by the Railway under a special revenue estimate. These include works such as re-cabling of locos, wheels for locos, re-harnessing, rehabilitation, provision of minor equipment, re-winding of armatures not falling within the ambit of capital spares etc.

During the period of review, 193 RSP works as allotted by RB were undertaken in workshops of 12 out of 16 zonal railways (excluding ECR, NER, NFR and WCR) as detailed below:

Table 4.2

Railway	Number of activities under taken during the period 2012-15	Number of activities outsourced		
		Repair/ refurbishment/ renewal/ retro-fitment	Manufacture	Procurement
1	**2**	**3**	**4**	**5**
SCR	29	17	12	0
CR	31	12	6	13
ER	9	3	0	3
ECR	0	0	0	0
ECOR	12	7	0	3
NR	12	2	0	0
NCR	3	3	0	0

[64]Para 1501 and 1512 of Indian Railway Mechanical Code.

NER	0	0	0	0
NFR	0	0	0	0
NWR	10	10	0	0
SR	26	8	2	5
SER	11	8	0	3
SECR	2	2	0	0
SWR	24	0	0	0
WR	24	22	0	0
WCR	0	0	0	0
Total	**193**	**94**	**20**	**27**

Contrary to the above provisions, audit observed that 94 (48 *per cent*) of 193 RSP works taken up during the period of review pertained to works of normal repair such as refurbishment of coaches, provision of mobile points, painting, repairs to wagons including drilling of holes etc., which did not fall in the category of RSP works and should have been done departmentally either in the open line maintenance sheds or workshops.

As per the RB's guidelines (January 2005), outsourcing was to be resorted to in non-core areas linked with planned rightsizing and in areas where staff attrition was higher than induction. Audit, however, observed that while 141 RSP works (73 *per cent*) were outsourced (Total of Col.3 to Col.5 of Table 4.2) on the plea of non-availability of sufficient manpower and lack of expertise in the shops, 52 such RSP works[65] (27 *per cent*) were taken up by the workshops themselves, even though availability of workers in these shops was also below the sanctioned strength of these workshops, indicating lack of clarity in following orders on outsourcing.

IR thus, needs to ensure implementation of guidelines as laid down and define clearly the nature of works which can be categorized as RSP. RB also needs to examine the need for such works being assigned for execution in workshops as there is shortfall in manpower in most of workshops when compared with sanctioned strength.

4.1.6.2 Manpower utilization

Utilization of man-hours - Two types of Incentive schemes viz., CLW and GIS are being operated in the Mechanical Workshops which are discussed in detail in para 4.1.6.6. Incentive scheme or payment by results affords direct financial incentive to workers who exceeded a minimum level of performance while enabling the administration to improve productivity and efficient utilization of manpower, machinery and plant.

[65] ER – 3 works, ECOR 2 works, NR – 10 works, SR-11 works, SWR - 24 works, WR - 2 works

Where the CLW scheme of incentive payment is in operation, the time allowed is computed after conducting time-study in accordance with the standard practices of work measurement. The allowed times are so fixed that a workman of normal ability can earn 33-1/3 *per cent* bonus over and above his basic wages for the period spent on piecework jobs. Where no time is saved, no bonus is payable. As the scheme envisages that a worker of normal ability is able to earn bonus by saving time, it is essential that all available man hours are fully utilized by ensuring sufficient workload or by regulating the requirement of manpower to workload available through regular and timely review of the incentive managerial statements. RB advised (June 1999), reduction of 12 *per cent* in allowed time for each shop/activity (effective from 1 September 1999), and directed Zonal Railways to revive the monthly monitoring system both at workshop and headquarters level to analyze inter-alia, the trend of deviations, shortcomings percentage of bonus earnings, deployment of Direct Workers and Essential Indirect Workers vis-à-vis sanction and actual load lifted per direct worker. Board also directed that proper analysis of 'un-accounted hours' should be carried out regularly and follow up action should be taken to eliminate the arising of un-accounted hours.

Analysis of utilization of man-hours in the workshops where CLW incentive scheme was in vogue revealed that time saved due to operation of incentive scheme was not fully utilized indicating that Board's instructions on elimination of unaccounted man-hours were not followed. This resulted in operation of man-power in excess of requirement in all the workshops in IR. Manpower to extent of 22,403 men[66] were operated in excess leading to payment of wages of ₹ 783.30 crore as detailed below:

Table 4.3

Sl No	Zone	No of workshops under CLW incentive scheme	Excess men due to non-utilization of man-hours saved under incentive scheme	Loss on wages (Rs in Crore)	Variation in assessment of load lifted (Yes/No)	No of workshops with incentive payment in excess of 45 *per cent*
1	*2*	*3*	*4*	*5*	*6*	*7*
1	CR	2	2439	114.66	Y	1
2	ECR	1	85	2.15	Y	0
3	ER	3	4606	121.38	Y	2
4	NCR	1	919	36.70	Y	1
5	NER	2	1416	43.74	N	0
6	NFR	2	1266	56.39	Y	2

[66] Excess men assessed as a difference of men on roll less manpower actually required based on time taken as per records of the workshop

7	NR	5	2069	70.97	N	2
8	NWR	4	2124	80.90	N	2
9	SCR	1	252	6.49	Y	0
10	SECR	2	238	7.13	Y	0
11	SER	1	1480	51.22	N	0
12	SR	3	2394	75.05	Y	3
13	SWR	2	639	21.45	Y	2
14	WCR	1	545	18.15	Y	1
15	WR	4	1931	76.92	Y	3
Total		**34**	**22403**	**783.30**		**19**

Variation in assessment of Load Lifted and high earning of incentive - In terms of Para 431 (viii) of Indian Railway Mechanical Code, the number of effective hours available per shift per month will be taken as 200 and with the addition of 33 1/3 *per cent* representing the average efficiency under incentive scheme, 267 man hours per man per month shall be the basis for working out the number of direct workers. Thus, Load lifted per worker (i.e. the number of hours worked per man per month) is an important index for the administration to assess whether the time saved has been productively utilized. The higher figure of load lifted indicates better utilization of available manpower. Audit observed that load lifted per worker was assessed differently by different workshops across zonal railways[67] and also within electrical and mechanical wings in same shops as observed in SCR.

Para 402 of Indian Railway Mechanical Code provides a ceiling limit of profit of 50 *per cent* and Para 419 prescribes a review where large profits are made more or less consistently. Audit observed excessive profits indicated by payment of incentive above 45 *per cent* in 19 workshops [68] out of 34 workshops where CLW scheme of incentive scheme was operated on 11 Zones.

Payment of incentive at consistently higher rates indicate that there is a need for re-assessment of time allowed in view of changes due to provision of modern machinery and re-organization or improvements in working conditions which have led to requirement of lesser time for carrying out the same jobs.

IR thus, needs to ensure effective implementation of incentive scheme by efficient utilization of all available man-hours eliminating un-accounted man-hours.

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[67](CR, ER, ECR, ~~NER~~, NFR, NCR, NR, NWR, SECR, SR, SWR & WR)

[68]Zonal Railways/Workshops where percentage of incentive is more than 45 *per cent*: 1. CR (Matunga) 2. ER (Kancharapara, Liluah) 3. NCR (Jhansi) 4. NFR(Dibrugarh, New Bongaigaon) 5. NR (Alambagh, Jaghdhari) 6.NWR (Ajmer (Carr), Jodhpur) 7. SER (Kharagpur) 8. SR (Goldenrock, Perambur (Carr), Perambur (loco) 9. SWR (Hubli, Mysore) 10. WCR (Kota) & 11. WR (Dahod, Mahalakshmi, Pratapnagar)

Comparison of allowed times - Effectiveness of incentive schemes of payment is directly linked to time saved in operations which can be utilized for increasing productivity. Under the CLW pattern of incentive scheme in vogue in most workshops on IR, the time allowed is fixed taking into account the time required for performing an activity by a worker of average capacity, to which are added the time expected to be saved, preparatory time required, allowances towards fatigue and contingencies. Indian Railway Mechanical code requires that the time taken on job works are to be reviewed periodically and rationalized based on improvements in infrastructure as also the expertise gained by workers in doing repetitive work over a period of time.

To enable examination of provisions of mechanical code that time allowed should be reviewed periodically and reduced or rationalized based on improvements in facilities and infrastructure provided, audit sought information for the years 2005-06, 2010-11 and 2014-15. Details of time allowed and time taken were not furnished to audit by 11 workshops[69] and furnished partially by four workshops[70].

Audit observed huge variation in time allowed and time taken for similar activities across different workshops. The difference in time allowed ranged from 836 hours to 1291 hours (154 *per cent*) for the activity IOH of Non-AC LHB Coach and from 105 hours to 2179 hours (2075 *per cent)* for IOH of Bogies. Similarly, the time actually taken varied from 5532 hours to 6896 hours (125 *per cent)* for Refurbishment of AC coach and from 89 hours to 2671 hours (3001 *per cent)* for IOH of Bogies.

It was further observed that within the same workshop while there was reduction of time allowed in respect of 12 activities, contrary to the instructions on reduction, the time allowed increased in respect of nine activities as detailed below:

Table 4.4

Sl No	Rly	Workshop	Activity	Allowed time during			Percentage of variation
				2005-06	2010-11	2014-15	
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*
1	NFR	Dibrugarh	POH of Non AC Coach	3618	3690	3256	-10
	NFR		POH of AC coach	4591	4337	3866	-16
2	NFR	New Bongaigaon	POH of DEMU Coach	1054	817	820	-22

[69] Kurduwadi, Mancheswar, Gorakhpur, Izzzatnagar, Tindharia, Jodhpur, Bikaner, Liluah, Kharagpur, Bhavnagar and Rayanapadu.
[70] Matunga, Amritsar, Ponmalai, Lalaguda

	NFR		POH of Non AC Coach	4986	4837	4653	-7
	NFR		POH of AC coach	7013	6089	6391	-9
3	NR	Jagdhari	POH OF WAGON	598	643	638	7
	NR		POH of AC coach - LHB	2687	3076	4283	59
	NR		POH of Non-AC LHB coach	2718	2817	3743	38
	NR		POH of Non AC Coach	3087	3115	4170	35
	NR		POH of AC coach	3397	3539	4844	43
4	NR	Kalka	POH of AC coach	586	547	547	-7
5	SCR	Tirupati	POH of MEMU Coach	2083	2083	2401	15
	SCR		POH of Non AC Coach	2217	2217	2491	12
	SCR		POH of AC Coach	2420	2420	3517	45
6	SECR	Nagpur	POH of NG Coach	1620	1173	1294	-20
	SECR		POH of NG Wagon	2875	1051	730	-75
7	SWR	Mysore	POH of Non AC Coach	3444	2886	3431	0
	SWR		POH of AC coach	5162	4034	4116	-20
8	SWR	Hubli	POH of AC coach	3800	3610	3498	-8
	SWR		POH of Non AC Coach	3500	3325	3075	-12
9	WCR	Kota	POH OF WAGON	318	660	682	114

Audit observed huge variations in assessing the allowed time for similar activity across time periods in the same workshop and across workshops for the same activity, variation in time allowed ranged from -75 *per cent* to 114 *per cent* within the same workshops and from 154 to 2075 *per cent* across workshops indicating lack of uniformity in assessing time required for conducting the same activity.

IR needs to review the procedure adopted for fixing of allowed times and ensure that fixation of times are subject to technical audit by independent third parties as the payment of incentives are based on savings achieved on these times.

Operation of excess posts of "Essentially Indirect Workers" - As per the RB's directives (June 1999), the percentage of Essentially Indirect Workers (EIWs) should not be more than 15 *per cent* of the Direct Workers (DWs) in order to utilize the manpower directly in core activities and to increase the productivity.

Analysis revealed that the operation of EIWs was above 15 *per cent* in 23 out of 42 workshops in IR and ranged from 15.45 *per cent* (Pratapnagar) to 54.39 *per cent* (Kalka). The excess operation of EIWs beyond 15 *per cent* resulted in

utilization of 5396 men in excess of prescribed norms. No approval as required was obtained in any workshop. Only one workshop on CR (Matunga) stated that proposal for approval was pending. Reasons for excess operations on some shops (Liluah, Kancharapara, Jhansi, Izzatnagar and Dahod) was stated to be due to staff shortages and to achieve increased out turn.

Utilization of manpower consequent on revision of periodicity of POH of coaches - RB in decided (March 2009) to increase periodicity of POH of BG Coaches from 12 months to 18 months to ensure increased availability and better utilization of coaches. Consequent on this decision, the arising of coaches for POH decreased from earlier levels. It was decided by the Board that this surplus capacity in workshops would be utilized to conduct IOH of bogies by offloading it from Maintenance Depots.

Audit examined utilization of surplus man-hours on account of revision of schedule of POH in 18 workshops[71] which dealt with POH of carriages. Audit observed that man-hours saved on account of reduction in POH of coaches due to revision of periodicity were fully utilized on IOH of Bogies in 11[72] out of 18 workshops. However, the savings in man hours could not be fully utilized in seven workshops on five zonal railways.[73] The quantum of man hours underutilized in four workshops where reduction in manpower was less than one *per cent* during the period of review was assessed at 18.41 lakh man hours as detailed below.

Table 4.5

Railway	Workshop	Men on roll (Actuals)		Variation in men on rolls (increase/decrease)		Shortfall in POH of Coaches (Nos)	Average requirement of man-hours per coach	Quantum of manhours underutilized due to shortfall
		2012-13	2014-15	No. of staff	Percentage			
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*
SWR	MYSORE	1557	1683	126	8.09	-6	2712	-16272
NR	ALAMBAGH	3558	3807	249	7.00	-227	2712	-615624
SCR	LALLAGUDA	2838	2990	152	5.36	-109	2712	-295608
SWR	HUBLI	2766	2747	-19	-0.69	-337	2712	-913944
Total								**-1841448**

As the shortfall in arisings of coaches due to change in periodicity of POH (2008-09) would have been offset by increase in holding of coaches and

[71] SCR-Lallaguda, Tirupati, CR-Matunga, Kurwadi, ER-Kanchrapara, Liluah, ECOR-Mancheswar, NR-Alambagh, Kalka, NER-Gorakhpur, NFR-Dibrugarh, NWR-Ajmer(Carriage), Jodhpur, SER-Kharagpur, SWR-Mysore, Hubli, WR-Lower Parel, Mahalaxmi

[72] SCR-Tirupati, ER-Kanchrapara, Liluah, ECOR-Mancheswar, NR-Kalka, NER-Gorakhpur, NFR-Dibrugarh, NWR-Ajmer(Carriage), Jodhpur, SER-Kharagpur, WR-Lower Parel

[73] SWR- Hubli and Mysore, NR-Alambagh, CR-Matunga & Kurudwadi, WR- Mahalaxmi and SCR-Lallaguda

resultant increase in workload of the workshops, IR needs to review continuation of IOH of bogies offloaded from Maintenance Depots to enable utilization of workers in workshops for core activity.

Loss of man hours for attending coaches/wagons/locos rejected by NCO - Neutral Control Office in Workshops/Yards are meant for independent examination of the wagons repaired/overhauled before actual handing over to open line for operations. Wagons repaired in workshop's examination points are subjected for a check by Neutral Train Examiner (NTXR). Wagons examined and certified as fit only can be inducted into service. Those found defective by NTXR are detained for further attention.

Coaches and Wagons rejected by NCO are required to be attended to again in the workshop, on which man hours are lost in addition to the loss of earning capacity of Coaches/Wagons. A review of the position in workshops during the period from 2012-2015 revealed that percentage of rejections on 29 out of 42 workshops ranged from 0.1 *per cent* (Raipur Workshop – SECR) to 50.3 *per cent* (Jamalpur workshop - ER). The percentage of rejection was more than 20 *per cent* on seven workshops.[74] There were no rejections in 13 workshops, of which in four workshops[75] no neutral examinations were stated to be conducted. No separate record indicating the details of coaches submitted for neutral examination after completion of POH activity was maintained in Lallaguda Workshop on SCR and it was stated that the examination was carried out simultaneously and repairs/rectifications where found necessary were being attended to immediately, which could not be verified in audit due to no records being furnished in support of the claim. For the workshops which recorded rejections, these were due to bad workmanship, defective material and other reasons not recorded. A total of 7,60,106 hours were spent on rectification of defects on seven zonal railways[76]. Adequate documentation of rejections and time spent on re-work were not being maintained in most of the workshops, which was contrary to extant provision in the mechanical code.

IR needs to re-examine the defects in the system where no neutral control examination is done in nearly 30 *per cent* of the workshops which seriously impacts the safety, though instructions in this regard had been issued (October 2012) by RB to CMEs to review and ensure deployment of staff in NCO organization at important locations. IR may also take corrective action to reduce the percent of rejection and the resultant additional work.

[74] Jamalpur, Liluah, Mancheswar, Jhansi, Perambur (Carr), Perambur (loco) and Bhopal
[75] Kurduwadi-CR, Gwalior-NCR, Tindhara-NFR and Charbagh-NCO
[76] SCR-9.23 hours, NFR -13095 hours, CR-38592 hours, ECOR 24232 hours, NWR-2315 hours, SER 6323 hours and SR 675540 hours.

Idle time - As per Para 429 of Indian Railway Code for Mechanical Department, all possible steps should be taken for preventing idle time. The time taken up in delays and holdups, due to breakdown of service or plant or any other cause for which the direct worker cannot be held responsible should be booked to "idle time" and all time so booked should be carefully investigated, responsibility for the delay or breakdown located and such steps, as may be, considered desirable, taken to prevent such waste. Workshop Personnel Officer should ensure the maintenance of proper idle time cards, which should be sent to the Workshop Accounts Officer regularly.

A review of booking of idle time in the workshops of IR is detailed in the table below:

Table 4.6

Sl. No.	Zone	Number of workshops	Number of workshops where idle time is not booked	Percentage of idle time to total time in workshops where idle time is booked		Total idle time booked (hours)
				From	To	
1	*2*	*3*	*4*	*5*	*6*	*7*
1	CR	3	2 (Parel & Matunga)	0.67	-	12021
2	ECOR	1	1 (Mancheswar)	-	-	0
3	ECR	1	1 (Samastipur)	-	-	0
4	ER	3	0	0.002	0.008	4618
5	NCR	2	1 (Gwalior)	0.004	-	700
6	NER	2	2 (Gorakhpur, Izzatnagar)	-	-	0
7	NFR	3	2 (Dibrugarh, Tindharia)	0.4	-	37582
8	NR	5	4 (Alambagh, Amritsar, Jagadhri, Kalka)	0.25	-	8434
9	NWR	4	3(Ajmer (Carriage), Bikaner, Jodhpur)	0.08	-	2725
10	SCR	3	2 (Lallaguda, Tirupati)	1	-	109784
11	SECR	2	0	0.17	0.28	19130
12	SER	1	0	0.029	-	7917
13	SR	3	1 (Perambur (Loco))	0.022	0.049	10538
14	SWR	2	2 (Hubli, Mysore)	-	-	0
15	WCR	2	2 (Bhopal, Kota)	-	-	0
16	WR	5	4 (Dahod, Mahalaxmi, Pratapnagar, Bhavnagar)	0.38	-	44677
Total		**42**	**27**			**258126**

As seen from the table above, no record of idle time having been booked was available in 27 (64 *per cent*) out of 42 mechanical workshops. IR therefore

needs to ensure the accurate records on utilization of time as laid down in Chapter IV of Mechanical Code are followed.

Gate Attendance System - In order to avoid manipulations in the attendance sheets and time sheets (which are the basic documents for payment of wages and bonus), RB directed (May 2005) that all Production Units and Workshops should switch over to electronic/computerized Gate Attendance System in a phased manner. Implementation of these orders was examined in Audit and findings are detailed below:

Audit observed that though orders were issued for introduction of complete computerized system of gate attendance in all workshops as far back as in May 2005, the systems were introduced and functional in only four[77] out of 42 workshops in IR and even in these shops, manual/mechanical recording was also continued leading to duplication. In seven workshops, though the system was introduced, it was not functional. Mechanical system of recording gate attendance through time clocks and punching cards was still in force in 29 workshops (70 *per cent*). In one workshop at Gwalior (Sithauli- NCR), even mechanical system of recording system was not introduced.

Audit also observed that in seven workshops (NCR-1, NER-2, NFR-1, NR-1 and SR-2) manual system of recording time is still in force due to non-functioning of the mechanical system.

In addition to the above, the following irregularities were also noticed:

- There was no reconciliation between Gate Attendance Cards and Job Cards (which are used to record the time taken by workmen under incentive scheme) in 14 workshops[78],
- Time taken recorded in Job Cards was in excess or less than Gate attendance hours, in all the workshops indicating absence of checks and balances in the system and manipulation of the system and that RB's directions issued in June 1999 of analyzing 'un-accounted hours' and action to be taken to eliminate un-accounted hours were not implemented.
- Computerized gate attendance system did not provide for identification of labour, leading to chances of swiping of multiple cards by one person as observed in Rayanapadu workshop on SCR.
- Computerized gate attendance system where introduced was restricted to only Artisans and Junior Engineers (JEs).

[77] Mancheswar (ECOR), Dibrugarh and Tindharia (NFR) and Rayanapadu (SCR)
[78] Ajmer (Carr), Ajmer (Loco), Amritsar, Charbagh, Dahod, Goldenrock, Gorakhpur, Jagdhari, Kalka, Lalaguda, Liluah, Mahalaxmi, Perambur (Carr) and Raipur – (Ann VIII Col 7 and 10)

The present system of gate attendance involves manual intervention at various stages and irregular booking of time cannot be ruled out. IR therefore needs to ensure that its instructions of introduction of electronic/computerized gate attendance system issued in 2005 are implemented early.

4.1.6.3 Training

The workmen should be trained properly in initial, refresher and re-orientation training courses so that they are well equipped to cope up with the modern technological initiatives. RB impressed upon the Zonal Railways to chalk out an action plan so that systems are put in place, both for monitoring quality of training through active involvement of the Training Managers and also for undertaking regular evaluation of the level of knowledge and skills of different categories of workers.

Audit observed that training courses were conducted in 33 out of 42 workshops and no trainings were conducted in nine workshops[79] due to no separate Basic Training Centre (BTC) being attached to these shops**.**

During the period of review 1,767 induction courses and 1,266 refresher courses were conducted. It was observed that out of 62,297 slots programmed during the period 52,777 slots were utilized leaving gap of 9,520 slots (15 *per cent*), mostly due to shortage of staff and to achieve the work targets fixed. The following was also observed:

- Annual Training plan is drafted according to need assessed for both induction courses and for refresher courses.
- Training calendar is prepared in advance keeping in view the requirements of the workshops.
- Training material is furnished to trainees in all the Workshops.
- Feedback forms from trainees assessing the sufficiency of training was not obtained in seven[80] out of 42 workshops
- Similarly in 18 workshops, no system of obtaining feedback from supervisor or trainers regarding trainee perceptions was being followed.

Training Feedback - Audit obtained feedback through a questionnaire from 1209 staff undergoing induction training at these BTCs and also from the workers from shop floor (who were trained earlier) to assess their views on the

[79] Sithauli (NCR), Raipur and Nagpur (SECR), Kurduvadi (CR), Samastipur (ECR), Tindhara (NFR), Mahalaxmi and Bhavnagar (WR), Kalka (NR)
[80] Mancheswar, Alambagh, Ajmer (Loco), Bikaner, Jodhpur, Kharagpur and Dahod.

training programmes conducted and the analysis of the feedback received is given below:

- 77 *per cent* opined that duration of the training was sufficient, 81 *per cent* felt that course material was sufficient, 75 *per cent* felt that training was useful in day to day working and 93 *per cent* opined that the content of training was organized and easy to follow.
- 84 *per cent* felt that the topics covered were relevant.
- 83 *per cent* of the trainees/workers felt that instructors were found knowledgeable.
- 24 *per cent* of the workers/trainees felt that the infrastructure for practical training was inadequate.
- 29 *per cent* of the trainees/staff stated that the training was not provided on new machinery introduced

IR needs to ensure that shortfalls in utilization of training slots are avoided and provide required Training Centers in the workshops where no trainings were conducted for lack of the same. Deficiency in assessing sufficiency of training through system of feedback needs attention.

4.1.6.4 Rightsizing

RB as part of the rightsizing plan envisaged in Vision 2020 document of 2009 reiterates annually instructions for one *per cent* reduction in overall sanctioned strength of the Zonal Railways and the same is being monitored at CRB's level. As part of rightsizing exercise, targets are being fixed by Zonal Railway Headquarters for reduction of staff by one per cent in various activity centres including workshops. RB also issued (March 2007) instructions that posts in safety categories should be considered for surrender after conducting a critical review.

A review of the status of achievement of targets in respect of rightsizing in the 42 workshops, revealed that target of one *per cent* reduction in sanctioned strength is being fixed every year only in 30 out of 42 workshops. No target for reduction was fixed in 12 workshops[81]. As against a target of 3408 posts, surrender of only 2012 posts was achieved, leaving a shortfall of 1880 posts (55

[81]Mancheswar (ECOR), Samastipur (ECR), Tindharia (NFR), Jagdhari and Kalka (NR), Raipur and Nagpur (SECR), Dahod, Lower Parel, Mahalaxmi, Pratapnagar & Bhavnagar (WR)

per cent) in 27 workshops. The ten workshops[82] attributed the shortfall to shortage of manpower and increase in workload.

IR needs to ensure that the posts identified for surrender as part of their own plan of rightsizing are surrendered in a time bound manner.

4.1.6.5 Work study reports – surrender of surplus posts

Efficiency cell of Personnel Branch conducts work studies on all activities of IR other than core activities and suggests surrender of posts, if found surplus. As soon as the work study team completes the study, a report is to be sent to concerned workshop with the approval of CPO. A quarterly progress report on implementation of accepted recommendations is also to be sent to RB.

Audit observed that only 33 work studies were conducted in 16 workshops during the period of review, wherein 2491 posts were identified as surplus. Of these 1631 posts were agreed to be surrendered in 13 workshops. Two workshops i.e. Samastipur on ECR (two posts) and Jhansi (13 posts) on NCR did not agree for the surrender of 15 posts identified for which no specific reasons were furnished. Of the 1,599 posts agreed for surrender, 1,564 posts were surrendered with delays ranging from one month to 21 months till March 2015, leaving a balance of 30 posts in Ajmer (Carr) workshop and 35 posts of technicians for surrender in Perambur (carriage) Workshop on SR as detailed below:

Table 4.7

ZONE	Name of the workshop	Number of work studies conducted	No. of posts identified as surplus	No. of posts agreed for surrender	No. of posts yet to be surrendered	Time taken for surrender of posts (months)
CR	Matunga	1	0	0	0	
ER	Jamalpur	8	138	114	0	
ER	Liluah	4	313	313	0	
ER	Kanchrapara	3	162	162	0	
ECR	Samastipur	1	2	0	2	
NR	Alambagh	1	178	178	0	
NR	Kalka	1	38	13	0	1 Month
NCR	Jhansi	1	13	0	0	
NFR	Dibrugarh	2	87	87	0	
NFR	New bongaigaon	1	40	40	0	
NWR	Ajmer (carr)	1	202	41	30	6 months
SR	Perambur (carr)	3	296	115	35	2 to 16 months

[82] Matunga (CR), Ajmer (Carr}, Jodhpur, Ajmer (Loco) (NWR}, Lalaguda and Tirupati (SCR}, Mysore and Hubli {SWR) and Kota, Bhopal (WCR).

SR	Perambur (loco)	1	288	164	0	8 to 21 months
SR	Golden rock	2	145	106	0	2 to 21 months
SER	Kharagpur	1	497	230	0	8 months
SWR	Hubli	2	92	68	0	2 months
Total		**33**	**2491**	**1631**	**65**	

Audit also observed that no work study was taken up by Efficiency Cell on sanctioned strength of work force of mechanical and electrical wings in all workshops in during the review period. No work studies were conducted in the remaining 26 workshops[83].

IR needs to strengthen systems to ensure that work-study is undertaken regularly in all workshops and surplus posts identified are surrendered immediately.

4.1.6.6 Incentive Schemes

Incentive scheme or payment by results was introduced in IR Workshops to afford direct financial incentive to workers who exceeded a minimum level of performance and also enable the administration to improve productivity and efficient utilization of manpower, machinery and plant. Two incentive schemes in vogue in IR are:

1. The CLW Incentive Scheme based on saving of time by the individual employee started in 1954 in Production Units and introduced in Workshops in 1958. Under this scheme, basic wages are guaranteed to all the workers. Time being the yardstick for measuring work, various operations in the workshop is subjected to time study in accordance with the standard practices of work measurement. The allowed times are so fixed that a workman of normal ability can earn 33-1/3 *per cent* bonus over and above his basic wages for the period spent on piecework jobs. This scheme is prevalent in 34 out of 42 mechanical workshops in IR. No incentive scheme is operated in workshops at Kurudwadi, Gwalior, Tindharia,and Bhavnagar.
2. The other one is based on saving of time by a group of employees known as the Group Incentive Scheme (GIS) and was introduced in Carriage Repair workshop/Tirupathi and Wagon Repair Workshop/ Guntupalli during January 2002/July 2002, Carriage Repair Shop Mancheswar (2003) and

[83] CR - Parel & Kurduwadi, ECOR- Mancheswar, NCR- Sithauli, NER- Gorakhpur, Izzatnagar, NFR- Tindharia
NR -, Charbhag, Amritsar, Jagdharni, NWR- Ajmer (Loco), Bikaner, Jodhpur , SCR – Lalaguda, Tirupati, Rayanapadu, SECR – Raipur, Nagpur, SWR- Mysore, WCR -Bhopal, Kota, WR – Dahod, Lower Pare, Mahalaxmi, Bhavnagar, Pratap Nagar.

Coach Rehabilitation Workshop Bhopal (2004). The incentive earned under this scheme is dependent on collective performance of the group as a whole and is directly linked to the productivity of the Group as well as the workshop.

Comparison of CLW Incentive Scheme and GIS - RB in their letter No.2007/M(W)/814/35 of 11 December 2008 intimated that all the Railways should switch over to the Group Incentive Scheme. However, GIS was introduced in place of CLW Incentive Scheme in only four workshops[84] of IR.

A comparative study of the CLW Incentive Scheme and Group Incentive Scheme in workshops with comparable output was made in audit in respect of 11 workshops carrying out repair of coaches and five workshops carrying out repair of wagons. Of these, two coaching workshops and one wagon workshop had implemented "Group Incentive Scheme" and in the remaining shops, the CLW Incentive Scheme was in operation, findings of which is summarized below:

Table 4.8

Sl No	Railway	Workshop	Type of Incentive scheme	Activity Type	Manpower Productivity Ratio (MPR) per unit	Average MPR (average of GIS for coaches)	Excess men utilised	Excess labour cost (Rs)
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
1	WR	PRATAPNAGAR	CLW	Wagon	0.19	0.27	0	0
2	SECR	RAIPUR	CLW	Wagon	0.22	0.27		
3	WCR	KOTA	CLW	Wagon	0.24	0.27		
4	SCR	GUNTUPALLI	GIS	Wagon	0.3	0.27	141	37623735
5	NCR	JHANSI	CLW	Wagon	0.39	0.27	867	390580899
		Total					**1008**	**428204634**
6	SCR	TIRUPATI	GIS	Carriage	***1.08***	1.13	0	0
7	SCR	LALLAGUDA	CLW	Carriage	1.13	1.13	7	1867845
8	ECoR	MANCHESWAR	GIS	Carriage	1.19	1.13	84	37597896
9	SWR	MYSORE	CLW	Carriage	1.27	1.13	116	45332336
10	NWR	JODHPUR	CLW	Carriage	1.27	1.13	140	52691940
11	NFR	DIBRUGARH	CLW	Carriage	1.44	1.13	213	115322034
12	NWR	AJMER (CARR)	CLW	Carriage	1.38	1.13	379	142644609
13	NER	GORAKHPUR	CLW	Carriage	1.5	1.13	690	233039220
14	NR	ALAMBAGH	CLW	Carriage	1.68	1.13	816	312927024
15	CR	MATUNGA	CLW	Carriage	1.77	1.13	1366	707865298
16	SWR	HUBLI	CLW	Carriage	***1.92***	1.13	836	326705456
		Total					**4647**	**1975993658**
Grand Total							***5655***	***2404198292***

[84]CRS/Tirupati, CRS/Bhopal, CRS/Mancheswar and WRS/Guntupalli.

Audit observed that in respect of 11 workshops where main activity was POH of BG coaches, the MPR ranged from 1.08 to 1.92 men per unit, with the MPR of the two coaching workshops working under Group Incentive Scheme averaging 1.13, which was well below the MPR of the workshops working under CLW Incentive Scheme.

Though the cost of incentive per unit and per worker is higher in GIS pattern, the MPR of the workshop is less when compared to that of CLW Incentive Scheme reflecting higher labour cost with less productivity for CLW Incentive Scheme. Thus, even though there is financial outgo on incentive, there is no comparable increase of productivity for CLW Incentive Scheme and savings on incentive payment was offset by excess men employed to achieve the required output.

Audit observed that in respect of workshops under CLW Incentive Scheme of incentive, there was excess utilization of men to extent of 4647 men (assessed as a difference of average MPR under GIS to actual MPR under CLW) resulting in avoidable payment of ₹ 197.59 crore towards wages annually (adopting labour cost per worker as per ASS).

In respect of workshops carrying out the activity of wagon repairs, it was observed that the MPR ranged from 0.19 to 0.39 men per unit averaging to 0.27 men per unit. The MPR of the workshop with GIS was higher at 0.30 compared to the average of 0.27 men per unit, which was in contrast to what was observed in Coaching Workshops, indicating utilization of more man-power in the workshop under GIS, besides higher outflow on account of incentive payment made. There was excess utilization of 1008 men in two workshops on account of higher than average MPR resulting in avoidable payment of wages of ₹42.82 crore annually.

Audit also observed that despite lapse of over six years, 38 workshops had not switched over to GIS despite it being a better scheme in which payment of incentive is linked to achievement of identifiable outputs such as increased productivity, reduction in holding time of coaches/wagons in workshops besides accounting for quality of work by including element of penalty for defective work noticed subsequently.

IR thus, needs to examine the reasons for the disparity of MPR in wagon workshops under GIS being higher than under CLW and make corrections in the scheme, where necessary, before introduction of GIS in all such workshops.

4.1.6.7 Overtime

In respect of workshops in which incentive bonus scheme of CLW Incentive Scheme is in existence, no worker covered under this scheme shall be paid overtime in ordinary conditions. Under the group incentive scheme, there is no provision for payment of overtime allowance.

