Report of the Comptroller and Auditor General of India

for the year ended March 2014

Laid in Lok Sabha/ Rajya Sabha on _____

Union Government (Railways)

No.24 of 2015

(Audit Report Volume II)

TABLE OF CONTENTS

PREFACE

The audit of Ministry of Railways and its subordinate offices is conducted under Article 149 and 151 of the Constitution of India read with Section 13 of the C&AG 's (Duties, Powers and Condition of Service) Act, 1971 and in accordance with C&AG's Regulations on Audit and Accounts.

The Audit Report for the year ended 31 March 2014 has been prepared in two volumes viz., Volume I and Volume II for submission to the President under Article 151 (1) of the Constitution of India.

This Audit Report (Volume II) contains 13 audit observations including four reviews. Matters relating to earlier years which could not be included in the previous Reports and matters relating to the period subsequent to 2013-14 have also been included, wherever considered necessary.

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Abbreviations used in the Report

IR	Indian Railways
CR	Central Railway
ER	Eastern Railway
ECR	East Central Railway
ECoR/E. Coast	East Coast Railway
NR	Northern Railway
NCR	North Central Railway
NER	North Eastern Railway
NFR/NEFR	Northeast Frontier Railway
NWR	North Western Railway
SR	Southern Railway
SCR	South Central Railway
SER	South Eastern Railway
SECR	South East Central Railway
SWR	South Western Railway
WR	Western Railway
WCR	West Central Railway
RPU	Railway Production Units
DLW	Diesel Locomotive Works
CLW	Chittaranjan Locomotive Works
ICF	Integral Coach Factory
RCF	Rail Coach Factory
DMW	Diesel Modernization Works
PAC	Public Accounts Committee
FA&CAO	Financial Advisor and Chief Accounts Officer

Overview

The Audit Report for the year ending March 2014 is divided into two volumes viz., Volume I and Volume II. Volume I of the Report comprise five chapters containing audit findings related to three departments viz., Traffic – Commercial and Operation; Electrical – Signalling and Telecommunication units; Mechanical – Zonal Headquarters/ Workshops/ Production Units; and Public Sector Undertakings of Indian Railways including the chapter on Introduction. Volume II of the Report contains audit findings related to Engineering department of Indian Railways.

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.

The total expenditure of the Civil Engineering Department during the year 2013-14 was ₹ 17665.74 crore. During the year, apart from regular audit of vouchers and tenders, 1313 offices of Engineering department including Construction Organization of the Railways were inspected by Audit.

This 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 2014. It includes four reviews conducted across Indian Railways and nine paragraphs pertaining to individual zones.

Some of the important findings included in this Report are given below:

Chapter 1 – Review on 'Maintenance of Bridges in Indian Railways'

Across Indian Railway, there were over 1.36 lakh railway bridges, which constitute an essential part of the Railway network. The existence of a large number of very old bridges identified as due for rehabilitation/ reconstruction is a concern for safe train operations. Audit reviewed the procedure adopted in Indian Railways for rehabilitation/ reconstruction of bridges. Test check of 102 bridgeworks pertaining to 150 bridges revealed that in 31 bridgeworks, Railway Board took on an average 43 months to sanction the bridgeworks after its identification for rehabilitation. **Moreover, after sanctioning, bridgeworks were completed with an average delay of 41 months. Delay**

in sanctioning and completion of bridgeworks identified for rehabilitation is a threat to human lives and railway assets during operation of train services on these bridges. Delays in completion of bridgeworks also caused continuation of train operation with speed restriction that led to extra operational cost.

Audit also revealed that out of 147 bridges made of Early Steel/ Crew pile/ Cast Iron, considered to be prone to brittleness and to be phased out by end of 2013, 96 such bridges still exist over five Zonal Railways.

Scrutiny of fund allotted for bridgeworks revealed that Budget Grant provided to Zonal Railways was less (average shortfall ₹213.69 crore per year) than that of Budget demanded by Zonal Railways. Further, against the Budget provided for rehabilitation of bridgeworks, average under utilization of ₹60.95 core per year was also noticed by Audit.

The objective of conducting bridge inspection is to assess the condition of bridges and take corrective remedial measures such as maintenance, rehabilitation, rebuilding etc. **Review revealed shortfall in adherence to scheduled inspection of bridges by various levels of inspection authority to the extent of 32.19 per cent. This shortfall may result in a serious bridge condition going unnoticed.**

Chapter 2 – Review on 'Procurement and Utilization of Track Machines in Indian Railways'

Indian Railways runs 7000 Passenger trains and 4000 Goods trains per day over 103642 KM of total Broad Gauge (BG) track. Saturated line capacity has posed a challenge to maintain the track fit and safe within the limited maintenance blocks. Moreover, technology advancement of track structure has necessitated switching over from manual maintenance to mechanised maintenance. Track machines of various types are being used for performing activities such as tamping of track (packing of ballast below sleepers) and cleaning of ballast, stabilizing of track, laying and handling of rails/sleepers/points and crossings etc. Maintenance of track was being carried out by 743 track machines available with the Indian Railways as of March 2014.The projection of requirement of track machines in the Master Plan 2010-20 lacked accuracy as it did not take into account the trend of actual growth of track and adoption of tamping cycle as provided in the manual of Indian Railways or based on Track Geometry Index (TGI) criteria. Incorrect assessment of workload in Zonal railways led to excess procurement of 43 tamping machines and 27 Dynamic Track Stabilising machines and short procurement of 91 machines (39 Ballast Cleaning Machines, 8 Shoulder Ballast Cleaning Machines and 34 T-28 machines). Targets fixed by Railway Board for working of track machines were not need based. Targets were fixed either in excess of or less than the requirement. Railway Board failed to frame a comprehensive action plan for indigenous development of track machines as envisaged in vision 2010-20 document.

Chapter 3 – Review on 'Provision and utilization of Direction and General Charges provided in Works estimates of Construction Organization in Indian Railways'

Each estimate of major work/projects carried out in Indian Railways has provision of Direction and General (D&G) charges to cover the cost of staff engaged and office expenses for execution of work/project. The Railway Board has fixed yardsticks for (a) provision of D&G charges in various works estimates as a percentage of estimated cost of work and (b) creation of Gazetted posts indicating the works to be handled by each post holder in monetary terms. These posts are in addition to the permanent and temporary posts sanctioned for the Indian Railway. The yardsticks for creation of Gazetted posts including Higher Administrative Grade (HAG), Senior Administrative Grade (SAG), Junior Administrative Grade (JAG), Senior Scale (SS) and Junior Scale/Group "B" have been prescribed by the Railway Board. The overall expenditure on work charged establishment should be within the prescribed establishment component of D&G charges. It was observed that the Railway Board has prescribed a flexible system linking the creation of posts to provision of funds under ongoing/sanctioned capital works. **Disparity in estimation of cost of staff for creation of work charged posts in Zonal Railways had resulted in understatement of capital expenditure to the tune of ₹ 1327.59 crore during 2011-14, which impacts the availability of funds for execution of works and delay/reduction in scope of work.** Audit noticed that during the period of review (2011-12 to 2013-14) expenditure beyond available provisions in the work estimates were booked to the extent of ₹ 2206.43 crore and ₹ 304.84 crore under various heads of D&G charges leading to reduced fund availability for the work/excess over sanction to that extent.

Chapter 4 – Review on 'Management of vacant land in Indian Railways'

Land is an important and permanent asset of Indian Railways (IR). IR owned owner of 4.59 lakh hectares of land (March 2014). Out of this, 47340 hectare of land had not been put to any use (vacant land- 46409 hectare and encroached land- 931 hectare). IR requires an efficient management to watch safe custody of land available with them and also the land encroached by ensuring clear title, prevention of encroachments and early removal of encroachment of vacant land. This requires maintenance of accurate Land Records. A review of the records of Indian Railways for 2011-14 revealed that out of 16 Zonal Railways, separate Land Management Cells (LMCs) to keep and maintain land records had not been set up in headquarters office of three Zonal Railways and in 37 Divisions of 13 Zonal Railways. Only three Zonal Railways had LMCs in all of their Divisions. Most of the staff posted in LMCs in Divisions was neither trained to deal with land issues nor exclusively deployed on the job resulting in deficient maintenance of land data/ records besides improper monitoring of vacant land. **Four *per cent* of total land plans were missing and out of available land plans (16 *per cent)* had not been authenticated by State Authorities and 20 *per cent* land plans had not been digitised.** Out of 16 Zonal Railways, the records connected with land mutation were available in eight Zonal Railways only and there too, only 48

per cent land plans were mutated. In respect of basic records such as Land Record Register (LRR), Land Boundary Verification Register (LBVR) and Encroachment Inspection Register (EIR) to be maintained at Zonal headquarters/ Railway Divisions/ field units of Railway Divisions, it was observed that LRR were not being maintained in 37 out of 68 Divisions. The maintenance of LBVR and EIR was also not proper over the IR. Construction of boundary walls along vacant land to avoid encroachments was not well assessed and planned. **Details of encroachments were not being maintained, the process for their removal was very slow and efforts made for removing encroachments,** under Public Premises (Eviction of Unauthorised Occupants) Act, 1971 were inadequate as encroachment of Railway land was a continuous process. The monitoring by IR and joint inspections by IR and State Authorities for managing encroachment was not found to be adequate.

Chapter 5 – Paragraphs related to Engineering department of Indian Railways

Paragraph 5.1 - Poor planning in construction of railway quarters led to avoidable lease payment

Consequent upon formation (October 2002) of ECR, Hajipur, RB sanctioned (2003) an amount of ₹78.88 crore for setting up the new zone, including purchase of land for construction of staff/ officers quarters. Audit revealed poor planning/ indecision of ECR Administration in acquiring land and poor contract management in construction of quarters. This resulted in delay in construction of quarters in addition to avoidable extra expenditure of ₹45.26 crore. Audit further revealed that ECR could construct only 217 quarters out of 604 quarters, 10 years after their sanction (2005). Due to delay in construction of quarters, ECR Administration had to bear an expenditure of ₹18.64 crore from 2010-11 to 2014-15 (December 2014) towards payment for leased accommodation to officers/staff posted in ECR. Besides, ECR had to forfeit ₹1.23 crore out of deposit paid to District Land Authority Officer (DLAO), Hajipur due to indecision on their part in the acquisition of land.

Paragraph 5.2 - Unfruitful expenditure on construction of substructure of a Railway bridge

Construction of a new Broad Gauge (BG) railway line (4.84 km) between Canning and Bhangankhali stations (sanctioned cost ₹123.71crore) required acquisition of 18.36 hectares land. To expedite the land acquisition process, Railway Board decided to take up the project as a 'Special Railway project' (March 2010). Railway could not acquire the land (December 2014) due to 191 encroachments. However, Construction Organisation of Eastern Railway (COER) awarded (October 2010) a contract for construction of foundation and sub-structure of a bridge over River Matla along the proposed new line which had been completed in March 2014 (cost- ₹ 46.20 crore). But, the work for construction of the approaches at both the ends could not be taken up due to non-availability of land. The completion of project in near future seems to be uncertain as no efforts for the removal of encroachments/ re-habilitation of land owners had been made. The award of a contract without ensuring site clearance, in violation of Railway Board's extant orders of August 1980 and

April 2010, resulted in an infructuous/ unfruitful expenditure to the extent of ₹46.20 crore. Also, the land could not be acquired though it was a reason to declare the project a Special Railway Project.

Paragraph 5.5 - Deficient planning of SER Administration for procurement of water led to unfruitful expenditure

Due to lack of foresight of the SE Railway Administration in planning the Water Supply Project for the Kharagpur railway settlement the project has been completed only in parts, even 15 years after it was conceptualized. Provision of both raw and filtered water to the users at Kharagpur railway settlement could not be ensured though an amount of ₹15.30 crore (₹ 11.38 crore incurred on Radial Collector Well, pipe line, pumps, etc and ₹3.92 crore on sinking and fitting Deep Tube Well at 28 locations) was spent on the project.

Paragraph 5.6 - Non-utilisation of Water recycling plants (WRPs) and consequent avoidable expenditure on water charges

In order to reduce the dependence on Chennai Metro Water Supply and Sewerage Board (CMWSSB) and to minimize the cost of water charges, it was decided (November 2007) to install WRP at Coach Depots at Basin Bridge and Gopalsamy Nagar of Chennai Division of SR. Audit revealed failure of SR Administration to comply with rules in connection with verification of credentials and financial ability of the contractor leading to subsequent termination of contracts of civil works and delay in completion of project of commissioning of WRPs. As a result, proposed savings in water charges of ₹10.69 crore could not be achieved and investment of ₹2.83 crore for installation of WRPs at the two depots of SR remained unfruitful.

Paragraph 5.8 - Delay and Cost overrun due to award of contract without site clearance and improper planning

A major portion of land along the proposed New Broad Gauge line from Deoghar to Sultanganj (116.48 km) had forest land that required clearance of the Forest department. Although this fact was known to ER Administration since August 2000, they approached Forest department for the required clearance only in August 2004. They had awarded, between September 2002 and April 2003, three small contracts (total contract value ₹12.63 crore) which could not be completed for want of forest land and had to be short-closed (February 2006). For residual work, contract was awarded in June 2007 but without getting clearance from Forest department. Railway finally got the clearance of Forest department in July 2010 i.e. eight years after the award of first contract. Pending clearance from the Forest department COER executed the total work in piecemeal manner by carrying forward the residual work to subsequent tenders that took substantial time in their finalization and also resulted in cost overrun to the extent of ₹ 12.38 crore. Also, the contracts awarded by ER Administration (first between September 2002 and April 2003 and then in June 2007) were prior to clearance of Forest department which was in violation Railway Board orders (1980) to award contract only after ensuring the availability of site for work clear from all obstacles.

Chapter 1 - Review on 'Maintenance of Bridges in Indian Railways'

Executive Summary

Across Indian Railways, there were over 1.36 lakh railway bridges, which constitute an essential part of the Railway network. The existence of a large number of very old bridges identified as due for rehabilitation/ reconstruction is a concern for safe train operations. The Corporate Safety Plan (CSP) of IR (2003-2013) envisaged progressive rehabilitation/ rebuilding of bridges over IR on condition basis by providing funds through normal plan outlay. The CSP also focused on the need for modernizing bridge management system – modernization of inspection, and maintenance of bridges.

The review was conducted to see whether the mechanism for identification and planning for rehabilitation/ reconstruction of railway bridges was effective and efficient; and rehabilitation of bridges was carried out as envisaged in the Corporate Safety Plan. It was also seen whether inspections for maintenance of bridges were adequate and efficient.

Some of the key audit findings discussed in this review are mentioned below:

- During test check of 102 bridgeworks pertaining to 150 bridges, Audit noticed that in 31 bridgeworks, Railway Board took on an average 43 months to sanction the bridgeworks after its identification for rehabilitation.
- Railway Board fixes targets for rehabilitation of bridges based on the proposal and monetary limit provided for the Zone. During the last four years (2010-11 to 2013-14), as against the target of 3433 bridges for rehabilitation, Audit noticed shortfall in achievement of target (245 bridges) in nine zones ranging between 2 bridges in WR and 80 bridges in NR.
- While across IR, bridgeworks for rehabilitation of all the three bridges of category I and 45 bridges of category II[1] were sanctioned by Railway Board during 1999-2000 to 2012-13, in respect of other category (where bridges are marked for major/special repair or routine maintenance during inspection), bridgeworks of 598 bridges (13.20 per cent) out of 4529 bridges, were yet to be sanctioned by Railway Board (March 2014).
- Out of the bridgeworks of 3979 bridges, sanctioned by Railway Board, bridgeworks of 710 bridges (three of category I, four of category II and 703 of other category) remained to be completed as on March 2014 after expiry of prescribed period of one/four years (one year in case of Category I and four years in case of Category II and others). In test check of 102 bridgeworks (150 bridges), average delay of 41 months, ranging between 8 months (SECR) and 105 months (ECR), was noticed.
- Delays in sanctioning of bridgeworks and completion of sanctioned bridgeworks resulted in operation of train services with speed restriction.

[1] Category I and II are assigned during the inspection of bridges based on the condition of bridges. Category I bridges required to be rehabilitated within one year and category II brides should be rehabilitated in programmed basis.

Instances of continued operation of speed restriction were noticed on 87 bridges of 13 Zones ranging between four to 591 months. Audit assessed an extra expenditure of ₹103.40 crore on account of operational cost due to continuation of speed restrictions.

- Bridges made of Early Steel/ Crew pile/ Cast Iron were considered to be prone to brittleness and hence had to be phased out by end of 2013 as per CSP projections. The review revealed that as on March 2014, out of 147 bridges due to be phased out, 96 bridges of these types still existed over five Zonal Railways.
- Budget Grant for bridgeworks was provided to Zonal Railways annually under Plan Head 32 of Major works. Review revealed that Budget Grant provided to Zonal Railways for bridgeworks was less (average shortfall ₹213.69 crore per year) than that of Budget demanded by Zonal Railways. Review further revealed that even Budget provided was not fully utilized. Average under utilization of ₹60.95 crore per year was noticed in the review.
- The objective of conducting bridge inspection is to assess the condition of bridges and take corrective remedial measures such as maintenance, rehabilitation, rebuilding etc. Review revealed shortfall in adherence to scheduled inspection of bridges by various levels of inspection authority to the extent of 32.19 per cent. This shortfall may result in a serious bridge condition going unnoticed.
- In its recommendations, CSP envisaged use of modern techniques during inspection of bridges. As such, Railway Board prescribed use of 20 different modern equipments during inspection. Review revealed that over IR, though 290 equipments have been procured in different Zones, utilization of these equipments during inspection of bridges was only 7.07 per cent which defeated the purpose of strengthening of inspection techniques.

The above demonstrates the casual approach on part of Railways in sanctioning/executing and monitoring of bridgeworks. This resulted in delay in execution of bridgeworks that were identified for rehabilitation leaving the possibility of compromising passenger safety during operation of train services on these bridges. Railways need to ensure an effective monitoring system to be in place for timely execution and completion of bridgeworks.

1.1 Introduction

Across Indian Railways (IR), there were over 1.36 lakh bridges out of which, 741 were classified as important, 10,944 as major and 1,25,035 as minor bridges[2].

As per Indian Railway Bridge Sub-structure and Foundation Code, important bridges are those which have a linear waterway of 300 meters or a total waterway of 1000 sqm. Major bridges have a total waterway of more than 18 m. or which have a clear opening of more than 12 m or more in any span. The rest are minor bridges.

[2] Source – Indian Railway Yearbook 2012-13.

Out of 1,36,728 bridges over IR network, 36,470 (26.67 per cent) were over 100 years old of which 6,680 bridges located in eight zones[3] were over 140 years, 14,324 bridges were 81 to 100 years old, while 15,637 bridges were 61 to 80 years old. The balance 70,297 bridges were less than 60 years old.

The Corporate Safety Plan (CSP) of IR (2003-2013), inter-alia envisaged planned rehabilitation of bridges duly providing funds through normal outlay. The CSP also focused on the need for creating a bridge management system, modernization of inspection and maintenance of bridges etc.

A High Level Safety Review Committee headed by Shri Anil Kakodkar recommended (February 2012) instrumentation of all bridges and use of advanced scientific measurements and inspection for condition assessment. In this backdrop, a review was conducted on maintenance of bridges in IR.

1.2 Previous Audit Report

A review on Rehabilitation/ Rebuilding/ strengthening of Railway Bridges was printed as Chapter IV in Comptroller and Auditor General of India (C&AG's) Report (No.9 of 2003), wherein Audit commented on substantial delays in rehabilitation of bridges identified for rehabilitation for both categories of bridges (Category I & II)[4]. Shortfall in scheduled inspections was also noticed in audit. In its Action Taken Note, Railway Board stated (June 2008) that rehabilitation of distressed bridges other than category I would normally require three to four years for completion after sanctioning bridgeworks. All bridgeworks of over four years after sanction are specially monitored upto highest level. Audit again reviewed the status of maintenance of bridges over IR with the following audit objectives.

1.3 Audit objectives

The review on 'Maintenance of Bridges on IR' was conducted to see whether-

- the mechanism for identification and planning for rehabilitation/ reconstruction of railway bridges was effective and efficient
- rehabilitation of bridges was carried out and completed as envisaged in the Corporate Safety Plan 2003-2013
- inspection and maintenance of bridges was adequate and efficient

1.4 Audit criteria

Following were used as criteria for conducting audit:

- Provisions in Indian Railway Bridge Manual (IRBM) regarding maintenance/ rehabilitation/ reconstruction of distressed bridges
- Action Taken Note on Audit Para on 'Rehabilitation/ rebuilding/strengthening of Railway Bridges in Indian Railways' (Railway Audit Report No.9 of 2003).
- Indian Railway Finance code Vol.I (Para No.219).
- Underwater Inspection (UWI) Booklet issued by Indian Railway Institute of Civil Engineering (IRICEN) in regard to UWI.

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[3] ECR, ER, NCR, NR, SER, SR, WCR and WR

[4] Categorization of bridges was done on the basis of ORN number marked for the bridge during inspection as discussed in Para 1.7.1.1. ORN No. 1 belong to Category I, No.2 belong to Category II bridges

- Projections made in Corporate Safety Plan (CSP) and Indian Railway Modernization Plan (IRMP) regarding rehabilitation/ rebuilding of identified bridges and modernization of repairs and rehabilitation activities.
- Recommendations of High Level Safety Review Committee headed by Anil Kakodkar in its report published in February 2012.
- Instructions issued by RB from time to time in relation to maintenance/ rehabilitation/ reconstruction of railway bridges

1.5 Audit scope, methodology and sample

Records of Railway Board, Civil Engineering department of Zonal Railway and of the Construction Organization of 16 Zonal Railways relating to reconstruction/ rehabilitation of bridges, inspection and maintenance etc. were reviewed. Records available in the offices of Deputy Chief Engineer/Construction, Assistant Divisional Engineer, Senior Section Engineer/ Permanent Way, Senior Section Engineer/ Bridges and Senior Section Engineer /Works of all the Zonal Railways were also reviewed by Audit. In the context of maintenance of bridges, identification is carried out in terms of bridges, whereas the proposals and sanctions for the rehabilitation/ reconstruction are given in terms of bridgeworks. One bridgework may contain one or more bridges.

For conducting audit, all the new bridgeworks sanctioned as well as bridgeworks in progress during the review period were taken into account. The total population of bridgeworks across the 16 zones was 225 and these pertained to 476 bridges. The details of sample selection are as under:

- For review of bridgeworks including system of identification for rehabilitation/ reconstruction over IR, 102 bridgeworks comprising 150 bridges were selected;
- For adherence to inspection/ maintenance schedule, two divisions in each zone were selected to review the inspection done by one Sr. Section Engineer (Bridges), one Sr. Section Engineer (works), one Sr. Section Engineer (P.Way) and one Assistant Divisional Engineer in each division;
- For adherence to Underwater Inspection schedule, audit selected two Sr. Section Engineers (Bridges) in each zone

The Review was issued to Railway Board on 27-01-2015. Railway Board's response has been received on 27-04-2015 and suitably incorporated in the review. Responses of Zonal Railway Administration have also been incorporated in the Para. Exit conferences were conducted with respective Zonal Railway Administrations between September 2014 and January 2015. An Exit conference was also conducted with officers of Railway Board on 16 April 2015.

1.6 Audit findings

1.6.1 System of identification and planning for rehabilitation/ reconstruction of bridges

The process of identification of bridges for rehabilitation /reconstruction is specified in the Indian Railway Bridge Manual, which is as under:

Bridges are subjected to Inspection by various levels of officials in the Civil Engineering department of Zonal Railway. Any Railway Bridge has seven components viz.,

(i) foundation and flooring,
(ii) substructure,
(iii)training and protective works,
(iv)bed blocks,
(v) bearing and expansion arrangements,
(vi)super structure and
(vii) track structure.

In a bridge, one or more of these components may be many in number. On assessing the condition of each member of these components during inspection, the inspecting official assigns CRN (Condition Rating Number) for each member of these seven components of the bridge. The CRN number ranges from 0 to 6 where,

1 denotes condition warranting immediate rehabilitation/ reconstruction;
2 denotes condition requiring rehabilitation/ reconstruction on programmed basis;
3 denotes condition requiring major/ special repairs;
4 denotes condition that requires routine maintenance;
5 denotes sound condition;
6 denotes not applicable; and
0 denotes component not inspected.

- For example, if a bridge had two Piers, three spans and two bed blocks, 7 CRNs are assigned, like 4,0,4,3,5,3,4. The ORN (Overall Rating Number) of the Bridge is the least of the 7 CRNs except 0 which in this case is 3 which denotes that bridge requires major/ special repairs. (Para No.1103 of IRBM)
- If the ORN of a bridge is 1, the Bridge would be classified as "Distressed Category-I" which, in terms of Para 504 of IRBM requires to be rehabilitated within a year's time.
- If the ORN of a bridge is 2, the bridge would be notified as "Distressed Category-II" in which case, the bridge has to be taken up for rehabilitation on programmed basis.
- Other bridges assigned a rating of ORN 3 or 4 during inspection by the Railway officials are marked for major/ special repairs or routine maintenance respectively.

Further, as per Para 504 of IRBM for rehabilitation / reconstruction, the bridges were classified[5] as:

1. Distressed bridges – Category-I – required to be rehabilitated within a period of one year.
2. Distressed bridges – Category-II – required to be rehabilitated within a period of four years on a programmed basis.

[5] Source – Indian Railway Bridge Manual.

3. Bridges other than distressed bridges requiring rehabilitation / reconstruction on condition basis.

Railway Board informed (November 2014) that vide advance correction slip No.30 issued by Railway Board, the above Para was deleted, where provision existed for categorization of bridges as distressed bridges as I, II and others. However, in the revised Para 503, it was stated that rehabilitation of bridges would be done on the basis of ORN number assigned during the inspection giving the priority of the condition of the bridges.

For rehabilitation/ reconstruction works of bridges, the following officers are charged with the responsibilities from identification of bridges for rehabilitation/ reconstruction to final approval as shown in the following diagram.

Table 1.1

Responsibility level	Responsibility assigned
Field Level	
Sr. Section Engineer (SSE) (Bridges) Sr. Section Engineer (Works) Sr. Section Engineer (Permanent Way)	Inspection of bridges and recording of condition rating as 1,2,3,4 etc. by SSE/ ADEN
Divisional Level	
Assistant Divisional Engineer (ADEN) ↓ Divisional Engineer (DEN) ↓ Sr. Divisional Engineer (Sr. DEN) (Co-ordination)	Inspection of bridges with condition rating 1 or 2 or 3 to revise or confirm the rating by the Divisional Engineer. ↓ Prioritization of bridge rehabilitation works by Divisional Administration based on severity of distress. ↓ Preparation of plans by the Divisional Administration for rehabilitation and submitting the same to zonal HQ for approval by competent authority.
Zonal Level	
Chief Bridge Engineer (CBE) ↓ Principal Chief Engineer (PCE)	Shortlisting of proposals by CBE in consultation with PCE and forwarding the same to RB based on condition of bridges but limiting to monetary cap fixed by RB.
Railway Board Level	
Executive Director (Bridges & Structures) ↓ Member Engineer ↓ Chairman Railway Board	Approval of bridgeworks by RB based on priority-listing by zones but limiting to resource available. ↓ Communication of approval by RB to the zones for execution of the rehabilitation work.

From the records of RB (Annual Works programme issued by RB), Audit observed that RB pruned down proposals of bridgeworks submitted by Zonal Railways

keeping in view the monetary resources available for a particular year for bridgeworks over IR.

Audit reviewed the records of Zonal Railways pertaining to proposals submitted by Zonal Railways and sanction of bridgeworks by RB and it was noticed that, during the period from 2010-11 to 2013-14, the ZRs shortlisted recommendations received from field offices and forwarded proposal for 2694 works at an estimated cost of ₹3559.10 crore to RB for approval. As against this, RB approved 1953 bridgeworks (72.49 per cent) estimated to cost ₹2195.85 crore (61.70 per cent).

Audit further observed that-

- The system of identification of bridges for rehabilitation provides that bridges are identified for rehabilitation based on condition assessed during inspection at field level (SSE/ ADEN) and further confirmation by next higher level officials (DEN/ Sr. DEN). Despite this, restricting the proposals (at CBE i.e. zonal level and RB level) on monetary considerations defeats the very purpose of the system of identification. This led to compromising the safety of train services on the bridges, identified for rehabilitation due to sanction not being accorded or delayed sanction.
- A sample check by Audit on 102 bridgeworks pertaining to 150 bridges revealed that, in case of 31 bridgeworks (which included category-I and category-II bridges also), on an average, RB took 43 months to sanction the bridgeworks after identification by the zonal railways.
- The average time taken for sanction of a bridgework was as high as 131 months in NCR followed by CR (57 months), ECoR (55 months), SER (54 months) and average delay of 30 months each in SR and WCR.
- Delay in completion of bridgeworks also caused continuation of speed restrictions on the bridges that led to extra operational cost as discussed in Para 1.6.2.5).

In reply, Railway Board stated that the works proposed for RB's sanction (more than ₹one crore) are examined based on the information furnished by respective zonal railways such as justification of the work, cost of work, existing throw forward, likely bridge allotment, available time allowance etc. They also stated that depending upon the availability of funds and resources, the works required from safety considerations are given topmost priority. The safety of train operations is never compromised. If the corrective/ remedial measures are expected to take a long duration due to complexity of the site situation, etc., suitable safety measure like imposing speed restrictions and keeping such bridge under close watch are taken till the rehabilitation of the bridge.

The above replies cannot be acceptable as Zonal Railways themselves prioritise bridgeworks at CBE/PCE level based on safety considerations identified during the inspection and proposals are submitted to RB accordingly. Further, the works pertaining to the bridges categorised as distressed category-I & II (ORN rating 1 and 2 respectively) took substantial time for sanction and delayed the execution as discussed in Para 1.7.2.2. Imposition of speed restriction has been termed as a remedial measure to ensure safety. But it involves huge additional expenditure on

account of extra operational cost as noticed during a study conducted in SCR. As such, delay in sanctioning of bridgeworks and limiting the proposals of bridgeworks based on financial constraints not only compromise the safe train operations but also result in extra financial burden.

1.6.2 Status of Rehabilitation/ Reconstruction of Railway Bridges

Audit examined the overall position of achievement of targets for rehabilitation/ reconstruction of bridges over IR, the overall status of execution of rehabilitation/ reconstruction of bridges and in detail reviewed the execution of 102 selected bridgeworks (involving 150 bridges). Audit findings in this regard are given in the following sub-paragraphs-

1.6.2.1 Achievement of target for rehabilitation/ reconstruction of bridges

Audit observed that, annual targets were fixed by RB for rehabilitation/ reconstruction of railway bridges for each zone based on the sanction given for bridgeworks and also keeping in view the Budget Grant provided for bridgeworks for the particular year.