Audit however observed that in five workshops[85] in three zonal railways, details of which are given in table 4.12, overtime of ₹ 14.12 crore was paid along with incentive bonus to 5462 workers as detailed below:

Table 4.9

Zone	Workshop	Incentive paid (Rs)	OT paid (Rs)	No. of staff who were paid OT along with incentive
1	2	3	4	5
ER	LILUAH	3714546	10264430	1858
NR	CHARBAGH	40239509	1282975	598
NR	ALAMBAGH	300953838	9868117	2568
SR	PERAMBUR (CARR)	455417802	13880948	419
SR	PERAMBUR (LOCO)	98474178	105915838	19
Total			**141212308**	**5462**

Payment of overtime allowance along with incentive was in contravention to codal provisions. IR needs to ensure adherence of its policy of payment of overtime allowance to incentive shops

4.1.7 Conclusion

There was no uniform or scientific method in place to assess the requirement of manpower in workshops either by relating it to the installed capacity of the workshops or time required for the outturn as per installed capacity. Benchmarking, a tool for improvement, was not being adopted for workshops as it was done in other activity centres of IR.

Outsourcing was not consistent with the rightsizing policy of IR.

The man-hours saved by payment of incentive and the surplus man-hours on account of enhancement of periodicity of POH were not utilized fully, which resulted in idling of man-power. Irregularities in booking of man-hours was evident from the fact that time actually utilized was more than available man-

[85] SR – Perambur (Carriage) and Perambur (Loco), NR- Alambagh and Charbagh, ER – Liluah.

hours as per gate attendance records indicating manual intervention in the gate attendance system.

Majority of workshops did not book idle time which indicated irregular and improper maintenance of records. RB's instructions on switching over to the Group Incentive Scheme on all workshops was not implemented which could have ensured better productivity by linking payment of incentive to targeted outputs of rolling stock.

4.1.8 Recommendations

- Uniform norms should be followed in all workshops to assess the requirement of manpower.
- Only core activities must be assigned to the workshops as per extant provisions of the Indian Railway code for the Mechanical Department.
- Measurable benchmarking norms for effective manpower planning and improving the productivity of workshops may be prescribed and followed scrupulously.

4.2 North Eastern: Loss of Engine earning capacity due to non-commissioning of New Diesel Locomotives

Railway (NER)

Delay in commissioning of Diesel Locomotives resulted in loss of earning of ₹28.80 crore

RB allotted four new WDG4/G4D locos in April 2014 from Diesel Locomotive works (DLW) Varanasi to North Eastern Railway, Izzatnagar with instructions for advice of dates of dispatch of locos from DLW and dates of receipts as well as their commissioning. The total cost of those locos was ₹ 58.80 crore at the rate of ₹ 14.70 crore per loco.

Ministry of Railways (RB) in their earlier reply to Chapter 4 of Comptroller and Auditor General of India (Railways) report No. 9 of 2001 had accepted the revised commissioning period of 4 to 8 days for pre-commissioning checks, to be carried out by respective Railway on the new diesel locomotive received from DLW.

During the review of records of operating department of Izzatnagar Division; it was noticed that above four new diesel locomotives were received in this division during the period from April 2014 to July 2014. The new locos were not commissioned with in the period of 4 to 8 days prescribed for pre commissioning checks. These Diesel Locomotives were commissioned late with delays ranging from 258 days to 345 days. The Railway Administration consequently has suffered a loss of locomotive earning capacity to the tune of ₹ 28.80 crore (29664 engine hours) @ ₹ 9710/- per hour and blockage of capital of ₹ 58.80 crore on these locomotives due to their late commissioning.

The matter was raised (July 2015) with NER Administration. In reply the stated (October 2015) that the BG locos which are based at Izzatnagar shed have to haul trains on the adjoining territories of NR, ECR, NCR and NWR. Commissioner of Railway Safety (CRS) sanction for NR and other adjoining Railways were not available at that point of time. The days prescribed for commissioning were adhered to once it was clear that locos could now be utilized by traffic on receipt of CRS sanctions for all adjoining Railways.

The reply is not tenable because it is silent about the reasons for delay in obtaining CRS sanction. The CRS sanction has to be ensured prior to commissioning of the locos.

The matter was brought to the notice of Railway Board in January 2016; their reply has not been received (May 2016).

4.3 Western Railway (WR): Improper planning and poor co-ordination led to wasteful expenditure on procurement of EMU Bogies

Absence of coordination between the WR Administration and RB resulted in wasteful expenditure to the tune of ₹ 12.58 crore

Under the Action Plan to switch over from DC to AC traction, RB in June 2008 directed WR to convert their existing 21 DC rakes of nine cars to AC driven rakes by retrofitting them with SIEMENS electrics. Accordingly, RB instructed (05 August 2008) SR and SWR to manufacture 80 Type I bogies and 50 Higher Carrying Capacity (HCC) bogies respectively for WR with air suspension arrangement in Electrical Multiple Unit (EMU) Motor coaches and trailer coaches.

RB however, in February 2010, reversed its earlier decision of June 2008 and decided to retrofit the bogies with BHEL electrics, since SIEMENS electrics expressed its inability to undertake the work. WR Administration received 194 bogies against the ordered quantity of 130 bogies placed by RB till March 2012. The order for supply of EMU bogies to be retrofitted with SIEMENS electrics was neither cancelled by RB nor was such advice to cancel the order sent to RB by the WR Administration. Due to non cancellation of manufacturing order, 194 bogies costing ₹12.58 crore were received and are lying unused in Mahalaxmi Workshop (March 2012).

When the matter was taken up with the RB in January in 2016 they stated February (2016) that 30 bogies received by Mahalaxmi Workshop from trade have been utilized. 164 bogies were received from SR and SWR against RB's order for retro fitment works. Out of 164 bogies, 28 bogies have already been utilized and 86 bogies are proposed to be used with air suspension system in retrofitted EMU coaches. Further, balance 50 bogies have been offered to ICF for utilizing them in manufacturing of new EMU coaches. Other Zonal Railways have also been approached for collecting these bogies for their use in EMU rakes, if required. The reply submitted is not acceptable. Even though partial utilization of the idling bogies (58 out of 194) has been done, the fact remains that the whole exercise of retrofitment has only resulted in idling of bogies and consequent blocking of capital indicating improper planning and poor coordination. The prospect of their proper use in the near future appears to be remote considering the fact that for the last 5-6 years, the MoR has not been able to find a proper solution to the problem of idling bogies.

Thus, the failure of RB to cancel the manufacturing order for supply of EMU bogies resulted in wasteful expenditure amounting to ₹12.58 crore for which responsibility is required to be fixed.

4.4 Southern Railway (SR): Unproductive investment in manufacture of High Capacity bogies

Improper assessment of demand for High Carrying Capacity type bogies led to unproductive investment of ₹10.50 crore as the amount invested remained blocked up for a period ranging from 15 months to 58 months

Based on the approved Rolling Stock Programme of 2008-09, 2009-10 and 2010-11, RB placed order (May 2008, August 2009 and June 2010 respectively) on Loco Workshop/ Perambur (LW/PER) to manufacture 254 High Carrying Capacity (HCC) bogies (74 for 2008-09, 100 for 2009-10 and 80 for 2010-11). These HCC bogies were to be retrofitted in Electric Multiple Unit (EMU). HCC bogies are suitable for the existing HCC Trailer Coaches and not for retro fitment in conventional trailer coaches due to difference in

- Type of centre pivot;
- Axle guide distance;
- Weight carrying capacity.

Records of LW/PER revealed the following:

- Out of the total ordered quantity of 174 bogies for 2008-09 and 2009-10, the workshop manufactured (December 2011 to July 2014) 132 HCC bogies. Out of these 174, 94 bogies were meant for fitting in EMU coaches homed at Tambaram and Avadi EMU sheds of SR.
- Out of the 132 manufactured bogies, 45 bogies were supplied to Avadi and Tambaram EMU sheds of SR, whereas 57 bogies were dispatched to other three Railways (Kanchrapara depot of ER-36, Matunga depot of CR-18 and Moulali depot of SCR-3).
- Out of the remaining 30 bogies, two bogies were converted for retrofitting in Motor coaches and dispatched to Avadi shed of SR. Another six bogies were sent to Moulali shed of SCR and 22 bogies were lying idle in LW/PER (October 2015) as there was no requirement for these coaches in Tambaram and Avadi EMU sheds of SR.
- Out of the 36 bogies supplied to ER, only nine bogie frames have been utilised by replacing defective bogie frames and balance 27 remain unutilized in carriage complex.

- Out of the 18 bogies supplied to CR, six bogies were utilized and the remaining 12 bogies were lying idle. All the three bogies supplied to SCR were utilized.

Audit noticed (May 2014) that 45 bogies received by Tambaram and Avadi EMU sheds of SR could not be retro fitted in EMU coaches as the requirement of these sheds was bogies for conventional type trailer coaches and not for HCC type EMU coaches.

Audit also noticed that no demand was made by CR and ER for supply of HCC bogies. Records of SR Administration (Chief Workshop Engineer/ SR) further revealed (July 2014) that LW/PER did not have details of Railways who forwarded the demand to RB and Electrical department of SR were also not aware of demand raised by them for HCC bogies.

From above, it is evident that RB placed order on LW/PER for manufacturing HCC type bogies without proper assessment of requirement and demand. As such, the 106 HCC bogies manufactured by LW/PER at a total cost of ₹7.27 crore remained idle with SR Administration for a period ranging from 16 months to 58 months without yielding benefits to Railways (October 2015).

Audit further noticed (July 2014) that as against the Rolling Stock Programme 2010-11 for manufacturing of 80 HCC bogies, LW/PER did not commence manufacture of these bogies as there was no demand for HCC bogies. However, it was stated that material worth ₹3.23 crore for 122 bogies (80 for 2010-11 and 42 for 2009-10) procured between January 2011 and August 2014 were lying idle in the shop floor for a period ranging 15 months to 58 months (up to October 2015). It was also noticed that though the matter was taken up with RB in July and August 2014 for seeking further advice, no direction has been received from RB.

On the matter being referred to SR Administration in December 2014, they confirmed (March 2015) that the bogies were still lying idle and they are waiting for RB's further directives in this regard. They further added that all the manufactured HCC bogies will be supplied to ICF/Perambur. It was also stated that part of materials would be utilised for manufacture of EMU TC bogies for which orders have been received from Chennai Workshops.

The reply of SR Administration itself proved that manufactured HCC bogies and materials are still lying idle. Further SR Administration do not have a concrete plan for utilization of the HCC bogies worth ₹7.27 crore and materials worth ₹3.23 crore lying idle.

Thus, improper assessment of demand for bogies of HCC type bogies led to unproductive investment of ₹10.50 crore (₹7.27 crore + ₹3.23 crore) and the amount invested remained blocked up for period ranging from 15 months to 58 months (October 2015).

The matter was brought to the notice of Railway Board in January 2016; their reply has not been received (May 2016).

4.5 East Central: Railway (ECR) Infructuous expenditure on establishment of Electric Loco Factory

Proposed Green Field Electric Loco Factory (GELF), a Special Railway Project, failed to take off in view of mis-management of land acquisition resulting in idle establishment expenditure (₹10.45 crore)

Ministry of Railways (RB) made (February 2007) a budget proposal at a cost of ₹1293.57 crore through Annual Works Programme 2007-08 to set up a Green Field Electric Loco Factory (GELF). RB desired (May 2007) that the GELF should be set up in a time frame of two years and envisaged creation of crack team for setting up the factory and to complete the land acquisition by October 2007. RB, *vide* a Gazette notification (February 2008), declared the project as a 'Special Railway Project'.

Audit reviewed the records pertaining to land acquisition for setting up of factory and noticed that under Section 20E of the Railway Amendment Act, 2008 in connection with 'Land acquisition for a Special Railway Project', Gazette notifications were published for acquisition of 1116.66 acres of land between October 2008 and April 2011. However, acquisition of land is incomplete even after lapse of more than seven years of sanctioning of the project.

Audit further noticed that out of total land of 1116.66 acres, upto 2014-15, Railway paid compensation of ₹7.23 crore (80 *per cent* of land cost) to land losers for only 157.49 acres. Balance amount (20 *per cent*) for payment to land losers is under vetting of Finance Wing (August 2015). Out of this, formalities for obtaining possession of 141.32 acres land were still in progress. Due to slow progress of acquisition of land, Railway was unable to start even basic activities like erection of boundary walls, leveling of land and shifting of State Electricity Board transmission tower.

Audit analyzed the reasons for poor progress of land acquisition work and following were observed:

- As per clause 7(a) of Railway Amendment Act, 2008, any person authorized by the Central Govt. by notification may function as Competent Authority (CA) for the purpose of acquisition of land. ECR Administration nominated (February 2008) Dy. Chief Engineer/ Construction to perform the functions of CA for execution, maintenance, management and operation of said project. Though notification for acquisition of 967.5 acres of land was made in October 2008, till September 2011 ECR could pay compensation for acquisition of 143.18 acres of land.
- The General Manager/ ECR admitted (September 2011) that the progress of land acquisition and payment of compensation to land owner was slow because the Railway official (nominated as competent authority) was not conversant with the procedure of land acquisition and requested DM/ Madhepura to nominate suitable office as competent authority for land acquisition. Thereafter, DLAO/ Madhepura was nominated (October 2011) to perform the function of CA for land acquisition.
- Records further revealed that DLAO/ Madhepura started verification of plot-wise compensation payment details paid to different land owners by the previous competent authority (Dy. Chie Engineer of ECR) and till date (June 2015) only ₹0.71 crore compensation were paid to land owners of 16.15 acres.
- While performing the function as CA, Dy. CE/ Construction, ECR Administration (FA&CAO) deposited (November 2008) an amount of ₹43.87 crore to Competent Authority's (Dy. Chief Engineer) bank for payment to the land owners. However, RB rectified (April 2009) the mistake as opening of current account in the name of competent authority was not in consonance with extant Govt. rules and instructed ECR to deposit the unspent amount in favour of FA&CAO/ECR. Accordingly, ₹41.08 crore (unspent amount) was credited to such account head in December 2009. It was also noticed that, objection was also raised (August 2009) by Vigilance (RB) and investigation was made to ascertain the background and purpose regarding opening and operation of current account in favour of the Competent Authority.

From the above, it may be concluded that the decision of ECR Administration to appoint Dy. CE as competent authority, who could not discharge his functions, and depositing of amount in Dy. CE's account further complicated the matter of land acquisition and led to delayed implementation of project.

Meanwhile, ECR Administration had incurred ₹10.45 crore (up to March 2015) towards establishment and other than expenditure on GELF. This expenditure

incurred is totally infructuous in view of the fact that after expiry of seven years, the project is yet to take off and the ECR Administration is yet to possess a single acre of land thereby badly delaying the project.

Thus, glitches in the process of land acquisition as detailed above led to a Special Railway Project failing to take off even after seven years though the time frame visualized was two years. Expenditure of ₹10.45 crore incurred on GELF has proved infructuous.

The matter was brought to the notice of Railway Board in January 2016; their reply has not been received (May 2016).

4.6 Integral Coach: Non-recovery of excise duty from the purchasers Factory (ICF) of scrap

Incorrect interpretation and application of Central Excise Notification by ICF for levy of excise duty on sale of scrap generated from manufacture of coaches led to additional burden of ₹5.45 crore to ICF which had to be paid to Excise department from its own fund

Integral Coach Factory (ICF) during the process of manufacturing coaches generates aluminum wastes, iron and steel scrap due to cutting, forging and grinding.

As per Central Excise (CE) Notification (No.62/1995) dated 16 March 1995, wastes and scrap arising from manufacture of 'exempted goods' in a factory belonging to Indian Railways are exempted from payment of excise duty.

Coaches manufactured by ICF are falling under Central Excise Tariff Head (CETH)-8601 to 8606 and CE Notification (No.1/2011) of 1st March 2011 which exempted the excisable goods falling under CETH-8601 to 8606, as is in excess of the amount calculated at the rate of *one per cent ad valorem,* from March 2011 onwards. As such, the coaches manufactured by ICF are subject to concessional excise duty and not falling under 'exempted goods'. Hence, scraps generated during the manufacturing process are subject to excise duty in terms of CETH-7204, wherein it is stipulated that waste and scrap of iron or steel are subject of levy of excise duty.

Records of sale of scrap in ICF, however, revealed that ICF did not collect excise duty from the purchasers of scrap sold from 30 May 2012. ICF incorrectly interpreted the CE Notification (No. 62/95) and treated scrap generated from manufacture of coaches as 'exempted goods' and did not ensure collection of excise duty on sale of such scrap.

Records further revealed that during a visit of the Central Excise team to ICF in December 2013, this lapse was pointed out and demand issued for payment of Excise Duty on scrap sold from 30 May 2012 onwards. Accordingly, ICF had to pay ₹5.45 crore from its own fund for the scrap sold during the period from 30 May 2012 to 28 February 2014 as ICF had not collected Excise Duty from purchasers of scrap sold. Subsequently, ICF is collecting Excise duty from the purchasers of scrap from March 2014 onwards.

Thus, due to incorrect interpretation of CE notification by ICF, suitable clause for levy of excise duty was not incorporated in the tenders for sale of scrap during the period May 2012 to February 2014. This resulted in additional burden of ₹5.45 crore on ICF, which was paid to Excise department from its own fund.

On the matter being referred to ICF Administration, they stated (January 2016) that

- In terms of CE Notification No.27/2011(March 2011), waste, parings and scrap arising in the course of manufacture of goods in respect of which the benefit of 'exemption' under CE notification (No.1/2011) is availed are exempted from the whole of the duty leviable thereon. However, to avoid further penal interest, an amount of ₹5.45 crore was paid by ICF though the contention of Central Excise team was not acceptable to ICF.
- ICF started availing CENVAT credit from April 2014 onwards and hence the value of scrap sold by ICF attracts Excise Duty. Therefore, the collection of Excise Duty from purchasers of scrap from April 2014 onwards is in order.

The above replies cannot be accepted in view of fact that

- CE Notification No.27/2011 (March 2011) exempts waste, parings and scrap arising in the course of manufacture of goods in respect of which benefit of 'exemption' under Notification 1/2011 is availed. This notification further states that this does not apply to wastes, parings and scrap cleared from a factory in which any excisable goods, other than goods in respect of which the benefit of exemption under the said notification is availed, are also manufactured. As there are other goods manufactured by ICF, notification No.27/2011 does not apply.
- In terms of CE Notification No.1/2011 and 2/2011 dated 1 March 2011 coach manufacturing activity was brought to Excise Duty net of *one per cent* if CENVAT is availed and *five per cent* if CENVAT is not availed

respectively. As such linking collection of excise duty on scrap with the date of commencement of availing of CENVAT credit is not in order.

ICF had taken decision belatedly to collect excise duty on scrap sold from March 2014 even though payment of excise duty on coaches had commenced from the year 2011 onwards. Thus, incorrect interpretation of excise notification by ICF led to additional burden on Railway to the tune of ₹5.45 crore.

The matter was brought to the notice of Railway Board in February 2016; their reply has not been received (May 2016).

Chapter 5 - Engineering – Open Line and Construction

The Engineering Department of Indian Railways is responsible for maintenance of all fixed assets of Indian Railways such as Tracks, Bridges, Buildings, Roads, Water supply, in addition to construction of new assets such as new lines, gauge conversion, doubling and other expansion and developmental works. Major policy decisions of the Engineering Department are taken by the Railway Board under supervision of Member Engineering who is assisted by Additional Member (Civil Engineering) and Additional Member (Works) and Advisor (Land & Amenities).

At Zonal level, the Engineering Department is headed by Principal Chief Engineer (PCE) under General Manager of the concerned Zonal Railway. The PCE is assisted by various chief engineers for track, bridge, planning, track machines, general matters etc. In addition, each Zonal Railway has a construction organization headed by a Chief Administrative Officer, Construction who is responsible for major construction works including survey works within concerned Zone and is assisted by various chief engineers (construction).

The total expenditure of the Civil Engineering Department during the year 2014-15 was ₹ 17,738.11 crore. During the year, apart from regular audit of vouchers and tenders, 1480 offices of Engineering department including Construction Organization of the Railways were inspected by Audit.

This Report includes two reviews viz., 'Elimination of unmanned level crossings in IR' and 'Procurement and utilization of stone ballast in IR'. These reviews focused on the efforts/ action taken by Railways in elimination of unmanned level crossings and assessment of requirement, procurement and utilization of stone ballast by Railways in effective and economic manner.

In addition, this Report includes 12 individual paragraphs related to poor planning in construction of Diesel Multiple Unit factory; delay in commissioning of siding facility; execution of traffic facility works without proper justification; non-realization of license fee from occupant of commercial plots/shops etc.

5.1 Elimination of Unmanned Level Crossings in Indian Railways

5.1.1 Introduction

Indian Railways (IR) system is unique and distinctive in character in view of limited line capacity and heavy passenger and goods traffic on tracks. Various systems in operation on IR are quite complicated and typically inter-dependent. As such, it is an enormous challenge for IR to make the whole system a safe and reliable system.

Road Traffic crosses the Railway Track either on "Grade Separated Crossing"[86] or at "Level Crossing"[87]. The level crossings (LCs) form an important part of the system. These are made to facilitate the smooth running of traffic in a regulated manner governed by specific rules and conditions. However, LCs also pose a major challenge in the operation of safe and reliable train services. The White Paper presented in Parliament in February 2015 noted that, the highest number of fatalities (70 *per* cent) in Railways occurs due to accidents at Unmanned Level Crossings (UMLCs) mainly on account of the negligence of road vehicle users in not observing the precautions laid down in the Motor Vehicles Act, while negotiating UMLCs. Thus, LCs are vulnerable points to accidents with resultant loss of life. Railways are removing the UMLCs by building Road Over Bridges (ROBs) and Limited Height Subways (LHSs) and through other prescribed methods[88].

As on 1st April 2014, 11,563 UMLCs still required to be eliminated. IR needed ₹39,001 crore to complete all the ongoing works of constructing ROBs, LHSs and elimination of all the remaining UMLCs. As on 1st April 2015, there was no significant change in the position as IR had 29447, LCs of which 19,059 (64.72 *per cent*) were manned and 10,388 (35.28 *per cent*) were unmanned. IR aimed to improve safety in the railway network through elimination of UMLCs.

5.1.2 Background

The Corporate Safety Plan (CSP – August 2003) emphasised the need for arresting the rising trend of accidents in LC gates. Taking note of the high percentage of fatalities in accidents at UMLCs, the CSP proposed steps to check them through provision of modified design of stop boards, whistle boards, road warning boards, speed breakers/ rumble strips, closing of UMLC by construction of RUBs etc.

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[86] Road and rail at different Levels
[87] Intersection of Road and rail at same level
[88] Such as, closure of the UMLC if the TVU is less than 500, man the UMLC if the Train Vehicle Unit (TVU) is greater than 3000 or if TVU is greater than 2500 & visibility of UMLC to road user is less than 800 M, closure through construction of diversion road to nearest LC or Subway etc.

The Vision 2020 Statement of Railways (December 2009) observed that nearly 70 *per cent* of the fatalities in Railway mishaps took place at UMLCs. The Vision 2020 envisaged that UMLCs would be progressively manned or protected or replaced by Subways/ Road Over Bridges (ROBs)/ Road Under Bridges (RUBs) in five years' time (2010-15). Based on Vision 2020 Statement, RB issued instructions (May 2010) to Zonal Railways (ZR) to do an exercise to prepare a Five Year Master Plan for elimination of all UMLCs. By March 2011, a Five Year Action Plan was put in place.

Further, the High Level Safety Review Committee (HLSRC) headed by Shri Anil Kakodkar recommended (February 2012), *inter-alia*, the elimination of all UMLCs over a period of five years as well as non-introduction of new level crossings under any circumstances.

In the backdrop of Railway's objective to eliminate or protect all UMLCs over a period of five years, Audit reviewed the progress made by IR in achieving its goal of eliminating UMLCs. In the Audit Report No. 32 of 2011-12 (Railways) regarding "Safety works – Level Crossings, Road Over Bridges and Road Under Bridges", in Paragraph 3.3, the issues relating to UMLCs mainly dealt with were (i) shortfall in achievement of target for elimination of UMLCs, (ii) existence of substantial number of UMLCs in Rajdhani/ Shatabdi routes and other important routes such as A, B routes and (iii) safety improvement works at UMLCs.

In the Draft ATN relating to the above Report furnished by RB, it was stated (March 2015) that IR would endeavour to eliminate all UMLCs on Broad Gauge in a time bound manner. In regard to existence of UMLCs in Rajdhani/ Shatabdi routes and other important routes, the RB stated that, as on 1st April 2014 there were only 98 UMLCs on 'A' routes (SR -7, SCR-5, SER-79 and SECR-7).

5.1.3 Audit objectives

Audit reviewed performance of IR on 'elimination of UMLCs in IR' with the following objectives:-

- to assess whether effective and sustained efforts were taken for elimination of UMLCs and
- Whether prescribed protective measures were being taken at all the UMLCs.

5.1.4 Audit criteria

Provisions and instructions contained in the CSP (2003-2013), Vision 2020 Statement, the Five Year Master Plan, Report of High Level Safety Review

Committee headed by Shri Anil Kakodkar, provisions contained in Indian Railway Permanent Way Manual (IRPWM) and RB's instructions of August 2011, January 2012 and September 2011 on UMLCs and construction of Subway/RUB formed the criteria for conducting the Audit.

5.1.5 Scope of Audit and methodology

Though it is the endeavour of the IR to eliminate all LCs from their network, the scope of audit study was limited to coverage of the UMLCs and headway made in eliminating them, considering the serious risk posed by UMLCs to the safety of human lives and number of fatalities that have resulted from accidents at UMLCs in recent years. It is worthwhile to note that 625 casualties took place at UMLCs during the period 2012-13 to 2014-15.

Audit covered a period of three years viz., 2012-13 to 2014-15.Records available in Civil Engineering (CE), Signal and Telecommunication(S&T) and Safety departments in GM offices of Zonal Railways (ZRs) and of the Divisional Offices& Construction Organizations were reviewed. The methodology also included conduct of joint inspection with railway officials at selected UMLCs.

5.1.6 Sample size

The sample selection for the purpose of audit was as follows:

- Out of 1,114 UMLC works comprising of new works, works in progress and completed works during the period 2012-13 to 2014-15, 176 UMLC works were selected for detailed Audit study. The total UMLCs covered in 1,114 works were 6,053 out of which 2,639 were covered in the sample selected (176 works).
- Joint Inspection by Audit and Railway representative of 160 UMLCs was carried out. For this purpose, two Divisions were selected in each ZR
- General review of records in the selected two Divisions in each ZR to see the efforts made by Railway to educate road users in the safe use of UMLCs.

5.1.7 Audit findings

5.1.7.1 Elimination of UMLCs – Achievements against projections

The CSP envisaged (August 2003) manning of all UMLCs meeting the criteria for manning[89]. The Vision 2020 Statement (December 2009) envisioned that

[89]The criterion for manning was 6000 TVUs which subsequently was lowered to 3000 TVUs in 2011. Train Vehicle Unit (TVU) is total train vehicles per day (train units multiplied by road vehicle units) worked out by taking census for a week.

UMLCs would be progressively manned or protected or replaced by Subways/ ROBs / RUBs in the next five years'. The policy directives (2010) went further by stating that all UMLCs would be eliminated in the next five years. As per announcement in the budget speech of 2010, a special drive was launched to man all UMLCs in the coming five years. It was noticed in Audit that, though the Vision 2020 envisaged either elimination of UMLCs through manning/ other approved methods over five year period or to protect them, the Five Year Master Plan has no mention about protection of UMLCs which could not be eliminated.

RB communicated (May 2010) to all ZRs the policy directives issued by Hon'ble Minister of Railways (MR) for elimination of all UMLCs in the next five years. RB also directed (May 2010) Principal Chief Engineers (PCEs) of all ZRs to conduct a one-time exercise for preparing a Master Plan for it. The prescribed methods for elimination were elimination through closure of UMLC with low TVU)[90], manning of UMLC, closure of one UMLC through manning of adjacent UMLC or elimination through other prescribed methods, viz. construction of normal height subway/limited height subway/ROB/diversion road to another LC or to ROB/RUB.

As a follow up of the Vision 2020 Statement, RB prepared (March 2011), a Five Year Master Plan for elimination of UMLCs based on inputs provided by ZRs. It envisaged that out of 16,125 UMLCs that existed over IR at the commencement of the Five Year Plan (2010), over 11,000 UMLCs would be eliminated by 1st April 2015.

While seven ZRs (CR, ECoR, NFR, NWR, SCR, SECR, and WCR) had identified (2010) all UMLCs in their jurisdiction as eligible for elimination, and the other nine ZRs (ECR, ER, NER, NR, SER, SR, SWR, NCR and WR) envisaged that the closure of significant number of UMLCs in their ZRs was not possible under any approved method.

Particulars of elimination of UMLCs by 31 March 2015 are depicted in the table 5.1 below:

[90] Train Vehicle Unit (TVU) is total train vehicles per day (train units multiplied by road vehicle units) worked out by taking census for a week. Train, road vehicle, bullock carts and Tongas are considered as one unit and cycle rickshaw/ auto rickshaw being considered as half unit.

Table 5.1

ZRs	No. of UMLCs at the beginning of Five Year Plan Period (April 2010)	No of UMLCs planned for elimination in the Five Year Plan	No. of UMLCs - beginning of Review period (April 2012)	UMLCs eliminated during Five Year Plan period	UMLCs as of 31 March 2015	Percentage of elimination as against that planned in Five Year Plan	Percentage of elimination against total at the beginning of Five Year Plan
1	2	3	4	5	6	7	8
CR	139	139	175	80	59	58	58
ECoR	670	670	690	198	472	30	30
ECR	1464	817	805	728	736	89	50
ER	342	315	316	241	101	77	70
NCR	508	310	461	130	378	42	26
NER	1588	1538	1383	531	1057	35	33
NFR	970	970	743	380	590	39	39
NR	1723	1441	1371	678	1045	47	39
NWR	1396	1396	1208	339	1057	24	24
SCR	1099	1099	879	583	516	53	53
SECR	672	672	573	229	443	35	35
SER	949	449	829	323	626	72	34
SR	1151	429	1016	438	713	102	38
SWR	681	407	662	249	432	61	37
WCR*	262	262	201	224	38	85	86
WR	2511	716	2382	386	2125	54	15
Total	**16125**	**11630**	**13694**	**5737**	**10388**		

*since achieved 100 *per cent*;

Audit examined the adherence to the five year plan and progress on elimination of UMLCs and observed the following:

- At the beginning of Five Year Master Plan (2010-15), 16,125 UMLCs existed over IR out of which 11,630 UMLCs (72 *per cent*) only were planned (May 2010) for elimination. The remaining 4,495 UMLCs **(**28 *per cent*) were kept out as "cannot be closed" as per the following zonal breakup-

  WR - 1795, SR-722, ECR- 647, SER- 500, NR- 282, SWR- 274, NER- 50, ER- 27 and NCR-198

  - Contrary to Railways' assessment as "cannot be eliminated" in SR all the remaining UMLCs were eligible for elimination through one or more methods. In the remaining seven ZRs, substantial number of

UMLCs was eligible for elimination through one or more methods (WR-93 *per cent*, SER- 78 *per cent*, ER- 74 *per cent,* NR-72 *per cent*, ECR-69 *per cen*t, SWR-65 *per cent* and NER-33 *per cent*).

- The initial planning for framing of the Five Year Master Plan in different ZRs was weak, inadequate, unrealistic and without proper investigation of site. The following are illustrative instances from ZRs:
  - SR projected (April 2010) the number of UMLCs belonging to category "cannot be eliminated'' as 722 Nos. Audit, however, observed in March 2015 that there were 254 UMLCs which had TVU less than 500 as per the last census and hence were eligible for outright closure.
  - SR planned to eliminate during 2010-15, 16 UMLCs through construction of diversion road to adjacent LC/ROB/RUB. But, 22 UMLCs were eliminated in three years. Similarly in ER, although no UMLC was projected for elimination through construction of diversion road to adjacent LC/ROB/RUB, four UMLCs had been eliminated during three years.
  - The Five Year Plan for SR proposed to eliminate 26 UMLCs through construction of Subways in five years. However, they completed 57 Subway works during three years itself. In ER, as against the planning to eliminate 29 UMLCs over five year period, 47 UMLCs had been eliminated through construction of Subways in three years.
  - SR and ER Administrations planned to close 29 and 101 UMLCs respectively for low TVU (TVU less than 500) during five year period. However, against their planning, they closed 108 UMLCs and 103 UMLCs respectively on this account in three years.
- On IR, at the beginning of the Five Year Master Plan (April 2010) and at the beginning of review period (April 2012), there were as many as 16,125 and 13,694[91] UMLCs respectively. The number of UMLCs at the end of review period i.e. March 2015 was 10,388 UMLCs. Thus, 5,737 UMLCs were eliminated during the Five Year Master Plan period leaving a balance of 10,388 UMLCs (64 *per cent*).
- Keeping in consideration the planned elimination of 11,630 UMLCs during five year period of Master Plan, the number of UMLCs to be eliminated during the review period on a pro rata basis came to 6,978 UMLCs.

[91]As per figures collected from ZRs

However, out of this, IR was able to eliminate 3,415 UMLCs only (49 *per cent*).

- The manning/ elimination of all UMLCs and provision of ROBs/RUBs in lieu of manned LCs with heavy traffic density in a time bound manner was a commitment of Railways (Budget speech 2014-15). However, the time frame within which all UMLCs were to be manned/ eliminated was not clear from the records available at RB and GM offices of ZRs.
- It is noteworthy that WCR became the first ZR where all UMLCs (118 Nos) had been eliminated by August 31, 2015. In four ZRs (CR, ECR, ER and SCR) the percentage of elimination ranged from 50 to 70 *per cent* and in 11 ZRs (ECoR, NCR, NER, NFR, NR, NWR, SECR, SER, SR, SWR and WR) less than 40 *per cent.*

5.1.7.2 Elimination of UMLCs through manning and other methods

Annual target for elimination of UMLCs through "Manning" and through "Other methods'' are fixed separately by RB based on proposals received from ZRs.

Audit examined in detail the target fixed and achievements there against over IR during the three year period viz., 2012-13 to 2014-15 in respect of "Manning" and elimination of UMLCs through "Other methods". Results of Audit examination are furnished below:

- During the years under review, against the target of elimination of 4,234 through manning or adopting other methods, 3,415 UMLCs (81 *per cent)* were eliminated leaving a shortfall of 19 *per cent*. The category-wise annual targets and achievements were as under-

Table No.5.2 Target and achievement in elimination of UMLCs

Year	2012-13		2013-14		2014-15		Total	
Elimination category	Target	Achieve-ment	Target	Achieve-ment	Target	Achieve-ment	Target	Achieve-ment
Manning	1,101	459	495	330	348	423	1,944	1,212
Other methods	670	722	857	766	763	715	2,290	2,203

(Figures consolidated using the data obtained from the 16 zones)

- There was a decreasing trend in annual targets fixed by the RB for manning the UMLCs during 2012-13 to 2014-15. The target in 2013-14 (495) was 45 *per cent* of target for 2012-13 (1101). In this connection, Audit observed that in view of shortage of manpower for manning the UMLCs, Railway Board had ordered (March 2012) that on locations where works for creating infrastructure for manning of UMLCs had not commenced Railway should

not take up manning works until creation/sanction of requisite posts of Gatemen. Thus, indecisiveness in the creation/ sanction of Gateman posts was a factor causing reduction in fixation of annual targets.

- Though monitoring of progress in elimination of UMLCs through periodical progress reports was taking place at RB level, the linking of annual targets with the implementation of five year Master Plan was not evident.

5.1.7.3 Inadequate progress in elimination of UMLCs

Audit analysed the factors which might have impacted the achievement of the objectives of elimination of UMLCs. Results of analysis of records related to the selected sample are discussed in subsequent sub-paragraphs:

Allocation of Funds

No Plan can be implemented without assurance of adequate and timely availability of funds. A Railway Safety Fund (RSF) was set up with effect from April 2001 primarily to channelize the Railways' share of diesel and petrol cess, receivable under the Central Road Fund, for road related railway safety works such as construction of road over/under bridges, subways and for the improvement to level crossings including their manning, interlocking etc. The Railways get a share of petrol and diesel cess along with two other Ministries, viz. Ministry of Rural Development and Ministry of Road Transport and Highways. In IR two separate plan heads, viz. Road Safety Works - LCs and Road Safety Works-ROBs/RUBs have been created for budgeting, accounting and monitoring of execution of these works.

Audit observed that the documents related to raising of demands for funds by the ZRs to eliminate all UMLCs in IR network by March 2015 were not available.

The requirement of funds for elimination of UMLCs over five years had been arrived at by RB as ₹10,032 crore for elimination of 10,797 UMLCs in October 2012 as furnished below:

Table No 5.3 - Requirement of funds for elimination of UMLCs

Method for elimination of UMLCs in five years	Number	Requirement of funds (₹in crore)
Closure of LCs having low TVU	1,523	152
Closure of LCs by manning adjacent level crossing	210	42
Merger of level crossing s by construction of diversion road	902	45

Construction of subways	2,608	7,824
Full height RUB	58	870
Manning	5,496	1,099
Total	**10,797**	**10,032**

As against this, MoR made available to ZRs funds amounting to ₹6,000.75 crore during 2012-13 to 2014-15 under Plan Head 29 and Plan Head 30 (voted). Details of funds provided and actual expenditure during 2012-13 to 2014-15 are in **Annexure-II.**

Table No. 5.4 - Details of amounts voted under Plan Head 29 and 30

Funds	2010-11	2011-12	2012-13*	2013-14*	2014-15*
Budget grant under PH 29 and 30	1,698	1,998	1922.93	1925.58	2152.24
Final grant under PH 29 and 30	1,250	1,456	1605.72	2013.73	2216.64
Extent of budget foregone through lesser final grant	448	542	317.21	-88.15	-64.40
Actual expenditure	1,101	1,328	1500.11	1986.71	2139.97
Surrender as against final grant	149	128	105.61	27.02	76.67

**Figures for the review period viz., 2012-13 to 2014-15 are based on details collected from ZRs records and for the earlier two years (2010-11 & 2011-12) the same have been adopted using data available in the Appropriation Accounts.*

Audit observed that:

- MoR estimated that funds required over and above the budget provisions to eliminate UMLCs would be ₹ 11,000 crore and requested (August 2014) Ministry of Finance (MoF) to provide it which was not agreed to. MoR further requested (February 2015) to enhance the allocation of fund out of Central Road Fund (CRF) through amendment in the CRF Act to enable IR to eliminate all UMLCs (cost expected-₹ 20,700 crore). Also, as per estimates in White Paper (February 2015), IR needed ₹39,001 crore to complete all the ongoing works for elimination of all the remaining UMLCs.

  However, during the five Year Master Plan, in none of the years the allocation under Plan Heads 29 and 30 exceeded ₹ 2,217 crore. Keeping in consideration the estimated funds required over and above the budget allotment and also the estimates incorporated in the White Paper, the funds made available every year were much less. Thus, the resources provided were inadequate to ensure elimination of UMLCs within five years.

- Unless the Railway's share of funds from the Road Safety Fund (RSF) is increased significantly, it would be a difficult task for IR to achieve the

objective of eliminating all UMLCs even within the next few years. IR has requested MoF for a grant for a second phase of Special Railway Safety Fund (SRSF) to undertake works recommended by the Kakodkar Committee.

Surrender of Funds

Allotment of funds should be followed by adequate utilisation of the same. . RB took a serious view of under-utilisation of funds by ZRs (March 2012). They emphasised the need for utilisation of allotted funds on elimination/up-gradation works and stated that underutilisation of funds despite the large number of works sanctioned in ZRs and requisite powers having been delegated to ZR Administration was a cause of concern and attracted severe criticism from authorities such as the Planning Commission and Parliamentary Standing Committees.

In a reply given (April 2015) to a Parliamentary Standing Committee, RB mentioned the overall position of underutilisation of funds by ZRs on UMLCs including other road safety works stood at 22 *per cent* during 2012-13, one *per cent* during 2013-14 and 19 *per cent* during 2014-15 (till end of February 2015).Thus, ZRs did not ensure utilisation of total available funds indicating that constraints in the elimination of UMLCs, as discussed below have not been suitably addressed by RB to enable execution of works by the ZRs.

Audit examined the utilisation of funds under the two Plan heads (PH 29 and PH 30) and noted that:

- It can be seen from Table 5.4 that funds to the extent of ₹164.67 crore were foregone during three years review period at Final Grant stage. The net surrender during these years after incurring expenditure was ₹373.98 crore and ₹209.30 crore respectively with reference to Budget Grant and Final Grant respectively.
- Among the ZRs, the surrender of funds at the stage of Final Grant was ₹253.87 crore in NWR, ₹87.20 crore in ECR, ₹41.67 crore in WCR and ₹37.44 crore in ECoR. As regards surrender due to less Actuals, SER showed the highest surrender at ₹70.77 crore followed by NR at ₹43.10 crore, WCR-₹26.95 crore, NFR-₹25.51 crore, NCR-₹23.23 crore, WR-₹17.55 crore, SCR-₹15.25 crore, ER-₹12.31 crore, ECoR-₹9.20 crore, ECR-₹7.85 crore, SWR-₹5.30 crore and NER-₹2.59 crore.

While there was inadequate allocation of funds to eliminate UMLCs, Audit observed that a substantial amount of allotted funds were surrendered.

5.1.7.4 Constraints in Manning and elimination of UMLCs

Major constraints in the Manning of UMLCs was non-availability of Gateman posts and in regard to closure through other methods, the constraint was mainly resistance from public and resultant non-approval of proposal bycivil authorities.

Non-availability of personnel for manning

As brought out in paragraph 5.1.7.2 earlier, the shortfall in achievement against the target for eliminating UMLCs through manning was relatively higher. ZR Administrations generally attributed the shortfall in achievement to non-creation / non-sanction of posts of Gatemen. The infrastructure works for manning, wherever not commenced, were not to be taken up without ensuring creation/sanction of requisite posts of gateman. Various ZRs had taken up with RB the need for creation of Gatemen posts to man the identified UMLCs. Audit noticed following specific cases:

- Generally the main reason for non-manning of UMLC was non-availability of Gatemen. However, on WR there was other reason also. RB approved (2009-10) elimination of 480 UMLCs through 'Manning'. Zonal Authority initially sanctioned manning (February 2012) of 153 UMLCs. In case of 15 UMLCs (Vadodara Division), even after a period of more than three years, tenders for works for infrastructure had not been floated. There was nothing on records to indicate that these UMLCs were reviewed subsequently for consideration under any other method of elimination.

- In fact, the targets fixed by RB were for manning the UMLCs with simultaneous generation and filling of posts of Gatemen. Although ZRs sent their proposals to create posts of Gatemen for manning UMLCs, those were not entertained by RB. This resulted in mismatch between the expected elimination through manning vis-à-vis the actual availability of resources and led to the need for considering other interim measures[92].

- As per RB instructions (August 2011), a UMLC can be 'manned' if the TVU exceed 3000. It further provided that a UMLC can be manned even if the TVU is more than 2500 & visibility of the UMLC to the road user is less than 800 M. However, in IR, 1,161 UMLCs with TVU more than 3,000 and 409 UMLCs with TVU more than 2,500 & visibility of UMLC to road users less than 800 M remained to be eliminated though they were

[92]Such as possible utilization of services of Home guards, personnel from local Panchayat, gate Mitras/Counselors etc.

eligible for 'manning', mainly due to shortage of manpower as discussed time and again between ZRs' Administration and RB.

5.1.7.5 Resistance from public against closure of UMLCs

As per RB's orders (September 2011), besides manning, an UMLC can be eliminated by adopting other methods also[93]. In many ZRs, non-availability of approval of Civil Authorities for closure of UMLCs due to resistance from public on account of various reasons affected the elimination process. Some instances where, UMLCs although satisfied the criteria for elimination, could not be closed mainly due to public protest, are given below:

- Over IR, 3231 UMLCs had TVU less than 500. IR could not close them due to public protest against closure.
- On IR, 3123 UMLCs out of 10,388 UMLCs had been identified feasible for replacement by way of subways. However, the pace of elimination through construction of subways was slow as IR could only execute 315 subways per annum on an average. It was observed that subways with dimensions proposed by IR were considered unsuitable by the road users, particularly at places where agricultural produces/implements were transported from one side to the other. This resulted in Public protests across all ZRs affecting execution of subway works thereby affecting elimination of UMLCs. It is felt that IR was required to take in to consideration the problems brought to their notice in regard to dimensions and take suitable action case-wise.
- With regard to construction of diversion road to adjacent UMLC, outright closure due to less TVU etc. also, resistance from public was a major reason for elimination of UMLCs. It was observed that against closure of UMLCs, representations from public and other sources were being received in RB. Elimination of a large number of UMLCs did not commence due to pendency of approval/ concurrence for closure from concerned district authorities. In case of UMLCs identified for elimination through methods other than manning there were 501 cases at WR (March 2015) and 252 cases at SR (November 2015) where approval/ concurrence of Civil Authorities was pending for over six months**.** In six other ZRs (NWR-157, NR-81, NER-76, NCR-32, ECR-16 and SWR-5), similar position prevailed. It is felt that, ZR Administration should have taken up each issue

[93]Through other methods including outright closure of the UMLC if the TVU is less than 500, closure through construction of diversion road to nearest LC or Subway, elimination of UMLC by construction of Subway (LHS /Normal Height Subway/RUB or ROB) etc.

with Civil Authorities and obtained their sanctions by making best efforts and through effective coordination.

- A major accident on 24 August 2012 at an UMLC in Sambalpur – Maneswar section in ECoR resulted in 14 death and five serious injuries. The honourable High Court of Odisha directed ECoR Administration (November 2012) to pay compensation and eliminate the UMLC within six months. Although the UMLC was not qualifying for elimination as per criteria for TVU, immediate action was taken to eliminate it on out-of-turn basis through providing LHS. Detailed Estimate was sanctioned in February 2013 and the work was awarded (November 2013). However, during execution of work for LHS, villagers of the locality protested quoting difficulties faced in the transportation of agriculture produce and implements from one side to the other in view of the limited height. They demanded either the construction of ROB or manning of UMLC. The Civil Administration considered the request of villagers and the UMLC was being considered for manning.
- In NWR, work to eliminate UMLC (No. C-84) in Hansi – Raman section through provision of RUB could not be executed due to non-receipt of 'no objection certificate' from State Government.
- The work for elimination of UMLC (No.12) through provision of LHS at a cost of ₹1.68 crore in the Chengalpattu - Arakkonam Section of SR was approved (2012-13). The work had to be stopped immediately after award of contract due to public protest.

It may be seen from the above that a number of UMLCs had not been eliminated due to protests by public resulting in non-clearance of the proposals by the civil authorities.

5.1.7.6 Monitoring of progress- Delay in execution

RB had not fixed any specific time frame for execution of Road Safety Works relating to UMLCs. They had also not called for details of UMLC works pending for long periods. As such, there were delays at various stages of execution. Further, they had also communicated (September 2011) to General Managers of all ZRs that only 1491 level crossings had been identified for replacement with LHSs /RUBs. It was further stated that, despite delegation of powers to General Managers to take up works up to ₹2.50 crore under Plan Head 30 and if there is no shortage of funds, the work of identification as well as execution was very slow thereby indicating lack of regular focus.

An examination of records in regard to the process of identification, taking up and execution of 176 selected UMLC works as per sample was carried out and Audit noticed that:

- Thirty seven works[94]did not commence as at the end of March 2015. In most cases where the works had not commenced, the reason for delay was change in scope of work in view of adverse site conditions. Obviously, this was the result of improper site inspection prior to taking up approval for UMLC works for approval.
- Out of 37 works not commenced, in respect of 25 works[95] for which position was available, budget grant to an extent of ₹17.02 crore was provided during the 2010-15 thereby blocking up the capital which could otherwise have been used on other important works.
- Out of the remaining 139 UMLC works, 32 works were completed and the average time taken for completion per work was two years.
- Till end of March 2015, cost of work had escalated to an extent of ₹12.33 crore due to time over-run. The final cost-over-run would be assessable after the completion of 107 on-going works.
- In SR, out of 410 UMLCs approved as on 31 March 2015 for elimination by way of construction of Subways, the proposals were changed in 84 cases in to 'Manning'. It clearly shows that the initial proposals were made in a hurry without proper site inspection. Funds to the extent of ₹18.02 crore provided for these 84 works during 2007-15 remained blocked and could have been utilized on other important works/ projects. Audit also noticed similar cases involving changes in scope of works in other ZRs. In ECR, elimination of 186 UMLCs was approved through construction of Subways. The scope was changed to manning in 39 UMLCs due to unsuitability of site conditions. In SWR, approval was available for construction of Subways at 67 UMLCs but the scope was changed later in 17 cases. In SECR, approval was available for construction of Subways in case of 70 UMLCs, the scope was later changed for manning at 12 UMLCs. In ECoR, approval for construction of subways was available in respect of 106 UMLCs but scope was changed for two UMLCs.
- At ECoR, there was a case indicating lack of coordination/monitoring in a work for provision of four LHSs in lieu of UMLCs. The work sanctioned in November 2011 (cost of ₹3.63 crores), was commenced in September

[94]ECR and SR had nine works, NER had six works, NCR and NR had three works each, NFR had two works and ECoR, SER, SECR, SCR & SWR had one work each.
[95]Nine each in ECR and SR, two in NR and one each in ECoR, SCR, SECR, SER and SWR

2012. The LHS on account of ST-4 could not take off due to non-shifting of OFC cable from the work site. The work was closed (July 2014) and next contract had not been awarded as of 31st March 2015.

- Delay due to paucity of funds, unseasonal rains, condition of soil such as black soil etc., were among the commonly cited reasons for delay. Delay due to time taken for finalisation and approval of plans and drawings, contractor's failure, delay in getting district administration's permission, change in scope of work such as inclusion of three additional subways in place of the original one, delay in getting site clearance/launching of the segment due to CRS inspection/ inauguration of the section, ban on sand and granite quarrying, inadequate supply of OPC-53 grade cement in local and adjacent market, change in methodology of work from cut and cover method to box pushing method were also some other reasons cited.

5.1.7.7 Non-elimination of UMLCs after completion of up-gradation works

Even after completion of works relating to manning or construction of Subway, an LC may remain unmanned for want of Gateman or remain not closed due to public protest against closing. Prior to taking up the construction of Subways etc., ZRs are required to obtain State Government's consent for closure of LCs. Also, as per IRPWM, closure of the LCs should be ensured before commissioning of the ROB / RUB. All such cases where State/Local Authorities do not agree to abide by this should be reported to the RB promptly.

As of March 2015, 58 UMLCs remained not manned in IR after creation of infrastructure for manning and 34 UMLCs remained not closed after completion of work for Subways. Out of these 92 UMLCs, 51 UMLCs could not be manned for want of manpower, 32 UMLCs could not be closed due to public protest and the remaining nine UMLCs could not be closed for other reasons such as delay in finalisation of station working rule, water logging etc. The facilities remained non-commissioned for an average period of 11 months. Details of UMLCs not eliminated after completion of up-gradation works is at **Annexure III**.

The continuous operation of UMLCs, even after completion of planned works, was counter-productive to the fulfilment of the intended objective.

5.1.7.8 Creation of new UMLCs

In respect of all existing lines, new constructions and gauge conversions, if provision of new level crossing is inescapable, only manned level crossing is to be provided (Para 924 of IRPWM). However, 109 new UMLCs were created in

six ZRs (CR-15, ECoR-19, NR-16, SECR-3, SR-5 and SWR-51), reasons for which were not recorded.

5.1.7.9 Other deficiencies in Elimination of UMLCs

There were several instances where an UMLC initially identified for construction of UMLCs was changed to 'Manning' as the site condition was subsequently found to be unsuitable for certain reasons.[96]The changed proposals inevitably delayed the achievement of overall objective for elimination of UMLCs. This also indicated that initial proposals were made without proper site inspections.

5.1.7.10 Option of exploring other avenues

Though RB communicated (January 2012) their decision to extend the policy instruction of February 2007 to permit utilisation of funds from MPLADS and other schemes of Central and State Government[97] records did not indicate that MPLADS etc. had been adequately explored. No UMLC work had been carried out utilising such funds during the period covered in audit.

5.1.7.11 Assessment of traffic density through Census at UMLCs

Instructions (Para 919 of IRPWM) are in place to carry out census at UMLCs once in three years to assess the traffic density in TVU which would form the basis for elimination of UMLCs. Audit reviewed the position of conduct of census at UMLCs and taking up of follow up action thereon and observed the following:

- In 624 out of 10,388 UMLCs existing on 31 March 2015, no census had been carried out once in three years. Out of 624 UMLCs, in 209 UMLCs the TVU as per the last census was over 1500. Hence, it was possible that TVU in many of these UMLCs had reached the point to satisfy criteria required for ''manning''.
- In case of UMLCs where accidents occurred, census should be conducted immediately to determine the requirement of ''manning''. In case of 73 UMLCs (SWR-17, NWR-16, SR-12, ECR-11, SER-7, SCR-6, ECoR, ER, NFR & WCR- one each) where accident had taken place, the necessity of ''manning'' had not been assessed.

Thus, compliance with instructions of IRPWM regarding conduct of census and taking of follow up action based on results of census was not adequate.

[96]Such as, Approach road is skew and angular, Irrigation channel existing on both sides of LCs, Approach road passing through agricultural land, Rocky ground not suitable for UMLCs, Built up area infringing construction of UMLCs etc.
[97]Such as Prime Minister's Grameen Sarak Yojana, Chief Minister's Sarak Yojana, MLA fund etc. for construction of road under bridges in lieu of level crossings.

5.1.7.12 Safety Information Management System (SIMS)

In the Draft Action Taken Note relating to an earlier Audit report MoR stated (March 2015) that as a part of safety measures, Safety Information Management System (SIMS) had been implemented wherein one of the Modules relates to LCs. The SIMS was stated to be useful in monitoring LCs through the data of level crossings by assigning unique ID to every level crossing. The unique ID was stated to correlate to all developments like pattern of traffic, signage, condition, up-gradation works and accident details linked with satellite imagery.

Audit noticed that although the module relating to LCs had been developed and unique ID assigned to LCs, data relating to pattern of traffic, condition, up-gradation works etc. had not been updated. The Master data in SIMS relating to LCs had also not been up-dated after May 2011 in respect of all ZRs.

5.1.7.13 UMLCs in Rajdhani/Shatabdi Routes

On Rajdhani and Shatabdi routes with maximum permissible speed of 120 Kmph or more, all UMLCs should be manned on priority (Para 924 of IRPWM). As on 31 March 2015, there were 712 UMLCs in Rajdhani/Shatabdi routes and 608 UMLCs in 'A'&'B' routes. However, over seven *per cent* of the UMLCs continued to exist in Rajdhani/Shatabdi routes. Audit noticed that:

- 712 UMLCs related to Rajdhani and Shatabdi routes are scattered on different ZRs[98]. In 290 UMLCs[99], the TVU as per last census was more than the 3000 mark and hence, these 290 UMLCs were eligible for ''manning''. However, they remained unmanned.
- IR had 608 UMLCs on important rail routes (A&B).[100]
- As at the end of March 2015, there were 30 UMLCs (NFR- 26 UMLCs, SR- 2 and SECR and SWR -one each) in IR that were on the National Highways.

Retention of UMLCs on such important high speed routes makes these crossings vulnerable to avoidable disasters.

5.1.7.14 Provisions of Protective Measures at the UMLCs

As per IRPWM, the various protective measures/works are required to be carried out at UMLCs. Vision 2020 envisioned that all UMLC gates would be progressively 'manned' or protected or replaced by constructing infrastructure

[98]SER- 173, NR -168, ECR-138, SCR- 59, NER-56, NFR-55, ECoR-27, SWR-25, SR-5, NCR-4 and CR & SECR had one UMLC each.
[99]ECR had all the 138 UMLCs in the Rajdhani/ Shatabdi routes eligible for manning while NR had 65 UMLCs, SER had 34, NFR-16, ECoR-14, SWR-8, SCR-6, NCR-4, SR-3 and NER-2.
[100]SCR- 250, SER- 107, ECoR – 74, SR- 57 UMLCs, NR-33, NWR-29, NFR-27, SWR-24, NCR-4, ER-2 and SECR-1

in the next five years' time. Various instructions of the RB over the years have also highlighted the need for providing protective measures at UMLCs, as long as the same have not been eliminated.

Recognising the role of such protective measures, the position of provision of protective measures in case of all UMLCs as on 31 March 2015 was reviewed by Audit with reference to records maintained by the Railway Administration besides conduct of Joint Inspection with Railway officials at selected UMLCs.

- **Stop Boards -** Stop Boards of prescribed specifications are required to be fixed (Para 916 of IRPWM) at the UMLCs to warn road users. Audit observed that, as at the end of March 2015 Stop Boards had not been provided at 833 UMLCs (SR-598, SCR-211, ECR-24) out of 10,388 UMLCs.

  Further, during Joint Inspection at 160 selected UMLCs, it was observed that at 11 UMLCs (NR-4, NWR-3, CR-2, ECoR-2), Stop Boards had not been provided although the same had been stated in the records as having been provided.

- **Whistle Boards -** The approaches to all UMLCs are required to be provided (Para 916 of IRPWM) with 'Whistle Boards' of prescribed design erected at 600 meters along the track from the level crossing to enjoin the Drivers of approaching trains to give audible warning of the approach of a train to the road users. As on 31 March 2015, 'Whistle Boards' had been provided at all UMLCs.

  The Joint Inspection carried out at 160 selected UMLCs confirmed the presence of whistle boards in all 160 UMLCs checked.

- **Rumble strips or speed breakers -** Road Authorities are responsible to provide rumble strips of standard design on approaches of LCs (Para 918 of IRPWM). ZRs' Administration are required to pursue the matter with State Governments/Road authorities to ensure that rumble strips are provided on all LCs over the total width of the road with proper road

warning signs.Till such time these are replaced with rumble strips of proper design by the Road authorities, as a temporary safety measure, Railways were to provide speed breakers.

Audit observed from the records maintained at ZRs that speed breakers were yet to be provided in 1024 UMLCs (632 in WR, 390 in NER and one each in ECR & NCR). Join Inspection carried out at 160 UMLCs over IR showed that in case of two UMLCs in SWR and one UMLC each in ECoR, NR, SECR either rumble strips or speed breakers were not provided.

- **Height Gauges -** Paragraph No. 910 (4) of IRPWM provides that adequate arrangements are required to be made to erect Height Gauges in the electrified sections on either side of the overhead equipment (OHE) at every LC to ensure that vehicles and moving structures passing under the height gauge also pass under the OHE with adequate clearance. During Joint Inspection, in respect of all UMLCs checked in the electrified sections, it was observed that height gauges were provided.

- **Other aspects noticed during Joint Inspection -** All roads should preferably cross the Railway line at right angles[101]. In all 160UMLCs covered in Joint inspection the angle of crossing had been provided as prescribed. All the UMLCs checked had been provided with sign boards, levelled road between UMLC gate posts and check rails covering the width of UMLC gates.

5.1.7.15 Protective measures - Inspection of UMLCs

Audit noted that, as per extant codal/ manual provisions, it is not mandatory for Railway officials to conduct periodical inspection of UMLCs though provisions exist in Para 914 of IRPWM for inspection of LCs (manned ones). However, Audit observed that PCE/NWR had issued a circular prescribing schedule for inspection of UMLCs by Senior Section Engineers (SSEs) and Assistant Divisional Engineers (ADENs).It may be prudent for RB if specific instructions are issued in this regard. It was generally observed that in several Divisions, Joint Ambush Checks conducted by Railways during 2014-15 did not cover all UMLCs in the Division possibly because there is no prescribed norm concerning the coverage.

[101]As per paragraph No. 906 of IRPWM, in special cases, when modification is required to suit the road approaches, the angle of crossing should not be less than 45 degree.

5.1.7.16 Accidents at UMLCs

Analysis of accidents at UMLCs - Highest number of fatalities in IR occurs due to accidents at UMLCs[102].

The Supreme Court (October 2014) described as "serious" the fact that 40 *per cent* of railway level crossings across the country are unmanned and account for 73 *per cent* of fatalities every year and issued notice to the Centre in response to a PIL demanding the deployment of guards or gates at all 30,348 crossings over IR.

Audit examined the statistics of accidents at UMLCs that occurred during the review period (2012-15) and noticed that the number of accidents (consequential as well as those due to negligence of road users) and casualties (deaths and injuries) at UMLCs were as shown below-

Table No. 5.5 - Accidents in UMLCs

Item	2012-13	2013-14	2014-15
Number of accidents	88	81	69
Number of casualties	213	191	221

Audit noted that although the number of accidents during the three year period showed a decreasing trend, the number was still significantly high, notwithstanding an overall reduction in number of UMLCs across the IR. The number of casualties was still almost the same. The number of accidents was high in NWR with 47 accidents, NR had 28 and SR & NCR had 18 each etc. The number of accidents was relatively less in ER (1), WCR (3) and CR (5).

The data reinforces the need for concerted and intensified efforts to eliminate UMLCs at the earliest. Cases of UMLC accidents relating to the review period were checked to analyse if the numbers indicated a clear correlation between the occurrence of these specific cases and low visibility to road users (less than 800 M).

Audit also sought to analyse data relating to the traffic density in terms of TVU at the UMLCs where the accidents occurred to check whether any pattern was observed/ conclusion drawn. It was noticed that, out of 238 accidents at UMLCs, at 91 UMLCs the visibility was less than 800 m. As such, low visibility would have been among the causes attributable in these cases.

Further, the criteria set for manning a UMLC is above 3000 TVU. However, in respect of UMLCs where accidents occurred it was seen that TVU was less than 1000 at 55 UMLCs, between 1000 and 3000 at 85 UMLCs and over 3000 at 98

[102]Paragraph 3.7 of the White Paper(February 2015).

UMLCs. Thus, majority of the accidents (138 accidents–59 *per cent*) occurred at UMLCs where the TVU was less than 3000. This indicates that the criteria set for manning a UMLC needs to be reviewed.

Impact of accidents at UMLCs - Out of 1020 train accidents that occurred in IR during the period of review, 238 accidents were at UMLCs causing 360 deaths and 265 injuries. The total amount of ex-gratia paid in the death/injury cases was ₹1.38 crore and cost of damage to Railway assets was ₹2.35crore.

5.1.7.17 Measures taken to educate road users

ZRs, following the instructions of RB, carryout from time to time, intensive social awareness campaigns to educate road users[103]to ensure safety at UMLCs. Every year, International Union of Railways (UIC) observes one day as the International Level Crossing Awareness Day (ILCAD)[104]. As a part of this endeavour, Joint surprise Checks involving RPF, GRP and Civil authorities at the level crossings are conducted and action taken on errant road users under sections of Motor Vehicle Act.

The position, generally reviewed with reference to records available in the Safety Branch of two selected divisions in each ZR revealed that adequate measures were taken up to educate the road users in the safe usage of UMLCs[105].

5.1.7.18 Deployment of Gate Mitras

Keeping in view aspects such as the long gestation period of capital intensive works and the costs involved, Railways had endeavoured to work out other interim measures to protect lives and also to maintain smooth train operations through involvement of other authorities. The possibility of the involvement of the local Panchayats for strengthening the safety of UMLCs, where the village Panchayats could post watchmen at UMLCs with the wages to be taken care of through agreed institutional mechanisms had been mooted.

Involvement of Home Guards of the State Government for strengthening the safety at UMLCs with wages to be arranged by the Railways had also been considered. However, only few states responded positively to the initiative. Though Railways had taken up with the Ministry of Rural Development (2012) the possibility of inclusion of "guarding activity at UMLCs by local Panchayat"

[103]This includes publicity campaigns through media like Newspapers, TV, Radio, posters etc., distribution of leaflets, use of short duration films/ advertisements etc.
[104]In the year 2012, 7th June was observed as ILCAD. 7th May was observed as ILCAD in 2013 and 3rd June in the year 2014.
[105]Wall posters, pamphlets etc. were pasted/ distributed among public and Railway users. Railways also utilised other methods such as 'Nukkad Nataks' and sending SMSs in large numbers in local language for educating the people about the precautions to be observed at UMLCs.

in the illustrated list of eligible works under NREGA scheme, the same did not materialise.

RB communicated (August 2009) the directions of the Hon'ble Minister to the zones which emphasised that priority needs to be given to manning of level crossings. If staff were not available, then it might be examined whether manning could be undertaken under PPP. This was also reiterated in Adviser/Safety's letter dated 22nd May 2014 to ZRs wherein they were exhorted to devise schemes to reduce accidents at UMLCs (until their elimination through one of the specified methods) citing the efforts made by CR and WCR in deploying Gate Mitras/counsellors at UMLCs. Other ZRs were encouraged to follow CRs' innovative method of deployment of councillors to guide road users. The concept of deployment of Gate Counselors/Gate Mitras at UMLCs was actively contemplated since mid-2014. Apprehensions were raised against deployment of Gate Mitras, some of the important ones are given below:

- As per the Motor Vehicles Act, 1988, the onus of safely negotiating an UMLC lies entirely on the road user. Under the circumstances, in the event of an accident at an UMLC where Gate Mitras are deployed, the responsibility would be shifted towards Railways.
- As per the experience of Railways in the yesteryears, the persons engaged to act as Gate Mitras may claim regular employment with Railways at a later stage.

On 4th August 2014, RB instructed ZRs that based on the experience of this pilot scheme in the two Railways, the same would be expanded.

As seen from the records of RB as also at zonal level, the issues raised against deployment of Gate Mitras had not been fully resolved. However, it has been observed that 2902 Gate Mitras have been engaged at UMLCs in various ZRs of IR after seeking the Law Ministry's opinion (July 2014) to know whether it would be liable to pay compensation to accident victims at these crossings if it utilised services of Gate Mitras.

5.1.7.19 Use of Geo-spatial technologies to provide safety at UMLCs

RB in December 2014 communicated instructions of Honourable MR to ZRs to consider other measures in addition to Geo-spatial technologies for providing comprehensive safety at UMLCs in consultation with State Governments, NGOs and other stake holders. ZRs were required to prepare and put in place comprehensive Action Plan so that accidents at level crossings may be fully avoided.

The comprehensive Action Plan involving measures including Geo-spatial technologies was yet to be evolved by IR/ZRs as on 31st March 2015.

5.1.7.20 Other developments

The importance attached to safety in Indian Railways and in particular, at the UMLCs is seen from the fact that in the Railway Budget presented in 2015, one of the announcements made was concerning the development of devices to provide audio visual warning to road users at UMLCs. This would be done in collaboration with RDSO, ISRO and IIT Kanpur. Further, to facilitate the construction of ROB/RUB, a web based application has been commissioned with user friendly measures for online submission and approval of drawings within 60 days. An MOU has also been signed with the Ministry of Road Transport and Highways in this regard.

As part of the developmental efforts, RDSO, Railways' research wing, recently finalised the specifications of a vandal-proof warning system for unmanned level crossings. The system consists of two sensor modules and a control module in which train movements are detected and siren and blinker alerts are produced when the train is within one km of the level crossing. Sensor modules are located within one km of level crossing to detect train movement on track.

In case of vandalisation of the system at the level crossing by unscrupulous elements or for any other reason, SMS alert will be sent to pre-programmed mobile numbers.

RDSO had recommended to RB to advise zonal railways to install at least one or two systems for field trials before large-scale development could be initiated. The system has been working for the past few months on Coimbatore-Mettupalayam section in SR.

5.1.8 Conclusion

As per the Vision 2020 Statement of Railways (December 2009) hundred *per cent* UMLCs were to be eliminated progressively through manning or through any of the approved methods or protected in five years' time (2010-15) and 11,630 out of 16,125 UMLCs that existed in 2010 were planned for elimination by 1st April 2015. Only 5,737 UMLCs were eliminated during the Five Year Master Plan period and still 10,388 UMLCs remained to be eliminated as on 1 April 2015.

As many as 4495 UMLCs were categorised as ''cannot be closed''. However, during execution, the position changed at ZRs and many of the UMLCs belonging to this category were considered for manning / conversion. There

was a decreasing trend in annual targets fixed by the RB for manning the UMLCs (2012-13- 1101 UMLCs and 2013-14- 495 UMLCs). It was due to RB order (March 2012) that on locations where works for creating infrastructure for manning of UMLCs had not commenced, Railway should not take up manning works until creation/sanction of requisite posts of Gatemen.

The funds made available every year were lesser than the resources that could have hastened achievement of the objective of elimination of UMLCs. In none of the years the allocation exceeded ₹2,217 crore due to which MoR had to request MoF (February 2015) to enhance the allocation of fund out of Central Road Fund (CRF) through amendment in the CRF Act and grant a second phase of Special Railway Safety Fund (SRSF) to undertake works recommended by the Kakodkar Committee.

The progress in construction of subways indicates that it would take several years for IR to complete all sanctioned works. Out of limited funds granted, there was surrender of underutilised funds also that established the fact that there were certain other reasons like resistance of general public also that hindered the progress in elimination of UMLCs.

All protective measures at UMLCs were being provided by IR to check accident.