Scrutiny of records relating to rehabilitation works carried out over IR as against targets fixed by RB during the years from 2010-11 to 2013-14 as elaborated in **Annexure I** and noticed that-

- Against the overall target of rehabilitation works of 3433 bridges in 16 Zones over IR, 3292 bridges were rehabilitated leaving shortfall of 141 bridges. While in nine zones[6], shortfall in achievement of target (245 bridges) was noticed, in the remaining seven Zones[7], no shortfall was noticed. In five Zones ((CR, ECoR, ER, NFR and NWR), bridges were rehabilitated in excess of the target set for these Zones.
- The shortfall in achievement of target was highest in NER (52.63 per cent) followed by NR (42.78 per cent), WR (23.17 per cent), ECR (22.88 per cent), SR (21.51 per cent).
- The reasons attributed by Zonal Railway Administrations for the shortfall in achievement of targets were, paucity of funds, non-availability of line block, encroachment/ eviction problems involved etc.

In reply RB stated that for the period from 2010-11 to 2013-14, against overall target of 3310 bridges, 3666 bridges have been rehabilitated. However, in the table given in the reply, it was given as progressed against the stated target. As such it is not clear whether all the bridgeworks progressed, as shown in the table, were completed or not. Moreover, the figure calculated by Audit regarding shortfall in achievement of target was based on the data given by the Zonal Railway Administrations during audit.

(a) Overall position of pending bridgeworks

Across IR, three distressed category-I bridges were identified (one in 2002 and other two in July 2009) and all the three bridges were pending to be rehabilitated/

[6] NER,NR,WR,ECR,SR,NCR,SECR,SER and WCR
[7] CR, ECoR, ER, NFR, NWR, SCR, SWR

reconstructed as on 31 March 2014 though as per IRBM provision the works should have been completed within a year of sanction.

In regard to distressed category-II bridges, out of 45 bridges identified[8], four bridges (one each in ER, ECoR, ECR and SECR) remained to be rehabilitated (March 2014) beyond the period of four years after sanction (between 1999 and 2005).

In other than distressed category I- & II category (ORN rating 1 and 2 respectively), there were 4529 bridges over IR. Out of these 4529 bridges, in respect of 3931 bridges, sanction for rehabilitation was accorded by RB as on March 2014. Out of these 3931 bridges for which sanction was accorded, in case of 703 bridges, rehabilitation works were not completed even after four years of sanction as of March 2014.

1.6.2.2 Review of execution of 102 bridgeworks relating to rehabilitation/ reconstruction

The total population of new as well as ongoing bridgeworks relating to the review period was arrived at as 225 which included 476 bridges. Out of this, Audit reviewed 102 bridgeworks (relating to 150 bridges).

Out of 150 bridges included in the 102 bridgeworks selected for check, there was one distressed category-I bridge, eight distressed category-II bridges and 141 bridges in 'others' category.

Out of 102 bridgeworks selected for check, 19 works had not even commenced as of 31 March 2014. These 19 works included eight works, for which sanction was given during 2003-04 to 2011-12 and four works were sanctioned during 2012-13. Execution of the remaining 83 bridgeworks are discussed in the succeeding sub-paragraphs-

(a) Execution of works relating to distressed Category-I Bridges

In terms of Para 504 of IRBM, distressed bridges category-I, which were assigned URN number 1 during the inspection, are to be rehabilitated within one year.

A bridge of category I located in Ernakulam – Cochin Harbour Terminus section of SR was identified in 2002 for rehabilitation and the work was sanctioned in 2002-03. However, the execution of rehabilitation work remained to be completed (March 2014) even after expiry of more than ten years of sanctioning.

Audit noticed that, error in preparation of estimate in the initial stages, problems in acquisition of land from Defence authorities, termination/ foreclosure of two contracts, delay in shifting of service lines etc. caused the delay.

The delay in execution at various stages were as under-

- there was delay of five months due to delay in the finalisation of tender and award of contract,
- change of scope of work after award of contract caused a delay of six months,

[8] Identified during the review period as well as during earlier periods.

- delay in handing over of site free from encumbrances accounted for 22 months time over-run,
- termination and re-award of contracts took 24 months, and
- for various other reasons, there was time loss of 46 months.

Additionally, Audit also reviewed the other two category I bridges, located in Bhavnagar division (Botad –Sabarmati Section) of WR.

These two bridges were identified as distressed category-I in July 2009 by WR officials. RB however accorded sanction for rehabilitation only in 2012-13 i.e., after more than two years of identification. Audit further noticed that works in respect of these bridges were completed in May 2014 and August 2014 i.e. Railway took more than one year to complete the works. Speed restriction was, however, imposed on these bridges in July 2009, which had to be continued till the completion of works in May/ August 2014.

Audit also noticed that on the section (Botad –Sabarmati Section) where these two bridge existed, 10 passenger trains (five Up and five Down direction) were operated daily. As such, delayed sanction and completion of works in case of these bridges clearly indicates non-prioritization which might endanger safety of travelling passengers in addition to the extra operation cost due to imposition of speed restriction.

In case of bridgeworks in SR, RB itself accepted that the said bridge is an important bridge and stated that during execution of work, lot of complications arose such as land acquisition, shifting of utilities, contractual issues which could not be foreseen and were beyond the control of railway administration. RB further stated that depending upon the scope of work and other activities involved, the time required for rehabilitation can range from one year upto several years and in the instant case bridge construction has been completed and will be commissioned shortly. In case of WR, it was contended that the bridgeworks were planned to be taken up in anticipation of gauge conversion work to avoid the duplicity of work and wastage of public money. In view of delay in sanction of gauge conversion project and deteriorating condition of slab, the work was sanctioned in 2012-13 and completed subsequently.

Railway Board's contention that the problems associated with land acquisition, shifting of utilities etc. could not be foreseen and were beyond the control of Railway Administration seem to be an afterthought as RB itself instructed (1972, and from time to time) that all pre-requisites for a work have to be completed before commencing execution of a work. Specifically, land free from encumbrances should be ensured before commencing the work. Further, in case of WR, Railway took more than two years in sanctioning of bridgework of category I bridge i.e. where ORN 1 was assigned during inspection. The response of RB that rehabilitation was delayed due to gauge conversion work only confirms that critical condition of the bridges impacting the safety of the passengers was not given due importance in spite of the fact that 10 passenger trains are running daily on the section.

Moreover, RB's contention that "time required for rehabilitation can be ranging from one year up to several years" is a clear indication that RB has not fixed any specific time frame for execution of such safety related works in the absence of which, accountability at execution level cannot be ensured. With better planning and effective monitoring in execution, the works could be executed within specific time frame.

(b) Execution of works relating to distressed Category-II and "other than distressed category-I & II" bridges

As per para 504 of IRBM, Distressed bridges other than category-I & II are required to be rehabilitated on a programmed basis. RB stated (June 2008) in its Action Taken Note on Audit Para on 'Rehabilitation/ rebuilding/ strengthening of Railway Bridges in Indian Railways' printed in C&AG's Report (No.9 of 2003) that, the rehabilitation/ reconstruction of these category of bridges would be completed within a period of four years after sanctioning of works.

Execution of 82 bridgeworks pertaining to rehabilitation/ reconstruction of eight distressed category-II bridges and 141 bridges of "other than distressed category-I & II" category was reviewed by Audit in detail. In absence of any benchmark mentioned in the IRBM or elsewhere in respect of time to be taken for each activity/ stage of execution of bridgeworks, audit assessed the time taken by Railway Administration in completion of each stage of execution of bridgework. Details of time taken at each stage are elaborated in **Annexure II**. Audit noticed that -

- The average time taken per work in the commencement of work was assessed by Audit as 33 months. Average time taken per work for commencement was highest in ECR (82 months) followed by SR (55 months), NCR (51 months), CR (41 months), WR (37 months), SER (36 months), ER (30 months), WCR (15 months), NR (11 months) and so on.
- Average time taken per work for finalization/ approval of plans and drawings was seven months per work (NWR, ECoR, WCR, NR and NCR).
- Average time per work taken in the finalization of tenders and award of contract was 12 months in CR, NWR, NCR, SWR, ECoR, NR, ER and WCR.
- Average time lost per work was assessed by Audit as three months due to award of contract without properly assessing the capability of contractor (SR and SER). Termination and re-award of contract led to average loss of five months per work in ECR, NR, ER, SR and WCR.
- Change in the scope of work after award of contract resulted in an average time loss of 9 months per work in NCR and NR and two months per work in NFR.
- Failure to hand over site free from encumbrances to contractor caused average delay of one month per work in NR.
- Paucity of funds led to average delay of two months per work in NWR, ECoR and WCR.

- Non-availability of line block caused an average delay of two months per work in SR and SER.
- In all, in the 82 bridgeworks commenced and in-progress during the review period, execution suffered an average delay of 41 months per work on various counts. The cost overrun in these 82 works was assessed at ₹192.69 crore.

The above findings clearly showed that, poor planning and improper contract management on the part of Zonal Railway Administrations caused inordinate delay in execution of rehabilitation/ reconstruction of bridges at various stages of execution culminating in the overall delay in execution of rehabilitation works.

Railway Board contended that the rehabilitation/ rebuilding may take several years and it cannot be generalized. Some isolated cases may take more than four years also because of reasons beyond control of the railway administration.

Railway Board's contention that bridge rebuilding /rehabilitation may take several years is a general reply and is not acceptable. For any work there should be a specific time frame and executive in charge should be accountable for the delay. Moreover, bridgeworks are important works and delay in execution of bridgeworks pertaining to bridges identified for rehabilitation are threats to loss human lives and railway assets. Further, "Reasons beyond the control of Railway administration" is not an acceptable statement, as Railways are sole responsible for timely completion for bridge rehabilitation works, identified solely during the inspection at field level. With better planning and effective monitoring during execution of bridgeworks, Railways should be able to complete works within specific time frame.

RB should fix specific time frame for each milestone in the execution of bridgeworks and also for completion of the bridgework as a whole so as not to compromise on the safety of human life and railway assets.

1.6.2.3 Rehabilitation/ reconstruction of bridges within their codal life

It was noticed in Audit that, during conduct of inspection by zonal Railways during 2010-11 to 2013-14, 42 bridges were found to have become due for rehabilitation within their codal life. Out of these 42 bridges, 37 were located in SWR alone and in other five zones (NR, ECoR, SER, SR and WR) there was one bridge in each zone. This pointed to premature rehabiliatation necessitated due to poor maintenance.

As many as 42 bridges were identified for rehabilitation/ reconstruction within their codal life over IR.

In the case of SR, Railway Administration admitted (July 2014) that more frequent painting of girders was necessary considering the adverse environmental condition to avoid heavy corrosion. This implies that, there was inadequacy in maintenance of the bridge which resulted in premature rehabilitation.

In regard to SWR, Audit observed on review of zonal Railway records that, rehabilitation works were carried out to strengthen the bridges by re-girdering and replacement of steel girders to meet RDSO standards. Audit noticed that out of 37 bridges identified for rehabilitation within codal life, rehabilitation works in respect of 11 bridges were completed by March 2015 and works in respect of 26 bridges

were in progress. From the review of records of SWR Administration, it was noticed that delay in completion of bridgeworks in these cases was mainly due to delay in fabrication of girders and non-supply of girders by Civil Engineering Workshop at Arakkonam of SR.

In respect of NR, ECoR, SER and WR, increased water flow, washing away of bridge girders in one case, use of old girders during gauge conversion etc. were stated by the zonal Railways as reasons for premature rehabilitation.

Railway Board stated that these cases of rehabilitation within the codal life are not due to poor maintenance but other reasons such as increased loading standards, in-adequate water way due to change of pattern of flow in the catchment area, excessive corrosive conditions etc.

The above reply is contradictory in itself as on one hand it was stated that premature rehabilitation was not due to poor maintenance, on other hand one of the reasons stated was excessive corrosion. Continuous excessive corrosion needs to be tackled by effective measures of maintenance. In IR, there are 42 bridges in the system, identified for premature rehabilitation. These bridges need to be rehabilitated as existence of such brides is a threat to safe train operation on these bridges.

1.6.2.4 Replacement of Early Steel/ Cast Iron/ Screw Pile Bridges

Bridges constructed prior to 1905 were of Early Steel and stated to contain higher proportion of sulphur, making it prone to brittleness. These bridges were referred to as 'technically obsolete bridges'. The Corporate Safety Plan (CSP) envisaged that, all Early Steel/ Cast Iron Pile bridges would be phased out of the system by the end of the CSP viz., by 2013 duly prioritizing these bridges during rehabilitation/ reconstruction. The Commissioner of Railway Safety in October 2006 required that, all Early Steel/ Cast Iron/ Screw Pile Bridges be phased out of the system. Audit, however, observed that no specific time frame was fixed by the RB to phase out the obsolete bridges.

Audit noticed that, out of 147 technically obsolescent bridges identified in five zones (NFR, NR, WR, ER and NWR) during the review period or before, 96 remained to be rehabilitated as of March 2014. Audit further noticed that -

- NFR alone had as many as 69 technically obsolete bridges identified for rehabilitation as on March 2014, which remained to be rehabilitated.
- In ER, out of the 11 such bridges identified for rehabilitation, only four have been sanctioned whereas rehabilitation of one bridge could be completed as on March 2014.
- In WR, during the review period, out of 23 such bridges, works in respect of 14 bridges were sanctioned (thee in 2010-11 and 11 in 2013-14). Rehabilitation of three works, sanctioned in 2010-11 was completed in June 2014 and works sanctioned in 2013-14 were targeted to be completed during 2014-15.

CSP emphasized the need for phasing out of these bridges by 2013. But even at the end of 31st March 2014, 96 bridges still remained to be reconstructed which is a threat to the safety of lives of Railway users and Railway property.

Railway Board stated that the work of technically obsolete bridges has been executed keeping in view the availability of funds, the condition of the bridge. They further stated that the obsolete bridges, falling on Broad Gauge route in five Railways (NR, WR, ER, NFR and WCR) would be replaced by March 2017 and other bridges, falling in Meter Gauge route of NFR would be replaced in gauge conversion work.

The target fixed by Railway Board for replacement of technically obsolete bridges, falling on Broad Gauge route as March 2017 was not as per the recommendations of CSP, wherein it was envisaged that these bridges would be phased out by 2013. Moreover, Railway Board has not fixed any target for replacement of 69 such bridges on Meter Gauge route in NFR. Further, it is pertinent to mention here that at the time of inspection, these bridges were declared technically obsolete bridges, containing higher proportion of sulphur, making bridges prone to brittleness. As such, keeping in view, the safety of bridges, these need to be replaced in a time bound manner.

1.6.2.5 Extra expenditure due to continued operation of Speed Restriction

In the Corporate Safety Plan (CSP), it was mentioned that, in the rehabilitation/ reconstruction of bridges, priority would be assigned to bridges on which permanent speed restriction was imposed. Para 505 of IRBM narrates in detail, the circumstances under which permanent speed restriction could be ordered by zonal Railways subsequent to inspection of bridges. Permanent speed restriction is speed restriction expected to last for long duration compared to temporary speed restriction which is normally operated for few days or weeks.

Continued operation of services with permanent speed restriction results in extra expenditure on account of high operation cost. Besides, running of services on technically obsolete bridges is a safety hazard.

Audit assessed the impact of imposition of permanent speed restriction on bridges in all cases over IR and noticed that -

- Instances of continued operation of speed restriction were noticed on 87 bridges of 13 zones[9]. Of which, 31 bridges were located in important (A, B, C) routes. Out of these 31, three bridges were distressed category-II and 28 bridges were other than distressed category-I & II.
- In these bridges, Permanent speed restriction was continued to be operated for periods ranging from four to 591 months beyond the admissible period of 12 months in case of distressed category-I bridges and 48 months in case of other bridges.
- Out of these 87 bridges, 75 bridges remained to be rehabilitated as on 31 March 2014.

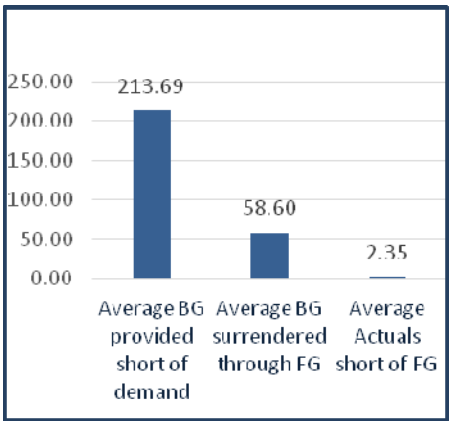
[9] ECoR,ECR,ER,NCR,NER,NFR,NR,SCR,SECR,SER,SR,SWR and WR

- The extra expenditure due to continued operation of speed restriction on these bridges, located on important routes (A, B and C) alone[10], worked out to ₹ 103.40 crore[11] during 2010-11 to 2013-14.

Railway Board stated that the speed restrictions on bridges are being imposed within available engineering time allowance. The extra expenditure due to continued operation of speed restriction is notional in nature.

The above reply is general, as Railway Board did not frame any specified time frame for continuation of speed restriction. Audit assessed continuation of speed restrictions as long as 591 months due to delay in execution of bridgeworks. Further, the argument that "the figure arrived at as extra expenditure is notional" is not acceptable. It is a known fact that running of trains with speed restriction affects line capacity, turn-round of rolling stock etc. and thus results in extra expenditure besides the line congestion which could be avoided if execution of works is completed in time bound manner. Audit assessment for extra expenditure was based on the study conducted in SCR in 1989-90.

1.6.2.6 Allotment and Utilisation of Funds for Bridge works



While paucity of funds can affect the momentum of execution of important safety works, poor planning and bad contract management on the other hand could lead to under/ non-utilisation of budget allotment.

The CSP proposed rehabilitation/ rebuilding of about 600 bridges annually on condition basis. CSP also aimed at rehabilitation of about 19,000 bridges on technical obsolescence basis during the CSP period (2003-2013). Provision of funds for rehabilitation was to be through normal plan outlay.

In regard to bridgeworks, Budget Grant is made through the Railway Budget under Grant Number 16 – Plan Head 32 for each zonal Railway. The BG so made can be modified through demand for Final Grant (FG) made subsequent to conduct of 'August Review' by the zonal Railways.

The BG allotted to individual zonal Railways is related to the works programme approved for the particular zonal Railway. Audit assessed allotment and utilization of fund over IR as per details given in **Annexure III**. As against 2432 works proposed by all zonal Railways at a cost of ₹ 3453.52 crore during the review period, RB sanctioned 1691 works for a value of ₹ 2090.27 crore.

During the review period, the average Budget Grant (BG) provided per year was short of average BG demanded per year, to an extent of ₹ 213.69 crore (38.65 per cent) in IR[12]. Provision of less Budget Grant than that demanded ranged from

[10] 31 bridges (12 in SER, nine in SCR, four in WR, three in SR, two in ECR and one each in ECoR, ER, NCR)
[11] Calculation of extra expenditure was based on figures assessed in a Cost Study conducted in August 1991 by SCR Railway Administration.
[12] Position in respect of SER was awaited.

₹0.73 crore (in respect of WCR) to ₹53.41 crore (in respect of ECR). The magnitude of short provision of BG has the effect of slowing down the momentum of progress of bridge works.

While BG provided was short of demand, on the other hand, the total average BG surrendered per year through the process of demand for less Final Grant (FG) across zones was ₹ 58.60 crore (17.28 per cent). The average surrender per year through less demand for FG was highest at ₹10.47 crore in SER followed by ER at ₹ 7.29 crore, WR at ₹7.19 crore, SCR at ₹6.36 crore and so on. This apart, average under-utilsation of funds per year by way of less actual expenditure was ₹ 2.35 crore ranging from ₹0.08 crore by NFR to ₹ 4.95 crore by ECR.

It is evident from the above that, on one hand paucity of funds was quoted as one of the main reasons for slow progress of bridgeworks and shortfall in achievement of target for rehabilitation/ reconstruction of bridges, on the other hand, BG provided was not utilised to the tune of ₹ 60.95 crore per annum.

Railway Board stated that funds have been allotted in bridgeworks based on overall availability of funds. They further stated that the funds have been almost fully utilised. During the last four years (2010-11 to 2013-14), against the Revised Estimates (RE) of ₹1388.31 crore, FG of ₹1402.85 crore was demanded and ₹1385.16 crore was actually utilised.

The above contention is not acceptable as the figures arrived at by Audit have been collected from various zonal railways from the certified appropriation accounts. Further, Railway Board has not given the data about BG provided to Zones. making a demand for less FG compared to BG allotted amounts to surrender and utilization of less funds. As per the details given in **Annexure III**, audit noticed that there were large scale surrenders/ under-utilization of funds in several zonal railways.

The quantum of surrender/ under-utilsation of funds provided through the budgetary processes indicate improper planning/ execution of bridgeworks.

1.6.2.7 Fabrication of girders for bridgeworks by Civil Engineering Workshops (CEWs)

There were 10 Civil Engineering Workshops (CEWs)[13] over Indian Railways to cater to the need of zonal railways of girders for railway bridges. These workshops fabricated girders of various types[14] for use in construction of bridges.

There was shortfall to an extent of 66.09 per cent in the supply of steel girders by CEWs in CR, ECR, NR, SCR and SR during 2011-12 to 2013-14.

Audit examined the position of compliance to indents placed by zonal Railways for supply of bridge girders by these CEWs for the period from 2010-11 to 2013-14. It was noticed that, as against the indent placed for

[13] One each in SR, CR, SER, ECR, NER, NFR, WR, SCR and two in NR.
[14] Riveted type plate girders, welded type plate girders, shallow type girders, semi-through girders and open web girders.

fabrication of 45847.630 MT of steel girders meant for use in the rehabilitation/ reconstruction of steel bridges, the Workshops turned out 12359.891 MT of steel girders. i.e. a shortfall of 73.67 per cent.

During review, a case of defective fabrication of bridge girders by the CWE at Arakkonam of SR was noticed. The CEW of SR accepted (May 2008) an order from NER for fabrication and supply of ten spans of riveted type open web girder for use in the construction of a bridge (Bridge number 409) across Yamuna river as part of gauge conversion of Bareilly- Kasganj section of NER. The fabricated girders supplied (by March 2012) by the CEW/SR could not be used by NER in the construction of the bridge due to mismatch of the holes of gusset and connecting members in the fabricated girders. Based on the directives of RB, RDSO inspected (February 2013) the girders at bridge site and found that fabrication of girders was carried out by CEW/ SR in a most casual way without following any specification and procedure as laid down in IRS B1-2001. RDSO also concluded that, these girders cannot be used for erection of the bridge girder without sacrificing the safety of bridge. The failure was attributed to inadequate infrastructure and technical knowhow of the CEW of SR. An expenditure of ₹22.31 crore incurred by SR in the fabrication of girders became largely unfruitful. Subsequently, RB directed (April 2013) SR Administration to stop the work of fabrication of open web girders in the workshop. The CWE of SR was permitted by RB to fabricate only welded plate girders used normally for use in Foot Over Bridges, from December 2013.

In SWR, out of 37 technically obsolete bridges taken up for rehabilitation, the rehabilitation work of 12 bridges got delayed due to delay in supply of bridge girders by the CWE at Arakkonam/SR. Progress of work in these cases ranged from 0 to 14 per cent as on March 2015.

Railway Board stated the work orders/ indents placed on the workshops are always in excess of the production capacity of the workshops. It was also stated that lot of time is required for procurement of raw material such as steel etc. after work order placed on the workshop.

It is a fact that delays in supply of girders by the Bridge Workshops affect execution of the relevant bridgeworks. As such, Railway needs to enhance the capacity of the workshops to avoid the delay in supply as it ultimately impacts the safety aspects on account of delay in execution of bridgeworks identified for rehabilitation.

1.6.3 Inspection and Maintenance of Bridges

1.6.3.1 Use of Modern Equipment for bridge inspection

The Corporate Safety Plan (CSP) 2003-13 observed that the present system of inspection and assessment of bridges is based on visual inspection and is subjective. Hence the same would be modernized and a modern bridge management system would be introduced.

The CSP listed a number of plans for modernization of inspection of bridges. In January 2005, an Integrated Railway Modernization Plan (IRMP) 2005-10 was

released by the Minister of Railways which proposed setting up of a number of technologies as part of modernization of inspection, as listed below:

a. Testing and Remote Monitoring of bridges using modern technologies - (in collaboration with IIT/Mumbai)
    i. Vibration Signature Testing and
    ii. Remote Monitoring of Bridges;
b. Adopting Seismic Isolation Techniques and Earthquake Protection of Bridges (in collaboration with IIT/Kanpur);
c. Development and use of Advanced Corrosion Protection System for bridges (in collaboration with IIT/Mumbai);
d. Scour assessment, real time monitoring and protection of bridges (in collaboration with IIT/Kharagpur);
e. Use of high performance concrete in Railway Bridges;
f. Residual Life estimation of Concrete Bridges in collaboration with IIT/Kanpur;
g. Underwater Inspection of bridges;
h. Inspection and maintenance of Railway Bridges by Mobile Bridge Inspection Units;
i. Laying Long Welded Rails over Bridges taking in to account track bridge interaction; and
j. Adopting modern technologies for building bridges, rehabilitation of old bridges and use of Advanced Composite materials in Bridges in collaboration with IIT/Mumbai.

However, review of RB records (2010-11 to 2013-14) as well as of zonal HQ offices over IR revealed that none of the above projects/ activities was completed (as on March 2014) so as to apply the modern technology in the field except for issue of a booklet containing guidelines for conduct of UWI by Indian Railway Institute of Civil Engineering (IRICEN).

From Railway Board's reply (April 2015), it was noticed that only three activities mentioned above (g, h and i) were completed and rest are under trial stage. Two projects (a and f) were dropped, as these were found not be feasible to deploy. IR need to complete the remaining projects to improve the inspection techniques by utilizing modern techniques.

Further, the High Level Safety Review Committee headed by Shri. Anil Kakodkar in its Report (February 2012) also stressed the need for use of modern methods for inspection of bridges such as capturing images and posting thereof in MIS or sending it through internet to all concerned senior engineers having vast experience to visualize the impending bridge failure. The Report also recommended that vulnerable bridges should be fitted with water level gauges and turbine flow meters to measure the water flow which should be interlocked in a way to warn the driver of the approaching train.

Audit observed that though photographic images of weaknesses noticed during inspection of bridges were taken and sent to higher officials for study, the second recommendation in regard to fitting of water level gauges and turbine flow meters and a system to warn the driver of an approaching train, was not implemented in IR (except NR) as on March 2014.

For conducting objective inspection of bridges, RB prescribed use of about 20 different modern equipment, referred to as Non-destructive Testing Equipment (NDT) such as Liquid Die Penetration Equipment, Rebound Hammer, Structural Scan Equipment etc.[15]

Audit noticed that 290 equipment of five types (on an average) have been procured in different Zones over IR. Utilization of these equipment during inspection of bridges was only 7.07 per cent. Some of the equipment were not used even once as ascertained from the log book maintained by the zonal Railways.

In reply, Zonal Railway Administrations stated that the reasons for non/ under utilization of (Non-destructive Testing) NDT equipment in the inspection of bridges were absence of trained staff, vacancy in Group D category staff, lack of skills and logistics etc. However, in reply Railway Board stated (April 2015) that the NDT equipments available in Zonal Railways are being used regularly to assess various parameters related to condition of bridge. However, the response given by RB is not factual in view of the constraints mentioned by the Zonal Railways in utilisation of NDT equipment.

The reply of Railway Board is also incorrect as based on the data collected by Audit from the log books relating to use of NDT equipment, overall average utilisation at 7.07 per cent only was noticed.

In a particular case of SR, Railway Administration stated (July 2014) that the NDT equipment were being used wherever necessary based on instructions from the competent authority. The log book entries however showed that the utilization of various NDT equipment was insignificant since their procurement.

The NDT equipment procured at an approximate cost of ₹12.99 crore over IR remained grossly underutilized, defeating the purpose of strengthening of inspection techniques.

1.6.3.2 Adherence to Inspection/Maintenance Schedule

Inspection by officials of the Civil Engineering department of Zonal Railway

The Indian Railway Bridge Manual (IRBM), Chapter –XI prescribes the manner and periodicity of inspection of bridges by different level of officials of the Civil Engineering Department of the Zone.

[15] The Liquid Die Penetration Equipment helps in the assessment of depth of crack on the surface of the bridge span/ pier, Rebound Hammer is useful in the assessment of compressive strength of concrete etc.

For scrutiny of adherence to inspection schedule, Audit selected the records of inspection carried out by two SSE/SE -Bridges, two SSE/SE - Permanent Way, two SSE/SE-Works and two ADEN of each zone. Audit noticed that -

Inspection of bridges by SSE/SE - Bridges:

As per prescribed schedule, the SSE/SE Bridges should inspect Superstructure and Steel works and bearings of all girders of 12.2 m clear span and above of all bridges once in five years.

Audit checked the position in 31 offices over IR and found that, 4379 inspections due during the four year period were conducted without any shortfall. On completion of inspection, the inspecting official has to record a certificate with observations and remedial action needed to be taken if any. Subsequently, compliance to remedial action suggested has also to be recorded in the bridge inspection register. In case of 110 inspections in NR, certificate of inspection has not been recorded and in five cases in SER, compliance thereon has not been mentioned.

Inspection by SSE/SE – Works:

The SSE/SE Works is expected to inspect Superstructure and Steel works and bearings of all girders less than 12.2 m clear span once in five years. In addition, Foundation, Sub-structure and Bed block of all bridges should be inspected once in a year prior to monsoon.

Bridge inspections to be carried out by SSE/Works were not carried out in many zones, citing non-availability of staff and infrastructure as reasons.

Audit checked 32 offices over IR. Against 10391 inspections due as per schedule, 6710 inspections were carried out leaving a shortfall of 3681 inspections (35.42 per cent) during the review period. The shortfall (1356 inspections) was highest in NWR followed by NR (1104) and SECR (687). In 2907 cases, 2092 in NR, 499 in SECR, 272 in ER and 44 in NFR certificates on inspection were not recorded. In 915 cases, 400 in SECR, 333 in NR, 138 in ER and 44 in NFR compliance indicating action taken on observations made were not recorded. In SR, SWR, WR, NWR and ECR either inspections due by SSE/SE – Works were not at all conducted or no records were maintained by the concerned officials in support of conduct of inspection. The SSE/SE – Works generally had not carried out inspections, stated to be due to non-availability of trained manpower and infrastructure.