5.1.9 Recommendations

- There should be close monitoring of the execution of long pending UMLC works and IR should take efforts to prioritise the elimination of UMLCs in important routes including Rajdhani/ Shatabdi routes. Time frame should be in place for execution of works relating to elimination of UMLCs, particularly works relating to construction of Subways.
- MoR may ensure the availability of funds required every year for completion of targeted works for the elimination of UMLCs and ensure that funds granted are fully utilised on works.
- Approval of Civil authorities for closure of UMLCs prior to commencement of infrastructure works relating to manning, construction of subways etc. to avoid idling of capital invested, should be ensured in all cases. An appropriate mechanism should be put in place to ensure cooperation from the public as non-closure of UMLCs on account of public resistance may be a costly and risky option for IR as well as the public.

- Census at UMLCs should be carried out once in three years and action required as per codal provisions and extant instructions of RB based on results of census should be taken without fail, for closure, manning etc.
- IR may pursue the matter of including the "activity of guarding unmanned level crossings by local Panchayat" in the illustrated list of eligible works under NREGA scheme.

5.2 Procurement and Utilization of Stone Ballast in Indian Railways

5.2.1 Introduction

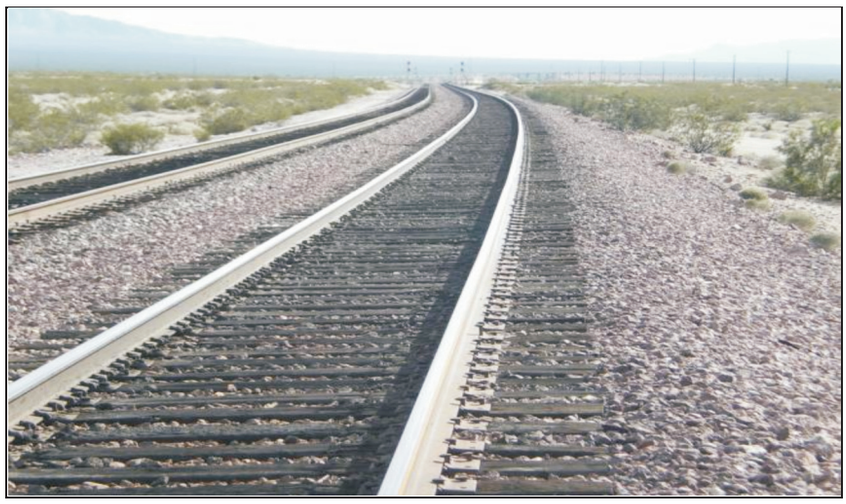
Indian Railways (IR) has a network of 1,17,996 track kilometers {Broad Gauge (BG): 1,09,535 km, Metre Gauge (MG): 5,929 km and Narrow Gauge (NG): 2,532 km} spread over 17 Zonal Railways as on 1st April 2015[106].

Track or Permanent Way (P Way) is the rail-road on which trains run. Two parallel rails at a specified distance are fastened to sleepers which are embedded in a layer of ballast of defined thickness spread over the formation. Ballast forms a major component of track sub-structure and plays a dominant role in the track performance and its maintainability. Track ballast forms the track bed upon which railway sleepers are laid. It is packed between, below and around the sleepers. It also keeps down vegetation that might interfere with the track structure. It is typically made of crushed stone. The thickness of a layer of track ballast depends on the size and spacing of the sleepers, the amount of traffic expected on the line and various other factors. It is essential for ballast to be piled as high as the sleepers, and for a substantial "*shoulder*" to be placed at their ends, the latter being especially important, since this ballast shoulder is, for the most part, the only component restraining lateral movement of the track. Ballast acts as a shock absorber and provides lateral resistance against longitudinal movement of sleepers. While providing lateral stability to track and facilitating distribution of weight of rolling stock, it also serves as a drainage system for the formation. Better riding comfort and safe passage of trains are achieved by the provision of adequate quantity of good quality ballast as prescribed in specifications of track ballast issued by Railway Board (IRS-GE-I of June 2004).

As per Para 264 of Indian Railway Permanent Way Manual (IRPWM), the assessment of ballast requirements is to be made by open line organization separately for making good deficiencies arising out of overhauling of track and for providing extra cushion while converting the track to Long Welded Rail Track (LWR). In respect of construction projects, requirement of ballast is to be made as per the profile given in

[106] *Indian Railways year book 2014-15*

para 263(1) of IRPWM. The procurement of ballast in Indian Railways is being made through contracts for supply and stacking of ballast either in depots or on cess[107]. Since assessment of requirement of ballast for making good deficiency as existing in track is to be made through survey, no periodicity for recoupment of ballast in the existing track is fixed.



5.2.2 Organizational structure

At Railway Board (RB) level, Member Engineering (ME), assisted by Additional Members (Works & Civil Engineering), Executive Directors (Works, Civil Engineering, General and Planning), Directors (Works, Civil Engineering, Bridges & Structures and Planning) and Joint Directors (Works) are responsible for formulating policy decision on track structure.

At the Zonal level, the Chief Track Engineer (CTE), working under the control of Principal Chief Engineer (PCE), is responsible for implementing the policy guidelines/ orders of the RB. At the Divisional level, the Senior Divisional Engineers/ Divisional Engineers (Sr.DEN/DEN), aided by Assistant Divisional Engineer/Assistant Engineers (ADEN/AEN)/ Senior Section Engineers/ Section Engineers (P Way)/(SSE/SE-P Way) translate the guidelines into action.

Procurement of ballast for construction projects (New Line, Doubling and Gauge Conversion) is based on the requirements projected in the detailed/revised estimates which are sanctioned by Railway Board. The procurement process is done by Construction Organization of Zonal Railway based on over all progress of projects and availability of funds.

[107] Stacking of ballast along side the track

5.2.3 Audit objectives

- To see whether requirement of ballast was properly assessed for maintenance of track, for special works and for projects
- To review the process of procurement of ballast through examination of tenders and contracts
- To see whether proper monitoring mechanism and control exists in procurement & utilization of ballast.

5.2.4 Audit criteria

Criteria adopted for the review were:

- Provisions contained in Para 130,210,261 to 267 of IRPWM-2004.
- Policy Guidelines issued by Railway Board, vide Letter No 2006/CE-II/MB/2 dated 25 May 2007 and instructions issued from time to time.
- Specifications of track ballast issued by RDSO, vide IRS-GE-1(June 2004) and subsequent corrections issued thereon.

5.2.5 Audit scope, methodology and sample size

The review covered assessment of requirement, procurement and utilization of stone ballast during the five-year period from 2010-11 to 2014-15.

At the Macro level:

The review was undertaken in 16 Zonal Offices and Construction units (except Metro Railway Kolkata where stone ballast is not used).

At the Micro level:

- For detailed study of method of assessment adopted, tender and contract management, monitoring of procurement and utilization etc., **50** ***per cent*** of the Divisions, subject to a ***minimum of two Divisions per Zonal Railway*** (39 divisions)[108] were covered.
- For reviewing the method of assessment adopted at the level of SSE/SE (PWay), basic records of ***78 SSE/ SE (P Way) units***[109] of selected Divisions were test checked.
- ***439 completed special works***[110] involving ballast consumption on Open Line (completed during review period), except SR and one division of NR

[108] *CR-3, ECR-3, ECoR-2, ER-2, NCR-2, NER-2, NFR-3, NR-3, NWR-2, SCR-3, SECR-2, SER-2, SR-3, SWR-2, WCR-2 and WR-3*
[109] *CR-6, ECR-6, ECoR-4, ER-4, NCR-4, NER-4, NFR-6, NR-6, NWR-4, SCR-6, SECR-4, SER-4, SR-6, SWR-4, WCR-4 and WR-6*

(i.e. Delhi Division) where the data was not made available to audit, were covered for the review.

- ***113 completed Gauge Conversion (GC), Doubling (DL) and New Line (NL) projects***[111] of Construction Organization, (completed during the review period) were covered.
- ***25 per cent of the total ballast depots subject to a minimum of one depot per division*** of each Zonal Railway– 91 ***depots***[112] were covered for review of working of Depots.

5.2.6 Issues examined and Audit findings

5.2.6.1 Assessment of requirement of ballast for maintenance of track

As per Para 264 of IRPWM, the requirement of ballast for normal maintenance is to be arrived at by assessing the quantity by a survey over a rail length in every one km at the level of SSE/SE (P Way). Review of records of 78 selected SSEs[113], revealed the following deficiencies.

- For making good deficiencies in the existing track, ballast assessment was not done as per the stipulated procedure in Para 264 of IRPWM. Sectional registers did not contain details of kilometers where ballast deficiency existed. Details of recoupment done and year-wise particulars of deep screening carried out were not indicated in the sectional registers of all the 78 SSEs in contravention of Para 210 of IRPWM.
- The requirement of ballast for revenue maintenance was not obtained from field SSEs for consolidating the divisional requirements except in 23 Divisions of eight Zonal Railways[114] indicating system deficiencies in assessment of divisional requirements.
- Out of 68 divisions, annual projected requirement was submitted to Zonal HQ by 35 divisions, [115]annual projected requirement was not submitted by 30 divisions[116] while the data was not made available to audit by 3 divisions of North Central Railway.

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[110] CR-37, ECR-16, ECoR-18, ER-31, NCR-53, NER-15, NFR-9, NR-28, NWR-31, SCR-63, SECR-9, SER-48, SWR-10, WCR-53 and WR-18
[111] CR-2, ECR-10, ECoR-4, ER-19, NCR-2, NER-10, NFR-6, NR-5, NWR-12, SCR-3, SECR-2, SER-12, SR-11, SWR-8, WCR-1 and WR-6
[112]CR-9, ECR-1, ECoR-11, ER-2, NCR-6, NER-3, NFR-4, NR-5, NWR-5, SCR-10, SECR-3, SER-2, SR-13, SWR-4, WCR-7& WR-6
[113] CR-6, ECR-,6 ECoR-4, ER-4, NCR-4, NER-4, NFR- 6, NR-6, NWR-4, SCR-6, SECR-4, SER-6 , SR-1, SWR-4, WCR-4, WR-6
[114]CR-3, ECoR-1, ER-4, NCR-1, NWR-2, SER-4, WCR-3 and WR-5
[115]CR-5, ECR-5, ECoR-2, ER-4, NER-3, NWR-3, SER-4, WCR-3 and WR-6
[116]ECoR-1,NCR-NAP, NFR-5, NR-5, SCR-6, SECR-3, SER-1, SR-6 and SWR-3

The above position indicated that assessment of ballast for open line maintenance was not need based, which could impact safety and riding comfort in trains.

The issue that ballast for normal maintenance was not assessed as per laid down procedure even at the level of Assistant Engineer/ Section Engineer (P.Way) was earlier taken up in the Audit report No.9 of 2001. Through the Action Taken Note, RB replied (May 2006) that permanent way officials inspect the permanent way sections very often and are well conversant with their sections and deficiencies. It should, therefore, not be essential to carry out the entire exercise as listed in IRPWM for the sole purpose of assessing deficiency of ballast which eventually would lead to wastage of manpower and efforts.

As no correction slip has been issued to Para 264 of IRPWM, revising the procedure to be adopted by the SSEs for assessing the deficiency of ballast on track, the requirement of ballast for normal maintenance was not based on the laid down procedure in the IRPWM.

5.2.6.2 Enhancement of requirements of ballast

As per Para 264 (5) of IRPWM, the quantities assessed as requirements is to be enhanced suitably (say 8 *per cent*) to arrive at gross quantities of ballast for the purpose of procurement action in case measurements are taken in stacks or in wagons at originating station. The above provision was introduced vide advance correction slip No. 80 dated 02 December 2002 to IRPWM when the procurement of ballast was as per the specifications of the ballast prevailing in 2002, which included hand crushed ballast. Specifications for Railway track ballast was revised by RDSO, vide IRS- GE-I June-2004 according to which, ballast should be cubical in shape as far as possible and should be machine crushed. It is observed that no correction to Para 264 (5) of IRPWM (Second reprint 2004) has been issued by the Board consequent on revising the specifications.

Out of 21 Divisions of ten ZRs[117] which had assessed the requirement of ballast, only six divisions of three ZRs (two each on NER, NWR and WR) had enhanced the quantity as per provisions of Para 264 (5) of IRPWM. Similarly, out of 113 completed projects[118] by CN unit, the requirement of ballast was

[117] *CR-3, ECoR-2, ECR-3, ER-2, NCR-1, NER-2, NWR-2, SER-1, WCR-2 and WR-3*
[118] *CR-2, ECR-10, ECoR-4, ER-19, NCR-2, NER-10, NFR-6, NR-5, NWR-12, SCR-3, SECR-2, SER-12, SR-11, SWR-8, WCR-1 and WR-6*

enhanced in the estimates of 36 projects[119] and no enhancement was made in the estimates of balance 77 projects.

Thus, there was no uniformity in assessing the requirements for procurement action at the estimation stage.

5.2.6.3 Assessment of requirements for Special works

Out of 439 special works completed, involving consumption of ballast, by selected Divisions of Zonal Railways (except SR and Delhi Division under NR, where the details of special works were not made available to audit), assessment of requirements and actual consumption are as follows:

Table-5.6

S. l.	Details	Number of works
1	Total Number of completed special works involving ballast consumption	**439**[120]
2	Out of the above, number of Special works for which quantity of assessed requirement and consumption was not made available to Audit	**202**[121]
3	Out of the above, number of Special works for which quantity of assessed requirement and consumption was made available to Audit	**237**
4	Out of 3 above, number of special works where the variation of more than ten *per cent* between assessment and consumption existed	73[122]

It is evident from the above that records for actual consumption of ballast for Special works were not maintained by the Railway Administration properly. Out of 237 Special works[123], where the data was furnished by the Railway Administration, variation existed between assessment and utilization in respect of 73 special works even after considering a reasonable allowance of (+/-) 10 *per cent.* The variation ranged from (-) 100 *per cent (NWR-2 works, WCR-9 works)* to (+) 337 *per cent (ER-1 work)*. In respect of 56 special works[124], reasons for variations were not kept on record. The reasons for variations,

[119] *ER-2, NER-8, NWR-12, SCR-1, SER-10 and SWR-3*
[120] *CR-37, ECR-16, ECoR-18, ER-31, NCR-53, NER-15, NFR-9, NR-28, NWR-31, SCR-63, SECR-9, SER-48, SR-NAV, SWR-10, WCR-53 and WR-18*
[121] *CR-37, NCR-28, NER-10, NWR-16, SCR-63 and SER-48*
[122] *ECR-3, ECoR-6, ER-4, NCR-2, NFR-4, NR-3, NWR-12, SECR-1, SWR-3, WCR-31 and WR-4*
[123] *ECR-16, ECoR-18, ER-31, NCR-25, NER-5, NFR-9, NR-28, NWR-15, SECR-9, SR-NAV, SWR-10, WCR-53 and WR-18*
[124] *ECR-3, ECoR-6, ER-3, NCR-2, NFR-4, NR-3, NWR-1, SECR-1, SWR-2 and WCR-31*

wherever furnished, were stated to be based on site condition. The abnormal variations indicated that assessment of requirements was not done based on ground realities.

5.2.6.4 Assessment of requirement of ballast for CN projects

Audit attempted to independently work out the requirements of ballast as per provisions of IRPWM for 113 projects completed during 2010-11 to 2014-15. Results of audit analysis are tabulated below:

Table-5.7

Sl	Details	Number of projects
1	Total number of projects completed	**113**
2	Number of projects where data for assessment of requirement was not made available to audit	07[125]
3	Number of projects where estimation of requirement by construction units was less than requirements worked out	23[126]
4	Number of projects where the assessment was in excess of requirements worked out	38[127]

From the above, it is seen that out of 106 completed projects[128], where data was available while requirement of ballast for 38 projects was higher by 4.89 lakh cum, it was short by 2.55 lakh cum for 23 projects with reference to assessment after made by Audit as per provisions of IRPWM. This was indicative of improper estimation of requirement of ballast for projects. However, the reasons for excess/less assessment of ballast were not kept on record.

5.2.6.5 Assessment of availability of MG/NG ballast for use in BG track during GC work

Conversion of track from MG/NG to BG necessitates procurement of additional ballast to meet the requirement of BG standards which is to be assessed after taking into account the ballast available on the MG/NG track proposed for conversion. As per Para 263 of IRPWM, one km of NG and MG track on an average should have a minimum 543 cum and 1235 cum of ballast under ideal conditions respectively. As adequate ballast cushion is a pre-requisite for safe permanent way, the existing MG/NG tracks (taken up for GC) having regular traffic is presumed to have been provided with minimum ballast.

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[125] *ECR-1, NER-2, SER-2 and SR-2*
[126] *ER-6, NER-4, NFR-3, NWR-4, SCR-1, SECR-1, SR-1, WCR-1 and WR-2*
[127] *ECoR-1, ER-9, NCR-2, NER-4, NFR-2, NWR-5, SECR-1, SER-2, SR-2, SWR-8 and WR-2*
[128] *CR-2, ECR-9, ECoR-4, ER-19, NCR-2, NER-8, NFR-6, NR-5, NWR-12, SCR-3, SECR-2, SER-10, SR-9, SWR-8, WCR-1 and WR-6*

Following are the details of GC projects completed during the period 2010-11 to 2014-15 and quantity of MG/NG Ballast available.

Table-5.8

Sl	Particulars	Number of Projects completed/ Quantity of ballast in cum
1	Number of GC projects completed	21[129]
2	Number of GC projects for which data was not made available	2 [130]
3	Number of GC projects where quantity of existing ballast was assessed to be NIL in the estimates for use due to existence of only moorum ballast	2[131]
4	Number of GC projects where quantity of existing ballast was assessed to be NIL in the estimates for use even though stone ballast existed in MG/NG section	5[132]
5	Number of GC projects where some quantity of existing ballast was considered to be used during GC in the estimates	12[133]
6	Minimum quantity of existing ballast that should have been available for use during GC	18.40 lakh cum[134]
7	Out of the above, quantity of existing ballast considered for use during GC	3.11 lakh cum[135]
8	Overall percentage of ballast considered for use in the estimates during GC (with reference to Sl. 5 above)	17

Out of 21 GC projects completed, in respect of two projects, data was not made available to Audit. In respect of two projects, due to existence of moorum ballast, no quantity of existing ballast was considered to be used during GC. For the balance 17 projects, where data was made available, quantity of existing ballast assessed to be available for use in GC was nil for five projects as against a minimum quantity of 2.18 lakh cum that should have been available for use during GC. Further only a meagre quantity of 3.11 lakh cum of existing ballast was considered to be used, out of a minimum of 16.22 lakh cum in respect of 12 projects. The reasons for not considering any quantity and considering only a

[129] *ECoR-1, ER-1, NCR-1, NER-1, NFR-2, NWR-5, SCR-1, SER-1, SR-4, SWR-2 and WR-2*
[130] *Aurihar -Jaunpur GC (NER) and KMU-VM-GC PORTION (SR)*
[131] *Naupada-Gunupur GC (ECoR) and Kolar-Chikkaballapur GC (SWR)*
[132] *ER-1, NFR-1, SER-1 and WR-2*
[133] *NCR-1, NFR-1, NWR-5, SCR-1, SR-3 and SWR-1*
[134] *ER-0.09, NCR-0.43, NFR- 1.77 NWR-8.05, SCR-2.8, SER-0.49, SR-3.30, SWR-0.70 and WR- 0.77*
[135] *NCR-0.12, NFR-0.24, NWR-1.75, SCR-, 0.45 SR-0.45 and SWR-0.10*

meagre quantity were not on record for 13 projects (NCR-1, NWR-5, SCR-1, SWR-1,SR-3 and WR-2). However, in respect of four projects, Railway Administration stated that available ballast was as per old specification and also badly contaminated and was not fit for use.

5.2.6.6 Tendering Process

The contract is to be awarded to the lowest, eligible, valid and technically acceptable tenderer (L1) only. If the contract is not awarded to L1, specific reasons are to be recorded by the Tender Committee. Further, there are no specific time lines prescribed for the various activities involved in processing of tenders including that of preparation of tender schedules and briefing notes. The only prescription being that the tenders are to be evaluated and finalized at the earliest and much before the expiry of validity of offers. However, a reasonable time limit of six months for completing all the formalities of tendering process in cases of finalization of risk and cost tenders was fixed by SR which is taken as the benchmark by audit for working out the delay in tendering process.

Out of 602 tenders finalized in 39 selected Divisions and 113 completed projects of CN units for procurement of ballast, during the review period, 16 tender files (ECoR-3, NER-1, NFR-11 and NWR-1) were not made available to Audit. A review of 586 tenders finalized for procurement of ballast revealed the following.

- L1 was passed over in respect of 27 tenders[136] due to non-fulfillment of eligibility criteria, non-submission of ballast test certificates, non-submission of credentials, etc which were found to be in order.
- 103 tenders were finalized with a delay ranging from one month to 18 months after allowing a reasonable time limit of six months. The delay was mainly attributed to reasons such as negotiations, verification of credentials, shortage of funds, etc**.**
- In respect of four cases[137], tenders were accepted without ballast test certificates along with the offer, since ballast test certificates were not found on record.
- Out of 18 tenders finalized by two Divisions of SER during the review period, for procurement of ballast, cartel formation was suspected by the Railway Administration in respect of six tenders since same rates, terms and conditions were quoted by the tenderers. In terms of RB's instructions (October 2006 and March 2014) the cases of cartel formation were to be

[136] *CR-1, ECoR-1, NCR-6, NER-1, NR-3, NWR-4, SECR-4, SER-3, SR-1 and SWR-3*
[137] *NER-1, SECR-1 and SWR-2*

reported to Competition Commission of India (CCI). However, the Railway Administration had not referred the matter to the CCI. The tenders were finalized duly distributing the total quantity among all the tenderers at the same rates, terms and conditions on the plea that it was a general trend to quote the similar rates in case of ballast tenders with the source of Pakur/ Bakudih quarries even for other Railways viz., NFR, ER, etc.

- Similarly, in the tenders finalized by NFR (1), ECR (3) and ER (9), during the review period, cases of quoting same rates, terms and conditions by two or more tenderers were noticed in Audit. ER administration suspected the cartel formation in two tenders out of nine tenders. Cartel formation was not suspected by NFR & ECR. The cases were also not referred to CCI in contravention of RB guidelines on the subject. Contracts were awarded to all the tenderers duly distributing the quantity equally.

5.2.6.7 Contract Management

A review of 574 completed contracts[138]of selected Divisions and selected projects of CN units of Zonal Railways [except contracts of Delhi Division of NR and three contracts each of ECoR (CN) and NER (CN), where contract files were not made available] revealed the following:

a) **Granting of extension of time for completion**: A total of 1703 extensions[139] were granted, ranging from one to twelve extensions, for various reasons such as non-availability of wagons, space constraints for stacking ballast, collection of additional quantities, variation in quantities, heavy rains, funds constraints, public protests, delay in finalization of yard plans, delay in handing over of clear site, reasons attributable to contractors, etc in respect of 532 contracts. The works in respect of 42 contracts[140] were completed within the stipulated initial currency of the contracts (7.31 *per cent*). This clearly indicated that there was lack of planning in execution of the contracts resulting in extra liability of ₹88.82 crore[141] by way of payments to contractors under Price Variation Clause (PVC). It is pertinent to point out that the initial time fixed for completion of the works was not realistic, duly taking into account all the constraints in execution of works.

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[138]CR-(OL/CN-47/6), ECR-(17/9), ECoR-(39/12), ER-(16/17), NCR-(21/2), NER-(12/25), NFR-(15/23), NR-(22/11), NWR-(11/37), SCR-(11/23), SECR-(19/4), SER-(30/18), SR-(19/11), SWR-(28/19), WCR-(16/1) and WR-(25/8)

[139] CR-172, ECR-46, ECoR-141, ER-60, NCR-104, NER-93, NFR-121, NR-99, NWR-205, SCR-85, SECR-48, SER-114, SR-118, SWR-161, WCR-48 and WR-88

[140] CR-2, ECR-4, ECoR-1, ER-7, NCR-4, NFR-4, NR-1, NWR-1, SCR-1, SECR-2, SER-10, and WR-5

[141] CR-8.03, ECR-7.01, ECoR-6.22, ER-3.09, NCR-3.40, NER-27.02, NFR-10.93, NR-0.50, NWR-1.46, SCR-1.56, SECR-0.62, SER-8.09, SR-7.30, SWR-2.23, WCR-0.37 and WR-0.99

b) **Incorrect levy of liquidated damages/penalty**: Clause 17B of GCC clearly stipulates that extension of the currency of the contract is subject to levy of liquidated damages (LD) of a sum equivalent to ½ of 1 *per cent* of the contract value of the works for each or part of the week subject to a maximum of

i) 10 *per cent* of the total value of the contract, for contract value up-to ₹2 lakh.

ii) 10 *per cent* of the first 2 lakh and 5 *per cent* of balance, for contract valued above ₹2 lakh,

Further, it was also stipulated that competent authority, while granting extensions to the currency of the contract under clause 17B of GCC may also consider levy of token penalty as deemed fit based on merits of the case. This implies that the levy of token penalty is in addition to the levy of LD.

Extensions were granted under clause 17B of GCC in respect of 56 contracts[142] due to delay attributable to contractors. An amount of ₹4.83 crore was due to be imposed and recovered as LD as per the provisions of Clause 17B of GCC. However, in respect of only 17 contracts (one contract of NWR and 16 contracts of SCR), LD of ₹0.59 crore was imposed and an amount of ₹0.56 crore was recovered after waiving an amount of ₹0.03 crore in one contract of SCR. Thus, LD amounting to ₹4.24 crore, in respect of the above 39 contracts, was not imposed and recovered.

Further, an amount of ₹1.36 crore had also been paid under PVC irregularly in 10 cases (CR-1, ECoR-2, SCR-1, SECR-1, SER-2 and WCR-3) though the extensions had been granted under Clause 17B.

c) **Non follow up of payment of Royalty to Department of Mines & Geology:**

The rate offered and accepted in the contracts for supply of ballast is inclusive of Royalty/Seignorage charges. As per Special Conditions of Contract (SCC), in 11 ZRs (CR, ECR, ECoR, ER, NCR, NER, NFR, SCR, SECR, SER, and WR), royalty charges on supply of ballast should be recovered and remitted to the State Government concerned. However, recovery need not be effected, if the contractor produces documentary evidence for having paid such charges. Such documentary evidence shall be got verified by the Railway Administration for their genuineness. No such clause was provided in both the CN and Open Line contracts of three ZRs (NR, NWR and SR), in open line contracts of SWR

[142] *CR-1, ECoR-2, NCR-6, NR-10, NWR-2, SCR-16, SECR-3, SER-3, SWR-1, WCR-5 and WR-7*

and in CN Unit contracts of WCR. Thus, the conditions of agreement in respect of recovery of royalty charges were not uniform.

A review of the royalty charges paid/ recovered from the ballast contracts revealed the following:

- An amount of ₹110.39 crore was involved as Royalty charges for 242.72 lakh cum of ballast procured in respect of 512 completed contracts[143] of selected divisions of Open line and completed projects by CN units at the prevailing rates. In respect of 68 contracts (NR-33, NER-2, ECoR-3 and SR-30) data relating to royalty charges was not made available to audit.
- In 11 contracts (CR-9 and NWR-2)[144], the royalty charges of ₹0.18 crore directly paid by the contractors to the department and recovered by Railway Administrations was more than the amount due.
- An amount of ₹34.51 crore was neither paid by the contractors nor recovered by the Railway Administration in 222 contracts[145].
- Photocopies of the documentary evidence such as no due certificates, Demand Drafts paid to the Department of Mines, receipts issued by the Department of Mines, certificate from quarry owner for payment of royalty, etc, were submitted for 284 contracts[146]. While the same had been got verified for their genuineness from the department in respect of 155 contracts[147], the same had not been got verified in 129 contracts[148].

Audit had already pointed out in earlier Report (Para 2.3 of Report No. 9 of 2001) that Railway Administration failed to ensure submission of revenue mineral certificate (MRCC) by contractors. Vide ATN on this Report; RB stated (May 2006) that desired action for recovery of the Seignorage charges was taken by Railways and at no stage the liability towards this was accepted. However, audit noticed that the same irregularity is being continued as commented in the above para.

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[143] *CR-53, ECR-26, ECoR-51, ER-33, NCR-23, NER-38, NFR-38, NR-NAV, NWR-48, SCR-34, SECR-23, SER-48, SR-NAV, SWR-47, WCR-17 and WR-33*

[144] *CR-9 and NWR-2*

[145] *CR-7, NCR-12, NFR-38, NWR-44, SCR-3,SECR-1, SER-47,SWR-36, WCR-1 and WR-33*

[146] *CR-36, ECR-26, ECoR-40, ER-28, NCR-15, NER-20, NFR-19, NWR-5, SCR-3, SECR-23, SER-38, SWR-20, WCR-11, NR & SR – Not available*

[147] *CR-25, ECoR-17, ER-21, NCR-10, NER-16, NFR-15, SCR-1, SECR-22, SER-6, SWR-11, WCR-11, NR & SR – Not available*

[148] *CR-11, ECR-26, ECoR-23, ER-7, NCR-5, NER-4, NFR-4, NR-NAV, NWR-5, SCR-2, SECR-1, SER-32, SR-NAV and SWR-9*

d) **Review of quality check of ballast procured**

Detailed instructions have been laid down in Para 5 of IRS-GE-I for sampling and testing of ballast for use in railway track. As per norms, on supply of first 100 cum, the test for size and gradation, abrasion value, Impact value and water absorption should be got carried out in approved laboratories or Railway's own laboratories and reports submitted to Railways by the contractors. Further supply should be accepted only after the ballast satisfies the specifications. Subsequent tests should be got carried out as follows.

A	For size and gradation	One for each stack
B	For abrasion value, impact value and water absorption test	one test for every 2000 cum

A review of quality check exercised by Railway Administration in respect of 563 contracts[149] completed pertaining to selected divisions and completed projects in CN unit (except seventeen contracts[150], where data was not made available to audit) revealed that:

- List of approved labs where tests are to be conducted were not indicated in the tender documents of 38 contracts (NFR).
- First test had not been carried out on supply of first 100 cum in 46 contracts (NFR-13 and SER-33).
- Shortfall in carrying out test for size and gradation was noticed by audit in 3230 stacks of 26 contracts (ECoR-1, NER-21, and WR-4).
- Shortfall in carrying out tests for abrasion value, impact value and water absorption were noticed in audit in respect of 74 contracts[151] involving 10.69 lakh cum. This excludes 16 contracts of Open line Unit of ER where a quantity of 6.83 lakh cum had been accepted without the results of water absorption test.

e) **Review of test check of measurements by higher authorities for cess collection**

As per RB's instructions (May 2007), 10 *per cent* test check of recorded measurements should be exercised by Sr.DEN/ DEN or Dy.CE/CN and at

[149] *CR-53, ECR-26, ECoR-51, ER-33, NCR-23, NER-38, NFR-38, NR-33, NWR-48, SCR-34, SECR-23, SER-45, SR-30, SWR-47, WCR-17 and WR-24*
[150] *ECoR-3, NER-2, SER-3 and WR-9*
[151] *CR-6, ECoR-7, NCR-1, NER-25, NFR-1, NWR-1, SECR-2, SER-12, SWR-8, WCR-9 and WR-2*

least 30-33 *per cent* of the bills passed shall be test checked. At no stage, more than three bills in succession shall be missed from the test check.

A review of this issue in respect of 322 completed contracts[152] for cess collection pertaining to selected divisions and completed projects of CN units (except 10 contracts (ECoR-3 NER-1 and SER-6) where the data was not made available to audit) revealed the following:

- Out of 37489 stacks[153], Ground level certificates were not furnished in respect of 429 stacks (WR).
- There was shortfall in test check of stack measurements by higher authorities in 67 contracts[154].
- Similarly, shortfall was noticed in test check of bills passed in 67 bills of 12 contracts (NER-2, NWR-6 and SER-4).
- Test check of more than three bills in succession was missed in 34 contracts[155] involving 82 bills.

5.2.6.8 Analysis of procurement vis-à-vis utilization and targets

Following are the details of procurement of ballast by open line of Zonal Railways, where procurement had reached/ exceeded the RB target while the utilization was less than the procured quantity.

Table-5.9

Zonal Railway	Years	Excess procurement wrt RB Target [lakh cum]	Avg Percentage of Excess procurement wrt RB Target	Short Utilisation wrt procurement [lakh cum]	Avg Percentage of short utilization wrt procurement
ECoR	2010-11 to 13-14	3.07	16.83	2.11	9.44
ECR	2011-12 to 14-15	1.75	7.95	1.01	4.18
ER	2010-11	1.50	25.00	0.50	6.67
NCR	2012-13 & 14-15	1.91	21.35	0.63	5.65
NER	2011-12	0.30	12.00	0.15	5.36
NFR	2010-11 to 11-12 & 14-15	1.23	11.59	1.53	13.19
NWR	2012-13 & 14-15	2.55	42.50	1.08	12.45

[152] *CR-9, ECR-37, ECoR-15, NCR-2, NER-24, NFR-38, NR-14, NWR-43, SCR-23, SECR-23, SER-42, SR-11, SWR-29, WCR-1, WR-11*
[153] *CR-1954, ECR-916, ECoR-1071, NCR-938, NER-1571, NFR-2786, NR-2034, NWR-12244, SCR-3712, SECR-1204, SER-1648, SR-1497, SWR-3427, WCR-503 and WR-1984*
[154] *CR-3, ECR-18, NCR-2 NFR-7, NR-2, NWR-17, SECR-4, SER-7 and WR-7*
[155] *NCR-(C-2 B-3), NER-(C-5 B-5) NWR-(C-5 B-6), SECR-(C-14 B-19) and SER-(C-8 B-49)*

SCR	2014-15	1.13	14.13	0.85	9.31
SECR	2011-12	0.57	14.25	0.47	10.28
SER	2010-11 to 12-13 & 14-15	3.20	12.53	0.45	1.49
SR	2010-11,13-14 & 14-15	1.01	6.71	1.78	10.08
SWR	2011-12 to 13-14	1.20	12.28	2.28	20.35
WR	2014-15	0.46	9.20	0.25	4.58
Total		**19.88**	**15.87**	**13.09**	**8.69**

As could be seen from the table above, procurement was in excess by 19.88 lakh cum in 13 ZRs with reference to RB's target and the per cent of excess procurement ranged from 6.71 *per cent* (SR) to 42.50 *per cent (NWR).* Utilization was less by 13.09 lakh cum and the per cent of short utilization of procured quantity ranged from 1.49 *per cent* (SER) to 20.35 *per cent* (SWR). The above position indicated that procurement of excess quantum of ballast either with reference to RB's target or with that of actual consumption lacked adequate justification.

(i) Working of Ballast Depots

Position of Ballast Depots

As on 1st October 2010, 310 Ballast Depots[156] were in existence in IR. 35 depots[157] were opened and 32 depots[158] were closed during the review period. As on 31 March 2015, 303 Ballast Depots were functioning. Justification for opening of 11 depots (ECoR-2, NCR-2, SCR-7) and closing of 16 depots (NCR-6, SCR-7, SR-3) were not made available to audit. Approvals of CTEs concerned were not obtained in respect of opening of 15 depots (ECoR-12, NR-1, WCR-2) and closing of six depots (ECoR-5, SER-1). However, in respect of three depots of SR, no data was made available to Audit.

Test check of measurements by higher authorities for Depot collection

As per RB's instructions of May 2007, 10 *per cent* test check of recorded measurements should be exercised by Sr.DEN/ DEN or Dy.CE/CN and at least 30-33 *per cent* of the bills passed shall be test checked. At no stage, more than three bills in succession shall be missed from the test check.

A review of test check of measurements by higher authorities in the 91 selected ballast depots[159] of Zonal Railways revealed the following deficiencies in contravention of stipulated instructions.

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[156] *CR-40, ECR-2, ECoR-35, ER-6, NCR-21, NER-4, NFR-8, NR-16, NWR-16, SCR-39, SECR-8, SER-3, SR-52, SWR-12, WCR-25 and WR-23*

[157] *CR-3, ECoR-12, NCR-2, NFR-1, NR-2, NWR-1, SCR-7, SWR-3, WCR-2 and WR-2*

[158] *CR-7, ECoR-5, NCR-6, NFR-1, NR-3, SCR-7, SECR-1, SER-1, SR-3, SWR-2 and WR-6*

[159] *CR-9, ECR-1, ECoR-11, ER-2, NCR-6, NER-3, NFR-4, NR-5, NWR-5, SCR-10, SECR-3, SER-2, SR-13, SWR-4, WCR-7& WR-6*

- Ground level certificates were not furnished in respect of 1674 stacks (NER-1490, NWR-184).
- There was shortfall in test check of stack measurements by higher authorities in 30 contracts (CR-4, ECoR-10, NCR-9, SECR-2, SER-3 and WR-2). The test check of measurements by higher authorities ranged from 0 to 9.17 *per cent*[160] as against the stipulated minimum of 10 *per cent*.
- Similarly, there were shortfalls in test check of bills passed in 26 contracts (CR-2, NCR-4, NR-11, NWR-2, SECR-1, SER-3 and WR-3). Percentage of bills covered under test check ranged from 0 to 28.5 *per cent*[161] as against the stipulated minimum of 30 *per cent*.
- Test check of more than three bills in succession was missed in 150 bills of 18 contracts of 7 zones[162].

Comparison of wagon measurement and stack measurement

As per Para 266 (3) of IRPWM, if the wagon measurements vary from the recorded stack measurements by more than five *per cent*, the matter should be investigated immediately and reported to Divisional Engineer.

Test check of the selected depot records indicated that the variation was within the permissible limits during the review period in all the Zonal Railways. However, in respect of Gandhidham depot of WR (ADI division), wagon measurements in respect of 1586 stacks measuring 3.07 lakh cum was not recorded. Hence, comparison of stack measurements vis-à-vis wagon measurements was not susceptible to cross check in audit. The instructions contained in IRPWM were not followed.

Non/ short acceptance of ballast by the consignees

As per Railway Board policy of May 2007, final payment for supply and loading should be based on lower of the two measurements, viz., measurements taken at the originating depot (consignor) and measurements taken by the field SSEs (consignee). A comparison of quantity of ballast loaded into the wagons as per the challans raised by depot SSEs (consignor) with that accepted by the field SSEs (consignees) in 27 test checked depots of five zones (ER-2, NCR-6, NWR-5, SCR-10 and SWR-4) revealed that challans for a quantity of 87,480 cum[163] of ballast had not been accepted by the consignees. In the circumstances,

[160] *CR-5.45 to 9.17, ECoR-0 to 7.11, NCR-0 to 6.61, SECR-0, SER-0 and WR-0*
[161] *CR-14.28 to 22, NCR-0 to 15, NR-0 to 28.57, NWR-27 to 28, SECR-0, SER-0 and WR-0 to 10*
[162] *CR-2 (13 bills), NCR-5 (53 bills), NR-1 (2 bills), NWR-3 (3 bills), SECR-1 (11 bills), SER-3 (6 bills) and WR-3 (62 bills)*
[163] *ER-508, NCR-3130, NWR-4551, SCR-2404 and SWR-76887*

payment made to the tune of ₹7.15 crore[164] for the above quantity was without the acceptance certificate from the consignee.

(ii) Inconsistency in RB's instructions in provision of ballast

As per Para 263 of IRPWM (2004), the minimum clean stone ballast cushion below the bottom of sleeper for BG LWR track should be 250 mm and corresponding requirements for straight track and curved track are 1.952 and 2.032 cum per meter respectively.

Accordingly, project estimates provided 250 mm ballast cushion and the same were sanctioned by the competent authorities. However, Railway Board, vide ACS No. 117 dated 19 May 2009 to IRPWM had revised the ballast cushion on BG track as follows.

For all track renewal works	300 mm	Where ever possible 350 mm is to be provided
For all DL, GC and NL Projects	350 mm	
Loop Lines	250 mm	

The same was reiterated vide ACS No. 126 dated 21 June 2011 of IRPWM. Further, RB, in July 2013, instructed that a ballast cushion of 250 mm only is to be provided in GC projects where the projected traffic was less than or equal to 5 GMT. These revised instructions were not reflected by way of corrections in the IRPWM.

Out of 17 GC projects,[165] having projected traffic density of less than 5 GMT, completed during the review period, three projects were provided with higher ballast cushion based on the correction slip to IRPWM dated 19 May 2009, though initial estimates[166] were sanctioned for 250 mm ballast cushion. Provision of higher ballast cushion was in violation of RB's instruction (2013) that a ballast cushion of 250 mm only is to be provided in GC projects where the projected traffic was less than or equal to 5 GMT. This had resulted in avoidable extra expenditure/ liability on the project costs to the tune of ₹5.9 crore in respect of 3 GC projects[167] except in one project of NER and one project of SR where data was not available.

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[164] *ER (0.028), NCR (0.162), NWR (0.225), SCR (0.120) and SWR (6.614)*
[165] *ECoR-1, ER-1, NCR-1, NER-1, NFR-2, NWR-3, SCR-1, SER-1, SR-4, SWR-1 and WR-1*
[166] *(i) Rupsa-Bangariposi NG to BG line (90 km) of SER: Initial estimate sanctioned (2006)*
(ii) Kolar-Chikkaballapura NG to BG (85 km) of SWR: Initial estimate sanctioned (1998); I Rev Est (2007)
(iii) Rajpipla-Ankeleswar (64 km) of WR: Initial estimate sanctioned (2008).
[167] *Rupsa-Bangariposi NG to BG line (90 Km) of SER-Rs.1.99 crore, Kolar-Chikkaballapura NG to BG (85kms) of SWR-Rs.1.97 crore and Rajpipla-Ankeleswar (64kms) of WR-Rs.1.94 crore*

(iii) Booking of expenditure on ballast in the Works Registers

Para 1472 E to 1475 E details instructions for maintenance of Works Registers in respect of works undertaken by the Railway Administration for effecting control over expenditure on works with reference to estimates, budgetary control, etc.

A review of the booking of expenditure on ballast consumed by the Special works in the Works registers revealed the following:

Table-5.10

Sl	Details of special works and projects	No of Works
1	Completed	552[168]
2	Works Registers were not maintained	80[169]
3	Quantity of Ballast consumed for the works was not made available to Audit	192[170]
4	Amount not booked in the Works Registers under Ballast sub head, though ballast had been consumed for the works	34[171]

It was evident from the above, that records of actual consumption of ballast for special works and projects and the related expenditure were not maintained by the Railway Administration. In respect of 280 works (where data was made available to Audit), though 13.03 lakh[172] cum of ballast was consumed for 34 works, no expenditure had been booked in the Works Registers under Ballast sub-head. Thus, it is clear that booking of expenditure to special works was not as per the actual expenditure incurred, ignoring the principles of allocation of expenditure.

(iv) Monitoring mechanism in utilization of ballast for Projects

Table-5.11

Sl	Details	No. of projects
1	Completed	113
2	Data for quantity of ballast utilized for project was not made available to Audit	07[173]

As brought out in the Para 5.2.6.4 above, in respect of 106 completed construction projects, the quantity provided in the estimates of 38 projects was higher by 4.89 lakh cum with reference to assessment of requirement made in audit. For those cases where data was made available, it was noticed that during

[168] *CR-39, ECR-26, ECoR-22, ER-50, NCR-55, NER-25, NFR-15, NR-33, NWR-43, SCR-66, SECR-11, SER-60, SR-11, SWR-18, WCR-54 and WR-24*
[169] *ECR-17, NER-12, NR-7, NWR-15, SER-28 (not made available) and SR-1*
[170] *CR-15, ECR-1, NCR-45, NER-12, NWR-18, SCR-63, SER-28 and WCR-10*
[171] *CR-1, ECR-9, NCR-2, NFR-5, NR-6, SER-2, SWR-5 and WCR-4*
[172] *CR-0.02, ECR-7.28, NCR-0.80, NFR-3.12, NR-1.01, SER-0.17, SWR- 0.24 and WCR-0.39*
[173] *ECR-1, NER-2, SER-2 and SR-2*

execution of 56 projects, 11.21 lakh cum[174] of ballast had been utilized in excess as compared to quantity assessed by audit. The extra expenditure due to provision of excess ballast with reference to actual requirements for 56 completed projects worked out to ₹ 111.72 crore[175]. Further, despite providing ballast in excess of actual requirements, substantial deficiency of 2.04 lakh cum[176] of ballast on track existed at the time of handing over of 17 completed projects by CN unit to open line units. CN unit had agreed to accept an amount of ₹18.76 crore[177] being the cost for procurement and insertion of 2.04 lakh cum of ballast to make up deficiencies by open line chargeable to the respective projects. The total extra expenditure/ liability worked out to ₹130.48 crore[178] in respect of 56 completed projects.

In a reply of December 2015 to Audit's special letter for one NL project (KTR-HRR), SWR Administration stated that the excess utilization of ballast was due to regrading of track at certain locations and for elimination of undulations formed on the track as track was commissioned after a lapse of 4 years from the completion of track linking works. The contention of the Railway Administration is not acceptable in Audit since re-grading was to be done with earth and not with ballast. Further, since the formation in the NL project was done with good soil with blanketing of 1m height to the required specifications, the contention that excess ballast was used to eliminate undulations of track cannot be accepted.

The above was indicative of lack of adequate monitoring and control in procurement and utilization of ballast during execution of projects.

(v) Speed restrictions on account of ballast deficiencies

There was one permanent speed restriction for four years for a length of 14.70 km in two P Way sections of NWR and there were 28 cases (NR-13, NWR-1, SECR-6, SER-5 and WCR-3) of temporary speed restrictions for period ranging from 5 days to 12 months imposed due to ballast deficiency, having an impact on the movement of trains, in respect of 54 P Way sections covering 90 km under 23 SSE units.

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[174]CR-1 (0.10), ECR-4 (0.86), ECoR-3 (0.19), ER-9 (0.44), NCR-1 (0.18), NER-6 (0.49), NFR-5 (2.12), NR-2 (0.35), NWR-7 (2.95), SCR-2 (0.49), SER-4 (1.15), SR-3 (0.40), SWR-8 (1.39) and WR-1 (0.10)

[175]CR-0.50, ECR-5.54, ECoR-1.73, ER-6.00, NCR-1.16, NER-8.97, NFR-30.46, NR-3.41, NWR-21.26, SCR-3.44, SER-9.96, SR-3.13, SWR- 15.45 and WR-0.71

[176]ER-0.02, NFR-0.18, NWR-0.69, SCR-0.22 and SWR-0.93

[177] ER-2 (0.13 crore), NFR-2 (2.20 crore), NWR-5 (4.96 crore), SCR-1 (1.60 crore) and SWR-7 (9.87 crore)

[178]CR-1 (0.50 crore), ECoR-3 (1.73 crore), ECR-4 (5.54 crore), ER-9 (6.13 crore), NCR-1 (1.16 crore), NER-6 (8.97 crore), NFR-5 (32.66 crore), NR-2 (3.41 crore), NWR-7 (26.22 crore), SCR-2 (5.04 crore), SER-4 (9.96 crore), SR-3 (3.13 crore), SWR-8 (25.32 crore) and WR-1 (0.71 crore)

The work of complete track renewal (CTR-P) for 14.66 km from Merta Road to Merta City in Jodhpur division of NWR was taken up and completed in August 2011. As against the assessed requirement of 35184 cum of ballast, a quantity of only 1760 cum (5 *per cent*) was inserted during CTR work for which no specific reason was given in the variation statement. Permanent speed restriction of 30 KMPH for goods trains was imposed with effect from 01 April 2011 and is being continued due to ballast deficiency. Chief safety officer/ NWR, in his safety audit report (30 May 2014) commented that the ballast was deficient between Merta Road and Merta City to the extent that sleepers were supported by rail instead of sleeper supporting the rail. Thus, execution of other elements of CTR work viz. replacement of rails, sleepers, fittings, etc. was not justified and did not serve the purpose. The deficiency of ballast would have an adverse impact and shorten the life of rails, sleepers and other fittings apart from imposition of permanent speed restriction.

(vi) Verification of records for supply of ballast

Instructions for maintenance of stack measurement register/ ballast passing register are enumerated in Para 267 of IRPWM and reiterated in RB's directives of 25 May 2007.

Examination of records pertaining to procurement of ballast in 91 ballast depots and for 25 *per cent* of the completed projects under CN units (52 projects,[179] except projects of NER, SER and WCR where the data was not available) revealed the following deficiencies.

a. Ballast passing register in the prescribed format was not maintained in three projects of ECR, two projects each of SECR and WR and one depot of SER. Ballast ledgers were maintained in two depots and two projects of SWR.

b. Though bill passing registers were maintained, they did not contain

- Reference to agreement details in four depots of ECoR
- Date of measurements in three depots of ECoR
- Measurement details in one depot of NFR
- Details of physical properties in two depots each of ECoR and NCR, one depot each of NER and NFR, three depots and two projects of SWR.
- Results of quality check in ten depots and one project of ECoR, two depots each of NCR and SECR, one depot of NFR, four depots and two projects of SWR.

[179] *CR-2, ECR-3, ECoR-1, ER-14, NCR-2, NFR-2, NR-5, NWR-3, SCR-3, SECR-2, SR-11, SWR-2 and WR-2*

- The entries in the MBs differed from that in bill passing registers in one depot of NFR, two depots of ECoR and two projects of SECR.

(vii) Procurement of ballast directly from quarry

Ballast was procured directly from quarries through Hopper Wagons to the required locations in three Zonal Railways (ER, ECR and NFR). As per the additional special conditions of the contract, the contractor should load wagons/hoppers to the full carrying capacity including permissible overload. Instances of under-loading of ballast in the wagons were noticed by adopting the actual weight recorded in the RRs (generated through FOIS or weighment through weigh bridges). The difference between the actual weight and the net loadable weight, taken as under loaded quantity, worked out to 1,24,818 tonnes with a financial loss of ₹ 8.64 crore due to non-recovery of freight charges from the contractor as per additional special conditions of contract.

5.2.6.9 Issues specific to Zonal Railways

(i) NWR: Irregular booking of expenditure under ballast sub-head

As per explanatory notes in F(II), the cost of ballast and the expenditure incurred for transportation of the same should only be booked under ballast sub-head/ detailed head in the works registers of the projects. However, it was noticed that expenditure incurred towards pay and allowances of departmental establishments, payment to casual labour, stores supplied from stock and productivity linked bonus, to the extent of ₹ 7.02 crore have been irregularly booked to ballast sub-head as detailed below:

Table-5.12

Sl.	Project	Amount booked in detailed head 44 in PU 1, 2, 5, 8 & 10 (₹)
1.	Alwar-Harsauli DL	7840880
2.	Dausa-Bandikui DL	7876528
3.	Jaipur-Dausa DL	15984718
4.	Bangurgram-Ras NL	1102464
5.	Ajmer-Pushkar NL	26710
6.	Harsauli-Rewari DL	37380383
	Total :	**70211683**

(ii) NWR: Non completion of NL project due to delay in procurement of ballast

Dausa – Didwana (part of Dausa-Gangapur city New BG line project) NL section (41 km) was targeted to be completed and commissioned in 2012-13. A contract was awarded in April 2011 for procurement of 94580 cum of ballast

for the project. The contractor could supply only 49913 cum of ballast by February 2014 even after obtaining four extensions. Hence, the contract was terminated in February 2014. Fresh contract for procurement of balance quantity was also not awarded as of July 2015. Thus, undue delay in procurement of ballast resulted in delay in completion of the project.

5.2.7 Conclusion

Assessment of ballast for open line maintenance was not need based, impacting safety and riding comfort in trains. There was no uniformity in assessing the requirements for procurement process. Further, while assessment of requirement of ballast for special works was not based on ground realities, assessment of ballast for projects was more/ less as compared to the norms prescribed in IRPWM. Only a meagre quantity of existing ballast was estimated to be available during gauge conversion of projects.

Lack of planning and co-ordination in execution of contracts and unrealistic fixation of completion dates in contracts had resulted in grant of liberal extensions under 17 (A) of GCC involving additional expenditure by way of payment under price variation clause. Non follow up of recovery of Royalty charges, shortfall in quality checks and test check measurements by higher authorities, in contravention of the stipulated limits, was indicative of ineffective contract management.

Monitoring mechanism and control in procurement and utilization of ballast was not effective due to several reasons viz., provision of ballast in excess of actual requirements, existence of deficiency after completion of project and non-recovery of freight charges from the contractors for under loaded quantity as per additional special conditions of contract etc.

5.2.8 Recommendations

- Assessment of requirement of ballast for open line maintenance, special works and projects should be based on the norms prescribed in IRPWM.
- Contract Management should be strengthened to plug leakages in quantity and measurement checks by higher authorities and to avoid additional expenditure by the way of PVC variation due to extensions being granted in the light of unrealistic targets.
- Monitoring mechanism and control in procurement and utilization of ballast should be improved to avoid extra liability/ expenditure on projects due to provision of ballast in excess of requirements.

5.3 South Eastern: Injudicious decision in construction of Diesel Railway (SER) Multiple Unit (DMU) Factory at Haldia

Investment decision for DMU Factory at Haldia resulted in infructuous expenditure of ₹ 116.52 crore as the objective to develop and adapt DMU technologies in departmental unit was not achieved

In the Budget Speech of 2010-11 setting up of a Diesel Multiple Unit (DMU) Factory in joint venture (JV)/ public private partnership (PPP) mode at Sankrail on available Railway land under Kharagpur Division of South Eastern Railway was announced. Railway Board constituted (March 2010) a four member committee to assess the (a) optimal capacity of the factory with product mix of self propelled vehicles, (b) broad performance specifications for DMU, and (c) investment and land requirement, etc.

In its report (June 2010), the committee opined that the factory was necessary as the Integral Coach Factory (ICF), Chennai was not able to meet the growing demand of DMUs. It was further expressed that even though the project had been proposed to be set up as a JV/PPP mode, going by the lack of success so far in JV/PPP projects, it would be advisable to adopt a two phase approach. A departmental unit in Phase I, which would develop and adapt DMU technologies for Indian Railways and International Railroads as a Technology Incubation Centre, and a JV/PPP unit in Phase II for full scale production of DMUs.

The total cost of the project was estimated to be ₹ 262.66 crore in which Phase I was estimated at ₹ 70.57 crore. It was proposed that the departmental unit under Phase I would manufacture 8 to 12 coaches per month largely covering assembly, painting, furnishing and testing of fabricated shell from ICF and in Phase II there would be full scale production of DMUs and Self Propelled Accident Relief Trains (SPARTs).

The Railway Board (July 2010) handed over the construction of Phase I to Rail Vikas Nigam Limited (RVNL). The work could not, however, be started because of local hindrance and was therefore relocated from Sankrail to Haldia (February 2011). RVNL awarded (July 2011) the construction work for DMU factory at Haldia at a cost of ₹ 98.18 crore with scheduled date of completion in December 2012. The work was completed in June 2013. The production could not commence due to local disturbances at DMU factory, Haldia and the work was expected to start from the end of June 2014. However, it was noticed by Audit that furnishing works of both Trailer coaches and Power coaches were outsourced. Moreover, till July 2015, the furnishing works for DMU Power

Coaches was executed at Kharagpur Workshop, while furnishing work of Trailer coaches were done at Haldia. Thus, despite total investment of ₹116.52 crore on the project (setting up of Factory at Haldia) upto July 2015, the desired objective of departmental unit in Phase I to develop and adapt DMU technologies for Indian Railways and International Railroads as a Technology Incubation Centre, was not achieved.

On the issue being pointed to the Railway Administration (February 2015 and April 2015), it was intimated by them (July 2015) that furnishing of DPCs was yet to be undertaken and all out effort has been initiated to achieve full scale departmental production in the year 2015-16.

The above reply is not acceptable because till date (July 2015), the furnishing works are being done by outside agency and there was also no proposal to construct the Phase II in near future. SER Administration is also planning to procure Shells from trade. The DMUs could in any case be procured from private manufacturers or a Government Enterprise like BEML as was procured earlier (January 2012, March 2012, September 2012, June 2013, etc.) by Ministry of Railways (Railway Board). Hence there was no need for this huge investment of ₹116.52 crore which remained infructuous. Moreover, when in March 2013, Railway Board advised SER to explore sources of shells from trade or newly acquired wagon from Public Sector Undertakings (PSUs) as ICF, the only manufacturer of DMU coaches intimated that they were unable to meet the demand for DMU coaches. Further, Additional Member (Mechanical Engineering) during his visit to Haldia (February 2015) expressed that facilities for manufacture of shell in Phase-II and expansion of the factory through PPP mode are highly capital intensive and there may not be any takers for it. He therefore, directed that developing sources/vendors near Kolkata for fabrication and supply of shells may be explored. The Railway Administration in their reply of August 2015 in connection with setting up of JV through PPP mode for phase II expansion of the project, had themselves accepted that no progress had been made at Railway Board level in this regard.

Thus, the total investment of ₹ 116.52 crore incurred on the project upto July 2015 proved to be infructuous since the objective to develop and adapt DMU technologies in departmental unit under Phase I was not achieved and no progress had been made in respect of Phase II of the project.

The matter was brought to the notice of Railway Board in January 2016; their reply has not been received (May 2016).

5.4 South Eastern Railway (SER): *Non-realisation of land licence fee amounting to ₹ 11.20 crore from plot holders of Adra Division*

Due to failure of the Railway Administration to renew the agreements on time, revise the license fee, pursue and raise demand for outstanding license fees as per codal provisions, Railway Administration failed to realise the outstanding licence fee of ₹ 11.20 crore

Licecce fee is fixed at prescribed percentage of land value. RB's instructions (February 2005) stipulates that the land value, fixed on 1 January 1985, will be increased every year on the 1st of April, starting from 1 April 1986, at the rate of 10 *per cent* over the previous year's land value to arrive at the land value for the following year based on which the annual licence fee will be fixed. From 1 April 2004 onwards, the land value was to be increased at the rate of 7 *per cent* every year over the previous year's value.

In the above instructions, RB also directed that in each case of licensing, proper agreement must be executed between Railway Administration and licensees before the licensee is given possession of the land/ plot. This must be strictly followed and for any violation of these instructions, the official handing over the land before the execution of agreement shall be held personally responsible.

As per Indian Railway Code for the Engineering Department (Para 1025), recovery of licence fee should be done in advance every year with a grace period of one month for occupying engineering plot for one year or more. In case of failure, occupant shall have to pay liquidated damages at the rate of one *per cent* per month or part thereof to be reckoned from the due date to the date of actual payment. The ibid Code (Para 1024) also stipulates periodical revision of licence fees by the Railway Administration in consultation of their FA&CAO.

Further, Para 1141 of the Indian Railway Accounts Code, Volume I stipulates that there should be no delay in preparing bills on mutually accepted basis or as per agreement. The realization of the bills should be vigorously pursued with the parties and cases of delay in payment should be promptly brought to the notice of the Executive officer concerned for expeditious action to recover the outstanding dues or to discontinue the service rendered to the party or such action as may be deemed necessary.

Review of records (January 2015) of Engineering Department Adra Division in connection with the licensing of plots/ shops for commercial and other purpose

revealed that 1,314 plots/ shops had been allotted to outsiders. However, in respect of 1,215 plots (92.46 *per cent*), licence agreements are due for renewal and hence licence fees were not revised. Audit further revealed that -

- In respect of 231 plots, the plot holders were paying licence fees at old rates.
- Out of 1,215 plots, occupants of 949 plots have not paid any licence fees. The outstanding dues, as calculated by SER Administration, against these 949 plot holders of 13 stations of Adra division was ₹11.20 crore as on 31 March 2015.
- In respect of balance 35 plots, SER Administration failed to calculate arrear licence fees due for recovery from the occupant.
- A detailed check of 24 cases of plot holders was conducted in Audit where it was seen that outstanding licence fee pertained to the period prior to 2006-07 also.

Thus, due to failure of SER Administration to renew the agreements on time, revise the license fee, pursue vigorously and raise demand for outstanding license fees as per codal provisions, the realizable licence fees started accumulating year after year and the plot holders in possession of the plots gradually stopped paying licence fees to the Railway Administration leading to outstanding amount of ₹11.20 crore as on 31 March 2015.

The matter was brought to the notice of Railway Board in February 2016; their reply has not been received (May 2016).

5.5 Western Railway (WR): Avoidable delay in commissioning of IOCL siding facility at Bangrod resulting in loss of revenue ₹ 65 crore

Delay in commissioning of a 'Deposit Work' having substantial earning potential led to loss of revenue amounting to ₹ 65 crore

M/s. Indian Oil Corporation Limited (IOCL) in December 2005 proposed to Western Railway a Deposit Work on Railway premises for commissioning of an Assisted Siding on standard terms at Bangrod Station of Ratlam Division. This work was to be executed for dispatch of Petroleum (POL) products brought from Vadodara through a pipeline. The initial cost of the work estimated and sanctioned by Western Railway in March 2008 was ₹ 26.79 crores. The estimate was however revised four times due to change in scope of work related to additional S&T infrastructure, provision of CC Apron, FOB etc. The estimate was last revised to ₹ 38.7 crore in October 2012.

The work which commenced in January 2009 was completed in March 2011. However, it was notified for opening only on 20 July 2012 after sanction of Commissioner of Railway Safety (CRS) on 07 May 2012. Review of the records related to construction and commissioning of this siding revealed the following:

- Railway Administration commenced the work on deposit terms without obtaining advance receipt of the estimated cost of the work as per procedure laid down in Para No. 735 of Indian Railway Code for Engineering Department. Though four years have elapsed since completion of the work of the siding (March 2011), the expenditure incurred on this deposit work has not been finalized and advised to IOCL (March 2015).
- Though the work was completed in March 2011 there was inordinate delay in (April 2011 to April 2012) setting right basic deficiencies such as yard being in infringement of gradient requiring gradient condonation, rectification of change in gradient within 30 meters near points and also non submission of requisite dispensation under relevant provisions of General Rules (GR) required to be taken into consideration during drawing stage itself. This resulted in delay in sanction by CRS for Commissioning of the siding being issued only in May 2012.

When this issue was taken up in September 2014, Railway Administration in their reply (December 2014) stated that all laid down procedures have been followed. There was no delay in commissioning of the siding from Railway side being a deposit work. The work can only be executed after the required deposit is made by the concerned party. The dues amounting to ₹1.97 crore were still pending; however, the corresponding work as provided in the sanctioned estimate have also not been executed by the railways. The reply is not tenable due to delay on the part of the Railway Administration in attending to the CRS observations and setting right the deficiencies. Money was demanded in piecemeal. Railways should have submitted the requisite details to M/s IOCL to complete the remaining works. Moreover, a delay of over one year in setting right the basic deficiencies which mostly related to approval of WR Administration for the deviations that needed to be condoned reflects lack of committed approach.

Considering its earning potential since its opening in July 2012, Railway Administration should have accorded priority for timely execution of the project. This has resulted in loss of potential earning estimated at about ₹ 65 crores (for 12 months from July 2011 to June 2012) based on the actual average earning of ₹5.41 crore per month of the siding.

The matter was brought to the notice of Railway Board in August 2015; their reply has not been received (May 2016).

5.6 South Central Railway (SCR): Execution of traffic facility works without proper justification

Execution of works for providing coach maintenance facilities at two stations without proper justification resulted in avoidable capital investment of ₹54.42 crore on a new line project taken up on socio-economic considerations with low ROR

Codal provisions (Paras 201 and 204 of IR code for Financial department) stipulate that expenditure incurred on creation of new asset should be financially justified and sanctioned prior to its actual incurrence. A fresh investment is considered financially justified if the Rate of Return (ROR) from the created asset is expected to be more than prescribed limits[180]. RB also instructed (June & July 2008) that economy is required to be observed in respect of works taken up on socio-economic considerations and changes in the scope summarily rejected unless extenuating circumstances were established.

Review of construction department of SCR Administration revealed that-

- Railway Board sanctioned (1998-99) construction of a new line between Bidar-Gulbarga at a cost of ₹242.42 crore on socio economic considerations[181]. The Government of Karnataka agreed (November 2010) to share 50 *per cent* of the cost of the project.
- During the execution of project, Central Railway Administration (CR) requested (July 2013 and January 2014) South Central Railway Administration (SCR) to provide coach maintenance facilities at Gulbarga at cost of ₹41.10 crore; chargeable to the new line project. SCR Administration agreed to provide the same and took up (March 2014) work for coach maintenance facilities at Gulbarga (cost- ₹42.90 crore) as a part of the new line project. Railway Board sanctioned (March 2014), with material modification for pit line at Gulbarga, the revised estimate of the new line work (cost ₹ 844.15 crore).
- Meantime, SCR Administration commenced (December 2013) the work of another coach maintenance facility at Khanapur station (adjacent station to Bidar) and executed it by incurring ₹11.52 crore without prior approval of the Railway Board. The cost of work was not included in revised estimate also.

[180] 14 *per cent* under DCF method or 7.5 *per cent* under conventional method on the initial estimated cost.
[181] The Rate of Return (ROR) of the project was estimated to three *per cent* only.

In this connection, Audit is of the view that:

- Execution of works of coach maintenance facilities at Gulbarga and Khanapur as a part of a new line project work without the sanction of railway Board was in contravention of codal provisions and Railway Board instructions.
- Although SCR Administration had rejected the proposal of CR Administration (2010) for provision of coach maintenance facilities at Gulbarga on the grounds that ROR of new line would be very less (three *percent*) , traffic expected just after opening of the new line would be very little and also the original estimate for the new line had no sanction for the coaching facility work, they changed their decision and the scope of work. They also did not observe economy as envisaged in respect of works to be taken up on socio-economic considerations. They took up the work for coaching facility at Khanapur without prior approval of the Railway Board. The regularisation of amount spent was pending (March 2015).

When the matter was taken up (July 2014) with the SCR Administration, they stated (January 2015) that the detailed financial justification of the proposals based on traffic projections were not available and the works were taken up on urgency due to laying of foundation of coaching maintenance works by the Minister of Railways programmed on 16.11.2013 (Khanapur) and 23.02.2014 (Gulbarga). It was further stated that the coach maintenance facilities were warranted as a lot of future passenger traffic was expected. Their reply was not tenable as these traffic facilities could be taken up separately after assessing the need and justification based on the increase in passenger traffic instead of charging to the new line project. The existing coaching facilities at SCR were quite sufficient to maintain the small number of coaches on operation on new line.

Thus, execution of works of provision of coach maintenance facilities at Gulbarga and Khanapur without proper justification resulted in avoidable burden of ₹54.42 crore on the new line project of Bidar-Gulabarga taken up on socio-economic considerations with low ROR.

The matter was brought to the notice of Railway Board in January 2016; their reply has not been received (May 2016).

5.7 North Eastern: Blocking up of capital with State Government Railway (NER) towards compensation of land

Non observance of codal provision by Railway for regulating payments to State Government regarding compensation for land acquisition resulted in blocking of capital of ₹ 21.06 crore besides a deferred dividend liability of ₹4.21 crore.

As per codal provision 940 of Indian Railway Code for Engineering Department (940E) the Railway Administration should ensure that amount deposited by them with the State Government towards the payment of award during land acquisition is only to the extent necessary for immediate payment and suitable arrangements are also entered into with the State Government to ascertain from them the requirement of funds every month in advance. Audit scrutinized two new line projects and the position that emerged is as under.

Hathua Bhatni new line project (79.74 kms) was sanctioned in the year 2006-07 at an estimated cost of ₹ 203.65 crore. Out of this an amount of ₹ 41.20 crores was earmarked for compensation to land owners for acquisition of 650.614 acres of land required for the new line project. An amount of ₹ 46.23 crore (112 *per cent*) against the earmarked amount of ₹ 41.20 crore was paid (March 2006 to June 2010) to State Government as demanded by the State Government, for payment as compensation to land owners. However, total land acquired by March 2015 was only 326.043 acres (i.e. 50.12 *per cent*) against 650.614 acres of land required. Hathua-Bathua Bazar-Panchdeori-Chauri-Bhatni being a new line project, was sanctioned for a total of 79.74KMS. The part land acquired was between Hathua-Bathua Bazar (22 KM) and the laying of new line between these two stations has been completed and the same has been opened for traffic on 30 November 2010. Similarly, acquisition of land between Bathua Bazar-Panchdeori (11 KM) has been completed and the work of laying of line is under progress.

A similar case of another new line project, i.e. Chhitauni-Tamkuhi Road, which is a part of Paniyahawa-Chhitauni-Tamkuhi Road new line project (58.88 kms), was sanctioned in 2006-07 at an estimated cost of ₹ 235.00 crore. Out of above, an amount of ₹ 33.53 crore was earmarked for compensation to land owners for acquisition of land. An amount of ₹ 11.48 crore (34.23 *per cent* against the earmarked amount) was deposited (December 2008 to March 2011) with the State Government for payment as compensation to land owners. However, no land has been acquired so far (March 2015).

The Railway Administration had paid the money as and when demanded by the state government without ascertaining and monitoring whether any process for the land acquisition has been started or not. The accounts department, which is responsible for internal audit/control, also did not object to the payment in violation of the codal provision of Para 940E.