Inspections by SSE/SE – Permanent Way:

As per schedule, SSE/Permanent Way should carry out inspection of Track and approaches of all bridges at least once a year prior to monsoon etc.

Audit checked 32 offices over IR and found that, as against 8962 inspections due during the review period, 6367 inspections were carried out leaving a shortfall of 2595 inspections (28.96 per cent). Highest shortfall was noticed in WR at 863 inspections followed by NR (792 inspections) and SECR with a shortfall of 608 inspections. Subsequent to inspection, in 1596 cases in NR and in 260 inspections carried out in NFR, certificate of inspection were not recorded. In 240 cases relating to NR, compliance to remedial action suggested has not been recorded.

Inspection by ADENs:

As per schedule ADEN/AEN has to inspect Foundation, Sub-structure and Bed block etc. of all bridges once a year after monsoon.

Audit checked the position in 32 offices in IR and found that, there was no shortfall in conduct of inspection. In 3536 cases pertaining to NR, certificate of inspection has not been recorded. In regard to recording of compliance to remedial measures suggested, in 1283 cases in NR and in 280 cases in NWR the same has not been complied with.

The objective of conducting bridge inspection is to assess the condition of bridges and to take corrective remedial measures needed if any. Shortfall in conduct of inspection at the level of SSE/Works (35.42 per cent) and SSE/ Permanent Way (28.96 per cent) as pointed out above may result in shortfall in the timely identification of defects in bridges and this may lead to serious consequences.

In regard to recording of certificate by the inspecting officials and for recording of remedial action taken as recommended also, compliance should be ensured.

In regard to adherence of inspection schedule, Railway Board stated (April 2015) that by and large, the inspection schedules are being adhered to by the designated officials and remedial actions are being taken. However, the instructions have been reiterated by the Zonal Railways to the field officials for adhering to the inspection schedule, making good the shortfall if any, and also recording the observations/ furnishing certificates.

Special Inspection of Distressed Bridges

In terms of Para 509 of IRBM, special Inspection of distressed bridges category-I and II have to be carried out by SSE/SE-Bridges, ADEN and DEN/Sr.DEN once in a month, once in two months and once in three months respectively.

Records of zonal Railways revealed that, in seven[16] Railways where special inspections were due on 10 distressed category-II bridges (out of the total of 45 distressed category-II bridges on IR as of 31st March 2014), inspections were carried out as per schedule except in case of ECoR where there was a shortfall of 32 inspections at SSE level and 16 at ADEN level on two distressed category-II bridges during the three year period viz., 2011-12 to 2013-14.

Underwater Inspection (UWI) of Bridges

There was a shortfall of 44 UWI during the review period over CR, ER, SER, NFR and SCR.

Bridges, substructure/ foundation/ bed block of which are submerged under water throughout the year, are to be subjected to UWI. The UWI is conducted either departmentally by the trained divers or outsourced. As UWI is an area which was not fully covered in the IRBM or in any other codes, Indian Railway Institute of Civil Engineering (IRICEN) issued guidelines (July 2008) for conduct of UWI. As per the guidelines, all bridges identified should be subjected to UWI at least once in five years.

[16] ECoR, ECR, ER, NCR, SCR, SR, WR

Audit examined the position of conduct of UWI by 28 SSE/Bridges over IR during the period from 2010-11 to 2013-14 and noticed that-

- Against 156 bridges due for UWI during the review period, UWI was carried out on 112 bridges leaving a shortfall of UWI on 44 bridges. In CR, not a single bridge on which UWI was due, was conducted during the review period as against 31 bridges due for UWI.
- During conduct of UWI in the years 2011-12 to 2013-14, the inspecting agency noticed defects in the bridges and the observations were recorded in their report in case of 27 bridges (ER, NCR, NFR, NR, SER, SR, SWR and WR). Out of these 27 bridges, in respect of 12 bridges follow up action was yet to be taken as at the end of 31 March 2014.

In a particular case of a bridge in Ernakulum– Alleppey section of SR, there were serious findings during UWI following which, speed restriction was imposed on the bridge in December 2011. However, work for rehabilitation of the bridge was not processed for sanction even after 27 months of identification of the problem and train services were continued to be run on the bridge with speed restriction.

In reply to the Audit observation, the SR Administration stated (July 2014) that, the delay was due to turbidity/ tidal action of back water and time taken in the assessment of quantity of piers required for strengthening etc.

The reasons stated are not tenable as, the delay of 27 months indicates that priority was not accorded in the rehabilitation of the bridge though speed restriction was imposed on the bridge which is indicative of vulnerability of the bridge. Besides, tidal action of back water is a perennial phenomenon which cannot be stated as reason for delay in assessing the quantum of work to be carried out.

In case of other zonal Railways, the reasons stated for not taking follow up action were as under-

- In NFR, in case of one bridge where UWI was done during 2012-13, follow up action has not been taken up till July 2014. The reason stated by NFR Administration was high flood level in river Brahmaputra for conduct of a test for assessment of depth of crack in the piers.

- In WR, out of the seven cases of UWI, in one case, follow up action was not taken by WR Administration. It was noticed that though the bridge was identified in 2010-11 during UWI, the work has not been sanctioned till March 2014.

- In case of SER, the zonal Railway Administrations stated that no follow up action was required based on the observations made in UWI.

1.6.4 Other issues

Apart from the above findings discussed in Para 1.6.1 to 1.6.3, audit also examined other important issues related to maintenance of bridges such as instrumentation of bridges, bridge cell, Bridge Management System, provision of anemometer, maintenance of flood records etc. These are discussed in subsequent paragraphs:

1.6.4.1 Instrumentation of bridges

RB took a decision in May 2005, to permit running of wagons loaded up to CC+8+2[17]/ CC+6+2[18] on identified Iron Ore routes listed in the letter ibid, as a pilot project. In the same letter in which the above decision was communicated, RB instructed zonal Railways to check the impact of running of high axle load services through a number of measures which included assessing the fatigue life and residual life of bridges. For this purpose, RB instructed ZRs to take up Instrumentation of bridges[19] in the identified CC+8+2/ CC+6+2 routes.

Instrumentation had to be done on sample bridges representing all types in the route and results of the study were to be reported to RDSO for further action.

The Anil Kakodkar Committee also recommended (February 2012) that, instrumentation of all bridges should be undertaken in terms of deflections/ displacements, water level and flow velocity, on a continuous basis and data should be communicated to the concerned CBE for monitoring. The Report considered that, advanced scientific measurement and inspection for the condition assessment of the under-side of the bridges using mobile and articulating platform was essential.

In IR, 66 bridges in the notified CC+8+2 routes and 32 in the CC+6+2 routes were selected in the year 2006 as sample bridges for instrumentation. Out of these 98 bridges, Instrumentation was done in four cycles over the period from 2006 to 2014 on **77** bridges (61 in the CC+8+2 routes and 16 in the CC+6+2 routes) at a cost of ₹ 23.11 crore leaving a shortfall of 21 bridges. Audit scrutiny of records relating to instrumentation of bridges revealed that –

Instrumentation on bridges in CC+8+2 routes

- In NR, on none of the five bridges identified on the CC+8+2 routes instrumentation was carried out during the review period. On these five bridges, speed restriction was imposed and restriction on movement of heavy axle load traffic was ordered.

Instrumentation on bridges in CC+6+2 routes

- In the CC+6+2 routes, out of 32 bridges planned, instrumentation was conducted on 18 bridges leaving a shortfall of 14 bridges (nine in WR and five in NR). In respect of WR, as there was no major finding during Instrumentation of one Bridge (Bridge No. 65), no further Instrumentation was stated to have been carried out. In case of NR, reasons for non-instrumentation have not been found on record during audit.
- The overall cost of instrumentation in the CC+8+2 and CC+6+2 routes in the above cases was ₹ 28.42 crore.
- In WR, based on instrumentation, one bridge in the CC+6+2 route was marked for rehabilitation but sanction for the work was not accorded till end of 31 March 2014. Speed restriction was imposed on this bridge and restriction on movement of 25 T axle load traffic was also ordered.

[17] CC (carrying capacity of wagon)+8 tons (additionally loadable) + 2 tons (tolerance limit).
[18] CC (carrying capacity of wagon)+6 tons (additionally loadable) + 2 tons (tolerance limit).
[19] Instrumentation is a process of assessing the longitudinal axle load bearing capacity of bridges.

1.6.4.2 Bridge cell

Railway Board instructed (July 2007) Zonal Railways to implement Centralised Bridge Organisation at the zonal level under the Chief Bridges Engineer (CBE). Creation of separate Bridge Cell was intended to provide specialized attention on inspection and maintenance of bridges and also in the effective monitoring of bridgeworks.

Audit noticed that policy guidelines for implementation of centralized bridge organisation at zonal level were prepared in April 2009. However, out of 16 zones, only in ten zones[20] separate bridge cell has been formed.

Existence of a separate Bridge Cell at zonal level was expected to help in the better monitoring of inspection and maintenance of bridges. Audit observed that where Bridge Cells were established, details of inspection and identified bridges due for rehabilitation were recorded in the Bridge Cell for better monitoring of bridgework. As such, Railways need to establish the Bridge Cell in the remaining six Railways for better monitoring of inspections and execution of bridgeworks over IR.

In reply, Railway Board stated that the bridge organization in all the zonal railways is working under CBE. However, Railway Board is silent about non-formation for separate bridge cell in remaining six zones.

1.6.4.3 Bridge Management System (BMS)

The CSP listed BMS as one of the thrust areas in technology improvement in regard to modernisation of bridge inspection and maintenance. The Centre for Railway Information System (CRIS) was entrusted with the development of the system as part of the Track Management System (TMS). Development of BMS was conceived with 20 modules which inter-alia, included the following:

- creation of central structured Bridge Data Base;
- digitization and uploading of all bridge drawings and its management;
- bridge inspection management;
- bridge rehabilitation/ strengthening/ rebuilding management;
- distressed/ weak/ identified bridges health monitoring and management;
- flood control management; etc.

The Safety Action Plan in the CSP relating to Civil Engineering Department specified (August 2003) the time frame for completion of the BMS as 2006-07. But, the committee for development of bridge specific proforma for recording observations of bridge inspection officials was formed only in March 2011, which submitted its Report in June 2011. Bridge Modules were developed in Track Management System (TMS) as per the proforma approved by RB for filling up of bridge details (static master data). The RB instructed the zonal Railways in February 2012 to complete feeding of bridge data in to the TMS module within three months (i.e., by May 2012). The bridge data in the static master data would contain complete information about a bridge such as type of bridge, foundation

[20] ECoR, ECR, NCR, NER, NR, SCR, SECR, SER, SWR and WCR

type, drawing relating to foundation, substructure and superstructure, year of construction, specification of bridge structures etc.

During the review, Audit observed that, data relating to 73,699 bridges (65.50 per cent) out of 1,12,517 bridges (in 14 zones) have been fed in to the system as on March 2014. In respect of NR and NWR bridge data module in TMS was not commissioned and data feeding was not carried out by these zonal Railways. Further, the proforma for recording of observations made during inspections for various types of bridges was yet to be developed.

Thus, the BMS, which was mentioned in CSP as one of the thrust areas in technology improvement in regard to bridge inspection and maintenance, targeted to be completed by 2006-07, was still in nascent stage. Out of the 20 modules proposed, only one module relating to creation of central structured Bridge Data Base was finalized and in that too, feeding of data relating to bridges was completed to an extent of 61.38 per cent only across 14 zones.

Railway Board stated that the feeding of master data for bridges is in advanced stage and is planned to be completed during 2015-16. Bridge inspection proforma is under development and will be available to railways by May 2015.

The fact remains that in its recommendations, CSP envisaged that the BMS had to be fully functional by 2006-07. But even after expiry of seven years, the same is yet to be implemented completely.

1.6.4.4 Installation of Anemometer in case of bridges located in high wind zones

Para 717 of IRBM provided that Anemometer[21] has to be fixed in railway stations adjacent to a bridge located in high wind zone. The purpose of the Anemometer is to enable Station Master to control or stop trains in the section if the wind velocity exceeds 72 kmph to protect against the danger of capsizing of vehicle.

The position of provision of Anemometer over IR is discussed in the sub-para below-In IR, there were 61 bridges located in the high wind zone and the nearest railway station/ location to the bridges were not fitted with Anemometer in 13 cases (10 in SCR and three in ECoR). In the other 14 zones, Anemometer was fitted at the nearest railway stations in respect of bridges located in wind zones, wherever necessary.

The SCR Railway Administration stated that, in the absence of anemometer, Station Masters regulate the section based on experience gained in the past. In ECoR, there was nothing on record to show how the Railway Administration managed in the absence of Anemometer.

Railway Board stated that in SCR, anemometer has been installed for three bridges and for remaining 7 bridges in SCR and for three bridges in ECoR, procurement of anemometer is underway.

1.6.4.5 Maintenance of flood records in case of bridges over flood prone rivers

As per para 701 of IRBM, flood records are to be collected and kept in prescribed format by the concerned Divisional Engineer/ Assistant Divisional Engineer to

[21] Anemometer is a device used for measuring wind speed.

acquaint themselves with the behaviour of rivers in their jurisdiction in order to ensure safety of railway structures during floods. Para 702 of IRBM specifies the manner in which flood details have to be collected during monsoon and records kept.

Audit noticed that, out of 246 bridges over the flood prone rivers, in 73 cases (61 in NFR and 12 in CR) flood records were not maintained. The reason for non-maintenance of flood records in these two zonal Railways was not found on record.

Railway Board accepted the audit comments and stated that it will be ensured that the flood records are maintained for the identified bridges as per the codal provisions.

1.6.4.6 Adequacy of manpower for inspection and maintenance of bridges

Though bridge maintenance staff are not classified as belonging to 'safety category', the need for having adequate manpower for inspection and maintenance to ensure safe passage of trains over bridges, cannot be overemphasized. Audit observed that, as inspection and maintenance of bridges is largely labour oriented activity, substantial vacancy in Group 'C' and 'D' cadres has the potential of affecting the quality of inspection and maintenance. Details of sanctioned post and actual strength are given in **Annexure IV**.

Audit examined the position over IR and noticed that-

- The overall vacancy in the skilled category (Group 'C') was 40.84 per cent and in the unskilled category (Group 'D'), the vacancy was 28.91 per cent.
- The vacancy percentage in skilled category was highest in SWR (60.38) and in SECR, NR, NCR, ER, SER, SR, WR, ECoR and ECR, it was more than 40 per cent. In the unskilled category, SR had highest vacancy per cent (75.23) followed by ECoR and WR with over 40 per cent vacancy.
- The overall vacancy in Group C and D cadres was 33.28 per cent with SR registering the highest percentage at 54.26 per cent and NR, SECR, WR and ECoR having over 40 per cent vacancy.

This clearly indicates that sufficient and suitable manpower required to carry out the important safety function viz., inspection and maintenance of bridges was not available in most of the Zonal Railways.

Railway Board accepted the audit comments and stated that the bridge staff works in safety related circumstances and efforts are being made to put bridge staff in safety category. The vacancies are being filled through departmental promotions, direct recruitment etc.

1.6.4.7 Training of staff in Bridge Maintenance

In ER, SWR, NER, WR, ECR and SR the percentage of shortfall in conduct of training to bridge staff, was very high.

CSP (2003-2013) laid special emphasis on training of bridge engineers and supervisors on regular and continuous basis with a view to enable them to adapt to technologies appropriately. Para 1304 and 1305 of IRBM also provides instructions for conduct of refresher course to SSE/Bridges and other

bridge staff once in five years and conduct of special course to SSE/Bridges on specific aspects to increase sense of awareness on specific issues relating to bridge inspection.

Audit examined the records of Zonal Railways relating to conduct of training as per details given in **Annexure V** and noticed that-

- Over IR, during the review period, training was imparted to 194 bridge engineers/ supervisors as against 402 bridge staff due as per requirements of CSP listed above for the training i.e., there was a shortfall of 52.24 per cent.
- In ER and SWR, the shortfall in training was 100 per cent i.e., none of the bridge staff was trained during the review period.
- In three Railways (ECR, NER and WR), there was shortfall of more than 90 per cent in the conduct of training.
- In five Railways (CR, NR, NWR, NCR and WCR) all staff due for training were imparted training.

From the reply of Railway Board (April 2015), it was noticed that after the audit comment regarding shortfall in conduct of appropriate training, Railway improved the system. In ER, nine bridge engineers have taken training in November-December 2014. Training programme for 2015 has been finalized and bridge engineers and other staff will be sent for training in 2015 as per programme.

1.7 Conclusion

The IR network had 36470 bridges that were over 100 years old. The system of rehabilitation/ reconstruction of identified bridges was based on monetary limits and on condition of bridges. Proposals forwarded by zones were pruned down at RB level and considered in the light of monetary caps imposed and constrained to that extent. Over the review period, RB's sanction was not accorded in respect of 27.51 per cent bridgeworks proposed by Zonal Railways. Moreover, where RB's sanction was accorded, bridgeworks pertaining to 710 bridges could not be completed by the prescribed time period. Audit came across instances of delay in rehabilitation of bridges under distressed category-I and II, technically obsolete bridges, bridges with long periods of speed restriction etc.

During the period covered in audit, target for rehabilitation/ reconstruction was not achieved in nine zones and the overall shortfall was 13.53 per cent. While analyzing the reasons for under-achievement of targets, audit observed that delay in preparation of drawings, finalisation of tenders, shifting of service lines, paucity of funds, non-availability of line block etc. caused overall delay in completion of works within target periods. Rehabilitation/ reconstruction works were not prioritized in respect of bridges where permanent speed restriction was imposed, which resulted in continued operation of speed restriction leading to avoidable extra expenditure of ₹ 103.40 crore in case of 31 bridges on important routes alone.

Audit noticed that less budget allotment compared to budget demanded for programmed works was one of the major reasons for shortfall in achievement of target. However, on the other hand, there was substantial surrender of funds (through the process of demand for less Final Grant as against the Budget Grant

provided during the year), due to improper planning of works and poor contract management. The 290 numbers of five types of NDT equipment procured across zonal Railways for use during inspection remained grossly underutilized. Though Bridge Management System was mentioned in the Corporate Safety Plan (2003-2013) as a thrust area in technology improvement, only one module relating to "Central structured Bridge Data Base" was approved by RB in 2012 and even in this, the feeding of data was not completed as of 31 March 2014. Inspection of bridges to be carried out by SSE/Works was either not carried out as per schedule or there was large scale shortfall. There was acute shortage of manpower which may impact the quality of bridge maintenance/ inspection and there was shortfall in the conduct of training of the bridge staff.

Recommendations

- *While there was a system of identification of bridges for rehabilitation/ reconstruction, the process of sanctioning bridgeworks did not take into cognizance the same. It was primarily based on the monetary limits fixed for each zone. IR should ensure that bridgeworks should be sanctioned keeping in view the conditions noticed at the time of identification of bridges for rehabilitation to ensure prompt rehabilitation in time bound manner.*
- *During review, Audit noticed substantial delays in execution of bridgeworks. IR should fix responsibility for timely execution of bridgeworks at zonal level as well as at RB level. There should be effective monitoring of execution of bridgeworks at both Zonal and RB level in view of the safety of human lives and assets.*
- *Bridge inspection at various levels is required to assess the condition of bridges and to take corrective remedial measures needed if any. As such, complete adherence to inspection schedule at each level should be ensured by Zonal Administrations.*
- *Though paucity of funds was cited as reason for shortfall in achievement of targets for bridgeworks, substantial surrender of funds was noticed. Effective monitoring should be ensured at both zonal and RB level to ensure optimum utilization of funds provided for bridgeworks.*

Chapter 2 - Review on 'Procurement and Utilization of Track Machines in Indian Railways'

Executive Summary

Indian Railways operate 7000 Passenger trains and 4000 Goods trains per day over 103642 KM of Broad Gauge (BG) track. Increase in number of trains and saturated line capacity has posed a challenge to Indian Railways to maintain the track fit and safe within the limited maintenance blocks. Moreover, technology advancement of track structure has necessitated switching over from manual maintenance to mechanised maintenance. Track machines of various types are being used for performing activities such as tamping of track (packing of ballast below sleepers) and cleaning of ballast, stabilising of track, laying and handling of rails/sleepers/points and crossings etc. Maintenance of track was being carried out by 743 track machines available with the Indian Railways as of March 2014.

A review on "Procurement, Utilisation and Maintenance of track Machines over Indian Railways" was taken up in 2003-04 and the audit findings were included in Comptroller & Auditor General of India's Audit Report No. 9 of 2004. In their Action Taken Note, Railway Board inter-alia stated that close monitoring was being done for procurement of track machines, getting more blocks and putting extra efforts to reduce the down time of machine by doing the regular maintenance schedules. It was also stated that monitoring was also done for reduced expenditure on consumption of HSD oil and stores. The present review was undertaken to see the extent of compliance and the effectiveness of the action taken by the Ministry of Railways.

Audit observed that the projection of requirement of track machines in the Master Plan 2010-20 lacked accuracy as it did not take into account the trend of actual growth of track and adoption of tamping cycle as provided in the manual of Indian Railways or based on Track Geometry Index (TGI) criteria. Track machines are mostly imported. No time bound action plan had been drawn up for development of indigenous capabilities in respect of track machines in the Master Plan as visualised in vision 2010-2020 document.

Major Audit findings of the Review are:

- *Procurement process had not been initiated for 171 machines. While the process was deferred for 58 machines due to non-finalisation of technical specifications and for 98 machines due to paucity of funds, the process was not initiated for 15 machines. There was also undue delay ranging from five months to 42 months in initiating the procurement process of 153 machines besides delay in finalization of tenders by Railway Board.*

  Para 2.6.3

- *Despite having knowledge of poor after sales service, the decision of Railway Board to accept the offer of a firm for procurement of 13 nos of work site tampers valued at ₹ 67.56 crore was injudicious. There were frequent break down of machines resulting in considerable loss of machine days (764 days) apart from delay in commissioning ranging from 94 days to 257 days beyond*

the stipulated period of 90 days. In yet another case, two numbers of Ballast Regulating Machines were procured at a cost of US $ 2220467 from the same firm. While one machine was not commissioned till March 2014, the other machine was idle for 408 days due to frequent failures.

Para 2.6.3

- *Incorrect assessment of work load in the Zonal Railways led to excess procurement of 43 tamping machines (30 nos of plain track tamping machines, 13 numbers of points and crossing tamping machines) and 27 Dynamic Track Stabilising (DTS) machines and short procurement of 91 machines (39 BCM, 18 SBCM and 34 T-28 machines) in addition to injudicious distribution of machines among Zonal Railways.*

Para 2.6.4

- *Targets fixed by Railway Board for working of track machines were not as per actual requirements of Zonal Railways. Audit noticed that target was fixed either in excess or less than the requirement. This resulted in carrying out the works beyond requirement or non-achievement of complete mechanization by the Zonal Railways.*

Para 2.6.4.1

- *Non adoption of Track Geometry Index (TGI) criteria for assessing tamping requirements had not only resulted in extra expenditure due to excess tamping but also in excess utilization of scarce maintenance blocks.*

Para2.6.5.1

- *The works such as deep screening of ballast, track laying and turnout renewal works had to be done manually due to shortage of machines.*

Para 2.6.5.2 (B)

- *Idling of the track machines was mainly due to failure of TMO in demanding full stipulated block hours, granting of less block hours by the Operating department, delay in commissioning of machines, programme not planned, no scope of work etc.*

Para 2.6.5.2(C)

- *14 track machines were condemned prematurely due to frequent breakdown, non-availability of spares, inferior quality of output etc. Delay in condemnation of 33 numbers of over-aged machines (ranged between 7 months and 240 months), non-disposal of 18 condemned track machines (ranging from 7 months to 323 months) had resulted in avoidable payment of dividend to General Revenues*

Para 2.6.5.3

- *Shortage of staff for operating and maintenance of machines led to idling of machines. Shortfall ranged between 32.71 per cent and 69.15 per cent in respect of SSE/JE, 11.19 per cent and 63.57 per cent for TMM and 3.20 and 66.01 per cent for Helper. Shortfall in deputing machine operators to undergo refresher courses ranging from 6 per cent to 86 per cent was also noticed.*

Para 2.6.6 and 2.6.6.2

- *Variation in the quantum of work done by machines uploaded in Track Management System (TMS) with the quantum reported to Railway Board by TMO defeated the very objective of TMS as TMS is considered as a tool in making managerial decisions.*

  Para 2.6.7.1

- *Excess consumption of HSD Oil per unit of working by same machines in two consecutive years in the same zone (ranged from 15per cent to 2379 per cent for 264 machines) and by similar machines across the Zones in the same period (ranged from 25 per cent to 293 per cent for 60 machines) even after allowing a reasonable allowance of 15 per cent and 25 per cent respectively for site conditions, showed lack of internal control mechanism.*

  Para 2.6.7.2

2.1 Introduction

Indian Railways operate about 7000 Passenger trains and 4000 Goods trains per day over 103642 KM of total BG track[22]. Phenomenal spurt in traffic and continuing rail accidents have put greater onus on Railways for maintaining safe and fit tracks. The track structure has become sturdier and less amenable for manual maintenance due to continuous developments in various track components namely rails, sleepers, fastenings, points and crossings etc. This led to gradual proliferation of use of track machines for mechanized maintenance of track. Over the years, extent of mechanized maintenance gained importance for reliable track maintenance with high degree of precision and quality with lesser dependence on human factor.

Indian Railways identified 77922 BG track kilometres[23] (75 *per cent*) as on 31 March 2014 for mechanized maintenance with the help of 743 track machines[24]. The maintenance of balance 25720 track kilometre having sleepers other than pre-stressed concrete sleepers, portion of track laid on steel girder bridges and yards (Loop lines and sidings) were being done manually. Track machines of various types are being used for performing activities such as tamping of track (packing of ballast below sleepers), cleaning of ballast, stabilization of track, laying and handling of rails/sleepers/Points and crossings etc. Details of functions of different types of track machines are mentioned in ***Appendix- A***

A review on Procurement, Utilization and Maintenance of track Machines over Indian Railways was taken up in 2003-04 and the audit findings were included in Comptroller & Auditor General of India's Audit Report No. 9 of 2004. The Report inter-alia highlighted the deficiencies such as procurement of excess track machines, availability of lesser effective Block Hours for track machine working,

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[22] ***Indian Railway Track Statistics as on 01-04-2014 (NWR-6177,SCR-9202,WR-7702,CR-8098,NER-3199,NFR-4196,SER-6024,SWR-4505,SR-7732,SECR-4177,NR-11412,WCR-6178,ECR-7239,NCR-5612,ECoR-5263 and ER-6928.)***

[23] ***Indian Railway Track Statistics as on 01-04-2014 (NWR-4831,SCR-7785,WR-5887,CR-5862,NER-2687,NFR-3188,SER-4085,SWR-3803,SR-6297,SECR-2881,NR-8484,WCR-4740,ECR-4998,NCR-4412,ECoR-3773 and ER-4209.)***

[24] ***CR-51,ECR-54,ECoR-30,ER-46,NCR-57,NER-23,NFR-30,NR-70,NWR-32,SCR-75,SECR-34,SER-49,SR-53,SWR-30,WCR-50,WR-59***

avoidable expenditure on early tamping of tracks with reference to the requirement, non observance of stipulated maintenance schedules for the track machines etc.

In their Action Taken Note, Railway Board stated (January 2011) that close monitoring was being done for procurement of track machines, getting more blocks and putting extra efforts to reduce the down time of machine by doing regular maintenance schedules, inspection schedules, so that the machine is maintained in good health. It was also stated that monitoring was also done for reduced expenditure on consumption of HSD oil and stores. The present review was undertaken to see the extent of compliance to the assurance and the effectiveness of the action taken by the Ministry of Railways.

2.2 Organizational structure

At Railway Board level, the Track Machine Directorate is under the control of Civil Engineering Directorate headed by Member Engineering followed by Additional Member (Civil Engineering) He is assisted by Executive Director (Track Machines) and Director (Track Machines).

At the Zonal level, the Track Machine Organisation (TMO) is headed by the Principal Chief Engineer (PCE) who is assisted by the Chief Engineer (Track Machines), Deputy Chief Engineer (Machines) and Executive Engineer (Machines).

At the field level, Deputy Chief Engineer, Executive/ Assistant Engineers and Senior Section Engineers at the Base Depots take care of day to day operations, repair and maintenance of the track machines.

2.3 Audit objectives

Main objectives of the review were to examine:

I. The existence of a proper long term plan based on assessment of the requirements of track machines to ensure continuous availability for mechanized maintenance of track.

II. The adequacy of procurement plan and timely procurement of track machines.

III. The efficiency in distribution, utilization and maintenance of track machines.

IV. That a proper system was in place for assessing the requirement of manpower and its effective deployment ensuring continued operations.

V. The effectiveness of Management Information System adopted by Track Machine Organization and other issues related consumption of fuel, accounting procedures, etc.

2.4 Audit criteria

The criteria for assessing the performance of Indian Railways in procurement and utilization of track machines were derived from the following sources:

(i) Requirements projected in the Master Plan derived from Vision 2010- 2020 document.

(ii) Railway Board's policy and action plan for indigenous development of capability in respect of track machines.

(iii) Rolling stock programmes (RSP) and Railway Board policy with regard to procurement of track machines.

(iv) Indian Railway Track Machine Manual.

(v) Railway Board's guidelines/instruction and also instructions by the Zonal Railways issued from time to time in respect of deployment, idling and condemnation of track machines etc.

2.5 Audit scope and methodology

The Review covered examination of records (macro level) relating to assessment, procurement and utilization of track machines, fixation of targets for working of the machines and other miscellaneous issues related to mechanized track maintenance. The study covered a period of five years from 2009-10 to 2013-14. For micro level study the following were examined:

i. Operations and maintenance of all the track machines during the period of five years from 2009-10 to 2013-14

ii. Analysis of tamping charts for the years 2012-13 and 2013-14.

iii. Comparison of assessment, quantum of work done during 2013-14 and reported by Track Machine Organization with that uploaded in Track Management System (TMS).

Audit Methodology included examination of records at Railway Board, Zonal Headquarters, Track Machine Organisation, Divisions and Track Machine Depots together with analysis of relevant data.

2.6 Audit findings

Objective I: Existence of a proper long term plan based on assessment of the requirements of track machines to ensure continuous availability for mechanised maintenance of track.