The issue was raised with the Railway Administration in May 2012. In reply Railway Administration (September 2012 and May 2014) stated that;

- The payment was made as per demand of the State Government after concurrence of the Associate Finance and after sanction of the General Manager.
- Since both the new line projects are sanctioned works and detailed estimate of these projects were already sanctioned and the cost of land was booked to concerned projects, the expenditure on land acquisition was not kept under objection book.
- The maintenance of the details of land acquired in form E-949 was not being done since long and Railway Administration assured that appreciating the view of Audit the information has been prepared and reconciled.
- Copies of the paid vouchers will be obtained from the district authorities and submitted to associate accounts for regularization of the advance so paid.

The remarks of the Railway Administration are not acceptable as;

- In Para 940 of the Indian Railway Code for the Engineering Department it is clearly mentioned that the Railway Administration should ensure that the amount deposited in advance are only to the extent necessary for immediate payment. Out of a total amount of ₹ 57.71 crore deposited with the State Government (₹ 46.23 crore for Hathua-Bhatni and ₹ 11.48 crore for Chittauni-Tamkuhi Road which included an accrued interest of ₹ 5.39 crore irregularly credited to the account of DM/Gopalganj), State Government could only disburse ₹ 42.04 crore (72.85 *per cent*) and the balance is still lying with the State Government.
- As per para 856 of Indian Railway code for the accounts department Part-I, in absence of vouchers, the expenditure should be classified as 'held under objection and posted in objection book' and administration itself agreed that vouchers are not available as yet.

- Railway Administration has still (March 2015) not been able to obtain the vouchers from the State authorities and submit the same to accounts for regularization of the advance. Since the amount of ₹ 57.71 crore was deposited as advance to State Government, the amount will lie as suspense balance and will not be regularized for want of vouchers.

Thus, non-observance of codal provisions of para 940E in respect of payments has resulted in blocking up of capital to the extent of ₹ 21.06[182] crore which includes an amount of ₹ 5.39[183] crore as accrued interest for the last six to seven years besides a deferred dividend liability of ₹4.21crore.

The matter was brought to the notice of Railway Board in August 2015; their reply has not been received (May 2016).

5.8 Eastern Railway (ER): Avoidable payment of Value Added Tax in procurement of sleepers

Procurement of Concrete Sleepers from Concrete Sleeper Plants located in Jharkhand instead of from those located in West Bengal led to avoidable expenditure of Value Added Tax (VAT) to the tune of ₹11.58 crore

Indian Railways (IR) use Concrete Sleepers (CS) in various works[184]related to Railway tracks. The procurement of CS is centralized at Railway Board (RB). CSs are manufactured in Concrete Sleeper plants (CSPs). The location of CSPs is decided by the RB keeping in consideration the requirements of CSs in view of the ongoing works/ works to be taken up. For establishing CSPs at the desired locations, RB floats Open Tenders (OTs) inviting offers of various agencies along with terms & conditions. After finalization of OTs at RB, contract agreements are signed by Zonal Railways (ZRs) in whose jurisdiction the CSPs are to operate.

The requirements of CSs over various ZRs are assessed in the Annual Conference of Chief Track Engineers (CTEs). Purchase Orders (POs) for the supply of CSs are placed by RB on CSPs taking into account some materials like Special Grade Cement which is supplied by Railway free of cost. The rate of payment of Value Added Tax (VAT) to be paid by CSPs to State Governments at the time of sale of CSs and also the lead involved[185] in supplies of CSs do not emerge as issues for consideration as CSPs are generally within a State and lead involved is more or less the same.

[182] ₹ 11.48cr+4.19cr+5.39cr= ₹ 21.06 crore
[183] Detail of accrued interest ₹ 3.86+1.53 = ₹ 5.39 crore
[184]Track renewal works, new construction, gauge conversions, doubling works, casual renewals and day to day maintenance of tracks
[185] Distance between CSP and site of work/ depot

A scrutiny of records (2015) regarding procurement of CS in Eastern Railway revealed that RB placed (December 2009) POs for a total quantity of 701000 CSs on five CSPs (140200 CS each) for manufacture and supply of CS[186] at uniform basic rate of ₹ 1194 per CS. Out of the five CSPs, two CSPs[187]were located in Jharkhand and the other three CSPs[188] in West Bengal. On the sale of CSs, ZR Administration was required to pay, in addition to the basic cost, the legally leviable Tax[189]. Further, since the concessional tax regime available to the Government Departments had been withdrawn, Central Sales Tax (CST) at normal VAT rates[190] prevalent in the seller's State towards purchase involving inter-state movement of goods was also payable by ZR. The procurement of CSs from two CSPs located in Jharkhand attracted VAT at the prevalent rates (12.5 *per cent* to 14 *per cent*). However, in respect of three CSPs, located in West Bengal, the rate for levying VAT was five *per cent*. Thus, procurement from CSPs located in Jharkhand involved payment of VAT at higher rates amounting to ₹8.23 crore. This payment could have been avoided had the quantity procured from CSPs located in Jharkhand been procured from CSPs located in West Bengal either through suitable re-allocation of the allotted quantities of CSs to the West Bengal based CSPs or by setting up one or two CSPs at desired locations in West Bengal as per codal instructions.

Further, RB placed (October 2013) POs for manufacture and supply of 1015000 CSs on the same five CSPs (203000 CSs each) at the basic rate of ₹1589 per CS. This indicated the fact that during the intervening period of four years the avoidable payment of VAT was not taken cognisance by the RB as no CSP was set up in West Bengal to stop CSs supply from Jharkhand. The procurement of CSs from Jharkhand based CSPs resulted in further avoidable payment of ₹3.34 crore on account of applicability of higher rate of VAT.

On this being pointed out (August 2015) by Audit, ZR Administration stated (September 2015) that generally CSs were supplied to various sites from the nearest plants as the lead might increase the transportation cost. Also, the increase/ decrease in VAT rates by State Government could not be predicted in advance as they could even increase/ decrease the rate during the currency of the contract. Hence, ZR Administration was not in a position to take a decision to award the contract on the basis of location of CSP. They had not extended any favour to any CSP by paying VAT at higher rate. Moreover, it was a policy matter to be decided by RB.

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[186] Mono-block Pre-stressed
[187] (i) M/s. Muva Industries Ltd., Ranchi and (ii) M/s. Prestressed Udyog (India) Pvt. Ltd., Dhanbad
[188] (i) M/s. Rampurhat PSC Sleepers Pvt. Ltd. Kolkata, (ii) M/s. Strescon Industries Ltd., Kolkata and (iii) M/s. GPT Infraprojects Ltd., Kolkata.
[189]Clause 3.1 of the manufacture and supply orders
[190] Clause 3.3 of the orders *ibid*

ZR Administration reply was not acceptable as the lead and consequential transportation cost had not been a consideration while arriving at the basic cost of CS. Also, VAT rates applicable on the date of supply were to be levied. Further, Audit has highlighted the avoidable expenditure on account of higher rate of VAT and not the extension of favour to any CSP. Such avoidable expenditure would continue till a policy decision is taken to consider the rates of VAT of the respective States at the time of awarding contracts involving suppliers belonging to more than one State.

Procurement of Concrete Sleepers from Concrete Sleeper Plants located in Jharkhand instead of from those located in West Bengal led to avoidable expenditure of Value Added Tax (VAT) to the tune of ₹11.58 crore.

The matter was brought to the notice of Railway Board in February 2016; their reply has not been received (May 2016).

5.9 Northeast Frontier: due Railway (NFR) — Short realization of maintenance charges to non-revaluation of cost of Defence siding

Non-revaluation by the Railway of the cost of their portion of a Defence Siding after every five years resulted in non-revision of maintenance charges and consequent short realization of ₹7.56 crore from Defence siding for the period April 2003 to March 2015.

Railway Board decided (March 1979) that Railway would revalue the cost of railway's portion of a Defence siding after every five years to determine the maintenance charges on Railway's share of cost of work recoverable from the Defence Department. These charges would be calculated with effect from 1 April 1978 at the rate of 4.5 *per cent* of the updated cost or the cost as per book value, whichever was higher.

A review of records connected with Bengdubi Project Military Siding (BPMS) commissioned in February 1973 in Katihar Division revealed in Audit that-

- The updation of Railway's share of the cost of BPMS due since 1 April 1978 was not done. Railway Administration, however, up-dated the Railway's share of cost for BPMS in April 1988 and effected recovery of appropriate maintenance charges up to March 1993.
- Further, although Railway Board's directives (March 1979) were incorporated in terms and conditions[191], no effective measure was taken by the Railway Administration to revalue the cost of work in Railway's

[191] Para 6 (a) (ii) in the Standard Memorandum of Terms and Conditions related to the siding of 1st March, 2005

portion of the Siding after April 1988 and the maintenance charges were being recovered at the last arrived and revised rate of April 1988.

Audit made an attempt to derive the revaluated cost of Railway's portion of BPMS as on April 2003, April 2008 and April 2013 and noticed a short realization to the extent of ₹7.56 crore from Defence department towards maintenance charges of Railway's portion of BPMS Siding for the period April 2003 to March 2015 (12 years) due to non-adherence by Zonal Railway Administration to the Railway Board's directive of March 1979.

The matter was brought to the notice of the Railway Administration (July 2013). Their reply received in July 2015 indicated that the revaluation of cost of maintenance of BPMS Siding had not been done by Authorities of concerned Railway Division due to which raising of revised bills was awaited (July 2015).

The matter was brought to the notice of Railway Board in February 2016; their reply has not been received (May 2016).

5.10 North Western: Railway (NWR) — *Delay in opening of Hanumangarh-Sri Ganganagar section*

Delayed action on the part of Railway Administration led to delay in opening of Broad Gauge Hanumangarh-Sri Gangangar section and consequential payment of ₹ 4.50 crore towards dividend to General Revenue without any benefit, infructuous expenditure amounting to ₹2.90 crore on salaries paid to personnel engaged in track maintenance work and loss of earnings amounting to ₹ 1.06 crore

Detailed estimate of Suratpura-Hanumangarh-Sri Ganganagar GC project was sanctioned by Railway Board in June 2009 at a cost of ₹ 516.23 crore. This comprised two sections viz. Suratpura-Hanumangarh {(SURP-HMH) (174.07 km)} and Hanumangarh-Sriganganagar {(HMH-SGNR) (66.88 km)}.

Review of records revealed that the target for completion of the Gauge conversion work of HMH-SGNR section was 2011-12. Five pairs of trains were plying on this MG section which was closed for Gauge Conversion work w.e.f. 01 Februarary 2012. The section remained closed for more than 13 months for the Gauge Conversion work which was completed in March 2013.

Chief Administrative Officer (Construction) (CAO/C) submitted completion papers of this GC work to Principal Chief Engineer (PCE) on 12 March 2013 for onward submission to CRS for opening of the section for Goods and Passenger services. After obtaining approval of GM/NWR on 28 August 2013, CAO(C), Jaipur applied for sanction of the Commissioner of Railway Safety

(CRS) Western Circle, Churchgate, Mumbai for opening of SGNR-HMH Rail link after conversion from Metre Gauge to Broad Gauge on 29 August 2013. CRS examined the documents submitted by CAO(C) and made several observations for compliance on 17 September 2013 and 19 September 2013. The CRS authorized opening of the section for public carriage on 16 December 2013. The section was finally opened for running of trains on 29 January 2014.

It is pertinent to mention that timely action for various administrative actions including provision of manpower to operate the upgraded section including sanction of additional posts was taken only after completion of the work of Gauge Conversion. Sanction of posts should have been obtained simultaneously with the execution of the work as the two are parallel activities. A revised proposal for creation of 115 posts of trackmen for maintenance of SGNR-HMH section was sent to GM/NWR on 30 May 2013 by Divisional Railway Manager Bikaner. GM/NWR sanctioned additional seven posts of trackmen and three other posts on 19 August 2013 against this proposal. This contributed to delay (five and half months) in submission of papers/documents to CRS for obtaining his sanction. Further delay of around three months was attributable to non/delayed compliance of the observations of CRS. The time taken from completion of work to beginning of services was around ten and half months (i.e. from 12 March 2013 to 29 January 2014). Providing for a reasonable time frame of two months for clearance from North Western Railway authorities and CRS, the avoidable delays are estimated at eight months.

Due to delay of eight months in opening of this section for Passenger traffic, payment of Dividend to General Revenue at the rate of five *per cent* without any benefit amounting to ₹ 4.50 crore was made by the Railway Administration as an expenditure of ₹135 crore was incurred on this GC work up to 31March 2014. Besides this, 145 personnel were deployed on this section for maintenance work. An expenditure of ₹2.90 crore towards salary of these employees for the aforesaid eight months was incurred which was infructuous. Moreover, loss of earnings for this period estimated on the basis of traffic on the MG section prior to 01 December 2012 comes to ₹1.06 crore. Thus, due to avoidable payment of Dividend to General Revenue, infructuous expenditure on salaries paid to personnel engaged in track maintenance and loss of earnings due to non-plying of the train on the section.

This issue was raised through a Draft Para in June 2014. The Railway Administration in their reply (December 2014) denied that the gauge conversion work was completed in March 2013. The MG section between HMH and SGNR was blocked for Gauge conversion work w.e.f. 01 February 2012. The track linking work was completed in October 2012 and Engine

rolling on the section was done on 25 October 2012. The work of welding of rail joints, ballasting of the track by track machines, balance bridge works, elimination of LCs by providing LHSs etc. were completed by November 2013. These were all essential works without which section could not be opened. The Railway Administration's remarks are not acceptable. The work was completed in March 2013 as stated by the CAO (C) in his MCDO for the month of March 2013, to ME/ Railway Board. As far as Railway Administration's remarks" Eliminations of LC's by providing LHSs etc. was completed by November 2013", it is stated that out of eight locations, contract had been awarded by State government for LHS work at six locations and work was in progress in three locations. Tender was under process at remaining two locations. This confirms that the work of LHSs was incomplete in November 2013.

Had the NWR Administration taken timely action for opening of SGNR-HMH Gauge Converted section, the payment of ₹4.50 crore towards dividend to General Revenues, infructuous expenditure of ₹ 2.90 crore on salaries paid to personnel engaged in track maintenance work and loss of earnings amounting to ₹ 1.06 crore could have been avoided.

The matter was brought to the notice of Railway Board in August 2015; their reply has not been received (May 2016).

5.11 Eastern Railway (ER): Loss of revenue due to delay in construction of new bridge as replacement of a distressed bridge

Abnormal delay in replacing a distressed bridge by a new bridge led to loss of revenue to the extent of ₹7.81 crore due to charging of freight on loads with weight lesser than otherwise permissible.

Bandel- Naihati section of Bandel- Titagarh route of Eastern Railway has a distressed bridge (Jubilee Bridge) over the river Hooghly which was built in 1867. RB decided to replace this distressed bridge and sanctioned (1999-2000) a work for construction of a new railway bridge. As the existing bridge was distressed, trains were allowed to run on the bridge with a speed restriction of 10 Kmph.

The work for construction of the sub-structure of the new bridge which was commenced in April 2005 was completed at a cost of Rs 39.64 crore in January 2008. Thereafter, the work for the construction of super-structure was awarded (August 2009) at a cost of ₹140.24 crore with scheduled date of completion being January 2012. However, as on March 2015, the progress of the work was 82 *per cent*.

Meanwhile, RB declared (2007) Bandel-Titagarh route as CC+6 tonne route for Goods transportation. However, as a result of non-completion[192] of work for the new bridge, the Goods traffic was to be carried over the distressed bridge. In view of this, RB had to reduce (2011) the PCCs of wagons from 61 tonnes to 59 tonnes for BCN wagons and from 64 tonnes to 62 tonnes for BCNA wagons. Due to this decision, the freight actually charged fell short on account of lesser loading than permissible in normal conditions[193]. This resulted in loss of freight revenue to that extent.

Had the bridge been built on time, operation of Goods trains with higher loading per wagon could have been possible with larger freight revenue earnings. Scrutiny of station records for 2012-15 (three years) revealed that 15081 wagons from Titagarh station and 2630 wagons from Naihati station were booked to different destination stations utilizing this route having a distressed bridge. This resulted in loss of precious earnings of ₹6.62 crore and ₹1.19 crore respectively (total ₹ 7.79 crore) towards less charging of freight on reduced CC.

When the matter was taken up (August 2014) with the Railway Administration, they stated that:

- Loss had been arbitrarily linked with the construction of new bridge which had been a separate issue and progress of construction achieved was according to funds availability.
- The main reasons for the delay in construction of the new bridge were (i) severe funds constraints; (ii) delay in procurement of materials from the approved manufacturer; and (iii) delay in blockage of waterway which required clearance from the Inland Waterway Authority of India *etc*.

Their reply is not tenable in view of the following:

- General Manager expressed his concern (May 2013) over delay in completion of new bridge due to which Railway was unable to uplift the imposed speed restrictions on Jubilee Bridge that was affecting the operations of both freight and coaching operations.
- RB orders (September 2001) were that funds for bridge rebuilding/ rehabilitation would not fall short of requirement and directed that

[192] Delay in finalising tender, new technology, launching activity non availability of material as per specification etc

[193] As per Rates Circular No. 28 of 2011, BCN at 59 tonnes (PCC being 61 tonnes) and BCNA at 62 tonnes (PCC being 64 tonnes)

bridge rebuilding/ rehabilitation works should not be slowed down/ affected on this ground. In fact, funds provided in the Original Grant for the construction of the new bridge could not be utilized by Railway Administration;

- Railway Administration took two years to submit the detailed project report and another two years in finalizing the tender for super-structure.
- There was delay on the part of Railway Administration in approving the design of material;
- Although blockage of waterway was granted by Inland Waterway Authority of India for six months (20 June 2013 to 19 December 2013), no progress was noticed during the first two months.

Thus, failure of the Railway Administration in ensuring timely completion of new railway bridge in replacement of existing distressed bridge led to loss of revenue to the tune of ₹7.81 crore.

The matter was brought to the notice of Railway Board in February 2016; their reply has not been received (May 2016).

5.12 Western Railway (WR): Irregular expenditure of ₹ 6.55 crore on Road Over Bridge over a line leased to Bharuch-Dahej Railway Company Limited (BDRCL)

Expenditure amounting to ₹ 6.55 crore incurred by Western Railway for a Road Over Bridge (ROB) constructed over a Railway line leased to BDRCL was irregularly charged to its safety fund, instead of executing the same as a Deposit work.

Ministry of Railways set up Rail Vikas Nigam Limited (RVNL) for implementing National Rail Vikas Yojana. A Memorandum of Understanding (MOU) was signed between Ministry of Railways and RVNL for creating project specific Special Purpose Vehicle. Bharuch-Dahej Gauge Conversion Project is a sanctioned ongoing project of Railways and is an identified project to be undertaken under this Yojana. Rail Vikas Nigam Limited, Gujarat Industrial Development Corporation (GIDC) and Gujarat Maritime Board (GMB), signed an MOU on January 2005 for implementing Bharuch-Samni- Dahej Railway Project through a Special Purpose Vehicle.

RVNL, Gujarat Maritime Board, Adani Petronet (Dahej) Port Private Limited, Gujarat Narmada Valley Fertilizer Company Limited and Dahej SEZ Limited have signed the shareholders Agreement for Bharuch Dahej Railway

Company Limited (BDRCL) on January 2007 and Jindal Rail Infrastructure Ltd. and Hindalco Industries Ltd. have signed the participation agreement on June 2008 in order to take over the responsibility for implementation of the project which shall include raising the necessary finances for the project, completion of civil works, installation of equipment and facilities for the project, testing and commissioning and subsequent operations and maintenance of the railway line for a period as specified in the Concession Agreement.

The Government of Gujarat proposed (February 2010) MoR that ROBs/RUBs to be provided to ease congestion on Rail line between Bharuch and Dahej on equal cost sharing basis and to facilitate smoother movement of Rail traffic. Railway Board directed (May 2010) WR Administration to prepare a feasibility report for construction of six ROBs in lieu of level crossings (LCs) No. 2A, 3, 4, 22, 50 and 178 over lines leased to BDRCL. Administrative approval for four of these ROBs in lieu of LCs viz; No.2A, 22, 50 and 178 was granted and included in the Pink Book of 2012-13. Work of ROB in lieu of LC No.22 has been completed by the Western Railway Administration, while work in respect of two other ROBs in lieu of LCs No. 2A and 50 is yet to start. ROB in lieu of LC No.178 which is partly owned by BDRCL is in the initial stage of construction with scheduled date of completion being November 2015. Remaining two ROBs in lieu of LC No. 3 and 4 were constructed by BDRCL itself on urgency basis.

Scrutiny of records revealed that the Railway Administration has booked a sum of ₹ 6.55 crore to its Safety Fund towards construction of the ROB in lieu of LC No.22. This is in contravention of the relevant clauses of lease agreement signed with BDRCL as it enjoys ownership and derives benefits of the assets transferred to it, implying that costs on augmentation of infrastructure on these lines which are essentially under its control will have to be borne by BDRCL as the work should have been executed by the Railway Administration on Deposit terms only or undertaken by BDRCL themselves. Further, Railway Board vide their letter (July 2012) has clarified that all the infrastructure augmentation cost on the line belonging to SPV has to be borne by SPV.

When this issue was taken up in March 2015, Western Railway Administration in its reply (June 2015) stated that on account of safety issues, this work was carried out by Railway administration though it was related to PPP Project. It added that necessary clarification on the issue has been called for from Railway Board in July 2013 and action as directed by Railway Board would be taken. Reply is not tenable. It is also seen that neither has

clarification been received from Railway Board, nor has there been any follow up. Similarly, there is also lack of clarity on the issue of bearing of expenditure in respect of ROB in lieu of LC No.178.

The decision of the WR Administration to undertake construction of the ROB over a line leased to BDRCL from their own safety fund instead of executing the same as deposit work was in violation to the extant orders and resulted in avoidable expenditure of ₹ 6.55 crore. The expenditure might escalate, if cost of other ROBs is also borne by the Railway Administration.

The matter was brought to the notice of Railway Board in January 2016; their reply has not been received (May 2016).

5.13 South East Central Railway (SECR): Loss due to creation of idle asset

Due to non adherence to the rules laid down for investment decision, Railway sustained a loss of ₹ 3.38 crore towards cost of creation of idle asset

The preparation of Annual Works Programme is a part of continuous planning process. In regard to proposals for new marshalling yards, goods terminals and transship yard etc., work study team should go into the actual working before formulating the schemes for additional facilities.

During audit of Ramtek Station (February 2014) on Kanhan – Ramtek Branch line of South East Central Railway (SECR), Audit noticed that a full length high-level Goods platform with Goods Shed was constructed (May 2012) by extending the existing line No. 3 at a cost of ₹ 3.38 crore. The Engineering Department of Nagpur Division executed the work and completed the same on 15 May 2012. While justifying the work, SECR calculated 28.62 per cent Rate of Return (ROR) on the investment proposed. It calculated ROR based on net expected earnings of ₹ 352.91 lakh per annum on the basis of annual average outward traffic of 480 rakes expected to be dealt with at Ramtek Station. The proposal was mooted on the basis of traffic projected by M/s Gupta Coal Ltd for 30 rakes of washed coal per month and by M/s Vidhi Mineral & Alloys Pvt. Ltd for 8-10 rakes per month. However, verification of records of Ramtek Station by Audit (February 2014) revealed that only 14 rakes were booked for outward traffic from Ramtek Station during 2007-08 and 2008-09. During 2009-10 and 2011-12 only three rakes of Manganese Ore were booked from Ramtek Goods shed. Since its completion in May 2012 no rakes were booked from Ramtek Stations (till February 2014 upto the date of Audit inspection). 112 coal rakes were, however, unloaded here during May 2012 to December 2012, but no outward loading was done from Goods Platform. The above facility created at the cost of Railway is lying unutilized.

When the matter was brought to the notice of Railway Administration in April 2015, they replied in June 2015 that the proposal for the work of Ramtek-extension of line No.3 to facilitate full rake loading/ unloading was sanctioned considering the new traffic at Ramtek station of about 480 rakes per annum as per written commitment made by two private firms. With the commitments given by the two firms, it was necessary to provide proper infrastructure for loading and hence the goods shed was developed. It was further stated that provision of facility led to unloading of 112 rakes at Ramtek and earning of ₹ 50.87 crore to Indian Railways (May 2012 to December 2012). Thereafter, unloading stopped due to public agitation on environmental issue.

The above reply was not acceptable due to the following reasons:

- Ministry of Railways (Railway Board) never advised SECR to develop goods shed without financial justification. In this particular case SECR failed to assess the future growth potential. This was also evident from negligible traffic (only two to three rakes of inward as well as outward traffic) handled in Ramtek goods shed, which could have been handled easily in Ramtek goods shed without any development work as was done prior to this development work. Therefore, there was no justification for such developmental work costing ₹3.38 crore which could have been invested in other location from which Railway could have got the expected Rate of Return (ROR).
- Performance of a Zonal Railway is judged by loading made/ carried out by them as the freight is earned by them. In this case SECR was the destination Railway dealing with unloading of goods traffic.
- As far as environmental issues are concerned it is stated that District Administration did not impose any ban on unloading of the coal, rather they asked the party and the Railways to take measures for pollution control arising out of unloading of coal and reloading the same to the truck at Ramtek station. However, no action was taken either by the Railway or by the party in this regard.

In view of the above, the Railway Administration failed to survey the actual position through works study team before formulating the scheme as required vide para 604 of Indian Railway Engineering Code. Thus, due to non adherence of the rules laid down for investment decision, Railway sustained a loss of ₹ 3.38 crore towards cost of creation of idle assets.

The matter was brought to the notice of Railway Board in January 2016; their reply has not been received (May 2016).

5.14 East Coast Railway (ECOR):Short accountal of Signalling Relays resulting in loss of ₹20.68 lakh

Incorrect entries of Relays in Ledgers resulted in short accounting of stores to the tune of ₹ 20.68 lakhs

Para 1201 of Indian Railway Code for the Stores Department Vol-II states that the Depot Officer is responsible for the safe custody of stores in stock, for correct tally of such stock at any time with the balances as shown in the Ledgers and correct preparation and posting of all initial documents, Ledgers etc. Para 1439 of the Indian Railway Code for the Engineering Department also provides for proper safeguard of the railway materials at site and every stock holder is required to maintain a ledger wherein the receipt and issue of each and every item is to be recorded and updated stock position reflected. Para 3201 of Indian Railway Code for the Stores Department, Volume-II further states that the object of verification by the Accounts Department of Stores in the custody of the Depot and other Department officers and subordinates is to ensure that the materials accord with the description and specification shown in the balances appearing in the books. Any excess or deficiency, if noticed on such verification, is to be properly investigated.

Scrutiny of the office of the Senior Section Engineer, Signal, Construction at Marripalem, Visakhapatnam by Audit in July 2015 revealed that the opening balance of the relays (QNA1 8F/8B) was brought forward from page 315 of the ledger No.MAS-12 as on 16 February 2010 and the balance shown as 298 units. After three transactions of receipt and issue (one receipt of 300 units and two issues totaling 30 units) from 16 February 2010 to 4 September 2010, the stock position reflected was 568 units. In the next transaction on receipt of 380 units on 6 September 2010, the closing balance was 948 units, but on further receipt of 150 units of relays on 7 October 2010, the Ledger Balance was shown as 598 units instead of 1098 units. Thus, there was short accountal of 500 units of Relays on 7 October 2010. Subsequently, there were two instances of formal handing/ taking over of 398 Relays of material between two Senior Section Engineers after 18 June 2011 and 25 June 2012 without mentioning the actual date and also without proper verification of ledger. On 1 August 2012, the stock was totally exhausted and shown as NIL after several transactions. Thereafter, a fresh stock of 500 units of Relays were received and recorded in November 2012. Further, Senior Inspector of Stores Accounts, East Coast Railway, Visakhapatnam verified the stock after 23 January 2013 and certified the physical stock of 422 units of Relays as correct as per Ledger Balance.

Similar case of short accounting was noticed in another type of Relay (QNNA1) in the same ledger at page 446. The closing balance as on 14 June 2013 was 332 units, but when five units of these Relays were issued on 13 July 2013 the MAS Ledger balance was shown as 227 units instead of 327 units. This resulted in short accountal of 100 Relay units.

The total loss on account of shortage of (500+100=) 600 units of Signalling Relays was assessed at ₹ 20.68 lakhs as per purchase rate of the materials as shown below:

Table 5.13

Sl. No.	Item	Value per unit	Shortage	Loss (amount in ₹)
1	Relay (QNA1 8F/8B)	Rs 3,456.00	500	17,28,000.00
2	Relay (QNNA1)	Rs 3397.00	100	3,39,700.00
Total			**600**	**20,67,700.00** **Or ₹ 20.68 lakhs**

In this connection, the following observations are made;

- As per Para 1450 of the Indian Railway code for the Engineering Department, the stock verification of materials at site should be checked by Depot Officers once a year. However, during the period from 2010 to 2014, instead of five stock verifications (once in each calendar year), no verification of stock was done by the Depot officer. During handing over/taking over of stock, the Ledger Balance was also not properly checked to reconcile with the Ground Balance
- As per records available, from February 2010 to September 2015 the stock verification by Accounts Department was done only once instead of five times i.e. once a year. Thus, it was noticed that there was total negligence on the part of Accounts Stock Verifier in checking the accounting of the materials in the ledger and in reconciling it with the Ground Balance.

In the absence of periodical stock verification, the possibility of fraud routinely escaping the attention of the Depot officer cannot be ruled out. Thus, incorrect entries of Relays in Ledgers resulted in short accounting of stores to the tune of ₹20.68 lakhs during the period February 2010 to September 2015.

When the matter was brought to the notice of the ECOR Administration in December 2015; they replied (February 2016) that posting in the ledgers were done erroneously on 7 October 2010 by not properly accounting the materials

stacked in different places. But through physical check of the store it was found to be 600 Nos. as ground balance. Short accountal of 500 Nos. QNA1 and 100 Nos. of QNNA1 Relays has been set right and entered in ledger on 9 December 2015. It was further stated that the arithmetical error has occurred due to checking of huge number of transactions in four ledgers of the unit for a period of 3 years within the stipulated man days.

The above reply was not acceptable due to the following reasons:

Railway Administration has accepted that posting of ledgers was done erroneously on 7 October 2010 but failed to detect and rectify the same for five years. Railway's contention that 600 Relays were in the stores but neither the store keepers nor Stock Verifier could find the same for five long years is not acceptable to Audit. Though half yearly/ annual verifications were prescribed in Indian Railway Code for Engineering Department, verification was conducted once in a span of five years that too incorrectly.

The matter was brought to the notice of Railway Board in February 2016; their reply has not been received (May 2016).

Chapter 6 – Disaster Management in Indian Railways

6.1 Introduction

Indian Railways run about 22,300 trains (passenger and goods) daily throughout its network of 66,030 track kilometres across the length and breadth of our country as on 31 March 2015. In addition to higher operational speed, increasing rail network and traffic density has been posing challenges to Indian Railways to honour its commitment of providing safe and dependable services to train passengers.

The Government of India *vide* gazette notification dated 26 December 2005 defined **"Disaster"** as a catastrophe, mishap, calamity or grave occurrence in any area, arising from natural or manmade causes, or by accident or negligence which results in substantial loss of life or human suffering or damage to and destruction of property or damage to degradation of environment and is of such a nature or magnitude as to be beyond the coping capacity of the community of the affected area.

Based on the definition of the 'Disaster' in the Disaster Management Act 2005, Ministry of Railways adopted the following definition of 'Railway Disaster' in the Disaster Management Plan of Indian Railways 2009 and 2014.

"Railway Disaster is a serious train accident or an untoward event of grave nature, either on railway premises or arising out of railway activity, due to natural or man-made causes, that may lead to loss of many lives and/or grievous injuries to a large number of people, and/or severe disruption of traffic etc, necessitating large scale help from other Government/Non-government and Private Organizations." Different types of disasters as described by Indian Railway Disaster Management Plan 2009 are as follows:-

- **Natural disaster**- Earthquake, Floods, Cyclones, Landslides, Tsunami;
- **Train accident related disaster**- Collision, Train Marooned, Derailment, Tunnel Collapse, Fire Explosion in train etc. and
- **Man-made disaster** - Act of Terrorism and Sabotage

Disasters can cause injuries, fatalities and widespread infrastructure and property destruction. The associated economic and environmental costs can be devastating but it can be contained if the management systems in place to plan for, respond to or recover from them fail.

The present review *inter-alia* focused on the follow up action taken by the Ministry of Railways (MoR) on the recommendations of the Public Accounts

Committee on Report No. 8 of 2008 (Disaster Management in Indian Railways).

6.2 Organisation Structure

At Railway Board Level:

- Implementation of the Disaster Management Plan is the collective responsibility of various Directorates of Railway Board such as Civil Engineering, Works, Finance, Signalling, Electrical and Security etc and Safety department of the Railway Board being the nodal department.
- The Disaster Management Plans (DMP) of Indian Railways (IR) is prepared by the Safety Directorate at Railway Board level.
- Railway Board has also nominated General Managers, Additional General Managers or Chief Safety Officers (when General Manager/Additional General Manager is not available) for declaring an untoward incident as Railway Disaster.

At Zonal and Divisional Railway Level:

- At the Zonal level, there is Safety department headed by Chief Safety Officer and assisted by Senior Divisional Safety Officer posted at respective Divisions of the Zonal Railways.
- The Disaster Management Plan of Zonal Railway is prepared by the Safety Department of the concerned railway.

- In respect of hospitals and security arrangements, Disaster Management Plan is prepared and coordinated by the Medical and Security department respectively.
- The management of floods, cyclones, earthquakes, landslides etc. is coordinated by the Civil Engineering Department.
- Procurement of specialized equipment and rescue centric training of personnel is co-ordinated by the Mechanical Department at the Zonal Headquarters and Divisional level.

6.3 Audit Objectives

The objectives of the review were to assess:

- Whether Disaster Management Plan of the Indian Railways addresses its preparedness in handling disaster and also takes into consideration the recommendations of the Public Accounts Committee;
- Whether post-disaster response of Indian Railways was effective; and
- Whether an effective system of capacity building existed to face disasters.

6.4 Scope of Audit and Methodology

The review covered the issues related to action taken by the Indian Railways during 2010-15 for effectively managing disasters. The review, *inter-alia,* covered the issues relating to Implementation of Disaster Management Plan (2009) in Indian Railways and the follow up audit of recommendations of Public Accounts Committee (December 2011).

The audit methodology included examination of records at the Railway Board, Zonal /Divisional Headquarters and field offices relating to plans/policies framed by the IR and their implementation. In addition, Joint Inspections were undertaken with Railway Authorities at selected sample units such as Stations, Trains, Accident Relief Trains/Accident Relief Medical Vans, etc.