2.6.1 Projection of track machine requirements

As per Master Plan (2003-10) for procurement of track machines, 445 machines were procured during the period from 2003-10 as against the requirement of 609 machines projected in the Master Plan. Though the requirement of track machines was reviewed annually at the time of finalisation of Rolling Stock Programme, a comprehensive mid-term review of the Master Plan was not done until 2009-10 when another Master Plan was prepared for the year 2010-20 in tandem with the planning and growth forecasts envisaged in Vision 2020 documents for Indian Railways. The projected requirement of track machines as on 01 April 2020 including the ones on replacement account were estimated at 396 machines[25]. The

[25] ***CSMs-130, Unimats-76, BCMs-126 and SBCMs-64***

requirement of track machines was worked on the criteria that the mainline track kilometre would increase by 72 *per cent*[26] by 2020 *(average annual increase of 6.54* per cent for 11 years) *and* Tamping cycle[27] would be 12 months on A and B routes[28] and 18 months on other routes[29] .

Scrutiny of records revealed that:

i. the actual growth of track kilometre during 2001-02 to 2007-08 as mentioned in the Master Plan was only 8.71 *per cent* with an average annual increase of 1.2 *per cent* and;

Duomatic Tamping Machine

ii. the tamping cycle adopted in the Master plan was not as per the cycle prescribed in IRTMM[30] which is two years or 100 Gross Million Tonnes (GMT) of passage of traffic, whichever is earlier for all types of routes.

iii. Taking into account the actual growth of track kilometre (13.2 *per cent* for 11 years up to 2020 at the rate of 1.2 per cent per annum) and as per tamping cycle prescribed in IRTMM, audit worked out the requirement of 174 machines[31] as on 01 April 2020 as against the projection of 396 machines as indicated in the table below:

Table 2.1: Requirement of track machines as projected in the Master Plan and as assessed in Audit

Description of Track Machines	Projection of the requirement in the Master Plan (as on 01 April 2020)	Projection of the requirement as worked out by Audit (as on 01 April 2020)
CSMs	130	45
UNIMATs	76	21
BCMs	126	67
SBCMs	64	41
Total	**396**	**174**

[26] ***123644 kms as on 01 April 2020 as against 71744 track kms as on 01 April 2009***
[27] ***Tamping Cycle: Period between two tampings***
[28] ***A & B routes: Group A route: Speeds up to 160 kmph, Group B route: Speeds up to 130 kmph (Para 202 of Indian Railway permanent way manual)***
[29] ***Other routes: Group C: Suburban sections, Group D: Sanctioned speed of 100 kmph, Group E: Speeds less than 100 kmph (Para 202 of Indian Railway permanent*** way manual)
[30] ***Para 5.7.4 (VI) of the Indian Railway Track Machine Manual***
[31] ***Audit assessment included machines on replacement account and the number of different types of machines were CSMs-45, Unimats-21, BCMs-67 and SBCMs-41.***

When Audit pointed out (July 2014) the issue of excess estimation in the Master Plan, Railway Board stated (December 2014) that the actual growth in track kilometre during 2009-14 was 7568 km. (average annual growth of 2.11 *per cent*) and the periodicity of tamping cycle as adopted in the Master Plan was based on field experience. Railway Board also stated that the sidings and yard lines were not included in the track km. while calculating requirements of track machines in the Master Plan though machines are required for these lines as well in actual practice.

Contention of Railway Board was not tenable on the following grounds:

i. In January 2008, Railway Board directed all the Zonal Railways to assess tamping requirements as per Track geometry index (TGI)[32] criteria. In a study conducted by NCR, it was observed that tamping requirements came down by 30 *per cent* based on TGI criteria and tamping cycle as prescribed in IRTMM.

ii. 75.18 *per cent* of total track km. was nominated for machine maintenance which included sidings and yard lines. Thus, it was evident that siding and yard lines were being maintained manually in practice.

iii. Based on the actual growth of track during 2009-14 (10.55 per cent with an average annual increase of 2.11 per cent) and adopting the tamping requirements based on TGI criteria, it was noticed that 217 numbers of track machines were assessed in excess in the Master Plan as indicated in the table below:

Table 2.2: Requirement of machines based on Track Geometric Index

Description of Track Machine	Projection of the requirement in the Master Plan (as on 01 April 2020)	Projection of the requirement as worked out by Audit (as on 01 April 2020)
CSMs	130	31
UNIMATs	76	26
BCMs	126	77
SBCMs	64	45
Total	396	179

Thus, Railway Board failed to ensure compliance with its directives of assessing the requirement of track machines based on TGI and tamping cycle as prescribed in its manual. The estimation of requirement of track machines in the Master Plan was not based on correct assumptions resulting in higher estimation of requirement of machines.

2.6.2 Planning for development of indigenous capabilities

Vision 2010-2020 document of Indian Railways visualized transformation of Indian Railways as a technology exporter from technology importer, duly fostering a close linkage between Research, Design & Standards Organisation (RDSO), functional levels of Railway Administration and intellectual resources at premier technology institutes like Indian Institute of Technology (IITs), National Institute

[32] ***TGI (Track Geometry Index): To avoid frequent tamping of good quality track, RDSO had recommended guidelines based on TGI Values which had been approved by Railway Board.***

of Technology (NITs), research laboratories of Council of Scientific & Industrial Research (CSIR), Defence Research & Development Organisation (DRDO) along with targeted investments in Research and Development.

Scrutiny of records, however, revealed that there was no planning or time bound action plan for development of indigenous capabilities in respect of track machines as envisaged in Vision 2010-2020 document. Railway Board stated (December 2014) that the level of indigenisation of up to 100 *per cent* had been achieved in case of less complicated simpler machines[33], up to 30-50 *per cent* in case of machines having intermediate complexity and up to 20 *per cent* in case of highly complex machines. In this connection, it is pertinent to mention that while smaller track machines such as track relaying equipments, utility vehicles, Rail Borne Maintenance Vehicles, light tampers etc. are fully indigenized the percentage of indigenization of components in other machines[34] where developmental order was placed on Indian companies ranged from 36 to 47 *per cent.* Larger track machines[35] are still fully imported.

Objective II: To see the adequacy of procurement plan and timely procurement of track machines

2.6.3 Procurement Process

The proposals for inclusion of procurement of track machines in Rolling Stock Programme[36] (RSP) are prepared at the Railway Board based on requirement assessed in the approved Master Plan 2010-20 by the Track Directorate (Machines) of Railway Board and submitted to Finance Directorate of Railway Board. After examining the proposal, Finance Directorate communicates concurrence. Thereafter, the proposal is submitted to Minister for Railways (MR) through Member Engineering (ME) and Chairman Railway Board (CRB) for sanction. After obtaining sanction of MR, the proposals are included in the RSP of Railway Board.

Based on RSP, Global Tenders are invited for procurement of track machines. The offers received are evaluated technically and financially by the Tender Committee comprising of Executive Directors of Finance, Stores and Track Directorate

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[33] ***smaller Track Machines such as track relaying equipments, equipment for handling and relaying concrete sleepers, Portal cranes, utility vehicles, Rail borne maintenance vehicles, soil disposal units, light tampers,***

[34] ***Dynamic Track Stabilizers, Works Site Tampers, High Output Tampers, Points and Crossings Tamping Machines.***

[35] ***Ballast Cleaning machines, Shoulder Ballast Cleaning machines, Ballast Regulating machines, Tamping express, Unimats, Track Relaying Trains, Rail Grinding machines, T- 28s, etc***

[36] ***Rolling Stock Programme: It is the programme for procurement of Rolling stock proposed by Indian Railways.***

(Machines). The recommendations of Tender Committee are accepted by the competent authority[37] and contract is entered into for the supply.

A review of the proposals included in RSP and tenders invited during 2009-14 revealed the following:

i. As against procurement of 638 numbers of track machines costing ₹5963.55 crore proposed to be procured by the Track Directorate (Machines), procurement of 324 machines (costing ₹2569.22 crore) was concurred to by Finance Directorate and sanctioned by the Competent Authority for inclusion in the RSPs of respective years of the review period. Paucity of funds, shortfall in growth of track kms as anticipated in Master Plan 2010-20 and slow procurement process of track machines included in earlier year's RSPs were cited as the reasons for curtailment of the requirement by Finance Directorate:

Table-2.3: Year-wise proposal and sanction of track machines

Year	No. of machines proposed by Track Directorate (Machines)		No. of machines concurred by finance, sanctioned to be included in RSP		Reasons for curtailment
	Nos.	Amount in crore	Nos.	Amount in crore	
2009-10	91	1066.66	72	410.50	Paucity of Funds
2010-11	195	1291.8	137	851.04	
2011-12	223	1779.02	83	984.33	Constraint of funds
2012-13	43	546.02	3	60.42	Procurement process was very low during 2011-12
2013-14	86	1280.05	29	262.93	Shortfall in growth of track km. as anticipated in the Master Plan
Total	**638**	**5963.55**	**324**	**2569.22**	

ii Out of 324 track machines included in the RSP during 2009-14, tenders had not been called for in respect of 171[38] machines costing ₹1180.99 crore (March 2014). While invitation of tender for 98 machines was deferred due to paucity of funds, the process of invitation of tenders for 58 machines was

[37] ***Competent Authority: Tender value over ₹25 crore and up to ₹50 crore (Additional Member); over ₹50 crore and up to ₹75 crore (Member); over ₹75 crore and up to ₹100 crore [MOS (R)]; over ₹100 crore (MR)***

[38] ***2009-10; 13Nos, 2010-11; 96 Nos; 2011-12; 35 Nos, 2012-13; 3Nos & 2013-14; 24 Nos.***

deferred due to non finalization of technical specifications. Tendering process in respect of balance 15 machines was not initiated (March 2014).

iii In respect of 153 machines where tenders had been called, delay in calling of tenders ranged between 5 months and 42 months after allowing the reasonable time of three months from 01 April of respective years of the review period since RSPs for the ensuing years were finalised by 31 March of each year.

Railway Board in their reply (December 2014) stated that as track machines have long procurement cycle of 4 to 5 years, inclusion in the RSPs and procurement was phased out in accordance with funds availability. Contention of Railway Board was not tenable as non initiation of procurement process due to paucity of funds was not justified especially since the curtailment of numbers of machines was already done in RSPs due to the same reason. Further, deferring the procurement process of track machines included in the rolling stock programmes due to non finalisation of the technical specifications was itself indicative of poor planning.

ii. Railway Board, as a policy, has stipulated eight months as the standard time for finalising tenders from the date of calling. It was observed that in respect of five tenders for procuring 46 machines[39] valuing ₹ 442.04 crore, delay in finalisation of tenders ranged between one month and six months.

iii. Lack of efficient management of contract resulted in delay in commissioning of machines and idling of machines due to frequent breakdown of newly imported track machines as discussed below:

(i) As per Item No. 1061 of Rolling Stock Plan 2010-11 (carried forward from RSP of 2009-10), an open tender which was invited (vide Tender Notice No. 0101 of 2009 dated 20/10/2009) for supply of 13 numbers of Work site Tampers, was opened (23/12/2009) and finalized in favour of a Russian firm[40] at a total value of US $ 9271980.96.

During technical evaluation of the firm, Track Directorate expressed on record the principal concern about the firm regarding poor after sales support in terms of availability of spares and competent service. Despite such disadvantages, the offer of the firm was considered technically suitable. It was observed that due to inadequate after sales service of the firm and non-availability of spares, machines could not be productively used for a considerable period[41] of 764 days.

As per Clause 9.1 of the contract, delivery of 13 machines and spares should have been completed within 15 months from the date of operative

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[39] ***BRM (14), PCT (6), 3X (6) and CSM (20)***

[40] ***M/s JSC " Kalugaputmash", Russia. Contract was executed (No.2009/Track-III/MC/1 dated 06/09/2010)***

[41] ***NWR: 2 machines-125days, NR: 3 machines-84days, NCR: 3 machines- 414 days, ECR: 2 machines-6days & SCR: 3 machines-135days.***

Letter of Credit. These machines were received from January 2012 to November 2012. Scrutiny of records, however, revealed the following:

a. There was considerable delay in making machines fit to move to the consignee's site after arrival at Mumbai. The delay ranged between 31 days and 181 days;
b. There was also significant delay in commissioning of machines after arrival at the consignee's site. The delay beyond the stipulated commissioning period of 90 days ranged between 94 days and 257 days.
c. Decision of the Indian Railways to accept the offer of the firm was not in the best financial interest of the Railways and had adverse impact on their performance.

As per clause 19.4 of the contract, 90 *per cent* payment was made on proof of inspection and shipment. However, the balance 10 *per cent* payment is yet to be made which was otherwise to be paid after commissioning of the machines. Indian Railways incurred an expenditure of ₹67.56 crore towards procurement of these 13 fully imported machines.

It was noticed that though the machines were inspected at the factory premises at Kaluga (Russia) by the Deputy Chief Engineers of the consignee railways (NR, NWR, NCR, ECR & SCR) before shipment and certified to be conforming to technical specification, there were instances of frequent breakdown of machines resulting in valuable loss of life of the machine due to 764 days of idling of 13 machines for different spells between November 2012 and April 2014.

Audit further observed that though Railway Board initiated action for recovery of liquidated damages (January 2014) for delay in commissioning of machines, no concrete measures were taken to avoid the frequent breakdown of the machines by providing spares and after sales service in reasonable time. .

(ii) As against sanctioned RSP of 631 of 2006-07, an open tender was invited[42] for supply of 2 Nos of BRMs with hoppers. From the tender committee deliberations it was evident that the Tender Committee was fully aware of the fact that the firm had not produced this type of machine earlier. However, a contract order was placed on the firm[43] for supply of two BRMs at a cost of US $ 2220466.76 in addition to agency commission of US $10272.52.

[42] ***Tender Notice No.0103 of 2006***
[43] ***M/s JSC "Kalugaputmash, a Russian firm (Contract No. 2006/Track-III/MC/3 dated 29/05/2008)***

Ballast Cleaning Machine

As per the conditions of the contract, the machines with their spare parts were to be delivered within 21 months from the date of signing of contract (by October 2010). First machine (BRM-002) was to be delivered to NCR and second one to NWR. The first machine was commissioned on 15 November 2011 (with a delay of 12 months). Within a month of commissioning, the machine went out of order. Since its commissioning, the machine has remained idle for 408 days (47 *per cent*) as of March 2014 for want of spares/ services and poor response from the firm. As per the conditions of the contract, inspection of the machines was to be carried out before despatch either by the purchaser or his nominee. Accordingly the machines were inspected by the Deputy CE (TM), NCR at the firm's premises in Russia before despatch. It was certified that the machines conformed to all laid down specifications. Hence, breakdown of the machine within one month of its commissioning and subsequent frequent breakdowns[44] indicated casual approach towards inspection of the machine at the level of Dy.CE before shipment.

Though the second machine (BRM-003), reached Mumbai Port by June 2012 (with a delay of 19 months), it took almost 10 months (April 2013) to reach NWR for commissioning. While Clause 11.0 provided that the firm was required to commission the machine within 90 days of its arrival, it was not commissioned (as on March 2014). Since April 2013, the machine had remained idle pending arrival of a service engineer of the firm. As the warranty of the machine was to expire 24 months after the delivery or 18 months from the date of commissioning, whichever is earlier, Railways lost the benefit of warranty clause. Thus, an amount of ₹12.77[45] crore paid to the firm for the procurement of the above machines remained unproductive.

Thus, failure in timely initiation of and delay in finalisation of tenders was indicative of lack of adequate efforts of Railway Board in mechanisation of track maintenance. Further, inefficient contract management led to idling of 13 machines for 764 days and unproductive investment of ₹12.77 crore due to delay in commissioning of another two BRM machines.

Objective III: To see the efficiency in distribution, utilisation and maintenance of track machines

2.6.4 Allotment and Distribution

Railway Board distributes the track machines to the Zonal Railways on the basis of the ratio of total working capacity of the machines available in a Zonal Railway to total work potential for that type of machine in the zone. A higher ratio indicates less shortage of the machines and a smaller ratio indicates higher shortage of machines. The Zonal Railway with the least ratio was placed at rank 1 and the Zonal Railway with highest ratio was placed at rank 16 and the allotment was made with reference to ranking. Though the allotment and distribution was made

[44] ***Dec 2011: 17 days, Feb 2012: 23days, Mar & Apr 2012: 12 days, May, June, July, Aug & Sep 2012: 21 days, Oct 2012 to July 2013: 295 days, Nov & Dec 2013: 11 days and Jan, Feb & Mar 2014: 29 days.***

[45] ***2010-11: ₹ 5.65 crore, 2012-13: ₹ 7.12 crore (₹12.75 crore as cost of machines & ₹0.02 crore as agency commission for one machine)***

adopting a certain criteria, a scrutiny of records relating to availability of different track machines as on 31 March 2014 revealed the following:

i. An assessment in audit revealed that the requirement of mechanised tamping was 52247 track km[46]. Accordingly, the requirement of plain track tamping machines (other than deployed behind BCMs) worked out to 80 numbers at the rate of 720 km per annum[47]. It was, however, observed that 110 plain track tamping machines (other than deployed behind BCMs) were in use which indicated that 30 track machines[48] were procured and distributed in excess of requirements in 11 Zonal Railways while NFR, suffered shortage of one machine.

Annexure VI-A

ii. Similarly, mechanized tamping requirement (points and crossings) was worked out in Audit as 52682 numbers[49]. The requirement of points & crossing tamping machines (UNIMATS) worked out to 66 numbers at 900 numbers per annum as adopted in the Master Plan. It was, however, observed that 79 numbers of UNIMATs were in use. Thus, 19 points and crossing tamping machines[50] were procured and distributed in excess of requirements for eight Zonal Railways while three Zonal Railways suffered shortage of six machines (NER-1, NR-4 and NWR-1). ***Annexure VI-B***

iii. Deep screening of ballast[51] is being done with group machines - one BCM, one tamping machine and one DTS machine. Number of DTS machines should be equal to number of BCMs as per Para 3.1.4 and 3.2.3 of IRTMM Thus, the requirement of DTS machines should be equal to BCMs. It was observed that 27 DTS machines[52] were in excess as of March 2014 when compared with the number of BCMs. Despite having excess DTS machines, seven more DTS machines were awaiting receipt by the three Zonal Railways (WR, SR and NCR).

iv. While 13 Zonal Railways suffered shortage of **30** Plasser's Quick Relaying System (PQRS) machines[53] (for track laying) with respect to their requirements; one Zonal Railway (*WR)* had three machines in excess.

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[46] ***50 per cent of 77922+9707 km. being construction unit requirements +1944 kms being tamping requirements due to track renewals***

[47] ***capacity adopted in the Master Plan***

[48] ***NWR (4), SCR (6), CR (3), SECR (5), WCR (1), NCR (1), ER (1), SR (2), NR (3), SER (3) and ECR (2)***

[49] ***(50per cent of 67570+18901 nos. being construction unit requirements, deep screening requirements and tamping requirements due to point & crossing renewals)***

[50] ***SCR (2), WR (3), CR (3), NFR (2),SER (2), SWR (1), WCR (2) and SECR (4)***

[51] ***Deep screening of ballast on track is being done through BCMs followed by one round of tamping through tamping machines and further followed by track stabilisation through DTS machines as per para 3.3.4 (v) under chapter 3 of IRTMM to restore the speed of 40 kmph immediately after deep screening work***

[52] ***NWR (1), SCR (3), WR (2), CR (1), NER (1), NFR (1), SER (2), SR (2), SECR (3), NR (3),WCR (2), ECR (3), ECoR (1), NCR (2), SWR (-1) and ER (1)***

[53] ***NWR (1),SCR (3),NER (2),NFR (2),SWR(2),SECR(2), NR (9),WCR (1),NCR (4), ECR (1),ER (1), ECoR (1)and CR (1)***

v. Shortage of machines such as BCM[54] (39 shortage), SBCM[55] (18 shortage), and T-28[56](34 shortage) with respect to requirements was also noticed. **Appendix B**

Thus, the above instances of injudicious distribution of track machines in various Zonal Railways were indicative of the fact that the procurement and distribution of track machines to Zonal Railways was not based on work potential as contended by Railway Board.

2.6.4.1 Fixation of targets by the Railway Board

Fixation of annual targets for the ensuing year for working of track machines is being initiated based on the feed back received from Chief Track Engineers (CTE) of Zonal Railways. There are defined criteria[57] for fixing annual target for working of different types of track machines.

Scrutiny of records relating to fixation of targets by Railway Board revealed that the target was not fixed as per actual requirements of Zonal Railways as discussed below.

(a) Target fixed for Plain Track Tamping Activity

During 2009-14, targets fixed by Railway Board for plain track tamping activity were higher by 83266 kms as compared to the requirements assessed by the 12 Zonal Railways[58] and short of requirements by 23534 kms in respect of four Zonal Railways[59]. It was observed that even the requirements assessed by the Zonal Railways were on the higher side when compared with the requirement assessed in audit as evident from the figures of 2013-14 (85080 kms[60]) compared with the requirements assessed in Audit for the same year (50161 kms). On the basis of audit assessment, excess tamping worked out to 79637 km.[61] in **11** Zonal Railways[62] resulting in extra expenditure.

Appendix- C

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[54] ***NWR (2), SCR (4), WR (5), CR (2), NER (1), NFR (2), SER (1), SWR (2), SR (3), SECR (2), NR (6), WCR (2), ECR (4), ER (1) and ECoR (2)***

[55] ***NWR (1),SCR (2),WR (3),NER (1),NFR (1),SWR (1),SR (2), SECR (1), NR (1), WCR (2), ECR (1), NCR (1) and ER (1)***

[56] ***SCR (4), WR (2), NER (2), NFR (2), SWR (1), SR (2), SECR (4), NR (1), WCR (4), NCR (6), ECR (2), ER (1), NWR (1), CR (1) and SER (1)***

[57] ***For Rail Grinding Machines (RGM): Target had been fixed based on deployment plan prepared by RDSO considering guidelines of periodicity of grinding cycle For TRT, PQRS, T-28 and Rail Threaders: Zone wise output per machine per month during last three years was computed and average output of last three years was taken as base output. Base output was fixed as target subject to minimum of 72 kms per machine per annum for TRT, 24 kms per machine per annum for PQRS, 96 T/Os per machine per annum for T-28 and 72 kms per machine per annum for Rail Threader. For all other machines: Base output was fixed as target subject to minimum of base output (-) 10 per cent and maximum of base output (+) 10 per cent.***

[58] ***CR (9980), ECoR (2047), NCR (7580), NER (887), NFR (842), NR (24338), NWR (2765), SCR (10573), SECR (5699), SR (2514), SWR (4401) and WR (11640)***

[59] ***ECR (4375), ER (2273), SER (7482) and WCR (9404)***

[60] NR (4348), WCR (4291), ECR (8100), NCR (3998), ER (5736), ECoR (8774), NWR (3485), SCR (9735), WR (5057), CR (4809), NER (2607), NFR (3353), SER (6105), SECR (3822), SWR (3424) and SR (7436)

[61] ***Actual Units worked 308929 km – Assessed Requirement 229292 km.-79637 km.***

[62] ***NWR (3908), SCR: (8577), WR (13760), CR (8998), NER (1645), SECR (2656), SR (5849), SWR (4188), NR (16445), ECoR (7312) and NCR (6299)***

(b) Target fixed for deep screening and Shoulder Ballast Cleaning Activity

As per stipulated yard stick, 10 *per cent* of the total length of track has to be subjected to deep screening of ballast on track and shoulder ballast cleaning per year. Even as the requirements assessed by Zonal Railways were less for deep screening and shoulder ballast cleaning activity as per stipulated yard stick as compared to the stipulated yard sticks, targets fixed by the Railway Board for working of BCMs were short of requirements for eight Zonal Railways by 2912 kms[63]. Similarly targets fixed for SBCMs by the Board were short of requirements for 13 Zonal Railways by 3829 kms[64].

Appendix- C

(c) Target fixed for Track Stabilisation Activity

Targets were fixed in excess of the requirements for all the Zonal Railways by 168198 kms[65]. As a result, actual units worked by DTS during the period of review were in excess of the requirements by 145050 kms incurring avoidable extra expenditure. This was due to working of DTS machine for track stabilisation at other tamping locations as well though the same was not contemplated in Para 3.1.4 and 3.2.3 under Chapter 3 of IRTMM[66]. ***Appendix- C***

(d) Targets fixed for other track machines

Targets fixed by Railway Board for other track machines were either in excess or short of Zonal Railways requirements as tabulated below.

Table 2.4: Fixation of targets with reference to requirement

Sl	Name of the activity/ Machine working	Excess (Km/No)	Shortage (Km/No)
1	PQRS/ TRT (for track laying)	**34** (NWR, CR, SR, SWR)	**1738** (NCR, ER, ECR, NR, SECR, SER, SCR, WR, NER, NFR, WCR)
2	Turnout Tamping (for tamping of points and crossings)	**23838** (NWR, SCR, WR, CR, NFR, SECR, WCR, NCR)	**13946** (NER, SER, SR, SWR, NR, ECR, ECoR and ER)
3	T-28 (for laying of points and crossings)	**737** (SCR, SWR, NR, ECoR, NCR)	**4654** (ER, ECR, WCR, SR, SECR, SER, NFR, NER, CR, WR, NWR)

****In respect of ECoR, there was no shortage or excess for PQRS/ TRT machine.***

Thus, the targets fixed by Railway Board for track machine working were not need based. Targets were fixed either in excess of requirement or fell short of requirement of Zonal Railways leading to carrying out the works beyond requirement or short fall in achievement of mechanized maintenance.

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[63] ***WR (230), CR (235), NER (2), SER (830), SECR (95), NR (719), ECR (518) and ER (283)***

[64] ***NWR (198), WR (93), CR (175), NER (30), SER (481), SECR (145), SR (200), SWR (55), NR (1464), WCR (150), ECR (516), ER (301) and NCR (21)***

[65] ***As brought out in the sub- para [2.7.4(iii)] above, number of DTS machines should be equal to number of BCMs. Hence requirements assessed for working of BCMs by the zones had been adopted in Audit as requirements for working of DTS machines.***

[66] ***Para 3.1.4 and 3.2.3 of IRTMM contemplates only checking and tightening of loose fittings, Replacement of broken fittings, proper consolidation of ballast and checking of final track parameters after tamping by tamping machines.***

2.6.5. Deficient Planning

2.6.5.1 Method of planning for tamping

IRTMM provides that tamping cycle on PSC sleeper track to be adopted is once in two years or passage of 100 GMT of traffic, whichever is earlier and on other than PSC sleeper track, once a year. In April 2009, Railway Board directed all the Zonal Railways to have need based tamping as per TGI criteria since the existing tamping between 1 and 2 years, as per tamping cycle, was felt on the higher side and also would result in faster ballast degradation and higher requirement of maintenance blocks.

Out of 231433 kms planned for tamping during the review period 2009-14, 26447 kms only had been planned based on TGI criteria[67] and the balance 204986[68] kms had been planned based on tamping cycle[69]. In response to Audit queries regarding non adoption of TGI criteria, Zonal Railway Administrations stated the following.

(i) Railway Board's instruction to adopt TGI criteria was only in the form of suggestions and had not superseded the provisions of IRTMM (*SCR, NWR, NR*)

(ii) Need based tamping was adopted instead of TGI criteria (*WR*)

(iii) TGI criteria was adopted for Group B routes and tamping cycle was adopted for other routes (*SWR*)

(iv) Tamping Cycle was adopted to maintain track in good condition in view of safety (*SR*)

(v) Since total length of track in the Zone fell under 25T axle load, tamping cycle as stipulated in IRTMM was adopted (*ECoR*).

(vi) TGI criteria was not adopted due to absence of provision in this regard in IRTMM (*NCR*)

(vii) TGI criteria not adopted due to bad bank, deteriorated condition of Rail & Sleeper, Soil erosion, etc (*ER*).

The above contentions of the Zonal Railways were not tenable in the context of Railway Board's directive to assess the tamping requirements as per TGI criteria. Non adoption of TGI criteria not only resulted in extra expenditure due to excess tamping but also resulted in excess utilisation of scarce maintenance blocks. In November 2014, Railway Board had left it to the discretion of Zonal Railways authorities for arriving at the requirements depending on the track conditions till a rational criterion is stipulated.

2.6.5.2 Utilisation of plain track Tamping Machines

Tamping charts prepared for the years 2012-13 and 2013-14 were critically analyzed and the results were as follows:

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[67] ***SCR (10788), SER (450), NFR (1437), WCR (6173), SECR (1729), SR (1633),WR (826), NER (2158) and ER (1253)***

[68] ***NWR (7663), SCR (15633), WR (16573), CR (21062), NER (4486), SER (9732), NFR (10344), SWR (8641), SR (19816), SECR (5817), WCR (7967), NR (21835), ECR (9921), ECoR (13047), NCR (21641) and ER (10808)***

[69] ***Period between two tampings***

(A) Planning Deficiencies

Out of the total length of 73699 km. of track identified for mechanised maintenance during the 2012-13, 44230 km. of track was to be tamped as per tamping cycle. It was noticed that 48960 km. of track was programmed for tamping during 2012-13. Similarly, out of 36850 km. required to be tamped, 53491 km. of track was tamped during 2013-14.While 1338 km. and 549 km. of track due for tamping was not taken up during 2012-13 and 2013-14 respectively, 7418 km. and 5039 kms of track was included though not due for tamping during the above periods as shown in the table below:

Table 2.5: Deficiency in planning tamping programme during 2012-14

Sl. No.	Description	2012-13	2013-14
1	Length of track identified for mechanised maintenance	73699	77922
2	Length of track to be tamped as per prescribed tamping cycle through machines (kms)	36850	44230
3	Length of track included in advance programme (kms)	48960 *	53491 ^
4	Length of track due but not included in the advance programme (kms)	1338 **	549 ^^
5	Length of track not due but included in the advance programme (kms)	7418 ***	5039 ^^

**** Data from ER and NER not made available to audit,** Data from WR, NER, NFR, SER and ER not made available to audit,*** Data from ER, NER, SER and WR not made available to audit***

^ Data not made available to audit for SWR & ER,^ ^ Data not made available to audit for SER, SWR & ER

On being pointed out the above deficiencies in planning for tamping, South Western Railway administration stated that the stretches of track were considered for tamping due to less traffic and good geometrical parameters of the section. They further asserted that the section though not due for tamping were planned due to deterioration of track parameters. The contention of the Railway Administration was not supported by scientific data/justification and hence not acceptable as the geometrical parameters of a track is judged through Track Geometry Index (TGI) value which was not adopted for assessing the condition of the track.

(B) Execution Deficiencies

'Tamping Chart' depicts the actual execution of tamping of track and the length of track actually tamped. 60409 km. and 58116 km. of track respectively was actually tamped by plain track tamping machines during 2012-13 and 2013-14 respectively. Of them, 10352 km. and 10176 km. of track was tamped though not due[70]. In addition, 5341 kms and 6001 kms of track underwent repeated tamping during the above period which resulted in extra expenditure of ₹ 76.78 crore[71]. Further, 9963

[70] ***It included the length of track not due but covered in the advance programme***

[71] ***₹ 34.44 during 2012-13 and ₹42.34 crore during 2013-14***

kms and 12699 kms of track was also not tamped though due for tamping during the same period.

Table 2.6: Position showing tamping carried out during 2012-14

SL. No.	Description	2012-13	2013-14
1	Total Length of Track actually tamped (kms) by machines	60409	58116 #
2	Length of Track Not Tamped though due (kms)	9963 *	12699 ##
3	Length of Track tamped though not due (kms)	10352 **	10176 ###
4	Length of Track tamped repeatedly in the same year (kms)	5341 ***	6001 $
5	Extra expenditure involved in repeated tamping (₹ in crore)	34.44****	42.34 $$

Data not made available to audit by SR, ECoR and ER,** Data not made available to audit by SER, SR and ER, Data not made available to audit by NWR, SER, SR, SECR, NR and ER,**** Data not made available to audit by NWR, SER, SR, SECR, NR and ER,# Data not made available to audit by SWR,## Data not made available to audit by NR, SR and SWR,### Data not made available to audit by NR, SR, SER and SWR,$ Data not made available to audit by NWR, SER, SWR, SR, NR and SECR,$$ Data not made available to audit by NWR, SER, SWR, SR, NR***

A review of the track maintenance activity carried out during 2009-14 with the available track machines other than plain track machines revealed the following:

i. **Points & crossings tamping machines:** 51764 points and crossings were tamped in excess of requirements by eleven Zonal Railways[72] and 14246 were tamped short of requirements by five Zonal Railways[73]. ***Appendix- D***

ii. **Ballast cleaning machines (BCM):** Out of 40585 km. of track requiring deep screening of ballast (as per yard sticks), 30984 Km. of track was deep screened which included 19617 km. deep screened with BCMs and 11367 km. where deep screening was carried out manually. ***Appendix- D***

iii. **Shoulder ballast cleaning machines**: As against 35755 km. of track requiring shoulder ballast cleaning (as per yard sticks), cleaning of only 16517 km. (46 *per cent)* had been carried out.

iv. **DTS Machines:** The utilization of DTS machine was in excess by 145050 km.[74] as compared to requirement of 23804 km. assessed in audit. The excess was due to working of DTS at other tamping locations though not required as per IRTMM.

[72] ***WR, CR, NFR, SER, SR, NR, WCR, ECR, NCR, ECoR and ER***
[73] ***NWR, SCR, NER, SWR and SECR,***
[74] ***Refer to sub-para 2.7.4.1 (c)***

v. **PQRS Machines:** Status of utilization of PQRS machines during 2009-14 was as follows:

- The quantum of work done for track laying and T-28 for turn out laying was in excess of Railway Board targets by 132 km. in respect of four Zonal Railways[75] and 271 units in respect of SR;
- The quantum of work done by these machines fell short of Railway Board target by 1845 km. in 12 Zonal Railways[76] and 1928 units in 15 Zonal Railways[77].

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- As against 11265 kms of track renewal planned[78], only 5246 kms[79] was done by machines and 5625 kms[80] was done manually and the balance 394 km of planned track renewal was not done.
- Out of 22020 number of turnout renewals planned[81], only 9648 were renewed by machines[82] and the balance 12372 numbers renewed manually.

vi. **Ballast Regulating Machines (BRM):** The quantum of work done in respect of BRM was in excess of Railway Board's target by 4847 km. in respect of five Zonal Railways[83] and short by 16835 kms in respect of 11 Zonal Railways.

vii. **Multipurpose Tamping Machine MPT):** The quantum of work done in respect of Multipurpose Tampers (MPTs) was in excess of Railway Board's target by 454 km. in respect of three Zonal Railways (ECR, SWR & SR) and short by 5784 kms in respect of eight Zonal Railways[84]. In the remaining five Railways,[85] MPTs were not available.

The reason for excess/shortage with reference to requirements/targets was not available on record with the Zonal Railways. The excess working of tamping machines and DTS had resulted in extra expenditure and unnecessary consumption of

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[75] SCR-75, NFR-54, NCR-2 and ECoR-1
[76] NWR-27,WR-105,CR-289,NER-23,SER-84,SWR-103,SR-156,SECR-39,NR-460,WCR-285,ECR-123 and ER-151.
[77] NWR-143,SCR-42,WR-59,CR-239,NER-124,NFR-28,SER-171,SWR-139,SECR-68,NR-150,WCR-160,ECR-219,NCR-157,ECoR-31 and ER-198.
[78] NWR-448,SCR-1030,WR-449,CR-660,NER-517,NFR-770,SER-371,SWR-1229,SR-513,SECR-463,NR-1803,WCR-423,ECR-967,NCR-1083,ECoR-78 and ER-461.
[79] NWR-147,SCR-848,WR-139,CR-357,NER-3,NFR-512,SER-177,SWR-185,SR-322,SECR-41,NR-1293,WCR-233,ECR-325,NCR-437,ECoR-53 and ER-175.
[80] NWR-317,SCR-283,WR-354,CR-189,NER-443,NFR-281,SER-458,SWR-666,SR-191,SECR-424,NR-0,WCR-210,ECR-777,NCR-552,ECoR-99 and ER-383.
[81] NWR-1118,SCR-1652,WR-1786,CR-1355,NER-705,NFR-727,SER-1398,SWR-817,SR-1128,SECR-1544,NR-931,WCR-1518,ECR-1700,NCR-2704,ECoR-891 and ER-2046.
[82] NWR-425,SCR-1410,WR-777,CR-229,NER-340,NFR-465,SER-869,SWR-367,SR-1278,SECR-421,NR-876,WCR-403,ECR-709,NCR-311,ECoR-482 and ER-286.
[83] SCR, WR, SWR, ECR and ECoR
[84] NFR, SER, SECR, NR, WCR, NCR, ECoR and ER
[85] NWR, SCR, WR, CR and NER

maintenance blocks. Deep screening of ballast, track laying and turnout renewal works were carried out manually due to shortage of machines.

C. Provision of maintenance blocks for working of track machines

As stipulated by the Railway Board, maintenance blocks are to be provided as under:

Table 2.7: Prescribed duration of maintenance blocks

1.	On Single Line Section	Either one block of at least 4 hours or 2 blocks of 2 $^{1/2}$ hours daily or in exceptional cases, minimum 2 hours daily wherever 2 $^{1/2}$ hours are not possible
2.	On Double Line Section	a) One spell of 4 hours on "Up" or "Dn" line daily; or b) Two 2 $^{1/2}$ hours split blocks on "Up" or "Dn" line on alternate days; or c) One 2 $^{1/2}$ hours block on each line daily or in exceptional cases minimum 2 hours wherever 2 $^{1/2}$ hours are not possible.
3.	On Construction Projects and Multiple Lines	Additional working hours/ blocks should be planned.

CE and COM of the Railway are required to ensure that the identified corridor blocks as above are incorporated in the working time tables and the requisite blocks are available for maintenance of track.

A review of provision of maintenance blocks for working of track machines for 2012-13 and 2013-14 revealed the following:

i. Average *per cent* of granted block hours to stipulated Block Hours and Granted Block Hours to Demanded Block Hours during 2012-13 and 2013-14 was about 55 *per cent* and 59 *per cent* respectively;

ii. Operating department of Zonal Railways granted less block hours within the corridor blocks and lesser average block per spell; and

iii. In 2012-13, Per cent of Granted Block Hours to Demanded Block Hours was less than the all India average in 10 Zonal Railways[86]. Similarly, in nine Zonal Railways[87], per cent of Granted Block Hours to Demanded Block Hours were less than the all India average during 2013-14. Details are indicated in ***Appendix H***.

[86] ***SCR (57), CR (52), NFR (56), SER (57), SECR (49), NR (56), WCR (53), ECR (53), NCR (40) and ER (55)***
[87] ***CR (51), NER (50), SER (57), SECR (45), NR (48), WCR (52), ECR (58), NCR (37) and ER (55)***

Thus, failure of TMO in demanding full stipulated block hours, granting of less block hours by the Operating department within the corridor blocks and lesser average block per spell had contributed to factors leading to failure in optimal utilization of track machines during the limited maintenance block hours as discussed in the succeeding paragraph (Sub-para-E). Granting of less block hours than was actually required was indicative of absence of due priority by the Railway Administration for maintenance of track .

D. Shortfall in inspections of Track Machines

Inspections of the machines are to be carried out and the inspection reports sent to SE/MC endorsing a copy to Dy.CE/MC and JE in charge of the machine for compliance. Though Dy.CE and the SE are required to conduct inspections of track machines, periodicity for the same has not been prescribed. The periodicity prescribed for conducting inspections by the AEN and SSE of the TMO is indicated in ***Appendix- E***

Scrutiny of records relating to inspections conducted by officers and supervising staff and their inspection reports for the year 2012-13 revealed that while there was a shortfall of 3063 number of inspections at the level of AENs, shortfall at the level of SSEs was 7077. Failure to observe the prescribed frequency of inspection had adverse impact on the fitness of track machines as observed in the succeeding paragraph.

E. Idling of Track Machines

The idling of track machines is being monitored by the TMO at the Zonal level and reported to Railway Board through monthly progress reports. Cases of idling of track machines due to the reasons such as delay in commissioning of machines, programme not planned, block not planned, block not given by the Operating department, no scope of work, other reasons including shortage of manpower, repairs, engine breakdown, etc were noticed. The details are tabulated below:

Table 2.9:Loss of machine days due to idling of track machines

Period	No. of Machines	Total No. of machine days for which the machines were idle	Reasons
April 2009 to March 2014	31 [88]	4185	Delay in commissioning
April 2012 to March 2014	17 [89]	277	Programme Not Planned by TMO
April 2012 to March 2014	133 [90]	10098	Block Not Planned by Divisions

[88] *SWR (3), NWR (2), ER (2), SR (1), NR (3), NCR (3), NFR (1), SCR (5), ECR (3), NER (4), ECoR (1) and SECR (3)*
[89] *NCR (17)*
[90] *SWR (7), NWR (22), SER (20), ER (23), NFR (10) and SCR (51)*

April 2012 to March 2014	160 [91]	3832	Block Not Given by the Operating Department
April 2012 to March 2014	341 [92]	18252	Other reasons such as shortage of manpower, repairs, want of spares, engine break down, oil leakage, etc
April 2012 to March 2014	1 (SR)	730	Stabled due to Operational Problems
December 2013 to March 2014	1 (NER)	120	No scope of work

Some instances of loss due to idling of machines are discussed below:

I. Indian Railways procured two Rail Grinding Machines (RGMs) at a total cost of ₹190 crore[93]. One RGM was allotted to SCR (February 2011) to cater to the needs of SCR, SR, SWR, SER and ECoR. The other RGM was allotted to NCR to cater to the needs of NCR, NR, ECR and ER. For the utilisation of RGMs, Railway Board issued (May 2009), a Joint Operation and Engineering Circular which stipulates that four hours traffic block per day and six hours mega blocks on weekends be made available. A review of the utilisation of the machines in SCR (during 2011 to 2014) and NCR (during 2011 to 2013) revealed the following:

- In SCR, it was observed that during the period from 2011 to 2014, as against the target of 2768 block hours (692 working days) to be provided for, only 1946 block hours (486.50 working days) were provided resulting in short provision[94] of 822 [2768-1946] block hours (205.50 working days), Underutilisation of the machine by the Railways had resulted in loss of ₹24.66 crore[95] besides non-accrual of benefits such as increase in rail life on account of reconditioning of rail profile, reduction of frequency of rails renewal and improvement in running quality of tracks.

- On being pointed out, SCR Administration stated (July 2013) that every effort was made to increase the monthly utilisation of machines but it could not be increased due to infrastructure problems and increase in number of passengers and freight trains (September 2013).

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[91] SWR (42), NWR (14), ER (40), SR (12), NFR (1) and SCR (51)
[92] SWR (54), CR (37), NWR (34), SER (31), ER (25), SR (40), WCR (8), NR (9), NCR (24), NFR (31), SCR (18), ECR (14), NER (01) and SECR (15)
[93] from M/s Loram Maintenance of Way Inc, USA under Railway Board's contract (October 2008)
[94] After providing time for weekly schedule for maintenance, shifting, etc.
[95] Cost of idling of the machine was assessed by SCR Administration at ₹0.12 crore per day

- The reply of the Railway Administration was not acceptable as Railway Administration failed in complying with Railway Board's directives through Joint Operation and Engineering Circular (May 2009) for making available stipulated block hours to RGM even by resorting to single line working or cancellation/ regulation of trains. Railway Administration also failed in ensuring due priority in arranging block hours to the RGM as directed by Railway Board (July 2011).

II. In NCR, as against the target of 2000 block hours to be provided during August 2011 to March 2013, only 941 block hours (47.05 hours per month on an average) were provided resulting in short provision of 1059 block hours (318 days). Out of this, machine could not be utilised for 125 days (416 hours) due to weekly schedule maintenance, shifting, etc. Non-utilization of RGM for 643 hours (193 days) had resulted in a loss of ₹23.16 crore.

III. Out of two Rail Grinding Machines (RGM) one machine was lying idle in SCR for 84 days during the year 2013due to failure of two engines. After working for only 5000 hours, the engines prematurely failed within two months from the date of expiry of warranty period. While the Railway Administration stated that the failure occurred due to engine running in overheated condition, the manufacturer attributed the failure to lack of proper daily maintenance. After three years of its procurement, , RDSO issued a draft maintenance schedule for RGM in January 2014. It was observed that the periodical schedules of inspection by AEN/ SSE were not carried out. Inadequate maintenance led to idling of RGM, resulting not only in loss of ₹ 8.52 crore (at the rate of ₹ 0.12 crore per day as worked out by SCR administration for 71 days after allowing five days per month for routine maintenance) but also avoidable expenditure of ₹ 0.62 crore towards repairs.

IV. One Track Machine (VM 170) meant for cleaning the drainages in the track and removing fouled ballast and muck in the track was procured by Railway Board at a cost of ₹9.32 crore and taken over by CR (April 2001). CR utilised the machine till July 2008 and thereafter transferred it to SR as per Railway Board's instructions. While in CR, it had encountered numerous problems which were not rectified. It was stated (July 2004) that the vacuum pump of the machine was beyond economical repairs. Despite the fact, SR agreed to take over the machine (July 2008). To keep the machine working, SR spent an amount of ₹1.13 crore towards repairs/ spares which included replacement of vacuum pump at a cost of ₹0.73 crore. Out of 1066 days (between August 2008 and June 2011), the machine worked for 245 days.

In June 2011, when the SR Administration took up the matter to transfer the machine to some other Railways, Railway Board issued orders to shift the machine back to CR (October 2011). Central Railway Administration, however, did not agree to the proposal. Railway Board, therefore, advised (May 2012) SR to continue to use the machine in SR itself. The machine

continued to remain idle since June 2011. No final decision had been taken either to condemn the machine or put the same into use.

F. Repairs and Maintenance of Track Machines

As per provisions contained in Chapter 6 of IRTMM, repairs to and maintenance of track machines are to be carried out as per Schedules I to VII. The periodicity and the duration prescribed for these schedules are indicated in the following table:

Table 2.10: Periodicity and duration of maintenance schedule

Schedule	Periodicity	Duration	Location
I	Daily	1 Hour	In the field (Camp Coach)
II	50 Engine Hours	2 Hours	In the field (Camp Coach)
III	100 Engine Hours	1 Day	In the field (Camp Coach)
IV	200 Engine Hours	2 Days	By Mobile Van
V	1000 Engine Hours	7 Days	By Workshop (IOH/POH)
VI	2000 Engine Hours	45 Days	By Workshop (IOH)
VII	6000 Engine Hours	90 Days	By Workshop (POH)

Schedules I to IV were carried out in the field at the locations where the machines were deployed. Intermediate Over hauling (IOH) under schedule V and VI were being done at base depots of Zonal Railways. Schedule VII was being carried out in POH Workshops under SCR and NCR jurisdictions where Periodical Over Hauling (POH) Workshops facilities are available.

Scrutiny of records relating to time taken for overhauling of track machines during 2009-14 revealed the following:

i. The time consumed for first IOH in respect of 110 machines of seven Zonal Railways[96] exceeded the prescribed time limit by 27 days to 392 days during the review period. Time consumed for the second IOH in respect of 59 machines of eight Zones[97] exceeded the prescribed time limit by 11 days to 373 days.

ii. The time taken for POH in respect of 97 machines of 14 Zonal Railways[98] exceeded the prescribed time limit by 78 days to 859 days.

[96] *SCR (32), CR (6), SER (14), SWR (16), ECoR (5), WCR (17) and WR (20)*
[97] *SWR (2), SR (6), SECR (5), NR (7), ECR (5), NCR (4), ER (27) and WCR (3)*
[98] *NWR (3), SCR (10), WR (4), CR (7), SER (3), SWR (4), SR (5), NR (21), ECR (3), ECoR (2), NCR (5), ER (9), NFR (9) and WCR (12)*

iii. In SER, machines were taken up for IOH in the same year before they became due in terms of worked units and thereby violated the prescribed norms for IOH as detailed below:

Table 2.11: Premature overhauling of track machines

Name of Machine	Year	IOH	Output during the year (km.)	Yardstick[99] (work units between IOH)
BCM-342	2009-10	1st and 2nd	43.09	175
BCM-318	2009-10	1st and 2nd	45.58	175
FRM-1887	2009-10	1st and 2nd	102.06	500

Thus, excess time taken for overhauling of track machines resulted in non availability of those machines for maintenance of track. In addition, premature over hauling of track machines indicated lack of monitoring in planning of maintenance schedules.

2.6.5.3 Condemnation of Track Machines

A. Premature condemnation of track machines

The life of track machines is computed in terms of gross units of work done as indicated in Annexure 5.9 of IRTMM. Further, as per Railway Board's instructions, no machine should be condemned before the codal life of 18 years and the life stipulated in terms of work done.

Scrutiny of records relating to condemnation of track machines revealed that :

i. Eight track machines had been prematurely condemned before completing the stipulated life of machines in terms of units of work done[100] and four machines had been prematurely condemned before the completion of 18 years[101].

ii. Two machines (NWR 01, SER-01) were prematurely condemned before completion of life of machine in terms of work done and before completion of Codal life in terms of years.

iii. The premature condemnation was mainly due to limited capacity of the machine (WR and NR), inferior quality of work done (CR), frequent breakdowns, irrepairable conditions of the machine and non-availability of spares (CR, SER, SWR, SECR and NCR). The reasons cited for premature condemnation were indicative of inadequate maintenance of machines. ***Annexure-VIIA***

[99] *Yardstick as laid down vide Correction Slip no. 10 dated 12/12/2006 to IRTMM March 2000*
[100] *CR (2), SER (2), SWR (1), SECR (2) and NR (1)*
[101] *WR (1), NR (1) and NCR (2)*

B. Non disposal and delay in disposal of the condemned machines

During 2009-14, 46 track machines were condemned with the approval of Railway Board. Scrutiny of records relating to disposal of condemned track machines revealed the following:

i. 18 machines[102] were not disposed off as scrap as on 31 March 2014. The machines were lying without disposal for the period ranging from 7 months to 323 months from the date of grounding to March 2014.

ii. In seven Railways[103], 27 machines were disposed off as scrap with a delay ranging from 4 months to 155 months after allowing a reasonable period of twelve months from the date of grounding.

iii. In respect of the machines disposed off, no write back adjustments to the capital were carried out for the scrap value and for the value of salvaged parts of the machines. The avoidable dividend liability due to delay in disposal and non write back of adjustments to capital in respect of 23 machines[104], where data was available, worked out to ₹2.69 crore[105].

iv. The reasons for non disposal/ undue delay in disposal of machines was due to delay in sending proposals to Railway Board for condemnation, delay in according approval and delay in disposal as scrap. ***Annexure VII (B and C)***

C. Track machines stabled for condemnation

As per Railway Board's instructions, no machine should be shown as stabled for condemnation unless a complete proposal is submitted by the field office to Headquarters for taking administrative decision to refer the case to the survey committee.

A review of the track machines stabled for condemnation as at the end of March 2014 revealed that:

i. Out of 33 machines stabled for condemnation, 31 machines were stabled ranging from 7 months to 240 months from the date of grounding[106] (date of grounding for 2 machines was not available).

ii. Proposals for condemnation of 25 machines[107] had not been submitted to Railway Board. Approval of condemnation by the Board was pending in respect of eight machines[108].

iii. The reasons for non- submission / delayed submission of proposal to Railway Board was due to non-availability of SAG officers, delayed submission of detailed report to Headquarters by field units (WR) delayed in receipt of condemnation report from the nominated standing committee (CR), delay in formation of SAG committee (NR and SR), proposal to sell the machine to IRCON (SCR) delay in conducting Joint Inspection (NCR).

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[102] *NCR (2), SECR (1), SER (2), SR (5), WCR (1), WR (5), ER (1) and NER (1)*
[103] *SCR (2), SER (3), SWR (1), SECR (3), NR (14), ER (1) and SR (3)*
[104] *SER (4), SWR (1), SECR (3), NR (12), ER (1) and SCR (2)*
[105] *SCR:₹0.03crore, SER: ₹0.514 crore, SWR: ₹0.19 crore, SECR: ₹0.32 crore, NR: ₹1.55 crore and ER: ₹0.0823 crore*
[106] *NWR (2), SCR (2), CR (3), WR (5), NER (1), SER (1), NR (4), NCR (4) and SR (11)*
[107] *NWR (2), SCR (1), CR (3), NER (1), SER (1) NR (4), NCR (2) and SR (11)*
[108] *SCR (1), WR (5) and NCR (2)*

The reasons were not available in respect of SER, NER and NWR. ***Annexure VIII***

iv. Master Plan for procurement of machines had been prepared taking in to account the track machines due for condemnation on age basis. The non condemnation /disposal of the same had led to procurement of machines on replacement account without actually disposing of the old machines. Instances of indecisiveness as observed in SER and NER in condemning track machines are discussed below:

a) SER administration, proposed (March 2004) to Railway Board (March 2009) for condemnation of one Duomatic tamping machine (commissioned in October 1987) on age cum condition basis. After a lapse of almost six years, Railway Board accorded administrative approval (February 2010) for conversion of this machine into a self propelled Rail Borne Maintenance Vehicle (RBMV), which was lying idle at TMD/ Kharagpur since July 2009, either by SER or through Central Periodical Overhauling (CPOH) Workshop of NCR. The machine was dispatched to CPOH Workshop (July 2010). After a lapse of nearly two years, CPOH intimated SER (March 2012) that the conversion work could not be taken up due to non-availability of prior experience and increased work load in CPOH workshop. SER was advised to go for condemnation instead of conversion. In May 2012, SER advised NCR to scrap the machine and transfer the credit value to SER. However, the machine had neither been converted into RBM Vehicle nor condemned till September 2014.

b) In August 2008, NER received one Rail Cum Road Vehicle (RCRV) from NCR where it was commissioned in July 2002. RCRV was meant for transportation of Railway material from worksites. Since its arrival at NER, the machine remained idle as it was not in working condition. The Codal life of such vehicles is 15 years which implied that 40 *per cent* of the codal life of the vehicle was lost without any productive yield.

Thus, non disposal of the machines had resulted in payment of dividend liability to general revenues.

Objective IV: To see whether a proper system was in place for assessing the requirement of manpower and its effective deployment ensuring continued operations

2.6.6 Staff availability vis-à-vis actual requirement

As per Para 8.2.1 of IRTMM the staff required for machine working is grouped into three categories namely i) Staff for field operation, ii) Staff for field supervision, technical and general services and iii) Staff for repairs and maintenance, excluding POH.

While scale of staff for field operation has been laid down for each type of machine separately, scales of staff for other groups have been laid down for the units of the machines giving weightage factors to different types of machines, as provided in Para A of Annexure 8. 1 of IRTMM.

Sanctioned strength vis-à-vis men in position as on 31 March 14 for various categories of staff such as SSE/ JE/ TMM and helper with reference to requirements prescribed in Chapter 8 of IRTMM revealed that all the 16 Zonal Railways suffered shortage ranging between 19.35 *per cent* and 69.15 *per cent* in respect of SSE/JE, 2.94 *per cent* and 63.57 *per cent(except in SWR* where there was no shortage) for TMM and 3.20 and 66.01 *per cent* (except in NFR where number of helpers were in excess by 15.38 *per cent*) for Helper as indicated in ***Appendix- F***.

The shortage of staff had resulted in loss of machine days due to idling of machines as pointed out in sub-para 2.6.5.2 (E)

2.6.6.1. Surrender of Trackmen Posts consequent upon introduction of track machines

The creation of posts in TMO for manning new machines has been done with matching surrender of trackmen posts by adopting a formula for calculating the requirement of trackmen in respect of track maintained by track machines. Scrutiny of records revealed that there was shortage of trackmen on rolls in general as compared to the sanctioned strength. Hence surrender of posts of trackmen and their redeployment due to progressive mechanisation of track maintenance was covered under existing vacancies.

2.6.6.2 Training of track machine operators

Indian Railways Track Machines Training Centre (IRTMTC), Allahabad imparts training to the track machine operators. Dy.CE/ TM issues competency certificates valid initially for three years and renews it for a further period of three years after holding a test. However, the machine operators should undergo refresher courses at IRTMTC once in three years.

Scrutiny of records relating to training of track machine operators during 2009-14 revealed that:

i. Out of 2980 numbers of operators due for training in 16 Zonal Railways (except in ECR where the records were not available), there was a shortfall of 703 numbers of operators in undergoing training during the review period.

ii. While the overall shortage was about 20 *per cent*, the highest percentage of shortfall of operators in attending training at IRTMTC was from ER followed by ECR, NR, WCR and SER. The shortfall was due to imparting training to staff locally (ER) and shortage of staff (other Railways).

iii. 101 numbers of staff[109] had left the service during the training programme. As per conditions of engagement of the trainees, when staff deserts the training programme without completing it or do not serve for stipulated period of service after training, the cost of training, pay and allowances are to be realized from them. It was, however, observed that an amount of

[109] ***ECoR (10), ER (25), NCR (6), NR (3), SCR (15), SER (7), SWR (32) and WCR (3)***

₹2.16 crore (March 2014) was not realised from the staff responsible for violation of conditions of engagement of trainees. ***Appendix- G***

Objective V: The effectiveness of Management Information System adopted by Track Machine Organization and other issues related to consumption of fuel, accounting procedures, etc.

2.6.7 Track Management System

Indian Railways introduced "Track Management System (TMS)" as an aid to field Engineers in optimal, efficient and effective resource allocation in addition to decision making to minimize the cost of track maintenance. As a part of TMS, the progress of work done by the machines is uploaded in the TMS.

A comparison of work done during 2013 -14 by track machines uploaded in TMS with that reported to Railway Board by TMO revealed the following discrepancies.

i. Quantum of work done by track machines as per reports submitted to Railway Board by TMO varied as compared to quantum of work done as per TMS (track). Wide variations were observed in 10 Zonal Railways[110] as detailed in ***Appendix I***

ii. TMS was not implemented fully across the divisions in Five Zonal Railways[111] and therefore, comparison of data between TMS and TMO could not be made***;***

iii. The difference was reported to be due to quantum of work done as reported to Railway Board by TMO including repetitions of the work done by tamping machines at the same location depending on the site conditions to get the desired track parameters. It was, however, observed that no site reports had been maintained for excess working of the machines.

On being pointed out the issue of variation in reporting of quantum of work done by TMS and TMO, some Zonal Railways cited the following reasons:

a) Working of machines in Construction Unit not reflected in TMS and discrepancy in TMS Feeding (ECoR)

b) Incorrect uploading of quantum of work done in TMS (machine) by Engineering Controllers of respective Divisions (SWR)

c) Due to wrong conversion, TMO shows progress based on number of sleepers for tamping machine and actual run of machine for other machines whereas TMS(Machine) enter progress based on kilometerage (electrical mast Chainage) as per available facility (SER)

TMS is a vital tool for the apex management level decision making such as procurement and condemnations of machines. Variation in quantum of work done as per TMS (machine) as compared to that reported to Railway Board by TMO had

[110] ***ECoR,ECR,NFR,NR,NWR,SCR,SECR,SER,SWR and WR***
[111] ***NER, CR, SR, ER and WCR***

adverse impact in making judicious decision and proper planning for maintenance of track as brought out in Paragraphs 2.6.4 and 2.6.5.

2.6.8 Comparative analysis of consumption of HSD oil

A comparative analysis of consumption of HSD oil per unit of work done during 2011-12 and 2012-13 across Zonal Railways and also within the same Zonal Railway revealed that

i. Consumption of HSD oil by the same machines in 2011-12 and 2012-13 (between 2010-11 and 2011-12 in respect of ECR) varied widely. After providing a reasonable allowance of 15 per cent variation, excess consumption ranged from 15 per cent to 2379 per cent between the two consecutive years in respect of 264 machines[112] as shown in ***Appendix- J-1.***

ii. Consumption of HSD oil for similar type of machines for unit of work done varied widely across the Zonal Railways. After allowing a reasonable allowance of 25 per cent variation on an average consumption for different site conditions, 60 track machines of 12 Zonal Railways suffered excess consumption in comparison to average consumption of all Zonal Railways for similar type of machines. The excess consumption ranged from 25 per cent to 293 per cent for the year 2012-13 as shown in ***Appendix J-2.***

The wide variation in consumption of HSD oil by the similar machines and also excess consumption by the machines was indicative of lack of adequate internal control in monitoring consumption and identification of causes for excess consumption for initiating appropriate remedial measures in this regard.