6.5 Sample Size

At the macro level, the data were collected for all the Divisions and all Zonal Headquarters. However, for review of specific issues, a sample of two important Divisions of the Zonal Railways, along with Central Hospitals and Divisional Hospitals of selected divisions were taken up during review. In the present review, 32 divisions, 48 Railway Hospitals, 16 Self Propelled Accident Relief Trains, 62 Accident Relief Trains, 56 Accident Relief Medical Vans, 202 Vulnerable Stations, 279 crowded Stations and 92 Trains were selected**.**

The reports of the Commissioner of Railway Safety (CRS) and Joint Committee of Railway Officers in respect of accidents during the review period were also studied to highlight shortcomings and also improvement in the efficiency and effectiveness in Disaster Management.

6.6 Sources of Audit Criteria

The sources of audit criteria were:

- Disaster Management Act, 2005 and Indian Railways Disaster Management Plan 2009 and 2014
- Disaster Management Plans of Zonal Railways and Divisions.
- Action taken Report of the Ministry on the Recommendation made by Public Accounts Committee (December 2011) in its Sixteenth Report (Fifteenth Lok Sabha)
- Instructions/ Guidelines issued by the Railway Board.
- Indian Railways Accident Manuals and Corporate Safety Plan 2003-2013

6.7 Acknowledgement

The audit objectives, scope of study and methodology were discussed with Advisor (Finance) at Railway Board as well as the General Managers/concerned departmental heads in the zones by the Principal Directors of Audit during entry conferences. The inputs provided on various aspects and the co-operation extended by railways is acknowledged with thanks. The audit findings and recommendations were discussed with Advisor (Finance) in an exit conference held on 12 April 2016 in Railway Board. Similar exit conferences were also held by the Principal Directors of Audit in the zones, with concerned zonal authorities. The draft report was issued to the Ministry of Railways in January 2016. Reply of the Ministry was received on 8 April 2016. Their views have been incorporated in the report.

6.8 Preparedness to face disasters

6.8.1 Institutional Framework

The primary document that serves the purpose of institutionalising disaster management is the Disaster Management Plan issued by Railway Board in 2009 (later updated in 2014). Disaster Management Plans of the Zonal Headquarters, Divisions and other units provide the framework at the field level for prevention, mitigation, preparedness, rescue, relief and rehabilitation. Apart from this, Indian Railways also addressed its safety concerns in Corporate Safety Plan (2003-13).

Under the provisions of the Act, the National Disaster Management Authority (NDMA) has been established under the chairmanship of the Prime Minister and a National Executive Committee (NEC) of Secretaries has been created to assist the National Disaster Management Authority in the performance of its functions. At the State level, a State Disaster Management Authority has been created under the chairmanship of Chief Minister, and assisted by a State Executive Committee. At the District level, District Disaster Management Authorities have been created.

The Disaster Management Act 2005 also introduced a new concept of pooling of resources of all agencies viz. local administration, community, defence, hospitals and other government organisations. National Disaster Management Authority has also issued guidelines from time to time on handling different types of disasters like cyclones, floods, etc. Sections 35, 36 and 37 of the Disaster Management Act, 2005 assigned the responsibilities of Ministries and Departments of Central Govt. to initiate measures/actions to be taken either on their own or in Consultation with National Disaster Management Authority for drawing up mitigation, preparedness and response plans, capacity building, data collection and identification and training of personnel in relation to Disaster Management.

6.8.2 Shortcomings to handle Disaster in Indian Railways

Indian Railways prepared Disaster Management Plans at Zonal Headquarter and Divisional level. These plans encompassed all types of disaster that can occur on the Railway system. The Disaster Management Plan of Zonal Railways also detailed the definition of different types of disasters, the preventive, mitigation and preparedness measures being taken by the Railway and also the rescue, relief and restoration system in place to meet with them.

Review of the Disaster Management Plans of Zonal Railways and their Divisions revealed the following:-

- Disaster Management Plans (DMP) were prepared by all Zones and Divisions except Metro Railway, Kolkata where Disaster Manual was prepared but not dovetailed with Railway Board level plan as desired *vide* Para 6.1 of Indian Railway Disaster Management Plan 2009.
- All the Zonal Railways had incorporated three types of disasters except South East Central Railway where Natural Disasters were not mentioned.

- Natural disasters and Man-made disasters were not recognised in the Disaster Management Plans of 10 Divisions[193] and nine Divisions[194] respectively (Out of 68 Divisions of Indian Railways). Disaster Management Plans of 10 Divisions[195] did not categorise any type of disasters.
- In 13 Divisions[196] of four Zonal Railways Disaster Management Plans were not dovetailed with their Zonal Disaster Management Plans.
- High Level Committee (HLC) Recommendation No. 15 stipulated review and updation of the DMPs in the month of January every year. Out of 17, in 10 Zonal Railways[197] DMPs were not reviewed and updated annually.
- In 18 Divisions[198] out of 68 Divisions pertaining to East Coast Railway, Northern Railway, North Central Railway, Southern Railway and South Eastern Railway, annual updating of Disaster Management Plans was not carried out.
- Only six Zonal Disaster Management Plans[199] and 19 Divisional Disaster Management Plans[200] were International Organisation for Standardization (ISO) certified as stipulated in HLC's Recommendation No. 16.
- Cyclones affected Railway operations for two to three days in each case paralysing the train services in ECoR. The incidents were, however, not declared as Disasters by Railways, though in view of the magnitude of the calamity, the Government machinery of Odisha and Andhra Pradesh states, NDRF teams, and several NGO teams swung into relief mode immediately, co-ordinated with Railway authorities in relief and rescue operations and helped in bringing normalcy.
- Inventory of non-Railway resources which can be accessed during disaster situations was not available in 11 Divisions[201] of three Zonal Railways

[193] Mughalsarai, Sonepur, Samastipur of ECR; Lucknow, Ferozpur of NR; Bilaspur, Raipur, Nagpur of SECR, Umbala, Bangalore of SWR
[194] Mughalsarai, Sonepur, Samastipur of ECR; Lucknow, Ferozpur of NR; Umbala, Bangalore of SWR; Chakradharpur, Ranchi of SER
[195] Sambalpur-ECoR; Jhansi-NCR; Varanasi-NER; Moradabad, Umbala of NR; Ajmer, Jaipur of NWR; Chennai, Madurai, Palghat of SR
[196] Dhanbad, Danapur, Mughalsarai, Samastipur of ECR; Allababad, Jhansi of NCR, Hubli, Bangalore of SWR; Ahemadabad, Mumbai Central, Vadodara, Rajkot, Ratlam of WR
[197] ECoR, NCR, NER, NFR,NWR, NR, SCR, SER, SR and MR/Kolkata
[198] Waltair, Khurda Road of ECoR; Jhansi, Agra Cantt. of NCR, Ferozpur, Umbala, Lucknow, Delhi, Moradabad of NR; Chennai, Madurai, Salem, Palakkad, Tiruvananthapuram of SR, Adra, Chakradharpur, Kharagpur, Ranchi of SER
[199] ECoR, NCR, NER, NWR, SECR and WR
[200] Asansol-ER; Allahabad-NCR; Lucknow, Varanasi, Izzatnagar of NER; Bikaner, Jaipur, Jodhpur of NWR; Delhi, Moradabad of NR; Bilaspur, Raipur, Nagpur of SECR; Ahmedabad, Mumbai Central, Vadodara, Bhavnagar, Rajkot, Ratlam of WR

namely Eastern Railway, North Western Railway and South Western Railway.

- Methodology for seeking co-ordination from State Government was also not laid down in the Disaster Management Plans of Zonal Railways and Divisions.
- Measures to be taken for prevention of disasters were not spelt out in Zonal Disaster Management Plans of East Central Railway & North Eastern Railway and 15 Divisional[202] Disaster Management Plans of five Zonal Railways.
- Measures to be taken for mitigation of disaster were not specified in the Divisional Disaster Management Plan of Southern Railway & South Western Railway.
- The roles to be played by the different stakeholders, department of Railways and other co-ordinators at different levels of hierarchy had been defined and institutionalised in the Disaster Management Plans of nine Zonal Railways[203].
- National Executive Committee (NEC)[204] is to coordinate the response in the event of any threatening disaster situation or disaster. It was, however, observed that the Ministry of Railways was not represented in NEC at the National and State Level.
- Despite specific provisions in the Corporate Safety Plan (CSP), DM Act 2005 and National Disaster Management Authority guidelines that the rescue and relief arrangements are to be undertaken in association with the State Government, neither standard operating procedure nor the institutionalisation of arrangements had been included in the Disaster Management Plan of 10 Zonal Railways[205] and 38 Divisional Disaster Management Plans[206] out of 68 Divisions over Indian Railways.

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[201] Howrah, Sealdah, Asansol, Malda Town of ER; Ajmer, Bikaner, Jaipur, Jodhpur of NWR; Hubli, Bangalore, Mysore of SWR

[202] Dhanbad, Danapur of ECR; Moradabad-NR; Ajmer, Jaipur, Jodhpur of NWR; Chennai, Tiruchchirappalli, Madurai, Salem, Palakkad, Tiruvananthapuram of SR; Humbli, Bangalaore, Mysore of SWR

[203] CR, ECoR, NR, NFR, NWR, SR, SECR, WR and WCR

[204] The National Executive Committee (NEC) is the executive committee of the National Disaster Management Authority (NDMA) and is mandated to assist the NDMA in the discharge of its functions and also ensure compliance of the directions issued by the Central Government

[205] ER, ECR, ECoR, NCR, NER, NWR, SR, SCR, SECR & SWR

[206] Howrah, Sealdah, Asansol, Malda Town of ER; Dhanbad, Danapur, Mugalsarai, Samastipur of ECR; Waltair, Sambalpur, Khurda Road of ECoR; Delhi-NR; Allahabad, Jhansi, Agra Cantt. of NCR; Ajmer, Bikaner, Jaipur, Jodhpur of NWR; Chennai, Tiruchchirappalli, Madurai, Salem, Palakkad,

- Vulnerability of natural hazard such as cyclone, flood, earthquake, landslide etc. have been identified in the Indian Railway Disaster Management Plan, but vulnerability profile of natural hazard incorporating the likely situation of disaster as envisaged by Railway Board had not been prepared by six Zonal Railways[207] and Metro Railway, Kolkata.

Indian Railway's Disaster Management Plan 2009 also pointed out similar shortcomings to handle disaster with Railways' own resources. This indicated that follow up action taken by Railway Board for overcoming these shortcomings was not effective.

Thus, the Disaster Management Plans, though broadly framed in Zonal Railways and in Divisions, were not comprehensive, lacked uniformity and also did not adhere to the provisions of the Disaster Management Act 2005 and recommendations of Public Accounts Committee that the Disaster Management Plans should be integrated, comprehensive and uniform to effectively deal with the challenges which emerge in the event of train accidents or other disasters.

Railway Board in their reply (April 2016) stated that Disaster management plans are prepared based on specific requirements of particular railway which cannot be uniform for all the zones and added that the National Disaster Management Act (NDMA) itself specifically described man made and natural disasters. Railway Board added that DM plans at Zones are comprehensive and can effectively deal with the challenges which emerge in the event of train accidents or other disasters.

Detailed instructions issued to Zonal Railways vide Railway Board letter No. 2009/Safety (DM)/6/14 dated 27 January 2016 is indicative of the fact that IR accepted the audit observations. The instructions issued covered the aspects like updating Zonal and Divisional Disaster Management Plans, crowd management, incorporating the vulnerability profile of different disasters and action plan to avert such disasters in the Zonal Disaster Management Plan and safety measures for handling hazardous chemical and inflammable materials.

RB in their reply (April 2016) accepted the shortfall in the updations of Zonal Disaster Management Plan during the period prior to 2014 and had issued instructions (June 2015) to General Managers of ECoR, SWR, NCR, SR, ECR and NR asking them to ensure immediate updation of the Zonal Disaster Management Plans.

Trivananthpuram of SR' Secunderabad, Hyderbad, Guntakal, Nanded, Guntur, Vijayawada of SCR; Bilaspur, Raipur, Nagpur of SECR; Hubli, Bangalore, Mysore of SWR

[207] NCR, NER, NWR, SECR, SWR and WCR

6.8.3 Safety Audit

Safety Audit is conducted to identify system failures and generic shortcomings. Corporate Safety Plan (CSP) proposed that periodic Safety Audit be undertaken at various levels for an in depth assessment of Safety Systems. The Safety Audits were to be conducted by a Multi-Disciplinary team from Railway Board, Inter-Railway, Multidisciplinary Headquarters Team, Inter Divisional etc. In February 2009, Railway Board directed all Zonal Railways to constitute a team of five Senior Administrative Grade Officers from various departments along with similar numbers of Inspectors to audit/inspect at-least one unit for two consecutive days bi-monthly.

The review of the status of Safety Audit during 2010-15 by Audit revealed the following:

A. Nomination of five Senior Administrative Grade officers for Safety Audit

- Team of five Senior Administrative Grade officers and five inspectors were formed in all Zonal Railways except in South Central Railway and Metro Railway, Kolkata.
- Bi-monthly inspection schedule was not adhered to in any of the Zonal Railways.
- Shortfall in the number of inspections by Senior Administrative Grade teams over IRs during 2010-15 were as under:

Table 6.1-Details of shortfall in safety inspections

Year	No. of Inspection due	No. of Inspection Conducted	Short fall in nos.	Short fall in Percentage
2010-11	96	50	46	48
2011-12	96	57	39	40
2012-13	96	59	37	38
2013-14	96	71	25	26
2014-15	96	81	15	15

(Source: Records of Zonal Railway Safety Department)

B. Safety Audit by Multi-disciplinary team from Railway Board

Multi-disciplinary team from Railway Board had not conducted safety audit in 14 Zonal Railways[208].

[208] ECoR, ER, NCR, NER, NFR, NR, SCR, SER, SECR, SR, SWR, WCR, WR and MR, Kolkata

C. Inter Railway Safety Audit

Inter Railway Safety Audit was conducted in all the Zonal Railways except South Western Railway. However, the prescribed periodicity of bi-monthly safety audit was not maintained in 13 Zonal Railways[209].

D. Safety Audit by Multi-disciplinary Headquarter Team

Safety audit by multi-disciplinary headquarter team was conducted in all the Zonal Railways except East Coast Railway, South Eastern Railway & Metro Railway, Kolkata. The prescribed periodicity of bi-monthly safety audit by multi-disciplinary headquarter team was, however, not maintained in 11 Zonal Railways[210].

E. Inter Divisional Safety Audit

Inter divisional safety audit was not conducted in 11 Zonal Railways[211] during 2010-11 to 2014-15. Bi-monthly Inter divisional safety audit was, however, not conducted in five Zonal Railways[212].

Thus, safety inspections were not conducted on regular basis. There were no definite schedules of inspection and all divisions were not equally covered in the inspection. Many of the shortcomings noticed during the previous safety audits remained unattended.

On the issue of Safety Audit, Railway Board replied (April 2016) that compliance level during 2014 and 2015 has been to the extent of 88 and 95 per cent. Further, added that safety audit by the Multi-Disciplinary team of Railway Board was a onetime measure. RB is constantly monitoring safety audit inspection being carried out by Zonal Railways and wherever shortfall is noticed concerned railway is advised for corrective action.

Shortfall in the number of safety inspections which ranged between 38 to 48 per cent during 2010-13 is indicative of the inadequate monitoring. Further, though conducting inter-divisional safety audit was an important measure included in the Corporate Safety Plan 2003-13, Railway Board did not issue any guidelines in this regard but few Zonal Railways issued local instructions for inter-divisional safety. Railway Board though stated to have achieved 20 per cent reduction in the consequential train accidents in the year 2015-16 but has not brought out the position during the review period.

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[209] CR, ECoR, ECR, ER, NER, NFR, NR, NWR, SECR, SR, WCR, WR & MR, Kolkata
[210] CR, ECR, ER, NCR, NER, NFR, NR, NWR, SECR, SR & WCR
[211] CR, ECR, ER, NCR, NER, NFR, NR, NWR, SECR, SWR & WCR
[212] ECoR, SCR, SER, SR & WR

6.8.4 Safety Drive

As per Para 7.12 of Corporate Safety Plan 2003-13 of Indian Railway regarding Periodical Safety Drives, certain activities, which are seasonal in nature, are neither required to be performed by staff nor required to be checked by supervisors during the course of normal working for most of the part of the year. For such activities, Safety Drives are launched in order to correct a system failure, whenever detected.

Scrutiny of records relating to periodic safety drive revealed the following:

- Safety Drive on Train passing signal at danger and also at unmanned level crossings was conducted in all the Zonal Railways.
- Safety drive on adequacy of Guard Driver Report (GDR) check before starting trains was not conducted in nine Zonal Railways[213].
- Safety Drive on securing disabled trains was not conducted in five Zonal Railways.[214]
- Safety Drive to Prevent Fire in Trains was conducted in all the Zonal Railways except South East Central Railway.
- Safety Drive on monitoring sensitive and vulnerable aspects of safety was not conducted by North Western Railway, North Central Railway and Metro Railway/Kolkata.

SPART at Mughalsarai Division of ECR- Speed @105 KMPH

6.8.5 Rescue and Relief Equipments

The Public Accounts Committee in its Sixteenth report (15th Lok Sabha) pointed out (2010) grave inadequacies in the provision and persisting deficiencies in the maintenance of the aforesaid essential relief and rescue equipment such as Self-Propelled Accident Relief Trains (SPARTs), Accident

[213] CR, ECR, NWR, NCR, NR, SR, SECR, WR and MR/Kolkata
[214] NCR, NWR, SR, SECR and MR/Kolkata.

Relief Trains (ARTs), Accident Relief Medical Vans (ARMVs) in addition to breakdown cranes, etc. The SPARTs were also required to be upgraded to run at a speed of 140 Kilometre per hour. Provision of various tools/equipments relevant for rescue and relief operations therein was also recommended by PAC. Adequate maintenance schedules of all Relief/Rescue equipment including in Accident Relief Trains/cranes were laid down to ensure operational readiness at all the times.

Review of records and joint inspection of 16 Self Propelled Accident Relief Trains (SPARTs), 62 Accident Relief Trains (ARTs) and 56 Accident Relief Medical Vans (ARMVs) of 32 Divisions of 16 Zonal Railways revealed that:-

- As against the target for provision of 32 three coaches Self Propelled Accident Relief Trains in 32 selected Divisions, 14 SPARTs were available at Khurda Road, Waltair, Mughalsarai, Izzatnagar, Rangiya, Lucknow NR, Jaipur, Chakradharpur, Chennai, Mysore, Bhopal, Mumbai Central and Secunderabad (2 Self Propelled Accident Relief Trains).
- Two coach Self Propelled Accident Relief Trains available in two divisions (Howrah and Jhansi) were not converted into three coaches SPARTs.
- None of the existing SPARTs was fit to run with operational speed of 140 Km/hour.
- A test check of essential equipments in 16 SPARTs and 62 ARTs over Indian Railways revealed that :-
  - Self-contained breathing apparatus were not available in 04 SPARTs and 15 ARTs.
  - Inflatable tents were not available in 02 SPARTs and 33 ARTs.
  - Oxy fuel cutting equipments were not available in 02 SPARTs and 22 ARTs.
  - Inflatable air bags were not available in 01 SPART and 25 ARTs.
  - WLL exchange was not available in 10 SPARTs and 34 ARTs.
  - PC with high speed satellite modem was not available in 13 SPARTs and 40 ARTs.
- Trainings was not imparted to nominated ARMV and ART staff of Mechanical and Medical department in Howrah, Sealdah, Asansol, Malda Town Divisions and Metro Railway, Kolkata and Medical staff of ARMV in Bilaspur, Raipur and Nagpur divisions.

- Portable rail trolley was provided in 20[215] out of 55 ARMVs test checked.

6.8.6 Provision of other Rescue and Relief Equipments

The other rescue and relief equipment required to be provided for management of disasters include one 140 tonnes break down cranes in each Broad Gauge Division, emergency rail cum road vehicles and concrete pathway for ART/SPART/ARMV/SPARMV and availability of video transmission facility. A review of the provision of these rescue and relief equipment across IR revealed that:

- 12 breakdown cranes having 140T capacity were not procured in six Zonal Railways[216] .
- Feasibility of introducing rail cum road vehicle (RCRV) after trial was not explored by the Zonal Railways except South Eastern Railway, Southern Railway and West Central Railway. The RCRV of Jabalpur division of West Central Railway remained idle for 13 months due to non-commissioning (March 2015).
- Provision of video transmission facility as directed by Railway Board (September 2006) were not available in nine Zonal Railways[217].

Thus, the disaster preparedness of Indian Railways was not satisfactory. Deficiencies in provision of SPARTs/ARTs/ARMVs and equipment provided therein were noticed in all the Zonal Railways. The ART/ ARMVs were located in the yard which was not easily accessible and it was difficult to reach the location within stipulated period in the absence of proper concrete pathway.

In their reply, Railway Board stated that provision of rescue and relief equipments is an ongoing process and concerned Zonal Railways are being advised to rectify the deficiencies noticed in availability of equipment in test check of their Railway's ART/ARMVs.

6.8.7 Risk Analysis and Vulnerability Profiles

The Sixteenth Report (Fifteenth Lok Sabha) of Public Account Committee (PAC) on Disaster Management in Indian Railways recommended that the Ministry of Railways should get a proper security evaluation done for analyzing different threat perceptions relating to train stations, tracks, bridges etc. so that a comprehensive security plan is formulated and adequate preventive and anti-sabotage security system is put in place.

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[215] CR(2), ECoR (3), NER (4), NFR (1) SCR (2), SER (1), SECR (1), SWR (2), WCR (4)
[216] NER(2), NFR(2), SCR(1) , SECR(2), SER(1), WR(4)
[217] CR, ECoR, ECR, NER, NR, SECR, SR, WCR and WR

In the Action taken report the Railway stated that 202 vulnerable railway stations were identified for implementing 'Integrated Security System' (ISS), consisting of four broad areas such as Internet Protocol (IP) based Closed Circuit Television (CCTV) surveillance system, Access control, Personal and baggage screening system and Bomb detection/ disposal system were proposed to be installed to strengthen surveillance mechanism.

Review of the status of implementation of ISS at 202 vulnerable railway stations through joint inspection with the railway officials revealed the following:-

- IP based CCTV surveillance system was not provided at 94 vulnerable stations of 9 Zonal Railways[218].
- Access control was not provided at 112 vulnerable stations of 14 Zonal Railways[219].
- Personal and baggage screening system was not provided at 85 vulnerable stations of 12 Zonal Railways[220].
- Bomb detection and disposal system was not provided at 123 vulnerable stations of 12 Zonal Railways[221].
- Unauthorized entry/exits were noticed at 111 vulnerable stations in 14 Zonal Railways[222].
- Public Address System was not available in Murtizapur station of Central Railway.
- Door Frame Metal Detectors were not provided at every entry points in vulnerable stations of nine Zonal Railways[223].
- Security gadgets/mechanism like Bomb Basket, Water Canon, Car remote, Drilling Machines were not available in vulnerable stations of seven Zonal Railways[224].
- Camera was fitted near tree at Tiruvananthapuram which affected the 360° vision.

[218] CR-11, ER-11, ECR-7, ECoR-4, NR-29, NCR-5, NER-3, NFR-8, SR-16
[219] CR-17, ER-11, ECR-7, ECoR-3, NR-18, NCR-5, NER-3, NFR-16, SCR-1, SR-14, SER-10, SECR-2, SWR-3, WCR-2
[220] CR-10, ER-8, ECR-7, NR-26, NCR-5, NER-3, NFR-5, SR-4, SCR-1, SER-11, SECR-2, SWR - 3
[221] CR-15, ECR-7, ER-7, ECoR-4,NR-38, NCR-5, NER-1, NFR-16 SR-14, SER-11, SWR-3,WCR-2
[222] CR-15, ECoR-3, ECR-3, ER-3, SECR-2, WCR-2, SER-10, NWR-1 SCR-2, NER-3, NFR-12, NR-38, SR – 14, SWR-3
[223] CR, ECR, ECoR, NR, NCR, NER, SR, SCR, and MR/Kolkata.
[224] ECoR, NR, NCR, NER, SCR, SWR and MR/Kolkata.

- Vulnerable stations of East Coast Railway, East Central Railway, North Eastern Railway, North Central Railway, North East Frontier Railway & Southern Railway were not adequately fenced to guard unauthorised entry to the stations.

Thus, the Integrated Security System consisting of four broad areas of IP based Closed Circuit Television (CCTV) surveillance systems, access control, personal and baggage screening system and Bomb detection and disposal system was not fully implemented over 202 vulnerable stations identified. Many of the CCTV and Personal and baggage screening system were not in working condition for long periods. Unauthorised entries to the stations remained unchecked.

On the issue of Integrated Security System (ISS), Railway Board stated (April 2016) that it is an ongoing process and IR is in process of implementing ISS on priority. ISS has already become functional at nominated stations of Southern Railway, North Western Railway and South Central Railway. Components of ISS viz. CCTV cameras have already been installed at nominated stations of NR and Metro Railway Kolkata. In addition, execution of ISS work is in various stages of implementation at other zonal railways viz. NFR, WCR, NCR, ECoR, NER, CR, etc. Above reply is indicative of the fact that Railway Board accepted the deficiencies pointed out by Audit.

6.8.8 Crowd Management

Crowd management assumes importance in view of casualties due to stampedes at mass gatherings. Disaster caused due to stampede during Maha Kumbh Mela in Allahabad/North Central Railway in February 2013, which led to death of 37 passengers and injury to 45 passengers, was indicative of lack of disaster management plan for crowd management. Disaster Management Plan 2009 of Indian Railway provides that there should be preventive protocols when laid down footfalls defined for important stations become extraordinarily high, as during melas or other exceptional situations. National Disaster Management Authority issued guidelines (2014) on crowd management. These guidelines prescribe specific instructions on information, signage, safety and security measures and typical functions of security at venues of mass gatherings.

Joint Inspection of 279 crowded Stations as identified by 17 Zonal Railways and 68 Divisions revealed the following:-

- Only five Zonal Railways[225] and 20 Divisions[226] had included specific plans for crowd management in their DMPs.
- Though Disaster Management manual of Metro Railway recorded measures on crowd management but Video analytic system relating to signal for crowd density within station premises was not implemented as per recommendation made in National Disaster Management Authority (NDMA) guidelines to get timely information about the heavy crowd within the station premises.
- Station in charge of 117 stations of nine Zonal Railways[227] were not aware of the guidelines of NDMA on managing crowd in the events of mass gathering.
- Copies of Divisional Disaster Management Plans were not available at 77 stations of six Zonal Railways[228].
- Foot over Bridge (FOB) is a critical element of crowd management and is prone to stampede. It was observed that FOBs were not strong enough to sustain crowd pressure at 25 stations of seven Zonal Railways[229].
- No emergency exit points were available at 23 stations of Northern Railway, North Eastern Railway and Western Railway.
- Standard operating procedure was developed for crowd management at disaster site with well-defined role of Railway Protection Force in the Disaster Management Plans of nine Zonal Railways[230].

Indian Railways had not formulated an integrated disaster management plan to facilitate a cohesive approach to comprehensively address all aspects of disaster management and had not entered into formal co-ordination arrangements with the State Governments/District authorities, civil/private hospitals and other agencies to effectively leverage their infrastructure while responding to disasters. Apart from shortfall in conducting safety audit/drives, infrastructure of relief equipment especially the Self Propelled Accident Relief Trains (SPARTs), Accident Relief Trains (ARTs), Accident Relief Medical Vans (ARMVs) etc. was not only insufficient but were not also strategically placed. The surveillance mechanism was inadequate at the vulnerable and crowded stations. An effective mechanism to prevent unauthorized entry into station premises was not in place. IRs thus, could not achieve the desired level of

[225] NFR, SCR, SECR, WCR and MR/Kolkata
[226] NFR(5), SCR(6), SECR(3), WCR(3) and Lucknow, Delhi and Ferozpur of NR
[227] CR, ECR, NCR, NER, NR, NWR, SCR, SWR and WR
[228] CR, ECR, NR, NCR, NER and NWR.
[229] CR, ECR, ECoR, NR, NER, SCR and SECR.
[230] ECR, ECoR, NER, NFR, NR, NWR, SR, SER and SECR

preparedness to tackle the disasters.

RB in their reply (April 2016) stated that guidelines on the crowd management as mentioned in NDMA are being followed. RB added that IR's DMP contained provisions for managing crowd of mass gathering and not day to day working at stations. RB added that there are no event specific DMPs in IR.

Detailed instructions issued to Zonal Railways vide Railway Board's letter No. 2009/Safety (DM)/6/14 dated 27 January 2016 for inclusion of NDMA guidelines regarding crowd management in Zonal and divisional DMP amply supports the audit contention on the deficient crowd management mechanism. Further, event of mass gathering have also not been specified in Disaster Management Plan of Zonal Railways.

6.9 Post-Disaster response

6.9.1 Response during Golden Hour

The first hour after the accident is termed as 'The Golden Hour'. The issue was examined by the Public Accounts Committee (PAC). In reply to the PAC's observations in the Sixteenth Report (15th Lok Sabha), Ministry of Railways (MoR) stated (February 2011 that depending on the location of the accident, Railway Accident Relief Medical Vans (ARMVs) were seldom able to reach the accident site within the 'Golden Hour' for a variety of reasons including failure in timely dispatch of Rescue/Relief equipment at accident site etc.

Scrutiny of enquiry reports of Joint Committee of Railway officers/Commissioner Railway Safety in respect of test check of 126 serious train accidents which occurred during 2010-15 revealed the following:-

- Accident Relief Train (ART) and Accident Relief Medical Van (ARMV) were called in 57 and 83 accidents respectively and in none of the cases, ART reached the site within the Golden Hour.
- Barring three accidents (out of 83), ARMVs reached the site beyond Golden Hour. The range of delay was as under:

Table 6.2-Response of ARTs /ARMVs in the Golden Hour

Relief Train	No. of accidents when ART/ARMV called for	ART/ARMV reached within one hour (Nos.)	ART/ARMV reached within two hours (Nos.)	ART/ARMV reached within three hours (Nos.)	ART/ARMV reached after three hours (Nos.)	ART/ARMV returned/ cancelled after call
ART	57	00	10	12	33	02
ARMV	83	03	40	12	18	10

(Source: Accident review reports/CRS reports)

- Out of 126 accidents, 74 occurred on level crossings, 23 were due to derailment, 17 due to collision and the remaining 12 were attributed to other reasons.
- In a number of accident cases, Chief Safety Officer/Senior Divisional Safety Officer was not aware of the status of implementation of the recommendations of Joint Committee of Railway officers/Commissioner of Railways.

It was also observed that the contact no. of station masters of all stations *en-route* where train halts were not displayed in the coaches of the selected trains.

Thus, IR could not access the disaster sites on time and effectively provide rescue and relief to the accident victims. The performance of ART/ARMV showed that provision for recovery and relief during golden hour required improvement in response. Follow up action on the recommendations made by the Joint Enquiry Committee of Railways and Commissioner of Railway Safety on the Rail accidents enquiries was broadly followed. However, Safety Department was not aware whether the recommendations of the enquiry committee had been complied with by the departments concerned.

Railway Board replied (April 2016) that with enactment of DM Act local resources are being deployed in case of an accident for rescue and immediate relief. On-board staff and other railway officials travelling in the train are the first responders to provide rescue and relief to the effected passengers. Subsequent to the DM Act, relief and recovery during golden hour by means of ARMV is seldom required as injured people are rushed to the nearest hospitals through local ambulances.

Railway Board, however, did not offer any remarks on the audit comment on arrival of Accident Relief trains (ART) beyond the Golden Hour, drawn on the basis of accident enquiry reports of Joint Committee of Railway officers/Commissioner Railway Safety.

6.9.2 Preparedness of Railway Hospitals

Disaster Management Plan 2009 of IR provides for a Hospital Disaster Plan for prompt and effective medical care to affected peoples. The plan should be based on National disaster Management Authority (NDMA) Guidelines on Medical Preparedness and Mass Casualty Management. Hospital Disaster Management plan should also address a situation where the hospital itself has been affected by a disaster due to fire, explosion, flooding or earthquake. Hospital Disaster Management Plan should be tested once a year by mock drills for updating.

Tests check of records of 17 Central Hospital and 31 Divisional Hospitals related to preparation of Disaster Management Plan and availability of requisite infrastructure to effectively deal with the impact of disaster revealed the following:

- Hospital Disaster Management Plan (DMP) was not available in nine Central Hospitals[231].
- DMPs were not available in 15 Divisional hospitals[232].
- 10 Central Hospitals[233] and 20 Divisional Hospitals[234] out of 40 Divisions of Indian Railway had conducted mock drills once a year.
- There were shortages of 149 Doctors and 1564 other medical staff.
- 526 Doctors (47 *per cent*) and 4517 Para Medical Staff (37 *per cent*) were trained in Disaster Management.
- Casualty beds were not available in Central Hospitals of North Central Railway and South East Central Railway and divisional hospitals of Secunderabad (South Central Railway), Bilaspur (South East Central Railway), Jabalpur (West Central Railway), Mumbai (Central Railway), New Bongaigaon Junction, Rangiya (Northeast Frontier Railway) and Delhi (Northern Railway).
- Blood Banks were available only in six Central Hospitals[235] out of 17 Central Hospitals and in six Divisional Hospitals[236] out of 31 Divisional Hospitals.
- Ambulances were not available in Varanasi (North Eastern Railway), Secunderabad (South Central Railway), Kharagpur and Chakradharpur (South Eastern Railway), Thiruvananthapuram (Southern Railway) and Metro Railway/Kolkata.

Thus, most of Central and Divisional Hospitals did not prepare their Disaster Management Plans and did not address action plan in a situation like fire, explosion, flooding or earthquake. Annual mock drills were also not conducted as prescribed in Indian Railway Disaster Management Plan 2009.

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[231] ER, ECoR, ECR, NCR, NER, NFR, SR, SWR & MR/Kolkata
[232] Waltair, Khurda Road of ECoR; Mughalsarai, Samastipur of ECR; Jhansi, Allahabad of NCR; New Bonaigaon (Rangia); Katihar (NFR); Hubli, Mysore of SWR; Izzatnagar-NER; Sealdah-ER; Bikaner-NWR; Chennai, Tiruvananthpuram of WR
[233] WR, WCR, SWR, SECR, SCR, NWR, NR, NCR, SR & MR/Kolkata
[234] Varanasi-NER; Secunderabad, Vijayawada, Hyderabad, Guntur, Guntakal, Nanded of SCR; Hubli (SWR); Jabalpur, Bhopal of WCR; Dhanbad, Samastipur of ECR; Ahemadabad, Mumbai Central, Vadodara, Bhavnagar, Rajkot, Ratlam of WR; Bilaspur, Nagpur of SECR
[235] ER, NFR, NR, SCR, SER and SR
[236] Kharagpur-SER; Asansol, Howrah of ER; Guntakal-SCR; Nagpur-CR; Mysore-SWR

Railway Board in reply (April 2016) stated that Instructions to Zonal Railways have been issued vide Board's letter No. 2012/H/7/1/Misc. dated 11.03.2016 to ensure necessary corrective step in respect of above audit findings. Thus, the instructions issued by the Railway Board vindicates the audit stand that majority of Central and Divisional Hospitals had not prepared their Disaster Management Plans.