2.6.9 Accounting of expenditure and realisation of credits for working of track machines

The expenditure of TMO is booked initially to Demand No.07-221. At the end of the year, based on the unit cost of working which comprised of expenditure on operation and Bills/ Adjustment Memo (AM) are being raised on Divisions, Construction units and outsiders where the track machines worked during the year. On acceptance of the AMs, credits are afforded to Demand No.07-221 duly debiting the amounts to Demand No.04 and to Open Line Works (Revenue) by Divisions and to Projects by Construction Units. After the credit adjustments, net figure is reflected under Demand No.07-221 in the Appropriation Accounts. Scrutiny of records, however, revealed the following deficiencies in accounting of expenditure:

i. Out of 16 Zonal Railways, 13 Zonal Railways followed the extant procedures except in three Zonal Railways (SECR,WCR and ER) where no credit adjustments were made and the entire expenditure of TMO was booked to Demand No.07-221.

ii. In four Zonal Railways (WR, SER, ECoR and NWR), only meager amount of credit adjustments towards amounts realized from outsiders were made. In

[112]CR (24), ER (4), NCR (26), NER (13), ECoR (6), NFR (22), NR (24), NWR (11), SCR (18), SECR (12), SR (3), SWR (9), WCR (21), WR (24), SER (19) and ECR (28)

ECR, the adjusted credit did not include Capital Recovery Factor (CRF) amount.

iii. An amount of ₹ 782.25 crore was afforded as credit to Demand No.07-221 in respect of 13 Zonal Railways[113] which included ₹ 184.89 crore towards CRF. Crediting CRF amount to Revenue Head (Demand No.07-221) instead of crediting to capital head of account had resulted in avoidable dividend liability of ₹23.89 crore during the review period 2009-14**.**

iv. Short realization of credits due to non adoption of the unit cost of the year in which machines were deployed worked out to ₹ 175.89 crore in respect of 13 Zonal Railways. ***Appendix-K***

2.7 Conclusion

In the Master Plan 2010-20, Railway Board projected the requirement of 396 track machines. The assessment of Railway Board was on the higher side as it did not take into account the trend of actual growth of track and adoption of tamping cycle as provided in the manual of Indian Railways (IR) and based on TGI criteria. Track machines are mostly imported. No action plan was drawn by the IR for developing of indigenous capabilities in respect of highly complex track machines in a time bound manner. There were delays in procurement of track machines either due to non-finalisation of technical specifications or due to paucity of funds. Inefficient contract management led to idling of 13 worksite tamping machines procured at a cost of ₹67.56 crore and also rendered the investment of US$ 1,115,369 unproductive due to non-commissioning of another ballast regulating machine machines.

Work load in the Zonal Railways was not properly assessed for distribution of track machines resulting in excess allotment of track machines to some Zonal Railways while in some other Zonal Railways, less track machines were distributed than the requirement. Fixation of target by Railway Board for various track maintenance activities was not commensurate with the field requirement and was also not based on TGI criteria recommended by Railway Board for assessment of tamping requirement.

Deficient planning resulted in tamping of tracks in excess of programmed tamping. Over utilisation of machines to perform various track maintenance activities in excess of actual requirement resulted in extra expenditure and unnecessary consumption of scarce maintenance blocks.

Failure of Track Machine Office in demanding stipulated block hours and granting of less block hours by the Operations Department resulted in idling of the machines. There were instances of premature condemnations of track machines. Delay in condemnation and their disposal led to avoidable payment of dividend liability to General Revenues. Significant shortage of staff for operation and maintenance of machines had resulted in idling of machines. TMS which is considered as a vital tool aiding in decision making process failed in achieving its desired objective as the quantum of work done by machines as uploaded in Track

[113] ***NWR, SCR, CR, NER, NFR, SER, SWR, SR, NR, ECR, ECoR, NCR and WR***

Management System (TMS) varied from the quantum reported to Railway Board by TMO.

Recommendations

Track Machine Directorate at Railway Board and TMOs at zonal level are dedicated wings responsible for procurement and monitoring of utilisation of track machines. Based on the findings of the review, following recommendations are made for implementation:

i. ***Railway Board needs to ensure that the distribution of track machines is made after judicious assessment of the requirement of the Zonal Railways so as to avoid holding of track machines in excess of requirement.***

ii. ***Railway Board needs to frame a comprehensive action plan for indigenous development of track machines in a time bound manner.***

iii. ***Targets for various track maintenance activities need to be realistic and fixed after due assessment of the workload of Zonal Railways.***

iv. ***Track machines available in the Zonal Railways need to be optimally utilised to minimise the extra expenditure and unnecessary consumption of scarce maintenance blocks. Effective measures need to be taken to minimise idling of machines.***

v. ***Monitoring mechanism needs to be strengthened to ensure timely disposal of condemned machines.***

vi. ***Proper coordination with operating department should be made by TMO to ensure adequate block hours for proper and adequate maintenance of track.***

vii. ***The variation in quantum of work done as per TMS (machine) as compared to that reported to Railway Board by TMO should be periodically reconciled for efficient planning.***

The matter was brought to the notice of Railway Board in January 2015; their reply has not been received (May 2015).

Appendix-A (Para 2.1)

Different types of track machines

A. Plain Track and Turnout Tamping works

Duomatic Tamping Machine	
	For packing of ballast under sleepers, correction of alignment and correction of longitudinal and cross levels, tamping machines are deployed. While Universal Tamping (UTs) Machines tamp one sleeper at a time, Duomatic Tamping Machines (DUOs) tamp two sleepers at a time.
UNIMAT	
	For the purposes of lifting, levelling, aligning and tamping Points and Crossings (Turnouts) in yards and bridge approaches with check rails, Points & Crossing Tamping Machines (UNIMATs) are deployed.
Multi purpose tamping machine	**Ballast Cleaning Machine**
	
For tamping plain track along with points and crossings, Multipurpose Tampers (MPTs) are used.	To carry out ballast cleaning and for removal of muck for improvement of drainage Ballast Cleaning Machines (BCMs) are utilised.

Shoulder Ballast Cleaning Machine

For cleaning of shoulder ballast for improved drainage of track, specialised machine - Shoulder Ballast Cleaning Machines are deployed.

Appendix- B (Para 2.6.4)

Table I: Statement showing requirement and shortage of PQRS machines

Total length of track renewals planned through machines & manually during 2013-14 in Kms	Number of PQRS			
	Required (at the rate of 33 kms. per annum) in Nos.	In use (in Nos.)	Exces in Nos.	Shortage in Nos.
1944	65	39	3	30

Table II: Statement showing requirement and shortage of BCM

Total length of main track for mechanised maintenance (in Kms) during 2013-14	Number of Turnouts planned for deep screening	Track requiring Ballast cleaning (in Kms) 10% of col 1+(col 2*0.75) in Kms	Requirement of BCM @ 72 Kms per annum in Nos	No of BCMs In use in Nos.	Excess in Nos.	Shortage in Nos.
77922	1468	8893	123	84	0	39

Table III: Statement showing requirement and shortage of SBCMs

Total length of main track for mechanised maintenance (in Kms) during 2013-14	Track requiring shoulder Ballast cleaning (in Kms) 10% of col 1	Requirement of SBCM @ 168 kms per annum in Nos.	No of SBCMs In use	Excess in Nos.	Shortage in Nos.
77922	7792	48	30	0	18

Table IV: Statement showing requirement and shortage of T-28s

No of T/Os renewals planned through machines & manually during 2013-14	No of T-28 required (at the rate of 67 T/Os. per annum)	Nos. in use	Excess in Nos.	Shortage in Nos.
3574	62	28	0	34

Appendix –C [Para 2.6.4.1 (a), (b) & (c)]

TableI: Fixation of target for plain track tamping activity and for deep screening/cleaning of ballast

Name of the activity	Requirements as assessed by Zonal Railways	Railway Board's. Targets	Railway Board's Targets fixed in excess of requirements	Railway Board's Target fixed in short of requirements
Plain track tamping in Kms	359075	418807	83266	23534
Ballast cleaning through BCMs in Kms	23804	21702	-	2912
Shoulder ballast cleaning through SBCM	21134	17455	-	3829

Table II: Fixation of target for track stabilisation activity

Name of the activity	Requirements adopted in audit for working of DTS	Railway. Board's Target	Rly. Board's Targets fixed in excess of requirements	Actual units worked	Excess units worked with reference to requirements
Track stabilisation through DTS in Kms	23804	192002	168198	168854	145050

Table III: Fixation of target for track machines such as PQRS, Turnout Tamping, T-28

Sl	Name of the activity/ Machine working	Excess (Km/No)	Shortage (Km/No)
1	PQRS/ TRT (for track laying)	34 (NWR, CR, SR, SWR)	1738 (NCR, ER, ECR, NR, SECR, SER, SCR, WR, NER, NFR, WCR)
2	Turnout Tamping (for tamping of points and crossings)	23838 (NWR, SCR, WR, CR, NFR, SECR, WCR, NCR)	13946 (NER, SER, SR, SWR, NR, ECR, ECoR and ER)
3	T-28 (for laying of points and crossings)	737 (SCR, SWR, NR, ECoR, NCR)	4654 (ER, ECR, WCR, SR, SECR, SER, NFR, NER, CR, WR, NWR)

In respect of ECoR, there was no shortage or excess for PQRS/ TRT machine.

Appendix- D [Para 2.6.5.2 (b)]

Table I: Tamping activity carried out by Points and Crossings tamping machines

Total No. of Point & crossings for mechanized maintenance	Tamping Requirement due to planned T/o renewals & Deep screening of T/Os	Construction requirements	Points & crossings required for tamping during the year @ 50% for Col.1 + Col 2 + Col 3	No of Points & Crossings actually tamped	Excess tamped with respect to Col. 5	Shortage tamped with respect to Col. 5
1	2	3	4	5	6	7
216238	30015	21633	179598	217117	51764	14246

Table II: Deep Screening activity carried out Ballast Cleaning Machines

Total length of track on B.G nominated for mechanised maintenance(in Kms) & Turn Out in number	Length of track required for deep screening through BCMs @ 10 *per cent* of Col.1+Turn Out @ 0.75km/No.	Length of track and T/Os actually deep screened through BCMs	Shortage	Length of track and T/Os actually deep screened manually
1	2	3	4	5
357374+6463	40585	19617	20968	11367

Table III: Shoulder ballast activity carried out Shoulder ballast cleaning machines

length of track on B.G for mechanised mainteance (in Km.)	Length of track required for ballast cleaning through SBCMs @10 *per cent* of Col (1)	Length of track actually cleaned through SBCMs	Shortage with respect to Col. 2
1	2	3	4
357554	35755	16517	19238

Appendix-E [Para 2.6.5.2 (d)]

Table I: Periodicity for conducting inspection by TMO

No	Type of Machine	Inspection Schedule	
		AEN/MC *	SSE/MC
1	CSM	Monthly	Fortnightly
2	UNIMAT	Monthly	Fortnightly
3	BCM	Fortnightly	Weekly
4	BRM	Once in Two Months	Monthly
5	SBCM	Monthly	Fortnightly
6	DTS	Once in Two Months	Monthly
7	UNO	Monthly	Fortnightly
8	DUO	Monthly	Fortnightly
9	T028	Monthly	Fortnightly
10	PQRS	Monthly	Fortnightly
11	TRT	Weekly	Daily

**SEN/MC should carry out these inspections if no AEN/MC is posted under him.*

Appendix-F (Para 2.6.6)

Table I: Status of Men- in - position

Sl	Zonal Railway	Percentage Excess (+) / Shortage (-)		
		SSE/JE	TMM	Helper
1	CR	(-) 57.56	(-) 48.70	(-) 48.43
2	ECoR	(-) 39.86	(-) 2.94	(-) 23.76
3	ECR	(-) 57.92	(-) 43.73	(-) 55.03
4	ER	(-) 47.43	(-) 53.18	(-) 45.80
5	NCR	(-) 53.09	(-) 48.55	(-) 21.18
6	NER	(-) 65.00	(-) 63.57	(-) 40.91
7	NFR	(-) 32.71	(-) 11.19	(+) 15.38
8	NR	(-) 52.96	(-) 39.41	(-) 22.07
9	NWR	(-) 61.29	(-) 50.64	(-) 55.38
10	SCR	(-) 50.42	(-) 43.65	(-) 55.56
11	SECR	(-) 32.99	(-) 30.67	(-) 3.20
12	SER	(-) 24.07	(-) 21.09	(-) 38.51
13	SR	(-) 42.48	(-) 31.89	(-) 66.01
14	SWR	(-) 19.35	0.00	(-) 22.15
15	WCR	(-) 69.15	(-) 52.48	(-) 57.06
16	WR	(-) 45.88	(-) 38.28	(-) 29.28
	Average	(-) 46.98	(-) 35.12	(-) 34.88

Appendix-G (Para 2.6.6.2)

Table I: Shortfall in training of operators

Sl	Zonal Railway	No. of operators due for training	Shortfall	Percentage of shortfall	Reasons attributed for shortfall
1	CR	243	25	10	Staff working at various offices
2	ECoR	114	0	0	---
3	ECR	210	87	41	Shortage in operators' cadre
4	ER	287	246	86	Staff are undergoing training locally also
5	NCR	303	31	10	Shortage of Staff
6	NER	32	2	6	Shortage of Staff
7	NFR	63	2	3	Administrative reasons
8	NR	346	118	34	Shortage of Staff
9	NWR	74	7	9	Shortage of Staff
10	SCR	321	0	0	---
11	SECR	81	0	0	---
12	SER	512	117	23	Shortage of Staff
13	SR	145	0	0	---
14	SWR	106	1	1	Due to IOH works at base depot
15	WCR	195	65	33	Shortage of staff
16	WR	164	2	1	Administrative/ Personal reasons

Appendix-H (Para 2.6.5.2 C)

Table 7: Status of demanded block, stipulated block and granted block hours

Sl. No.	Description	2012-13		2013-14	
		Average for the 16 ZRs	No. of ZRs having less than All India Average	Average for the 16 ZRs	No. Of ZRs having less than All India Average
1	Per cent of Demanded Block Hours to Stipulated Block Hours	100 per cent (SECR, ECR, ECoR & NCR) Average for the Balance 12 ZRs = 87 per cent		100 per cent (SCR, SR, SECR, ECoR & NCR) Average for the Balance 11 ZRs = 89 per cent	
2	Per cent of Granted Block Hours to Stipulated Block Hours	54 per cent	8 ZRs[114]	55 per cent	8 ZRs[115]
3	Per cent of Granted Block Hours to Demanded Block Hours	59 per cent	10 ZRs[116]	58 per cent	9 ZRs[117]
4	Per cent of Block Hours Granted falling within the Corridor Block	43.12 per cent (14 ZRs[118])	8 ZRs[119]	42.41 per cent	9 ZRs[120]
5	Average Block per Spell	1 Hr. 7 Min	8 ZRs[121]	1 Hr. 45 Min	8 ZRs[122]

[114] CR (45), NER (42), NFR (44), SECR (51), NR (41), WCR (46), NCR (46) and ER (48)
[115] CR (44), NER (39), SWR (51), SECR (47), NR (37), WCR (44), NCR (42) and ER (48)
[116] SCR (57), CR (52), NFR (56), SER (57), SECR (49), NR (56), WCR (53), ECR (53), NCR (40) and ER (55)
[117] CR (51), NER (50), SER (57), SECR (45), NR (48), WCR (52), ECR (58), NCR (37) and ER (55)
[118] NER and NR = Data Not Available
[119] WR (42), NFR (37), SWR (24), SR (34), SECR (25), WCR (30), ECR (25) and NCR (23)
[120] WR (40), NER (14), NFR (24), SWR (16), SR (33), SECR (33), NR (36), ECR (25) and NCR (29)
[121] SCR, WR, CR, NER, NFR, SWR, WCR and NCR
[122] SCR, CR, NER, SWR, NR, WCR, ECoR and NCR

Appendix- I (Para 2.6.7)

Table I: Comparison of reporting of work done by TMO and TMS

Railway	Tamping Machines		Other than Tamping Machines	
	Range of variation in *per cent*	No. of machines	Range of variation in *per cent*	No. of machines
CR *	--	--	--	--
ER *	--	--	--	--
ECoR	2 to 31	11 [123]	-1 to 75	12 [124]
ECR	8 to 170	17[125]	Nil	Nil
NCR ^	--	--	--	--
NER	---	---	---	---
NFR	-10 to 118	11[126]	-100 to 115	19[127]
NR	-100 to 104	29[128]	-100 to 138	34[129]
NWR	15 to 64	7 [130]	-70 to 51	6 [131]
SCR	-1 to 89	25 [132]	1 to 172	19 [133]
SECR	3 to 215	15 [134]	-14 to 79	15 [135]
SER	8 to 160	15 [136]	-74 to 4692	24 [137]
SR *	--	--	--	--
SWR	9 to 78	9 [138]	-37 to 148	11 [139]
WCR *	--	--	--	--
WR	23 to 84	19[140]	-12 to 102	33[141]

TMS is not implemented fully across the divisions of these Five ZRs (NER, CR, SR, ER and WCR). Hence, comparison of data between TMS and TMO could not be made.

^ Data maintained by Control Office is adopted by both TMS and TMO (NCR). Hence, no difference in reporting.

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[123] *CSM (2), UNI (3), MPT (1) and DUO (5)*
[124] *BCM (1), FRM (1), PBR (3), UTV (1), T28 (1) and DGS (5)*
[125] *DUO(7),VPR(2),TXP(1),UNI(4)&CSM(3)*
[126] *CSM (2), DUO(4), MPT(1),UNI(3) & TEX(1)*
[127] *DTS(4),BCM(3),SBCM(1),BRM(3),T-28(1),PQRS(3) & UTV(4)*
[128] *3X(1),CSM(6),MPT(1),UNI(7),WST(14)*
[129] *BCM(7),BRM(4),DTS(10),FRM(4),PQRS(4),RGM(1),T-28(2),TRT(2)*
[130] *CSM (1), WST (2), VPR (2) and UNI (2)*
[131] *BRM (2), DTS (1), PQRS (1) and UTV (2)*
[132] *3X (1), CSM (7), DUO (12) and UNI (5)*
[133] *BRM (6), DGS (11), PQRS (1) and RGM (1)*
[134] *CSM (3), DUO (5), UNI (4) and MPT (3)*
[135] *BCM (3), BRM (2), DGS (3), T28 (1) and UTV (6)*
[136] *CSM (3), DUO (6), UNI (5) and MPT (1)*
[137] *T28 (3), DGS (7), PQRS (3), FRM (2), BCM (4) and BRM (5)*
[138] *CSM (2), DUO (3), MPT (3) and UNI (1)*
[139] *T28 (1), BCM (4), FRM (1), DGS (2), PQRS (2) and PBR (1)*
[140] *3X(1),CSM(4),DUO(7),UNI(7)*
[141] *BCM(7),PQRS(2),BRM(3),DTS(9),T-28(4),SBCM(1),UTV(7)*

Table II: Variation in reporting of quantum of work done by TMS (Machine) and TMO of Zonal Railways

Zonal Railways	Range of variation in *per cent*	No. of machines involved in variation
CR *	--	---
ER *	--	---
ECoR	-1 to 16	19 machines = [BCM (1), CSM (1), DUO (4), UNI (3), MPT (1), FRM (1), PBR (3), DGS (3), UTV (1) and T28 (1)]
ECR	8 to 60	17machines={DUO(7),VPR(2),TXP(1),UNI(4),CSM (3)
NCR ^	--	---
NER*	---	--
NFR	-1 to 1	3 machines= {UNI(1),PQRS(2)}
NR	-100 to22	59 machines= [3X(1),BCM(7),BRM(4),CSM(6),DTS(7),FRM(3),MPT(1),PQRS(4),RGM(1),T-28(2),TRT(2),UNI(7),WST(14)]
NWR	-70 to 56	9 machines = [BRM (1), DTS (2), PQRS (1), UNI (2), UTV (2) and VPR (1)]
SCR	-3 to 2	10 machines = [DUO (5), UNI (3), DGS (1) and T28 (1)]
SECR	-18 to 203	29 machines = [CSM (2), DUO (4), BCM (3), BRM (1), UNI (4), DGS (6), T28 (1), UTV (6) and MPT (2)]
SER	-74 to 4692	37 machines = [CSM (3), DUO (6), UNI (5), MPT (1), T28 (3), DGS (6), PQRS (3), FRM (2), BCM (3) and BRM (5)]
SR *	--	---
SWR	-40 to 148	18 machines = [CSM (2), DUO (2), MPT (3), UNI (1), T28 (1), BCM (4), FRM (1), DGS (2) and PQRS (2)]
WCR *	--	---
WR	-41 to 88	52machines={3X(1),CSM(4),DUO(7),UNI(7),BCM(7),PQRS(2),BRM(3),DTS(9),T-28(4),SBCM(1),UTV(7)

TMS is not implemented fully across the divisions of these Five ZRs (NER, CR, SR, ER and WCR). Hence, comparison of data between TMS and TMO could not be made.

^ Data maintained by Control Office is adopted by both TMS and TMO (NCR). Hence, no difference in reporting.

Appendix- J-1 [Para 2.6.8 (i)]

Table showing variation in consumption of HSD Oil by same machines in two consecutive years

Sl. No.	Zonal Railways	No. of machines having excess consumption of HSD Oil beyond the allowance of 15 per cent during the year			
		2011-12		2012-13	
		No.	Range in *per cent*	No.	Range in *per cent*
1	CR	11	19 to 229	13	19 to 81
2	ECoR	6	60 to 215	0	0
3	ECR	19 (2010-11)	16 to 373	9 (2011-12)	17 to 264
4	ER	4	105 to 810	0	0
5	NCR	14	18 to 280	12	17 to 307
6	NER	5	21 to 135	8	21 to 78
7	NFR	9	20 to 602	13	24 to 190
8	NR	13	17 to 148	11	17 to 52
9	NWR	7	17 to 135	4	23 to 83
10	SCR	9	21 to 585	9	18 to 71
11	SECR	4	19 to 41	8	21 to 148
12	SER	9	18 to 2379	10	16 to 244
13	SR	3	18 to 912	0	0
14	SWR	3	37 to 939	6	16 to 145
15	WCR	11	26 to 127	10	18 to 247
16	WR	7	18 to 43	17	15 to 438

Appendix-J-2 [Para 2.6.8 (ii)]

Table showing variation in consumption of HSD Oil by similar machines across zones in the year 2012-13

Sl. No.	Zonal Railways	No. of machines involved in excess consumption	Range of excess consumption even after allowing 25% allowance for different site conditions
1	CR	11	26 to 91
2	ECR	6	27 to 127
3	ER	1	33
4	NCR	8	36 to 132
5	NFR	5	48 to 240
6	NR	10	29 to 116
7	NWR	1	48
8	SER	5	29 to 91
9	SR	1	36
10	SWR	5	32 to 145
11	WCR	4	32 to 294
12	WR	3	26 to 62

Appendix- K (Para 2.6.9)

Table showing the Zonal Railway-wise position of short realisation of credit

Sl	Zonal Railway	Years in which short realization existed	Amount (₹in crore)	Remarks
1	CR	2011-12; 2012-13	9.05	Figures of other years not available
2	ECoR	2010-11; 2011-12; 2013-14	Nil	Figures of 2009-10 not available
3	ECR	2009-10; 2010-11; 2011-12	99.18	Figures of other years not available
4	ER	2010-11	0.17	Figures of others years not available
5	NCR	2009-10 to 2013-14	1.11	-
6	NER	---	0	Figures of 2011-12 to 2013-14 Not Available
7	NFR	2010-11	0.13	Short realisation for 2010-11 only
8	NR	2012-13 to 2013-14	21.15	Figures of other years Not available
9	NWR	2012-13	1.10	Figures of other years not available
10	SCR	2009-10 to 2013-14	4.58	-
11	SECR	2011-12 to 2012-13	0.15	Figures of 2009-10 not available
12	SER	2010-11,2012-13	2.21	
13	SR	2009-10 to 2011-12 and 2013-14	25.40	
14	SWR	2010-11, 2012-13	10.11	Figures of 2013-14 Not Available
15	WCR	2009-10 to 2013-14	0	No credit realised
16	WR	2010-11 to 2011-12	1.55	
		Total	175.89	

Chapter 3 – Review on 'Provision and utilization of Direction and General Charges provided in Works estimates of Construction Organization in Indian Railways'

Executive Summary

Each estimate of major work/projects carried out in Indian Railways has provision of Direction and General (D&G) charges to cover the cost of staff engaged and office expenses for execution of work/project. Railway Board has fixed yardsticks for (a) provision of D&G charges in various Works Estimates as a percentage of estimated cost of work and (b) creation of Gazetted posts indicating the works to be handled by each post holder in monetary terms. These posts are in addition to the permanent and temporary posts sanctioned for the Indian Railway. The yardsticks for creation of Gazetted posts including Higher Administrative Grade (HAG), Senior Administrative Grade (SAG), Junior Administrative Grade (JAG), Senior Scale (SS) and Junior Scale/Group "B" have been prescribed by Railway Board. The overall expenditure on work charged establishment should be within the prescribed establishment component of D&G charges.

Audit was conducted to examine the compliance of the applicable provisions and Railway Board's instructions issued from time to time with regard to Provision and Utilization of D&G charges provided in Works estimates of Construction Organization in Indian Railways (IR). It was seen that Railway Board has prescribed a flexible system linking the creation of posts to provision of funds under ongoing/sanctioned capital works. The principles for accounting of expenditure on these posts (called worked charged posts) are on accrual basis. Principles of measurement are prescribed in the Indian Railway Finance Code which is consistent with accrual basis of accounting.

The salient observations are given below:

Assessment of D&G Charges

- *Disparity in estimation of cost of staff for creation of work charged posts in Zonal Railways had resulted in understatement of capital expenditure to the tune of ₹1327.59 crore which leads to operation of larger number of posts with potential consequences like non-availability of funds for execution of works and/or delay/non-completion/reduction in scope of work during the period from 2011-14.*
- *Non-maintenance of ratio in operation of posts in Senior Scale and Junior Scale cadre as per the norms fixed by Railway Board has resulted in operation of excess posts in Senior Scale Cadre and excess expenditure of ₹70.12 crore.*

Distribution and Utilization of D&G Charges

- *Non fixation of norms/yardsticks for operation of posts in Personnel, RPF, Mechanical, Medical, Vigilance, Traffic, Operating and Commercial Departments and operation of posts in these departments on adhoc basis has resulted in booking of expenditure of ₹102.04 crore to Construction Works under Capital heads..*

- *Booking of expenditure of non D&G component to D&G charges within the same work, D&G charges to non-D&G component within the same work, establishment component of D&G charges of one work to another work, non-establishment component of D&G charges of one work to another work, expenditure of D&G charges of Capital Works to Revenue account, Revenue expenditure to D&G charges of Capital works resulted in incorrect booking of expenditure to the works for which funds exist and led to incorrect accountal of expenditure of ₹286.06 crore during 2011-14 in respect of 280 works test checked.*
- *The Railway Administration had assessed the D&G charges work wise/ project wise, as per the prescribed percentages of D&G charges for various construction projects, but the amount booked against a particular work in a particular year was not in accordance with the provision made in the sanctioned estimate of the works. This led to inappropriate booking of expenditure on D&G charges between 0 to 104.17 per cent in respect of 280 works test checked during 2011-14.where budget provisions were made.*
- *The Work Charged posts are justified, created/extended on the basis of Budget outlay for the year concerned. Three budgetary reviews are made during August, December and February to review the requirements of funds. On this basis re-appropriations/final allotment of funds are made by Railway Board. However, the results of the review of expenditure are not being extended to assess the impact of change of expected expenditure on availability of corresponding D&G charges. This has resulted in eexcess expenditure of ₹177.33 crore in comparison to quantum of work (in monetary terms) executed by the posts holders due to non-reduction of posts proportionate to reduction in expenditure in comparison to outlays. The Chairman Railway Board in March 2014 also stressed the need to reassess the work charged posts on the basis of subsequent revision in the Budget Grants.*
- *Excess booking (beyond the available provisions in the work estimates) of ₹2206.43 crore and ₹304.84 crore since commencement of works to March-2014 under various heads of D&G charges was seen in test checked ongoing and completed works respectively.*
- *An excess expenditure of ₹749.97 crore under D&G charges was assessed by audit on account of decline in expenditure against outlays on works and a saving of ₹563.02 crore under D&G on account of increase in expenditure against outlays in the Zonal Railways during 2011-2014 as against justified amount of D&G charges proportionate to actual expenditure.*
- *The Works Registers*[142] *serve as an important management tool in providing information which enables comparison of the expenditure incurred against a work with the provisions made in the estimate. It was however, noticed that these registers were not being maintained properly as the plan head wise details of estimated cost, budget allotment etc. were not recorded in the work*

[142] Defined under Para 1472-E.

registers. The posting in the registers was not made properly and frequent corrections were made in the work registers

3.1 Introduction

The construction activities (New Lines, Bridges, Gauge Conversion and Doubling of existing lines etc.) of the Railways are carried out at the zone under the administrative control of Chief Engineer (Construction) reporting to the General Manager of a Zonal Railway or under the independent administrative control of a Chief Administrative Officer (Construction) [CAO(C)] or General Manager (Construction) reporting to the Railway Board. They are assisted by Chief Engineers (Construction) in the Zonal office and Dy. Chief Engineers/ Executive Engineers/ Assistant Engineers (Construction) in the field formations. The execution of these works involves sanction to an estimate. This estimate contains provision for cost of material and labour. The estimate contains provision for cost of gazetted and non-gazetted staff required for supervision and direction as well as provision for other expenditures such as plant construction, temporary accommodation, residential accommodation, instruments and contingencies etc., which are cumulatively included under the term Direction and General (D&G) charges. The scales for providing D&G charges in an estimate are prescribed by the Directorate, Efficiency and Research (E&R) Railway Board from time to time. D&G Charges include two elements viz. establishment charges and other than establishment charges under various sub heads[143]. The break-up of these charges is periodically revised by the Railway Board. The cash flow requirement for execution of the sanctioned estimate for works is obtained through annual budgetary allocation exercise. The allotments are obtained under Demand No. 16 of the Demand for Grants (Demand).

Subsequent to the allotment of funds a separate justification for creation of work charged posts is prepared by Zonal Railways as per yardsticks prescribed by the Directorate (E&R) and component of available unutilized part of the provisions of D&G charges contained in the sanctioned estimates which would be required for execution of the works for which funds have been allocated. The proposals for creation/ extension of currency of the posts of Senior Administrative Grade (SAG) and above are forwarded by the General Manager of the Zone to the Establishment Directorate (Gazetted Cadre) of the Railway Board in consultation with the associate finance. A similar proposal for Gazetted posts upto Junior Administrative Grade (JAG) cadre is submitted to the General Manager for sanction in consultation with the associate finance. The non-gazetted posts are sanctioned at Zonal level by the officer in charge of the construction wing in consultation with their associate finance. The sanctioned posts are then operated by obtaining personnel from the open line organisation.

The assessment of D&G charges that would be available for operation of posts for executing the works as per budgetary outlay is required to be done work wise and department wise. Thus, the cumulative D&G charges proposed to be utilized for

[143] Break-up of D&G charges- i). Establishment charges on Direction and General for Audit and Accounts, Civil Engineering, Electrical Department, Mechanical, Traffic Department, S&T Department, Medical and Sanitation; ii). Other than Establishment charges- Plant construction, Instruments, Office expenses, Temporary Residential Quarters, General charges on stores, loss of cash and stores and operating expenses pending opening of the line for traffic.

each department are determined. The operation of the posts within each of these departments based on budgetary outlays involves assessment of the cost of these posts, prescribed yardsticks of the Railway Board for creation of posts and extent of the assessed component of available D&G charges in the works determined to be executed in the concerned year. Thus, the operation of the post also involves an assessment of the components of various works that are expected to be completed in the concerned year. Any shortfall in the achievement of the targets of the various components of the works/projects or deficient assessment of the cost of the post carries the risk of incurring expenditure in excess of the provision for D&G charges in the estimate and/or the risk of accounting for the expenditure in (a) other works and (b) under incorrect accounting heads.

3.2 Audit objectives

Objectives of the present Audit were:

i. To review the methodology adopted by the construction organization for assessment of D&G Charges required for undertaking the construction projects.

ii. To examine whether the available D&G Charges were distributed as per department wise yardsticks fixed by Railway Board and utilized efficiently, economically and effectively.

The adequacy of determination of norms for D&G charges by Railway Board has not been included in the scope of this audit.

3.3 Audit criteria

Rules, regulations and instructions issued by the Railway Board and General Manager of the Zonal Railways were adopted as audit criteria. The detailed position of the prescribed D&G charges by the Railway Board is given in ***Appendix II***. The gist of instructions issued by the Railway Board regarding distribution of D&G charges from time to time is enclosed as ***Appendix I***.

3.4 Audit scope and methodology

Audit covered provision and utilization of D&G charges in the ongoing and completed projects for a period of three years from 2011-12 to 2013-14.

Audit Methodology covered review of records at the Railway Board and Headquarters of Zonal Railways. Study of rules and policy circulars relating to assessment of D&G Charges required for undertaking the construction projects was carried out in Audit. The records relating to assessment made by the Zonal Railways for creation/extension of work charged posts were also examined in Audit. The vouchers/Journal vouchers[144] and related records of the works including allocation of expenditure as D&G charges were also seen in Audit. Audit was conducted during July 2014 to November 2014 in all the Zonal Railways including Metro Railway/Kolkata. Monitoring role of Railway Board was seen in Audit in December 2014. Central Organization for Railway Electrification (CORE) was not

[144] Journal vouchers- transfer the amount from an accounting classification to another accounting classification and is a document carrying serial number, transaction date and amount, brief description of the transaction and the signature of the authorized signatories.

covered in this Audit as the study was restricted to the works carried out by construction organization.

3.5 Sample size

In the construction formations of the Indian Railways 358 New Lines, Doubling and Gauge Conversion works were in progress and 60 works were completed during the years 2011-12 to 2013-14. Besides, the above works, other Works like Bridge work, track facilities, signalling and telecommunication works, etc. were also taken up by the Construction Organisation of the Indian Railways. 2241 such works were in progress and 488 such works were completed during the years 2011-12 to 2013-14. For detailed check, the under mentioned sample size determined separately for each zonal formation was adopted:

In all the Zonal Railways a total of 269 ongoing works and 67 completed works (total 336 works) were selected for audit as given in Schedule "5.0". The Railway Administration provided the required information/ record in respect of 226 ongoing works and 54 completed works (total 280 Works) to audit. The information/record for remaining 56 works was not made available to audit as commented in below.

3.6 Scope limitation

The scope of audit was limited due to non-availability /non-maintenance of information/ records by the Zonal Railway administration as detailed in Schedule "5.1".The scope was also limited due to non-response to the audit observation communicated to the Railway administration in 15 out of 17 Zonal Railways. Response was furnished only by SECR and NCR.

Also despite efforts, exit conference was not held in two[145] Railways out of 17 Railways on account of non-responsiveness on part of the Zonal Railways.

The Review was issued to Railway Board on 10 February 2015. Railway Board's response is still awaited. An exit conference was held with the officials of Railway Board on 16 April 2015.

3.7 Audit findings

3.7.1 Methodology adopted for assessment of D&G Charges required for undertaking the construction projects

Zonal Railways are required to provide D&G charges for staff and non-staff costs as prescribed by the Railway Board circulars applicable at the time of preparation of the works estimate. The work charged posts are created and operated for undertaking of the works against provisions made in work estimates. Railway Board has prescribed the guidelines for determining the number of work charged posts to be operated by linking it to the work load (***Appendix I***) and continued availability of D&G charges in the work (***Appendix II***). The posts are sanctioned year wise based on the above criteria. This involves assessment of the cost of work charged posts. However, the cost of a post was found to have been assessed differently by different Zonal Railways as discussed in Para 3.7.1.1. Also the

[145] ECR and ECoR.

operation of a number of posts between various scales were found to be at variance with the prescribed norms by the Railway Board which also resulted in excess operation of posts in Senior Scale in place of Junior Scale cadre as discussed in Para 3.7.1.2.

3.7.1.1 Inconsistency in estimation of cost of staff for creation of Work Charge Posts

Paragraph 776 of Indian Railway Code for Finance Department (F-I) provides that no portion of the pay and allowances of permanent open line staff shall be charged to Capital, Depreciation Reserve Fund, Development Fund or Accident Compensation, Safety and Passenger Amenities Fund or Open Line Works-Revenue, as the case may be, when such staff is employed on special works and the vacancies thus caused in the open line cadre remain unfilled. The cost (less return value) of tools and plant specially purchased and the cost of any posts specially created, for the supervision or construction of a work chargeable purely to Capital or Depreciation Reserve Fund or Development Fund or Accident Compensation, Safety and Passenger Amenities Fund or Open Line Works-Revenue, is debited to Capital, Depreciation Reserve Fund, Development Fund or Accident Compensation, Safety and Passenger Amenities Fund or Open line Works-Revenue, as the case may be. The cost of a post, for the purpose of this rule includes the leave salary and contribution towards passages, pensions, provident funds, bonus and special contribution to provident fund which the holder of the post may be entitled to. Thus, the cost of a post chargeable to a work (work charged post) is to be assessed on accrual principles.

Further, measurement of pension liability is required to be done on actuarial basis as per Paragraph 339 of Indian Railways Financial Code Vol.-1 (F-1).

The cost of work charged post should include Mean Pay (Pay), Grade Pay (GP), Dearness Allowance (DA), House Rent Allowance (HRA), Transport Allowance (TPA), leave salary contribution (LSC), contribution towards passages (TA), pension valued on actuarial basis (Pension and NPS) and any applicable contribution on account of provident fund contributions. In case of cost of non-gazetted work charged posts element of bonus is also applicable.

It was seen that different Railway formations were assessing the cost of work charged posts differently. The variance noticed in assessment of cost of work charged posts in Zonal Railways was as under:-

- In NWR the element of HRA and TPA were included while assessing the cost of gazetted posts but were left to be incorporated in assessing the cost of non-gazetted posts. Besides, the applicable elements of Bonus, LSC, TA, Pension and NPS were not being included in the assessed cost of work charged staff.
- In ECoR, Metro Railway/Kolkata, SECR, SWR and WR the element of HRA, TPA, Bonus, LSC, TA, Pension and NPS were not being included in the assessed cost of work charged posts.
- In NCR, in case of gazetted staff, HRA, TPA and NPS have not been taken into account by any department. PF, DCRG and LSC have been taken by Engineering, S&T and Accounts department but not by Electrical department

for Gazetted posts. TA has not been taken by S&T department for Gazetted posts. In case of Non-gazetted staff element of Pension and TA have not been included in Engineering Department, HRA, TPA, Bonus, LSC and Pension have not been included in S&T Department, LSC has not been included in Electrical Department, Pension and NPS have not been included in any department for assessment of cost of posts.

- In CR, NR, SCR, SER and WCR the element of Bonus, TA, LSC, Pension and NPS were not being included in the assessed cost of work charged posts.
- In ECR the element of Bonus, TA and NPS were not included in the assessed cost of work charged posts. The LSC and Pension Contribution was estimated @ 14.65 per cent of the total of Basic Grade Pay. It was included under the description PF, DCRG etc.
- In NFR the element of HRA, TPA, Bonus, TA and NPS was not included in the assessed cost of work charged staff. The LSC was estimated @ 11 per cent of the total of Basic Pay and DA. Pension Contribution was estimated @ 10 per cent of Basic Pay.
- In ER and SR, the element of LSC, Pension and NPS has not been included in the assessed cost of work charged posts.
- In NER, the element of NPS has not been included in the assessed cost of work charged posts. The LSC was estimated @ 11 per cent of the total of Basic Pay and DA. Pension Contribution was estimated @ 12.5 per cent of Basic Pay plus DA.
- In ECR, NER and NFR the element of Pension Contribution and LSC were taken at different rates while assessing the cost of the work charged posts. However, these expenses on accrual principle were not reflected in the expenditure of the work charged posts.
- The elements included in assessment of cost of a work charged post in various Zonal Railways formation shows prevalence of local practices despite instructions of Railway Board required to be followed uniformly. The variance in NWR and NCR between Gazetted posts and Non-gazetted posts as well as variance between different departments reflects lack of effectiveness of the associated finance as the proposals are also vetted by the associated finance. Assessing the cost of a work charged post without inclusion of various elements prescribed indicate weaknesses in the financial scrutiny. Even in Zonal Railways where elements of accrual character like LSC and pension contribution were included in the assessment of the cost of post, no corresponding expenditure for these elements was found reflected in the accounts.

The results of the review are as under-

- This led to underassessment of the cost of work charged posts to the tune of ₹1327.59 crore for gazetted and non-gazetted posts created/operated during 2011-12 to 2013-14. The cost of posts has been assessed by audit as per following measurement parameters.

- The valuation of leave salary and pension liability has been assessed by audit on the basis of leave salary[146] and pension contribution[147] as applicable to contribution during Foreign Service. However, pension liability is to be assessed on actuarial basis which would be significantly higher than that applicable to contribution during Foreign Service. This actuarial valuation has not been assessed by the Railway Administration. Audit recommends that railway administration should determine it on actuarial basis. The issue was highlighted under Para 3.3.4.2 of Audit Report No. 12 of 2013 (for 2011-12) (Railways). In reply vide Action Taken Note, Railway Board agreed to the audit contention.
- Bonus has been worked out on actual payment basis.

The details of the under assessed costs are given below:

- The under assessment of the cost of 9139 Gazetted posts during the years 2011-12 to 2013-14 was assessed at ₹227.83 crore as detailed below-

Table 3.1

Year	Number of Posts	Total under assessed cost (₹in Crore)
2011-12	3181	74.00
2012-13	3096	79.04
2013-14	2862	74.78
Total	9139	227.83

- Similarly the under assessment of cost of 63579 Non-Gazetted posts during the year 2011-12 to 2013-14 was assessed at ₹1099.77 crore as detailed below:

Table 3.2

Year	Number of Posts	Total under assessed cost (₹in Crore)
2011-12	22574	375.09
2012-13	21298	368.46
2013-14	19707	356.22
Total	**63579**	**1099.77**

- The measurement of the assessed cost of the post determines the number of posts that can be operated within the year from the available D&G charges of the works to be carried out. Assessing the cost at a lower level excluding the mandatory elements in measurement of the cost of the posts leads to operation of larger number of posts. Hence, this underassessment of expenditure of posts has resulted in excess operation of posts against available D&G charges for establishment purpose.

[146]Leave Salary Contribution @ 15% for Gazetted **staff** and 12% for non-gazetted staff has been taken as per provision made in Para 2007 of Indian Railway Establishment Code Vol. II.
[147]Pension Contribution @ 15% for Gazetted staff and 12% for non-gazetted staff has been taken on an average basis of provisions made in Para 2007 of Indian Railway Establishment Code Vol. II.

- The operation of excess posts due to incorrect measurement leads to avoidable expenditure with potential consequences like non-availability of funds for execution of works and/or delay/non-completion/reduction in scope of work. This aspect was also pointed out by Chairman Railway Board to the General Managers (GMs) of the Zonal Railways through his letter dated 26th March 2014.
- Railway Accounts are based on commercial principles. In the commercial principles, accounting is carried out on accrual basis and measurement principles are stated in the accounting policies. Operation of more posts than permissible under applicable instructions by leaving out expenses that are associated with the operation of a post ultimately leads to understatement of capital expenditure and overstatement of revenue expenditure because left out expenses are actually paid by open line at the time of retirement of the officials.

  During exit conference Financial Advisor & Chief Accounts Officer (FA&CAO) SER stated that there is a letter of Railway Board that pensionary benefits are not required to be taken for D&G Charges. However, no authority for the same was made available. The reply is not tenable as any such instructions of Railway Board would be contrary to the provisions of Para 776 of F-1 and would impact on the basic character of accounting prescribed for Indian Railways i.e. its accrual character.

  In the reply received from ECoR, the Railway Administration have stated that the provisions of Para 776 -F1 are applicable only for special posts but not for normal construction work charged posts and the work charged posts are manned by permanent staff. These remarks are not tenable as the posts created for the works executed by construction organisation are specially created for the supervision or construction of a work and are covered under para 776 of F-1. There are no temporary or permanent posts sanctioned for construction organization.

  North Central Railway Administration in their reply stated that they are taking into account the elements of staff gratuity, leave salary, house rent allowance and transportation allowance. However, cost of bonus and pension contribution was not considered while assessing the cost of posts. In future all additional cost as suggested by audit will be taken into account during assessment of cost of work charged posts after connecting necessary policy guidelines.

The Indian Railway (IR) Administration should therefore estimate the cost of a work charged post as envisaged in the Paragraph 776 F-1 and properly assess the cost attached to the posts being operated/ created.

3.7.1.2 Non Maintenance of ratio in Operation of Posts in Senior Scale and Junior Scale Cadre

As per the yardsticks for creation of work charged posts in Construction Organisation prescribed by Railway Board for the year 2011-12 to 2013-14, in case of Civil, Electrical and Signal &Telecommunication departments, the ratio of Senior Scale (SS) and Junior Scale (JS) posts should be 1:2 which can be relaxed

upto 1:1 at the discretion of the General Manager. In case of Stores Department, the ratio of SS to JS posts will be 1:2.

The promotion from Junior Scale to Senior Scale post is non-functional and salary of senior scale is higher than that of junior scale. General Manager is authorised to increase the number of posts to be operated in Senior Scale in place of Junior Scale in Civil, Electrical and S&T Departments as any operation of a post in Senior Scale in place of Junior Scale involves higher expenditure.

It was observed in Audit that the number of posts actually operated in all the zones of IR in SS cadre were in excess of the prescribed ratio. No relaxation of the General Manager for relaxing the ratio from 1:2 to 1:1 was found on record in any of the Railways. As such, without obtaining specific sanction from General Manager for relaxing the ratio of post of SS and JS, operation of the excess posts in SS cadre resulted in unauthorized excess expenditure of ₹70.12 crore. This included excess expenditure of ₹15.08 crore, ₹18.67 crore and ₹36.37 crore during 2011-12, 2012-13 and 2013-14 respectively.

- 4786 posts were operated in SS/JS cadre. 2481 posts were operated in SS cadre and 2305 posts in JS cadre. Thus, 835 posts in SS cadre were operated in excess of permissible ratio.
- This included 172 posts in SS cadre which were operated beyond the powers permissible to General Managers.
- The position of excess operation of posts in SS cadre is as under:-

Table 3.3

Year	Total number of posts operated in the Cadre			Total excess posts operated in SS cadre	Total number of posts in SS cadre operated beyond GM's powers
	SS	JS	Total		
2011-12	870	812	1682	291	56
2012-13	831	778	1609	279	63
2013-14	780	715	1495	265	53
Total	2481	2305	4786	835	172

- This leads to a higher expenditure on establishment than prescribed.

3.7.2 Distribution of D&G charges as per the stipulated provisions and Utilization thereof Efficiently, Economically, and Effectively

Railway Board at least from year 2000 has prescribed maximum provisions that can be made for D&G charges within an estimate. The limit for these D&G charges has been prescribed for the Civil Engineering, Electrical Engineering, Signal and Telecommunications, Audit & Accounts, Stores, Traffic, Personnel, Medical, Vigilance and RPF (since March 2008) departments but norms for creation of gazetted posts based on Budget outlay in a year have also been prescribed by the Railway Board for Civil Engineering, Signaling and Telecommunications, Electricals, Accounts, Stores departments only.

It is thus seen that no norms for operation of gazetted posts have been prescribed for Traffic, Personnel, RPF, Operating and Commercial, Mechanical, Medical, General Administration and Vigilance departments

The audit findings relating to norms for distribution and utilization of D&G charges are given below:

3.7.2.1 Non Fixation of Norms/Yardsticks for operation of posts in Personnel, RPF, Mechanical, Medical, Vigilance, Traffic, Operating and Commercial Departments

While processing the approval of yardsticks for 2008-09, the Finance Directorate of the Railway Board had also desired that the basis for creation of posts is laid down uniformly across the departments and it was insisted upon by the Efficiency and Research (E&R) Directorate of Railway Board to work out the yardsticks for those departments which do not have yard sticks at present viz. Traffic, Personnel, RPF etc. While circulating the yardsticks in May 2008, the E&R Directorate of Railway Board confirmed that yardsticks for other Departments like Traffic, Personnel, RPF, etc. were being evolved and would be issued shortly.

It was seen in Audit that these yardsticks have not yet been fixed as of January 2015 even after a period of more than six years. This has not been questioned by the Directorates concerned in the subsequent years. 1023 posts in the Departments namely General Administration, Hindi/Law, Mechanical, Medical, Operating & Commercial, Personnel, RPF, Sports, Traffic and Vigilance in the cadre of SAG, JAG, SS and JS were created in IR (excluding NCR) in absence of norms and without proper justification during the years 2011-12 to 2013-14 as under:

Table 3.4 - Department wise details of posts operated without stipulated norms

Year/Name of Post	2011-12		2012-13		2013-14		Total	
	Total Posts	Total cost of Posts (₹`in crore)	Total Posts	Total cost of Posts (₹`in crore)	Total Posts	Total cost of Posts(₹`in crore)	Total Posts	Total cost of Posts (₹`in crore)
SAG	23	3.44	24	3.73	21	3.55	68	10.72
JAG	148	13.98	146	14.79	159	17.29	453	46.06
SS	116	9.87	124	11.42	121	12.05	361	33.33
JS	44	3.44	45	3.80	52	4.69	141	11.93
Total	331	30.73	339	33.74	353	37.58	1023	102.04

The required details (Departments and name of posts along with number of posts operated) in respect of NCR were not made available to Audit.

In this connection following observations are made:-

- The jurisdiction and nature of work attached to these posts in various departments mentioned above is related to Open Line organization. They have no relation with activities of Construction organisation. Even in the memorandum of sanctions issued by Personnel Branch, there was no mention as to which work estimates, the cost of these posts was proposed to be booked.

- During the review of sanction orders, it was found that in the column 'work to be charged' only an entry of 'D&G construction' is made without mentioning the name of a particular work (in which funds were provided by Railway Board) to which the cost of these posts will be allocated. Thus, these posts were operated merely because provisions exist in various work estimates and operation of these posts in Open Line/ Divisions where only maintenance work is done was not 'worth of charge'[148]. Hence, the operation of these posts was unjustified and resulted in booking of Revenue expenditure of ₹102.04 crore to construction works under Capital heads.
- The justification for creation of these posts was not available on record.
- This led to wasteful avoidable expenditure adversely affecting funds availability for the works. It further leads to postponing the undertaking of important works viz. renewal, up-gradation, modernisation, extension etc. as scarce resources are spent on the activities not related to the concerned work.

Operation of work charged posts in these departments without any norms leads to high risk of incurring infructuous expenditure as these posts are not connected with the execution of construction works. Detailed analysis with respect to operation of posts in Security Department is reflected under Para 3.7.2.2

3.7.2.2 Unjustified operation of posts of Security Department (RPF) in Construction Organisation

The Railway Board decided in March 2008 that provision of D&G charges should be made for RPF in such major Civil Engineering and Railway Electrification works viz. New lines, Gauge Conversion, Doubling and Electrification Works where GM certifies that works are being undertaken in hostile and adverse environment. The creation of RPF posts in such cases shall be on worth of charge basis.

The following were observed in Audit:

North western Railway

A proposal for creation of one SA Grade work charged post of Inspector General cum Chief Security Commissioner (IG cum CSC) in Security Department of Construction Organisation under Railway Protection Force (RPF) was sent to Railway Board in October 2008. This was approved by the Board in February 2009 by upgrading one Junior Administrative Grade post to SAG. The post has been in operation since then and its currency is being renewed by Railway Board annually.

The post was justified on the ground that the zone is located in high security sensitive area and the execution of works is in hostile and adverse environment. Similarly, to work with this upgraded post of Inspector General cum Chief Security Commissioner-Construction (IG cum CSC-Const.), a proposal for creation of one Company for deployment at construction sites, consisting of one post of Inspector Protection Force (IPF), 13 Constables and four Ancillary Staff was put forth in July 2008. The proposal was vetted by the associated finance at the zone for one post of

[148]All these posts were operated in Open Line /Divisions (where only maintenance work is carried out) instead of construction organisation (Capital works).

IPF and 11 posts of constables costing ₹18.56 lakh and the same was approved by the General Manager, NWR. It was observed in audit (February 2014) that this company created with D&G funds consisting of one inspector and 11 constables from 04.03.2009 to 30.06.2009 was neither operated nor extended further. Thus, the sanction of the General Manager was not need based.

It is therefore evident that these posts were created without any specific requirement/demand from the Construction Organisation but to create a post in the SAG scale for the security department. The upgraded post of IG cum CSC (Construction) NWR continues to be operated without any company and therefore not worth of charge basis. The cost assessed for this post was as under:

Table 3.5 (Amount in ₹)

Year	Assessed cost of SAG Post per month	Total cost for the year
2011-12	147120	1765440
2012-13	158115	1897380
2013-14	169894	2038728
Total		5701548

Similarly, it was also noticed that four Senior Scale posts of Divisional Security Commissioner and one post of Assistant Security Commissioner operating in open line were upgraded to one scale higher chargeable to D&G charges of construction organisation NWR. The assessed cost of these upgraded posts was as under:

Table 3.6 (Amount in ₹)

Year	Assessed cost of SS Post per month	Assessed cost of JS Post per month	Difference of cost of Post per month		Difference of cost of Post per annum		No. of Posts		Total cost
			JAG & SS	SS & JS	JAG & SS	SS & JS	JAG	SS	
2011-12	80932	66995	2611	13937	31332	167244	4	1	292572
2012-13	86846	72387	2772	14459	33264	173508	4	1	306564
2013-14	93182	77077	2945	16105	35340	193260	4	1	334620
						Total			933756

In addition to the above posts two posts in non-gazetted cadre i.e. one Inspector Protection Force and one Personal Secretary-II were also sanctioned and operated in RPF department during the period 2011-12 to 2013-14 chargeable to D&G charges of Capital works. The assessed cost of these posts was as under:-

Table 3.7 (Amount in ₹)

Year	Assessed cost of Post of IPF per month	Assessed cost of Post of PS-II per month	Assessed cost of Post of IPF per annum	Assessed cost of Post of PS-II per annum	Total cost of posts of IPF & PS-II
2011-12	61545	61545	738540	738540	1477080
2012-13	66097	66097	793164	793164	1586328
2013-14	69878	69878	838536	838536	1677072
				Total	4740480

Thus, the assessed cost of Gazetted and Non-Gazetted posts in RPF department during the years 2011-12 to 2013-14 was as under:-

Table 3.8 (Amount in ₹)

Year	Cost of Gazetted post	Cost of non-gazetted posts	Total cost
2011-12	2058012	1477080	3535092
2012-13	2203944	1586328	3790272
2013-14	2373348	1677072	4050420
Total			11375784

In this connection it was seen that IG cum CSC (Constn.) in May 2013 had advised the Chief Administrative Officer (Constn.) NWR that the gazetted posts upgraded in Open Line against the D&G charges of Construction Organisation were not at all required in Construction as there was no need of these posts.

Hence, it is seen in audit that the posts operated in Security Department of NWR against D&G charges of construction and expenditure incurred thereon amounting to ₹1.14 crore (₹0.35 crore, ₹0.38 crore and ₹0.41 crore during 2011-12, 2012-13 and 2013-14 respectively) was without worth of charge and in contravention to Railway Board's instructions.

South Eastern Railway

Two gazetted posts (JAG) under D&G charges have been created in SER. The posts have been in operation since their creation and its currency is being renewed annually.

- The post of Deputy Chief Security Commissioner (JAG), which is being operated as Senior Deputy Security Commissioner cum Principal/ Zonal Training institute/ Kharagpur (KGP) is being operated from 22nd April 2009.
- The post of Senior Deputy Security Commissioner at Chakradharpur (CKP) (Sr.DSC/CKP) is being operated from 1st May 2012. It is being operated from the pool of work charged post of S&T under Construction Department. The payment of salary of the post of Sr.DSC/RPF/CKP was sanctioned provisionally by GM/SER for the period from 1st December 2012 to 30th June 2013 after getting approval from FA&CAO/Garden Reach Road, Kolkata. It was justified on the ground that the division faces serious law and order situation and the post was required for maintaining better and effective liaison with district authorities of Jharkhand and Odisha.

It is, therefore, evident from above that these posts were created without any specific demand from the Construction Organisation and were being operated in violation of Railway Board's directives on the subject.

3.7.2.3 Incorrect allocation of expenditure

As per Railway Board's directives issued from time to time, the cost of Gazetted and Non-Gazetted staff required for providing supervision and direction in the field as well as in the headquarters during the execution of works and other expenditure such as plant construction, instruments, office expenses, temporary residential accommodations, loss of cash and stores, operating expenses pending opening of the line for traffic etc. has to be charged under D&G Charges. The expenditure incurred for the purpose other than above should be booked under the respective heads of accounts to which it pertains.

The irregularities in booking of expenditure noticed in scrutiny of audit of works registers, paid bills, journal slips/vouchers and adjustment memos relating to selected construction works of IR are discussed as under:

(a) Incorrect allocation of non-D&G component of Expenditure to D&G charges within the same work

- An expenditure of ₹82.80 crore (₹1.86crore, ₹78.59crore and ₹2.35 crore during the years 2011-12, 2012-13 and 2013-14 respectively) pertaining to Structural Engineering Works (i.e. Formation, Permanent Way, Bridges, Stations and Buildings), Equipments, Plant and Machinery etc. which was to be booked to the non D&G component of the work was incorrectly reflected under D&G Charges, in NER, NFR, NWR, SECR, SWR and WR.

Thus, the expenditure incurred for other purposes and allocated incorrectly to D&G heads within the work has resulted in overstatement of D&G charges to the tune of ₹82.80 crore.

(b) Incorrect allocation of D&G charges to non-D&G component within the same work

- An amount of ₹4.72 crore, ₹2.84 crore and ₹4.62 crore (totalling to ₹12.18 crore) relating to D&G charges was incorrectly booked to other heads of accounts (within the work) during the year 2011-12, 2012-13 and 2013-14 respectively in CR, ER, NER, NFR, NWR, SECR and SWR.

This resulted in understatement of D&G charges to the tune of ₹12.18 crore as detailed below-

Table 3.9 (₹ in lacs)

Incorrect booking of D&G Charges to other Heads of Account								
Zonal Railway	CR	ER	NER	NFR	NWR	SECR	SWR	**Total**
Establishment	0	10.51	743.23	0	1.98	8.21	1.41	765.34
Other than Establishment[149]	0.16	0	65.08	360.02	25.47	0.01	1.90	452.64
Total	0.16	10.51	808.31	360.02	27.45	8.22	3.31	1217.98

(c) Incorrect adjustment of establishment component of D&G charges from one work to another work

- In NWR, an amount of ₹1.66 crore pertaining to establishment component of D&G charges was booked to Jaipur-Sikar-Loharu Gauge Conversion project (P-1487-01). This was transferred vide Journal Vouchers (JV) No. C/3 in August 2012 to the following works under Construction unit/Bikaner:

[149] See detail in foot note 1.

Table 3.10

Sr. No.	Particulars	Amount (₹`)
(i)	RE-Yard Remodelling work (DF-3 1687-01) vide Adjustment Memo No: CSTE/C/JP/9/3 dated 07.09.2012	31,00,000
(ii)	RE-HSR Std. III (Cap- 1687-01) vide Adjustment Memo No. CSTE/C/JP/9/3 dated 07.09.2012	1,35,00,000

- The period to which the amount was initially booked to JP-SIKR-LHU project is not available on record. Besides this, the details of Salary bills to which the amount pertained are also not available. A lump sum amount was transferred to the above two works without any specific reasons on record.
- In Metro Railway, prior to the year 2013-14, entire establishment component of D&G charges pertaining to Metro Railway were booked to the projects DUMDUM-TOLLYGUNGE (Phase I) TOLLYGUNGE-NEW GARIA (Phase II). Since 2013-14, the same were booked to the project NOAPARA-BARASAT via BIMANBANDER.

Audit observed that the establishment component of D&G charges were being booked to only one project whereas five projects were being under taken by Metro Railway. Metro Railway Administration stated the booking to one project was due to insufficiency of funds.

It is thus seen in Audit that the booking of D&G charges is not being done in transparent manner.

(d) Incorrect allocation of establishment component of D&G charges to other than Establishment component of D&G charges of another work

In North Western Railway, an amount of ₹ 0.11 crore pertaining to regular salary of Feb. /Mar. 2011 (2010-11) was booked under the work Road Over Bridge (ROB) on Level Crossing (LC) no. 63. This amount was transferred to Revenue vide JV No. 4 of August 2012. The Revenue Head to which the amount was transferred was not mentioned in the JV. Subsequently, the amount was again transferred to Capital vide JV No. R/12 of August, 2012 and booked under Deposit work Dungarpur – Ratlam (DNRP-RTM) New Line (20119308) i.e. Capital-General Charges "(Other than Establishment- office expenses-Others).

Thus, an amount pertaining to salaries paid in 2010-11 and booked under Capital (Safety Works) was transferred without any details or reasons to Revenue in 2012-13 and then again to Capital (Deposit Work) but under Office Expenses-Other than Establishment. This indicates irregular and unwarranted transfer of Establishment Charges to Other than Establishment.

Thus, by booking the D&G (establishment) charges to Office Expenses, the D&G charges (establishment) booked have been understated to the tune of ₹ 0.11 crore.

(e) Incorrect allocation of non-establishment component of D&G charges of one work to another work through execution of an unsanctioned work

In SCR, it was noticed that D&G charges other than establishment charges (construction of temporary sheds) of various sanctioned estimates from different sources of funds such as Capital, Capital Fund, DRF, Safety Fund, Deposit Works, etc. were shown as utilised for construction of Rail Nirman Bhavan, Secunderabad at a cost of ₹16.25 crore. This work was not sanctioned by competent authority. However, work code No. 007419 was allotted to the work under accounting head 43646103. This issue has already been pointed out in Annexure-J[150] to Appropriation Accounts for the year 2011-12. This work of ₹16.25 crore was not even a part of the work resulting in unauthorised execution of an unsanctioned work.