6.9.3 Modernisation and Strengthening of Railway Protection Force

Public Accounts Committee *inter-alia* recommended (April 2010) that RPF be reformed, modernized and expanded to provide the required level of manpower and security. In their ATN, the Ministry stated that the following measures were proposed to be taken to modernise/strengthen Railway Protection Force (RPF):-

- ₹67.09 crore have been allocated for procurement of modern security related equipment for RPF and procurement process is underway.
- RPF personnel are being equipped with modern fire arms like AK-47 rifles.
- Proposal for legal empowerment of RPF to deal with passenger related offences is under examination of the Board.
- 973 non-gazetted posts in RPF were sanctioned in the year 2008 and recruitment process had already been completed. To further augment the strength of RPF, 5134 posts have been created with the approval of Ministry of Finance for which recruitment process had been initiated.
- To strengthen railway security in vulnerable sections, creation of infrastructure for three new Railway Protection Special Force (RPSF) battalions had been sanctioned under Works Programme 2010-2011. Headquarter's of above Battallion will be at Manwal (Northern Railway), Cooch Behar (Northeast Frontier Railway) and Asansol (Mahila Battalion) (Eastern Railway).
- A Commando training Centre to impart Commando Training to RPF/RPSF personnel has been approved to be set up at Canning/Eastern Railway.
- An All-India RPF Help line, sanctioned at an estimated cost of ₹ 5 crore is being set up.
- Networking of security control Rooms and posts of RPF at Divisions, Zones and Railway Board has also been approved to improve response to passenger and ensure better crime control.

- 12 Commando companies are being raised by giving commando training to RPSF personnel in institutes of repute.
- A National Dog Training centre has been approved at Podanur, Southern Railway with a capacity of training 50 dogs at a time.

However, review of records revealed that the measures to modernise and strengthen RPF are still at various stages of implementation, except proposed empowerment of RPF to deal with passenger related offences and establishment of commando training centre. The Railway administration intimated (January 2016) that a comprehensive bill was drafted to empower RPF to deal with passenger related offences. However, Ministry of Home Affairs recently conveyed their opposition to the proposed amendment in the RPF Act.

The Railway added that in view of availability of adequate land and other factors, it has been proposed to set up Commando training centre at Jagadhari (Northern Railway) and Live-Bullet-Tactical exercise facility at Chink Hill/Central Railway

6.10 Capacity building to face disasters

Indian Railway formulated Corporate Safety Plan (2003-13) in August 2003 which envisaged a Safety Action Plan directed towards continuous reduction in risk level to its customer, implementation of suggested system reforms, imbibing better safety culture, enhancement of asset reliability etc. The National Policy on Disaster Management provides that all Central Ministries and Departments of the Central Government and of the States will build capacity to handle different types of Disasters based on the guidelines issued by the National Disaster Management Authority. The necessary budgetary allocations will be made as part of the Five Years and Annual Plans.

6.10.1 Implementation of Corporate Safety Plan

Corporate Safety Plan (CSP) had envisaged a broad action plan for all the works to be carried out for the entire plan period (2003 to 2013). CSP *inter-alia* envisaged renewal and replacement of over-aged assets, tracks, rolling stocks and bridges. In the previous Audit Report[237], it was observed that specific action plan for implementation of CSP (Phase I/2003-08) was prepared by only nine Zonal Railways[238]. In their Action Taken Note, Ministry of Railways stated (2008) that there had been overall 62.2 *per cent* of financial progress, which is more than pro rata and considered satisfactory. Zonal Railways were, however, advised to prepare an action plan for Phase II of CSP covering the

[237] Comptroller and Auditor General of India's Report NO. PA 8 of 2008 (Union Government –Railways)
[238] SR, CR, ER, WR, NER, NCR, ECR and NFR

period 2008-13 with revised targets for all those works where the progress was not satisfactory.

Scrutiny of records relating to implementation of Phase II of CSP revealed that eight Zonal Railways [239]out of 17 had framed Phase II action plan of CSP. While in four Zonal Railways (Northeast Frontier Railway, South Western Railway and Southern Railway and Metro Railway/Kolkata) action plan was not drawn and in the remaining four Zonal Railways (East Cost Railway, North Central Railway, South Eastern Railway and South East Central Railway), information regarding preparation of action plan was not made available to Audit.

Review of the performance of Indian Railway (IR) in replacement of over-aged locomotives and induction of new technology for welding of rail joints revealed the following:

A. Status of Over-aged Rolling Stock

Status of over aged coaches, wagons, electric locos and diesel locos as on 31 March 2015 over IR was as under:

Table 6.3-Over-aged rolling stock as on 31 March 2015

Rolling Stock	Total (No.)	Over-aged (No.)
Coaches	56155	635
Wagons	226974	3858
Electric locos	5023	32
Diesel locos	5535	243

(Source: PCDO/MCDO of Zonal Mechanical & Electrical Department)

Review of records revealed that:

- In Central Railway, there was an accident which was attributed to overage of rolling stock. Commissioner of Railway Safety (CRS) recommended that EMU coaches which had completed codal life of 25 years plus rehabilitation period should be withdrawn from service and 2nd life rehabilitation of EMU coaches should not be done. However, no action was taken by the Railway Administration in this regard.
- In Metro Railway, Kolkata, the codal life of 47 coaches was extended by the Railway Board for one POH cycle for 3 years in May 2013. In February 2015, Commissioner of Railway Safety (CRS) stressed the need of replacement of over-aged coaches.

[239] CR, NER, NR, ECR, WR, SCR, WCR and ER

B. Induction of new technology - Mobile Flash Butt Welding

Corporate Safety Plan (CSP) emphasised (2003) that the Alumino-Thermit welds[240] were to be gradually phased out with the introduction of Flash Butt welds. It was, however, observed that Alumina- Thermit welds were used extensively. It was also observed that flash butt welding was not inducted in open line in seven Zonal Railways[241].

C. Integrated maintenance blocks

For implementing the concept of preventive maintenance for the safety of operations, granting of adequate time for maintenance of tracks is essential. Since granting of maintenance blocks[242] particularly for the saturated sections is an expensive proposition, CSP emphasised that each maintenance block granted needs to be simultaneously utilized by all the concerned departments such as Engineering, Signal & Telecommunication, Electrical etc. It was, however, observed that the integrated maintenance block (simultaneous involvement of all the departments concerned) was not adopted in 11 Zonal Railways[243].

D. Control Office Application

Control Office Application (COA) is comprehensive software for the automation of Control Charting at Divisional Control Office. It provides real time information on train operation which, in turn, assists in planning maintenance block. COA has provision for capturing the block given details section-wise which can be retained at any time. It was, however, observed that COA was not introduced in three Zonal Railways (Eastern Railway, East Coast Railway and South Central Railway).

Thus, the implementation of second phase Corporate Safety Plan relating to over-aged rolling stock, introduction of new technology and progress in respect of elimination of Unmanned Level Crossing was lagging behind schedule affecting the capacity building of the Indian Railways to face disasters.

In reply, Railway Board stated that CSP 2003-13 was implemented and targets for reduction in accidents were achieved with certain shortfalls in respect of eliminating unmanned level crossings and replacement of over-aged rolling stock.

Contention of Railway Board on achieving the targets is not acceptable as Railway Board had earlier advised Zonal Railways to prepare an action plan

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[240] Welding is a process that causes fusion of metals by heating them with superheated molten metal from an alumino thermic reaction between a metal oxide and aluminium. On Indian Railways Alumino thermic welding with short pre-heating process called SKV welding is used for welding of rails of different chemistry and sections.
[241] ER, NER, WR, SER, ECR, SECR and SWR
[242] suspension of traffic in a specified period for maintenance purposes
[243] ER, NWR, NER, NCR, ECR, SECR, ECoR, SWR, WCR, NFR and SR

with revised targets (CSP Phase II) for all those works where the progress was not satisfactory. Thus, Railway Board's reply is contradictory and lacked details as to how the left over targets were achieved.

6.10.2 Management of Chemical Disasters

The growth of chemical industries has led to an increase in the risk of occurrence of incidents associated with hazardous chemicals (HAZCHEM). With their proliferation, the demands for their transportation by rail have gone up significantly. Chemical accidents result in fire, explosion and/or toxic release. Railways have their own safety manual[244] for the transportation of hazardous goods.

Disaster Management Plan 2009 of Indian Railways recognised that the Railways' expertise in dealing with the mishaps like spillage, catching fire etc. of these dangerous goods is very limited. It was therefore felt imperative that the respective Zonal Railways develop and nurture coordination with those agencies and organisations on their system which have expertise in dealing with the hazardous material. Disaster Management Plans of Zonal Railways as well as Divisions should contain information of such agencies so that these agencies can be called for without any delay during any untoward incident. DM Plan 2009 of IR outlined a dedicated communication system which was to be established for Rail Transportation to monitor movement of Toxic Chemical Agents. A mechanism was to be developed like a Geographic Information system (GIS) for continuous monitoring of such Transport Vehicles along their route. The plan further required that an Action plan should be worked out by Railways to prevent Chemical Disaster at crowded railway stations and yards.

Scrutiny of Disaster Management Plans (DMPs) of 68 divisions of Indian Railways and records relating to co-ordination with agencies having expertise in handling chemical disaster revealed that:-

- DMPs of only 24 Divisions[245] contain preventive measures for handling any disaster arising during handling and transportation of hazardous Chemical and Inflammable material.
- GIS system was not implemented in Zonal Railways.

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[244] Red Tariff No. 20 prepared by the Indian Railways Conference Associations .

[245] Waltair-ECoR; Allahabad, Agra Cantt., Jhansi of NCR; Delhi-NR; Bikaner, Jaipur, Jodhpur of NWR; Secunderabad, Hyderabad, Guntur, Nanded, Vijayawada, Guntakal of SCR; Adra, Chakradharpur, Kharagpur, Ranchi of SER; Mysore, Bangalore, Hubli of SWR; Jabalpur-WCR, Ahemadabad, Mumbai Central of WR;

- Contact details of agencies and organisations that had expertise in dealing with the hazardous material were available in the Divisional Disaster Management Plan of 22 Divisions[246].
- The Commercial Department of 19 Divisions[247] had kept the Railway Protection Force official updated on the developments in stations and Train services so that adequate security systems could be strengthened.
- Action plan to prevent Chemical (Terrorism) Disaster at crowded railway stations was available only at Lucknow (Northern Railway) and Jabalpur (West Central Railway).

Thus, Indian Railways could not initiate adequate measures to tackle chemical disaster.

Railway Board replied (April 2016) that Indian Railways initiated adequate measures to tackle chemical disaster. Zonal Railways were advised to incorporate suitable provisions in their respective DM Plans vide Railway Board letter No. 2008/Safety (DM)/Che/6/3 dated 21 January 2009. Zonal Railways handling the hazardous material confirmed for the inclusion of these provision in their respective DM Plans. Contact details of agencies and organisations having expertise in handling hazardous chemicals were included in the DM plan.

Reply is not tenable as National Disaster Management Authority had suggested strengthening the system of safety in transportation of hazardous goods. In this backdrop, the Railway Board must take in all seriousness, the audit finding that DMPs of only 23 divisions contain preventive measures for handling any disaster arising during handling and transportation of hazardous Chemical and Inflammable material. It is also a matter of concern that Action plan to prevent Chemical (Terrorism) Disaster at crowded railway stations was available only at Lucknow (NR) and Jabalpur (WCR).

Further, the Zonal DM Plan of East Coast Railway acknowledged that Railway's expertise in dealing with the mis-happenings like spillage, explosion, catching fire, release of toxic etc. of the dangerous chemicals was limited warranting help from agencies and organizations such as National Disaster Response Force (NDRF), Orissa Disaster Rapid Action Force (ODRAF), Indian Oil Corporation, Bharat Petroleum Corporation Limited who have expert in

[246] Mumbai, Bhuwawal, Nagpur, Solapur of CR; Waltair-ECoR; Allahabad, Agra Cantt., Jhansi of NCR; Ajmer, Bikaner, Jaipur, Jodhpur of NWR; Chennai, Tiruchchirappalli, Madurai, Salem, Palakkad, Tiruvananthpuram of SR; Mysore, Hubli of SWR; Jabalpur-WCR

[247] Allahabad, Agra Cantt., Jhansi of NCR; Lucknow, Delhi of NR; Ajmer, Bikaner, Jaipur, Jodhpur of NWR; Mysore, Hubli of SWR; Jabalpur, Kota of WCR; Ahemadabad, Mumbai Central, Vadodara, Bhavnagar, Rajkot, Ratlam of WR;

dealing with the hazardous goods were asked for relief and rescue operation during a chemical disaster. Though it was mentioned that the agencies and their contact numbers were given in the Annexure, contact details of Indian Oil Corporation and Bharat Petroleum Corporation Limited were not given in the Disaster Management Plan.

6.10.3 Availability and Utilisation of Funds for Disaster Management

According to Section 36(e) of the Disaster Management Act, 2005, every Ministry/Department of the Government of India must allocate funds for measures such as prevention of disaster, mitigation, capacity-building and preparedness. It was, however, observed that specific funds were not earmarked and no Head of Accounts was created to allocate the expenditure related to disaster management.

6.10.4 Allocation and utilisation of funds under Railway Safety Fund

The works relating to Level crossing (LCs) and Road Over Bridge/Road Under Bridge (ROB/RUB) are being financed mainly from Railway Safety Fund (RSF) and Capital. 1252 LCs with more than one lakh Train Vehicle Units (TVUs) were targeted to be replaced with ROB/RUB in the Corporate Safety Plan (CSP) 2003-2013. Achievement as of March 2008 was 158 ROB/RUB only. In the budget speech of 2010-11, the Minister of Railways had assured that a special drive was being launched for manning of all the unmanned LCs in the next five years. In the budget speech of 2011-12, the Ministry of Railways (MoR) lowered the eligibility criteria for manning level crossings from 6000 TVUs to 3000 TVUs and assured that efforts would be made in the coming years to eliminate the remaining eligible 2500 unmanned level crossings. As per Vision 2020 documents of Indian Railways (December 2009), all Zonal Railways were to eliminate all eligible unmanned level crossings by March 2015.

Review of records relating to allocation and utilisation of funds under Railway Safety Fund (RSF) and elimination of Unmanned Level Crossing revealed the following:-

- Allocation and utilisation of funds under RSF showed that against allocation of ₹ 5167 crore, the expenditure incurred was ₹ 4413 crore (85 *per cent*) during 2010-15.
- Shortfalls in achieving the target were noticed in construction of Road Over Bridge/Road Under Bridge in West Central Railway during 2010-11, North Eastern Railway & Western Railway during 2011-12, Central Railway, North Western Railway, South Central Railway, West Central

Railway & Western Railway during 2012-13, West Central Railway during 2013-14 and South East Central Railway, south Eastern Railway & Western Railway during 2014-15.

- Out of 14464 Unmanned Level Crossings (UMLC) as on 1 April 2010, 4938 Level Crossings (LCs) were targeted for manning during 2010-15. Till March 2015, 2329 LCs (47 *per cent*) were manned.

6.10.5 Training on Disaster Management

National Disaster Management Policy 2009 emphasised the need of training on various aspects of disaster management for officials of the Government Departments. Railway Board decided to revamp training on disaster management and issued instructions (January 2009) to all Railway Training Institutes and the Zonal Railways. As per Railway Board instructions, training was to be imparted to different categories of officials from top management to on-board staff in different frequencies. The Public Accounts Committee in its 16th report (15th Lok Sabha) observed that about 83- 86 *per cent* of the train accidents were caused by human errors, especially due to the failure of Railway staff. Railway Board in their Action Taken Note stated that training modules of staff were revamped by incorporating practical aspects.

Scrutiny of records relating to disaster management training revealed that:

- Training modules were revamped including practical aspects for running staff in four Zonal Railways[248].
- Shortfall in imparting trainings to frontline staff was noticed as detailed below:-

Table 6.4-Training to the frontline staff

Year	Total strength of Front line Staff (Nos.)	No. of staff trained	Percentage of shortfall
2010-11	110463	31151	71
2011-12	114397	30483	73
2012-13	120473	29985	75
2013-14	123597	32655	73
2014-15	128956	32127	75

(Source: Records of Zonal Railway Training Institutes, Zonal Personal & Safety Department)

[248] NCR, NFR, NWR and WCR

6.10.6 Mock Drills

In terms of instructions issued by Railway Board vide letter No. No. 2008/Safety (A&R)/14/4 New Delhi, dated 18 February 2009, conducting mock drills is very important for checking the preparedness of ARMVs/ARTs as well as concerned staff. The mock drills have to be organized regular in coordination with the Sr. DOMs in the Division, and the COMs in Headquarters. Examination of the records relating to conduct of Mock Drills over 68 Divisions of Indian Railways during 2010-15 revealed that:-

- There was no shortfall in full scale mock drill over Southern Railway, South East Central Railway and Metro Railway, Kolkata.
- Full scale mock drill was not conducted in 15 Divisions[249] of seven Zonal Railways and in any of the Divisions of South Central Railway.
- As against the requirement of 245, 175 full scale mock drills were conducted in 49 divisions of 16 Zonal Railways[250].

Thus, the nodal organization i.e. Safety Department both at the divisional and Zonal level failed to monitor the training needs of the staff with reference to the disaster preparedness. The status of progress of training imparted to frontline staff indicated that Indian Railways were not serious in developing skills of staff to deal with emergency during disasters.

6.10.7 Status of implementation of High Level Committee (HLC) and Recommendations of Disaster Management Review Committee (DMRC)

A High Level Committee (HLC) was constituted in September 2002 to review Disaster Management in Indian Railways. Out of 111 recommendations (April 2003) of the Committee, 102 recommendations were implemented till March 2014 and the remaining nine related with the following issues were under various stages of implementation across the Zonal Railways.

- Converting two coach Self Propelled Accident Relief train (SPART) to three coach SPART
- Feasibility of introducing Rail Cum Road Vehicle (RCRV)
- Emergency Automatic lights in coaches
- Air conditioned mortuaries

[249] Varanasi-NER; Secunderabad, Vijayawada, Hyderabad, Guntakal, Guntur, nanded of SCR; Adra-SER; Hubli-SWR, Jabalpur, Bhopal of WCR; Dhanbad, Samastipur of ECR; Bilaspur, Nagpur of SECR

[250] ER, SER, NER, NEFR, WCR, SECR, SR, SWR, NR, MR/Kolkata, WR, CR, NCR, NWR, ECoR and ECR

- Specialised tunnel rescue equipments
- Provision of Computer in Accident Relief Trains with high speed satellite modem for video conferencing facility from the accident site with Railway Board and the Zonal Railway Headquarters.
- Disaster Management Institute with special focus on rescue operations

Subsequent to formation of High Level Committee (HLC), another Disaster Management Review Committee was constituted in February 2007 under the Chairmanship of Shri G. Narain, with Terms of Reference to audit the current preparedness of all types of disasters/hazards for prevention, mitigation, rescue, relief and rehabilitation; integration of disaster reduction concept into development planning; and to recommend areas of multi-stakeholder partnership and citizen participation to establish a coordinated mechanism for disaster reduction, response and rehabilitation etc. The Report was submitted in December 2008. The Committee made 108 recommendations and of them, 41 recommendations were accepted by the Ministry of Railways.

Audit observed that out of 41 recommendations accepted by the Railways, five recommendations (mainly pertaining to (i) Disaster Management Plan for Railways falling in Seismic Zones, equipping ARTs with all weather under water cutting and provision of pathways in tunnels and bridges) were under various stages of implementation across Zonal Railways

On the issue of implementing the recommendation of DMRC, RB admitted (April 2016) that IR is in process of implementing the same. Railway Board further stated that Rail cum Road Vehicle is undergoing trials and procurement of telescopic boom Crane is under consideration. Emergency automatic lights have also been provided in 75 per cent of the identified coaches.

Contention of Railway Board is not acceptable as recommendations made by HLC and DMRC in April 2003 and December 2008 respectively still remained to be implemented even after a lapse of 12/7 years.

6.10.8 Disaster Management Awareness

In their Action Taken Note, Ministry of Railways stated (February 2010) that most of the accidents at unmanned level crossings occurred due to lack of awareness on the part of road users. Indian Railway (IR), therefore, started comprehensive social awareness programmes and publicity campaigns through electronic and print media to educate the road users about the precautions to be observed while negotiating the unmanned Level Crossings.

Scrutiny of records relating to initiatives of IR in creating awareness among the general public revealed that the Zonal Railways had taken initiative through advertisement, SMS, posters etc. to create awareness in general public about

disaster. It was, however, observed that out of 126 serious accidents occurred during 2010-15, 76 accidents took place at level crossings which indicated lack of awareness among the general public while negotiating level crossings.

6.10.9 Role of RDSO in Capacity Building

The primary quality policy of Research Designs and Standards Organisation (RDSO) is to develop safe, modern and cost effective railway technology complying with statutory and regulatory requirements. The Corporate Safety Plan (2003-13) envisaged development and implementation of certain new technologies in improving the safety in train operations which were entrusted with RDSO to develop them in a time bound manner. In the Comptroller and Auditor General of India's Report No.8 of 2010-11 (Union Government-Railways), the performance of RDSO in introduction of new technologies covering Phase I of CSP (2003-08) was highlighted. In the present review, Audit examined the status of progress of all ongoing projects in Phase I of CSP as well as new projects taken up during Phase II of CSP (2008-13). The status of different RDSO projects is discussed below:

A. Development of trackside bogie monitoring system:

Derailment of goods train due to defects in bogie of wagons is a major hindrance to the safe and smooth operation of freight trains. Track Side Bogie Monitoring System gives advance warning relating to wagons which develop defects in bogies. It was observed that the proposal submitted by RDSO to the Railway Board in December 2005 was sanctioned in 2006 at a cost of ₹4.61 crore. A Purchase Order was placed in June 2008 on an Australian firm at a cost of US $ 9,14,852 for supply, installation and commissioning of Track Side Bogie Monitoring System. The system was supplied in March 2009 and commissioned in January 2010 at Bakkas Railway station in Lucknow – Sultanpur section at a cost of ₹ 5.34 crore. The system was, however, not implemented till March 2015.

B. Test track facility

Railway Board approved (July 1987) the provision of a test track facility at Mughalsarai station of East Central Railway at a cost of ₹ 5.98 crore which was frozen by the Director General RDSO in 1993 due to fund constraint after incurring an infructuous expenditure of ₹ 3.16 crore. The work was again sanctioned (April 2002) at an estimated cost of ₹ 87.30 crore, which did not materialise due to non finalization of site.

The plan was further reviewed in the Governing Council Meeting in November 2006 and the estimate was revised to ₹ 133.19 crore. An abstract estimate for the consultancy work was approved by the Railway Board in February 2007 for ₹ 6.82 crore. The Railway Board approved entering into consultancy with

Transportation Technology Centre Inc/Rail India Technical and Economic Service but the same could not be finalized. The work was dropped in March 2012 with the directives to engage a consultant to prepare the Detailed Project Report. In October 2014, RDSO advised the Railway Board that no consultancy work was required as RDSO had gained considerable experience on this matter. Railway Board in February 2015 directed RDSO to prepare a proposal for the test track which should be useful to carry out research work. Accordingly, a work of "Infrastructure facilities for test track on newly constructed Lonard-Phaltan section of Central Railway was proposed by RDSO in preliminary work programme (PWP) 2015-16 at a cost of ₹ 101.50 crore. The approval of the Railway Board was awaited (March 2015).

Thus, even after a lapse of 13 years, RDSO could not implement the project due to delay in finalization of site.

C. Three Coach High Speed Self Propelled Accident Relief Train

In February 2003, Railway Board directed RDSO to develop a suitable design to combine the existing self-propelled ARMV's and ART's into a three-coach design of Self-Propelled Accident Relief Train (SPART). Accordingly, RDSO (March 2005) issued a specification for SPART. RDSO advised (January 2008) Railway Board that the maximum speed potential of SPARTs with adequate acceleration reserve is 105 Km/h for 2- coach SPART and 130 Km/h for 3 coach SPART. RDSO, therefore, revised (March 2009) and upgraded the specification of 3-coach high speed SPART with two power cars.

During 2010 to 2014 various issues relating to schedule of dimension (SOD), condonation of infringement, sanction of CRS and oscillation trials were finalized. RDSO issued (December 2014) and circulated the Final Speed Certificate for operation of SPART up to maximum speed of 105 Km/hr and 115 Km/hr.

Detailed oscillation trials of high speed SPARTs were conducted by RDSO in Bina - Bhopal section and a satisfactory speed potential of 130 km/hr was established. No further development to attain the maximum speed of 130 Km/hr. was available on the records of RDSO.

In addition to adoption of new technologies on the above areas, RDSO were also assigned the task of identifying vulnerable buildings, locations, rail infrastructure including bridges, sensitive locations etc and issue suitable guidelines to the Railway and action plan of all Zonal Railways was to be submitted by RDSO to Railway Board by 25 January 2008. It was, however, observed that RDSO has neither identified vulnerable buildings, locations, rail infrastructure including bridges, sensitive locations etc nor issued any guidelines till March 2015.

Thus, contrary to provision of Indian Railway Disaster Management Plan 2009, RDSO had not identified vulnerable buildings, locations, rail infrastructure including bridges, sensitive location, water ways embankments etc. of Zonal Railways.

6.11 Conclusion

Disaster Management Plan of Indian Railways was formulated in line with the National Disaster Management Policy and the provisions contained in the Disaster Management Act 2005. The Public Accounts Committee in their sixteenth Report recommended that the Disaster Management Plan (DMP) should be integrated, comprehensive and uniform to effectively deal with the challenges which emerge in the event of train accidents or other disasters. DMPs of Zonal Railways and their Divisions were not comprehensive and also lacked uniformity. DMPs did not provide for mechanism for establishing co-ordination with the various civil authorities. Disaster Management Plans of many Zonal Railways and Divisions were silent on the action plan for efficient crowd management.

Safety Audit to identify system failures and generic shortcomings was not conducted as per prescribed periodicity, besides there was lack of proper follow up action. Availability of required number of rescue and relief equipments was not ensured at many locations. Integrated Security System' which *inter-alia* includes Closed Circuit Television surveillance system, access control, personal and baggage screening etc. were not implemented in many of the 202 vulnerable stations identified by the Indian Railways.

Apart from the lack of requisite infrastructure to effectively provide medical assistance to disaster affected masses, Comprehensive Hospital Disaster Management Plan was not available in many hospitals of Indian Railways.

Implementation of different safety measures as envisaged in the Corporate Safety Plan and also safety related projects assigned to Research Design & Standards Organisation (RDSO) were lagging behind schedule. Manning of unmanned level crossing and replacement of over-aged rolling stock, which have direct bearing on safety of passengers, were not accorded due priority.

6.12 Recommendations

Following recommendations are suggested for ensuring implementation by Railway Board:-

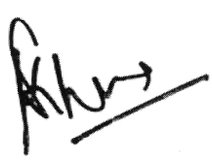
- Ensure updating of Zonal and Divisional Disaster Management Plans. Vulnerability profile of different types of disasters and action plan to avert and mitigate such disasters needs to be included in Disaster Management Plan of Zonal Railways.

- Strengthen monitoring mechanism to ensure compliance of its instructions for conducting safety audit as per prescribed periodicity and also to ensure follow up action on the Safety Audit Reports.
- Ensure installation of Integrated Security System at all the identified vulnerable stations on priority and needs to ensure effective functioning of the Integrated Security Surveillance System.
- Ensure availability of Accident Relief Trains (ARTs), Self-Propelled Accident Relief Train (SPART), Accident Relief Medical Vans (ARMVs) in adequate numbers, besides ensuring their placement in strategic locations and their preparedness with availability of equipment and essential medicines having enough shelf life at all times so that relief to passenger is available in Golden Hour.
- Formulate a Hospital Disaster Management Plan and develop requisite infrastructure to ensure emergency preparedness for providing necessary medical care to the disaster affected population.

(Balvinder Singh)
Deputy Comptroller and Auditor General

New Delhi
Dated: 1 June 2016

Countersigned



(Shashi Kant Sharma)
Comptroller and Auditor General of India

New Delhi
Date: 2 June 2016

Annexure- I (Para 2.1.7.6)

Statement showing deficiencies noticed in providing passenger amenities at Adarsh stations

SN	Amenity	Category	Number and names of stations where deficiency noticed	
1	*2*	*3*	*4*	
1	Pay and Use Toilets	A	9	Miraj (CR), Vizianagaram (ECoR),Sultanpur,Udhampur & Panipat (NR), Orai (NCR), Jorhat Town & Rangiya (NFR) and Jharsuguda (SER)
		B	8	Naugachia (ECR), Atarra (NCR), Dausa (NWR), Hojai (NFR), Ambikapur (SECR), Umaria (SECR), Midnapore (SER) and Katni Murwara (WCR),
		D	12	Ajni (CR), Khariar Road (ECoR), Fatehpur sikri (NCR), Jalore & Kosli (NWR), Fakiragram (NFR), Dwarapudi (SCR), Sattenapalli (SCR), Kamptee (SECR), Sabarmati (WR),Makronia,Biyavra Rajgarh (WCR)
		E	9	Bahadurpur (ER), Moth (NCR),Kolayat (NWR),Bilaspur Road (NER),Ambari Falakata(NFR), Manjeshwar (SR),Karimnagar (SCR),Sambre (SWR) and Vadnagar (WR)
2	Signages	B	3	Dhenkanal (ECoR), Atarra (NCR) and Umaria (SECR)
		D	8	Ajni (CR), Jehanabad (ECR), Khariar Road (ECoR), Fatehpur Sikri (NCR), Jalore, Kosli (NWR), Chamrajanagar(SWR) and Makronia (WCR)
		E	8	Bahadurpur (ER), Chandauli, Manjwar (ECR) Kolyat (NWR), Bilaspur Road (NER),Ambari Falakata(NFR), Manjeshwar (SR) and Vadnagar (WR)
3	Waiting Rooms with TV and bathing facilities for Upper Classes	A1	2	Bhagalpur (ER), Borivali (WR)
		A	11	Miraj (CR), Fhatepur & Orai (NCR), Rangiya (NFR), Parbhani (SCR), Jharsuguda, Bokaro Steel City, Balasore (SER), Chittorgarh (WR), Bina & Sawaimadhopur (WCR).
4	Waiting Room with TV and bathing facilities for other classes	A1	2	Bhagalpur (ER), Borivali (WR)
		A	16	Miraj (CR), Malda Town (ER), Fatehpur & Orai (NCR), Abu road (NWR),Ballia (NER),Jorhat Town & Rangiya (NFR), Parbhani (SCR), Rajnandgaon (SECR), Jharsuguda, Bokaro steel city, Balasur (SER), Chittorgarh (WR) and Bina & Sawaimadhopur (WCR).
		B	8	Malkapur (CR), Bolpur (ER), Atarra (NCR), Hojai (NFR),Umaria (SECR), Bankura & Midnapore (SER) and Katni Murwara (WCR).

Annexure -II (Para 5.1.7.3)

Allotment and Utilisation of Funds for Road Safety Works under Grant No. 16 - Sub- Head 29 & 30
(Rupees in Crore)

Railway	BG provided	FG provided	Surrender by way of FG (Col. 2 - Col. 3)	Actuals	Surrender by way of less Actuals (Col. 3 - Col. 5)
1	**2**	**3**	**4**	**5**	**6**
CR	192.37	237.08	-44.71	256.74	-19.66
ECoR	285.07	247.63	37.44	238.43	9.20
ECR	308.99	221.79	87.20	213.94	7.85
ER	93.68	76.27	17.41	63.96	12.31
NCR	515.75	530.12	-14.37	506.89	23.23
NER	175.52	216.93	-41.41	214.34	2.59
NFR	202.32	201.48	0.84	175.97	25.51
NR	653.19	784.45	-131.26	741.35	43.10
NWR	751.55	497.68	253.87	513.01	-15.33
SCR	625.47	626.47	-1.00	611.22	15.25
SECR	295.71	284.04	11.67	284.53	-0.49
SER	161.61	145.61	16.00	74.84	70.77
SR	569.45	560.84	8.61	575.68	-14.84
SWR	320.76	386.49	-65.73	381.19	5.30
WCR	430.98	389.31	41.67	362.36	26.95
WR	418.33	429.89	-11.56	412.34	17.55
Total	**6000.76**	**5836.08**	**164.67**	**5626.78**	**209.30**

.Annexure – III (Para 5.1.7.7)

UMLCs not eliminated after completion of upgradation works (position as on 31st March 2015)

Railway	Number of UMLCs involved	Number of UMLCs where infra-structure created for manning but not commi-ssioned	Number of UMLCs where infra-structure created for LUS/ NHS/ ROB but not commi-ssioned	Number of UMLCs where infrastructure created for construction of diversion road to adjacent LC	Cost of the work for up-gradation (₹ in crore)	Number of UMLCs not closed due to public protest	Number of UMLCs not closed due to shortage of manpower	Number of UMLCs not closed for other reasons	Average number of months the infrastructure created remains idle (as on 31st March 2015)
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
CR	0	0	0	0	0.00	0	0	0	0
ECoR	3	0	3	0	7.50	3	0	0	19
ECR	41	41	0	0	11.89	0	41	0	16
ER	7	1	6	0	0.13	7	0	0	NA
NCR	0	0	0	0	0.00	0	0	0	0
NER	0	0	0	0	0.00	0	0	0	0
NFR	3	0	3	0	1.50	0	0	3	2
NR	0	0	0	0	0.00	0	0	0	0
NWR	0	0	0	0	0.00	0	0	0	0
SCR	14	0	14	0	24.59	14	0	0	5
SECR	0	0	0	0	0.00	0	0	0	0
SER	2	1	1	0	12.04	1	0	1	76
SR	9	5	4	0	6.00	4	0	5	19
SWR	7	4	3	0	2.84	3	4	0	45
WCR	0	0	0	0	0.00	0	0	0	0
WR	6	6	0	0	3.12	0	6	0	3
Total	**92**	**58**	**34**	**0**	**69.61**	**32**	**51**	**9**	**11**