(f) Incorrect booking of expenditure of D&G charges from Capital Works to Revenue Account.

The post of FA&CAO/ Metro Railway was sanctioned as work-charged HAG post of Construction Organisation. However, the salary of the said post was booked in the O&M unit of Metro Railway under the Revenue head (03-211-01) instead of booking it in the Construction Estimates under Capital head. Thus, the cost of D&G charges of the Projects was understated to the extent of ₹0.41 crore (Salary of FA&CAO/M. Rly from October2012 to March2014.).

(g) Incorrect booking of Revenue expenditure to D&G charges of Capital works including irregular acceptance of debits of revenue expenditure to booking against Work Charged Posts/estimates.

- It was noticed that an expenditure of ₹37.73 lakh, ₹18.78 lakh and ₹172.78 lakh (totalling to ₹229.29 lakh) in the years 2011-12, 2012-13 and 2013-14 respectively pertaining to Revenue heads of Open Line incurred on repairs to quarters/ORHs/Bungalows, foundation stone laying, telephone bills, payment of leave encashment, Group Insurance Scheme (GIS) and salary bills of cash office etc. was incorrectly booked to D&G charges head of Construction projects. This led to overstatement of Capital expenditure and understatement of revenue expenditure.
- Further, in WCR, a Transfer Certificate for ₹1.80 crore relating to D&G charges were not accepted by Construction Organization, However, the said amount had been arbitrarily debited by FA & CAO office and it was kept under Deposit Misc. by the Bhopal construction unit. Dy. CE (C)/Bhopal (February 2014) stated that the said debit did not pertain to works being carried out by his office. This amount was thus, not worth of charge.
- In SER, Pay and allowances of the officers and staff of Chief Administrative Officer (Construction) [CAO (CON)] office was booked to a single estimate each month and not equitably amongst all the estimates. During financial year 2013-14, the budget outlay for Tamluk – Digha New Line project was

[150] Annexure J- Statement of misclassifications.

of ₹10 crore against which an expenditure of ₹9.84 crore was booked upto October 2013. There was an excess booking of ₹1.99 crore towards salary for Open line officers of Financial Advisor and Chief Accounts Officer/ Establishment Gazetted (FA&CAO/EGA) and Chief Personnel Officer/ Garden Reach, Kolkata (CPO/GRC) to the tune of ₹68.33 lakh, FA&CAO/Construction/Gazetted [FA&CAO/CON/GAZ] – ₹58.58 lakh and FA&CAO/Construction (Non-gazetted) [FA&CAO/CON (NG)]– ₹71.91 lakh. This was 20 per cent of the total budgetary outlay for this project and resulted in pending of number of contractual bills for want of funds. Railway administration transferred the establishment booking of FA&CAO/CON/GAZ– ₹58.58 lakh and FA&CAO/CON (NG) – ₹71.91 lakh to other construction estimates where funds were available through Journal Voucher (JV). Further, as there was no provision in construction estimate for booking of salary of FA&CAO/EGA and CPO/GRC, Railway Administration issued a JV reversing the establishment booking of these two officers.

- In terms of Para 406 of Indian Railway Code for Accounts Department, Volume I (AI), the transfer between the two Accounting units[151] within the same Railway should be effected by means of Transfer Certificates (TCs). The unit initiating the transfer should prepare the Transfer Certificates in form A406 in duplicate and send a copy duly supported by the initial accounts records or vouchers containing details of the transactions to the unit to which the transaction pertains and retain the other copy as the office copy.

Review of system of acceptance of TCs in IR revealed that:-

- A number of work charged posts are being operated in various departments of Open Line Organization which are not related to the activities of the Construction Organisation. The expenditure on these posts is incurred by the Open Line Organisation and sent to construction accounts for acceptance of the debits. Necessary details such as name, designation, amount of pay and allowances employee wise were not enclosed with the respective TCs sent by the open line. Despite this, these TCs were accepted by the Construction Organisation in contravention to Paragraph 406 of AI.
- The TCs do not have any reference to the work estimate to which the pay and allowances are proposed to be allocated. The expenditure of certain posts is being divided without a) relating the activity of the post to the concerned work; b) without obtaining details to support the booking of expenditure to the work.
- Accounts Office of Construction department which accepts the debits of work charged posts being operated in open line does not check whether the pay and allowances of the posts are of open line wing or for construction wing and whether these posts have the sanction of competent authorities and whether the posts have financial concurrence, leaving ample scope for irregular operation of these posts.

[151] Accounting units means Accounts office of Headquarters (Construction/open line), Divisions, Workshop, Traffic, Stores and construction in field offices.

As these posts were not connected with the functions of the Construction Organisation, the acceptance of debits was unjustified and therefore not worth of charge as per the Railway Board's instructions. This resulted in incorrect classification of revenue expenditure as capital expenditure. This included booking of expenditure of

(a) Seven Non-Gazetted posts (up to June 2011) and 5 NG posts (from July 2011 till date) of Operating Department in Western Railway which were charged to D&G of Civil Department with Financial concurrence to prevent excess booking of expenditure in Open line revenue that had arisen on account of irregular operation of 22 posts under Traffic Department in Open line. The savings on the Revenue grant were used to extend the currency of 6 Gazetted posts in Operating Department in 2011-12;

(b) One SAG level post in Western Railway which has been in operation since 1998 in the Open Line, the expenditure of which is being debited to the Construction Organisation on the directives of the Railway Board;

(c) five posts of Chief Vigilance Inspector were being operated without sanction from April 2012 in Southern Railway with their expenditure being booked to Construction works instead of operating these posts under respective Revenue Grants;

(d) ₹24.54 crore paid as salary in Open Line in East Central Railway which was adjusted through Journal Voucher (JV) and booked to D&G charges (establishment) to various projects under construction. The JV was not supported by the details of period and number of staff to which the expenditure related. The lump-sum amount has been picked up and transferred to various works without any specific reasons being assigned on record.

The cost of the posts operated in open line and accepted by Construction Organisation worked out to ₹37.12 crore, ₹49.00 crore and ₹60.07 crore during the years 2011-12, 2012-13 and 2013-14 respectively in all the Zonal Railways. Thus, the booking of revenue expenditure of ₹146.19 crore as capital expenditure resulted in reduction of availability of funds for works and had an adverse effect on renewal, modernisation and upgradation of railway assets both in terms of quantity and time. **(Annexure IX)**

3.7.2.4 Absence of transparent mechanism for identifying establishment expenditure classified to the work under D&G charges with the corresponding use of the work charged posts for the work

Railway Board fixes the yardsticks for creation/extension of posts of Gazetted Staff in construction projects on an annual basis under D&G charges. The yardsticks as fixed are in terms of annual gross outlay for all departments. The expenditure likely to be incurred on all works during the year should be taken into account for working out the required work charged establishment.

In July 1985, Railway Board stressed to ensure that the percentage of cost of work charged establishment to the expenditure incurred on those works during the year is not more than the prescribed limit. Railway Board had instructed (Feb 2011) that prescribed D&G charges are the maximum limit and endeavour should be made to

restrict the actual provision to the barest minimum. Mere availability of outlay should not be the basis for such an assessment. Over all expenditure on work charged establishment should be within the prescribed D&G charges.

Audit scrutiny of projects selected for review indicated that although the Railway Administration had assessed the D&G charges work wise/ project wise, as per the prescribed percentages of D&G charges for various construction projects, yet the amount booked against a particular work in a particular year was not in accordance with the percentage fixed to the determined estimation of the expenditure in the concerned work. The results of review are summarised as under:-

Table 3.11

Year	Number of works covered during Audit	D&G expenditure to total expenditure (Range of percentage expenditure)		Number of works where expenditure on D&G charges on the work during the financial year was in excess of		
		Maximum	Minimum	25 per cent and upto 50 per cent of total expenditure	50 per cent and upto 75 per cent of total expenditure	75 per cent of total expenditure
2011-12	280	100	0.06	16	8	13
2012-13	280	104.17	0.01	19	5	10
2013-14	280	100	0.02	12	11	13

- The fact that D&G charges booked for work being executed constituted as much as up to 104.17[152] per cent of the total expenditure booked in some of the works proves that these charges are being booked even without any physical progress during the year.
- It is further seen that in respect of 36[153] works in progress during the years 2011-12 to 2013-14 where more than 75 per cent of total expenditure was utilised on D&G charges leading to indiscriminate booking of expenditure under D&G charges, booking of D&G charges is actually being done to the works where funds are available. This finally leads to a situation where at the time of actual requirement of work charged posts for the work, the D&G charges available in the concerned work are already exhausted. This aspect has also been commented upon by the Chairman Railway Board vide his letter dated 26th March 2014 addressed to all General Managers including GM/Metro and GM (Const.)/NFR/PUs.
- In ER and ECR work wise details of booking of D&G charges were not provided by the Railway Administration.
- There was absence of a transparent system of linking the extent of the use of the work charged posts on a work to the expenditure booked under establishment component of the D&G charges of the work which was

[152] In SWR gross expenditure booked was Rs. 6083000 and during the year credit received was₹ 3014000. Thus the net expenditure for the year 2012-13 was Rs. 3019000 against which amount booked in D&G heads was ₹ 3145000 i.e. 104.17% of the actual expenditure.

[153] In 2011-12 total 13 works (ECoR-2, NR-2, SCR-2, SER-1, SR-4 and WR-2), in 2012-13 total 10 works (CR-1, NCR-1, NR-2, NWR-1, SR-2, SWR-1, WCR-1 and WR-1) and in 2013-14 total 13 works (ECoR-2, NCR-1, NR-3, NWR-1, SCR-1, SECR-1, SR-3 and WCR-1).

facilitated by acceptance of TCs with incomplete details and defective maintenance of works registers as detailed in Para 63.7.3.1 respectively.

3.7.2.5 Excess operation of posts with respect to actual expenditure

Provisions for Work Charged posts are made in the estimates of Capital works as a percentage of estimate classified as D&G charges. These charges are specified by Railway Board from time to time with the latest being in February 2011. The Work Charged posts are justified, created/extended on the basis of Budget outlay for the year concerned. In November 2011, Railway Board instructed that the creation of posts should be need based and on worth of charge.

The process of preparation of Budget commences at the field unit level[154]. The field units prepare estimates of expenditure under different heads which forms the base for forecasting the requirement of funds for the concerned year. The estimates are then compiled and scrutinized at the Zonal Headquarter level for consideration and final allotment by Railway Board. Railway Board also scrutinizes the estimates received from all the Zones. The estimates of expenditure are presented to the Parliament in the form of 'Demand for Grants'. After passing of Appropriation Bill by the Parliament, budgetary allocations are made work wise to all the Zonal Railways. On allotment of funds by Railway Board, department wise distribution of funds is made at Zonal level by CAO (C) or GM(C). The progress of expenditure is monitored through Monthly financial reviews prepared by Accounts Officers for submission to the controlling authorities every month. Three budgetary reviews are made during August, December and February to review the requirements of funds. On this basis re-appropriations/final allotment of funds are made by Railway Board. In the final Budget Allotment orders Plan Head[155] wise funds are allocated by Railway Board and this compromises the original work wise allotment made at the time of original Budget allocation. This mechanism facilitates undertaking/ emphasis/ prioritisation of works different from that in the original Budgetary Allotment. The final budget allotment received from the Railway Board is further distributed work wise by the Zonal Railway administration.

The results of the review of expenditure are not being extended to assess the impact of change of expected expenditure on availability of corresponding D&G charges. The Chairman Railway Board in March 2014 also stressed the need to reassess the work charged posts on the basis of subsequent revision in the Budget Grants. No assessment involving upward or downward revision in operation of work charged posts was noticed (December 2014). The Chairman Railway Board obtained information for determining the impact of change of expenditure on the gazetted posts to be operated under D&G charges in July 2014 and found that this extension of the results of review of expenditure would have led to reduction in 93 number of Gazetted Posts (HAG-6, SAG-12 and JAG-75) operated under D&G charges in 2013-14.

[154]Deputy Chief Engineer's office in construction units of Zonal Railways.
[155]New Line (1100), Gauge Conversion (1400), Doublings (150), Traffic facilities (1600), Rolling stock (2100), Bridge works (3200), Signalling and telecommunication works (3300), Workshops including Production Units (4200), Other specified works (6400) etc.

However, no further action in the matter to reduce these posts has been found to be taken by Railway Board.

During the years 2011-12, 2012-13 and 2013-14, the Budget Grant for Civil Engineering and its Survey, S&T and Survey, Electrical and its Survey was ₹18022 crore, ₹15490 crore and ₹13645 crore respectively. The Final Grant for these years was ₹12904 crore, ₹13482 crore and ₹15008 crore respectively against which the Actual Expenditure booked in these years was ₹13191 crore, ₹13347 crore and ₹14928 crore respectively.

It was observed that:

- During the years 2011-12 and 2012-13 the overall expenditure was less than the original budget grant (the basis on which the work charged posts are justified and created) to the tune of ₹4831 crore (26.81 per cent) and ₹2143 crore (13.83 per cent) whereas during 2013-14 the overall expenditure was in excess to the original budget grant to the tune of ₹1283 crore (9.40 per cent).
- The final grant is issued at the fag end of the financial year to align it to actual expenditure. After revision of budget grants, the proportionate changes in the work charged posts created on the basis of original budget grant are not made resulting in excess operation of posts leading to excess booking of expenditure on D&G charges.

Further, the impact of reduction of budget outlay at the time of final grant and actual expenditure, was also reviewed and it was observed-

- During the years 2011-12, 2012-13 and 2013-14, re-assessment of work charged posts in Civil Engineering, Signal & Telecommunication, Electrical, Stores and Accounts departments on the basis of Final Grants would have led to saving of ₹51.25 crore[156], ₹44.25 crore[157] and ₹75.24 crore[158] respectively involving 531, 420 and 697 number of Gazetted posts during 2011-12, 2012-13 and 2013-14 respectively.

[156] ₹1.76 Crore (CR), ₹5.23 Crore (ECoR), ₹4.17 Crore (ECR), ₹0.86 Crore (ER), ₹1.08 Crore (NCR), ₹0.3 Crore (NER), ₹5.28 Crore (NR), ₹2.34 Crore (NWR), ₹3.09 Crore (SCR), ₹4.6 Crore (SECR), ₹0.96 Crore (SER), ₹0.5 Crore (SR), ₹1.13 Crore (SWR), ₹12.07 Crore (WCR) and 7.89 Crore (WR).

[157] ₹1.53 Crore-(CR), ₹3.05 Crore-(ECoR), ₹6.39 Crore-(ECR), ₹0.72 Crore-(ER), ₹0.71 Crore-(Metro Railway), ₹1.58 Crore-(NCR), ₹1.29 Crore-(NER), ₹3.93 Crore-(NR), ₹2.1 Crore-(NWR), ₹2.33 Crore-(SCR), ₹2.19 Crore-(SECR), ₹0.51 Crore-(SR), ₹0.1 Crore-(SWR), ₹12.36 Crore-(WCR) and ₹5.44 Crore-(WR).

[158] ₹1.97 Crore (CR), ₹1.61 Crore (ECoR), ₹11.16 Crore (ECR), ₹3.97 Crore (ER), ₹2.89 Crore (Metro Railway), ₹4.48 Crore (NCR), ₹1.87 Crore (NER), ₹0.34 Crore (NFR), ₹6.04 Crore (NR), ₹4.18 Crore (NWR), ₹4.1 Crore (SCR), ₹3.77 Crore (SECR), ₹1.08 Crore (SER), ₹4.06 Crore (SR), ₹0.86 Crore (SWR), ₹16.41 Crore (WCR) and ₹6.45 Crore (WR).

- Similarly, during the years 2011-12, 2012-13 and 2013-14 it was noticed that an extra expenditure of ₹52.05 crore[159], ₹48.08 crore[160] and ₹77.20 crore[161] had been incurred in comparison to quantum of work in monetary terms (actual expenditure) executed by the post holders.

Thus, due to non-reduction of posts proportionate to decline in expenditure against the outlays, the Railway Administration had to incur an extra expenditure of ₹177.33 crore under D&G charges on Gazetted Posts during the years 2011-12 to 2013-14. The assessment of the excess operation of non-gazetted posts on this account is not possible in absence of a similar yardstick for non-gazetted posts.

Annexure X

3.7.2.6 Excess expenditure over sanctioned estimate on D&G charges

Consequences of irregular booking and non-reduction of posts proportionate to decline in expenditure against the outlays were noticed in the review of 226 on-going and 54 completed works covered in audit in the form of excess expenditure against provision in the D&G charges as under-

(a) Ongoing projects

- Booking of D&G charges (Establishment) in excess of provision made in the estimates amounting to ₹1275.58 crore was noticed in 53 works out of the 226 construction works covered in audit.
- Booking of D&G charges (Other than Establishment) in excess of provision made in the estimates amounting to ₹231.48 crore was noticed in 49 works out of the 226 construction works covered in audit.
- In 20 works in which separate breakup of establishment and other than establishment charges under the head D&G was not available, an amount of ₹999.04 crore was booked against the provision of ₹299.67 crore made in the estimates resulting in excess expenditure of ₹699.37 crore.
- The details of establishment and other than establishment charges under the head D&G either in the estimates or actual amount booked in the works concerned were not available in 10 works.

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[159] ₹1.76 Crore (CR), ₹5.65 Crore (ECoR), ₹4.48 Crore (ECR), ₹0.67 Crore (ER), ₹1.08 Crore (NCR), ₹0.39 Crore (NER), ₹0.29 Crore (NFR), ₹4.43 Crore (NR), ₹2.53 Crore (NWR), ₹2.72 Crore (SCR), ₹4.6 Crore (SECR), ₹1.21 Crore (SER), ₹0.5 Crore (SR), ₹1.38 Crore (SWR), ₹12.56 Crore (WCR) and ₹7.79 Crore (WR).

[160] ₹1.53 Crore (CR), ₹3.15 Crore (ECoR), ₹5.59 Crore (ECR), ₹0.72 Crore (ER), ₹0.71 Crore (Metro Railway), ₹1.58 Crore (NCR), ₹0.87 Crore (NER), ₹3.93 Crore (NR), ₹2.21 Crore (NWR), ₹3.04 Crore (SCR), ₹2.39 Crore (SECR), ₹0.25 Crore (SER), ₹0.51 Crore (SR), ₹0.47 Crore (SWR), ₹15.57 Crore (WCR) and ₹5.55 Crore (WR).

[161] ₹2.25 Crore (CR), ₹3.37 Crore (ECoR), ₹11.45 Crore (ECR), ₹4.08 Crore (ER), ₹2.89 Crore (Metro Railway), ₹4.59 Crore (NCR), ₹1.63 Crore (NER), ₹0.34 Crore (NFR), ₹5.81 Crore (NR), ₹4.40 Crore (NWR), ₹3.44 Crore (SCR), ₹3.55 Crore (SECR), ₹1.30 Crore (SER), ₹3.87 Crore (SR), ₹1.06 Crore (SWR), ₹16.50 Crore (WCR) and ₹6.67 Crore (WR).

- In other works the expenditure under D&G charges was within overall ceiling as provided in the estimate.

(b) Completed projects

- Booking of D&G charges (Establishment) in excess of provision made in the estimates amounting to ₹228.16 crore was noticed in 25 works out of the 54 construction works seen in audit.
- Booking of D&G charges (Other than Establishment) in excess of provision made in the estimates amounting to ₹71.96 crore was noticed in 20 works out of total 54 construction works.
- In three works in which separate breakup of establishment and other than establishment charges under the head D&G was not available, an amount of ₹4.72 crore was booked in excess of total provision of D&G charges made in the estimates.
- In other works the expenditure under D&G charges was within overall ceiling as provided in the estimate.

Audit noticed that the D&G charges are being booked to the works in inefficient way without considering the budget grant for the works and overall booking of D&G charges as provided in the sanctioned estimates.

(c) Inappropriate booking of D&G Charges

Railways estimate the utilizable D&G charges based on total assessed outlay at the start of the year and operate posts keeping in view the total D&G charges determined to be used based on that outlay. The actual expenditure at the end of the year is different from the assessed outlay at the start of the year. The available D&G charges on the basis of actual expenditure were determined in audit. The formula used was same but actual expenditure in place of outlay of each department was taken. The details of excess amount booked in respect of different Zonal Railways are as under:-

Table 3.12 (Figures in thousands of ₹)

Name of Railway	Excess/ less amount booked during 2011-12 to 2013-14		
	2011-12	2012-13	2013-14
CR	-27730	78354	123450
ER	Not Available	Not Available	Not Available
ECR	-98134	214069	345315
ECoR	200911	173196	100887
Metro Railway	Not Available	Not Available	Not Available
NCR	-23821	5492	19443
NER	452808	91882	113140
NFR	-1945757	-71336	-1129195
NR	1086205	1231569	1774078
NWR	95996	-24760	96228
SCR	40500	205900	-30400
SECR	Not Available	Not Available	Not Available

SER	-40113	-107026	-334868
SR	Not Available	-811207	-227384
SWR	-139430	-200544	-418459
WCR	5290	85375	48031
WR	350752	357511	203320
Total excess	2232462	2443348	2823892
Total saving	2274984	1214873	2140306

- During the year 2011-12, there was an assessed excess utilization of D&G charges to the tune of ₹223.25 crore in respect of seven Zonal Railways and savings to the tune of ₹227.50 crore in respect of six Zonal Railways.
- The information regarding utilization of D&G charges was not available in respect of four Zonal Railways[162] for the year 2011-12 as the required information has not been provided by the concerned Zonal Railway administration.
- During the year 2012-13, there was an assessed excess utilization of D&G charges to the tune of ₹244.33 crore in respect of nine Zonal Railways and savings to the tune of ₹121.49 crore in respect of five Zonal Railways.
- The information regarding utilization of D&G charges was not available in respect of three[163] Zonal Railways for the year 2012-13 as the required information has not been provided by the concerned Zonal Railway administration.
- During the year 2013-14, there was an assessed excess utilization of D&G charges to the tune of ₹282.39 crore in respect of nine Zonal Railways and savings to the tune of ₹214.03 crore in respect of five Zonal Railways.
- The information regarding utilization of D&G charges was not available in respect of three[164] Zonal Railways for the year 2013-14 as the required information has not been provided by the concerned Zonal Railway administration.
- During the period 2011-12 to 2013-14, there was an assessed excess utilisation of ₹186.95 crore comprising an excess of ₹749.97[165] crore and saving of ₹563.02[166] crore for the Zonal Railways for which information was available.

3.7.2.7 Infructuous expenditure on the posts operated for defunct activities

Consequent to computerization in offices and introduction of new machines for drawing, copying, printing etc. the activities of roneo operation and ferro printing were no longer in practice. Hence 'Roneo operator' and 'Ferro printer' posts had

[162] ER, Metro Railway, SECR and SR.
[163] ER, Metro Railway and SECR.
[164] ER, Metro Railway and SECR.
[165] ₹223.25 crore, ₹244.33 crore and ₹282.39 crore during the years 2011-12, 2012-13 and 2013-14 respectively.
[166] ₹227.50 crore, ₹121.49 crore and ₹214.03 crore during the years 2011-12, 2012-13 and 2013-14 respectively.

become redundant. However, it was observed that these posts were continued to be operated in Southern Railway as detailed below:

Table 3.13 Operation of redundant posts

Post	Department	Year	No.
Roneo operator	Civil / Electrical	2011-12	4
		2012-13	4
		2013-14	4
Ferro printer/Khalasi	Civil / S&T	2011-12	9
		2012-13	9
		2013-14	9

Source: Scale check statement, Work Study report of planning branch

The cost of above defunct posts comes to ₹1.35 crore (excluding leave salary and pension contribution). SR should initiate action to surrender the above posts related to defunct activities.

3.7.3 Other issues

3.7.3.1 Improper maintenance of Work Registers

The Work Registers[167] serve as an important management tool in providing information which enables comparison of the expenditure incurred against a work with the provision made in the estimate. This register should be maintained in the form E-1473 and the amount shown in the estimate, the budget allotment and details of expenditure on each work by heads of accounts should be shown in this register. The register may be arranged by detailed heads of classification, separate folios being set apart for each work. At the end of each month, the work register should be closed and totaled up as monthly, yearly and up-to-date for each work. During review, it was noticed that-

- In NWR, the Work Registers were maintained manually during the years 2011-12 and 2012-13. It was found that these registers were not being maintained properly as the plan head wise details of estimated cost, budget allotment etc. were not recorded in the work registers. The posting in the registers was not made properly and frequent corrections were made. In the work register of Dausa-Gangapur City New line for the year 2011-12, only the total expenditure without showing plan head wise details was exhibited. From April 2013 these are maintained in computerized manner and any subsequent changes which are required in the allocation of expenditure is being done through transfer certificates.
- Besides this, frequent corrections in the work registers were also noticed in construction unit Jabalpur of WCR.
- In NR, ER, NCR, Metro Rly, SER, SR, SECR, SCR, NFR and WR works registers are maintained on computers but head wise classification of D&G charges has not been made.

[167] Defined under Para 1472-E.

- In ECoR, though the works registers were computerized in 2008, there was no specific feature in the system (PRIME Module) to control the D&G charges in various estimates.
- In SWR, work registers are maintained on computer and head wise classification of D&G charges are made.
- In ECR, NER, ECoR and ER, the records regarding booking of expenditure under D&G in respect of 56 works was not made available as shown in Schedule 5.1. Thus, the data could not be analyzed in Audit.

3.8 Conclusion

As a result of non-adherence to the prescribed provisions of D&G charges, cost of staff was incorrectly assessed for creation/ operation of work charged posts leading to reduced fund availability for the work execution. Booking of cost of posts which are not directly connected to the works of construction organization and operation of posts having higher grade also led to reduced fund availability for the work/ excess over sanctioned estimates. Absence of the system of periodical measurement of the posts to be operated linked to the exercise of expenditure has led to operation of excess posts. The review also revealed that:

- The measurement of the costs of the posts was significantly lesser than that prescribed. Large variations in the elements of cost included by various Zonal Railway formations in their assessment of the cost of work charged posts were noticed.
- The work charged posts of gazetted officers in Senior Scale were created/operated in excess of the norms fixed by Railway Board.
- Norms for operation of work charged posts in departments viz., Traffic, Personnel, Medical, Vigilance, General Administration and operating remain to be framed by Railway Board even after six years of the identification of the need for such norms.
- Unjustified operation of the posts for Security Department (RPF) in Construction Organisation were noticed.
- Work charged posts created against D&G charge of works executed by construction organisation were operated in open line without worth of charge.
- Expenditure relating to other heads of accounts was incorrectly booked under accounting classification related to D&G charges resulting in overstatement of expenditure under D&G charges.
- Expenditure relating to D&G charges was incorrectly booked to other accounting classifications resulting in understatement of expenditure under D&G charges.
- Deficient internal control mechanism in the system of acceptance of debits by construction organization through transfer certificates from open line led to overstatement of expenditure under D&G charges.

- The expenditure under D&G charges (Establishment) heads were booked to various works without a transparent mechanism to link the work of the post to the concerned work leading to mis-utilisation of the mechanism of providing D&G charges in the work estimates.
- The expenditure relating to revenue heads was booked incorrectly to capital works.
- The Work Registers were not maintained properly in the prescribed format showing all required details.

Recommendations

- *The cost of the posts should be assessed as per provision contained in the Finance Code and actual cost of the posts should be allocated to the works.*
- *To restrict the D&G charges within the sanctioned estimate the ratio prescribed by Railway Board for operation of work charged posts should strictly be followed.*
- *Yardsticks for all the posts required to be operated as work charged should be fixed by Railway Board and operated accordingly..*
- *The work charged posts having no direct relation to the construction work should not be operated in open line against construction estimates.*
- *The booking of expenditure on D&G charges under incorrect heads of Accounts of same work or other works and allocation of other expenditure under D&G charges should scrupulously be avoided.*
- *Utilisation of D&G charges needs to be commensurate with progress of the work and operation of posts should be reviewed within a financial year linking it to revision of Budget outlays, so as to utilise work charged posts more efficiently where actually required.*
- *To determine the actual expenditure on D&G charges the Work Registers should be maintained in the prescribed Form E-1473 and posted efficiently with all the required details.*

The matter was brought to the notice of Railway Board in February 2015; their reply has not been received (May 2015).

Appendix I (Para 3.7.1)
Gist of Railway Board's Instructions regarding provision and utilization of D&G Charges

The yardsticks for creation of Gazetted posts viz. Senior Administrative Grade (SAG), Junior Administrative Grade (JAG), Senior Scale (SS) and Junior Scale/Group "B" for the year 2012-13 prescribed by Railway Board stipulate that in other than Accounts i.e. Civil, Electrical and S&T Departments the total number of posts in Junior Scale/ Class II and Senior Scale should be determined by taking these posts together and not separately. It was also stipulated that the number of posts in Senior Scale should normally be kept at about one half of the Junior Scale posts which can be relaxed up to maximum limit of 1:1 depending upon the discretion of the General Managers. In case of Stores Department, the ratio of Senior Scale to Junior Scale posts would be 1:2. In case of "turn-key projects, 25 per cent of the outlay should be taken for determining the admissible work charged posts except Jammu & Kashmir where it can be increased to 50 per cent in view of special circumstances. Further a cut of ten per cent was to be applied on the posts calculated as per above formula as a measure of economy .One post of HAG out of three or more admissible posts of SAG could be operated.

In November, 2011 the Railway Board instructed that not more than 50 per cent of the establishment component of D&G charges, should be utilised for Gazetted cadre. The overall expenditure on work charged establishment should be within the prescribed D&G charges.

The guidelines for distribution of D&G charges to various department for operation of work charged posts as advised by Railway Board in February,2011 were as under:-

- The provision for Stores Department should be used by Stores Department only and should not be reallocated to any other department.
- For Metropolitan Projects (MTP) and New Lines, the provision of 0.318 per cent should be made for General Charges for Traffic Department for the portion related to junction arrangements only i.e.0.318 per cent of junction arrangements only to be provided and not 0.318 per cent of the total cost of New Line or MTP project.
- No provision should be made for the Traffic Department under plan heads "Staff Quarters, Staff Amenities, Workshops and Sheds and Machinery & Plants".
- D&G provision of 0.326 per cent should be made for Mechanical Department in Civil Engineering estimates under Plan Head-42. This provision should be made out of the overall limit of D&G charges i.e.7.83 per cent for Civil Engineering works as per details given in Schedule '2.1'.
- While creating work charged posts in Vigilance Department within the stipulated provisions, it should be ensured that the creation of posts should be need based and on worth of charge.

The prescribed D&G charges are the maximum limits, and endeavor should be made to restrict the actual provision to the D&G charges barest minimum.

Year wise yardsticks[168] for creation, extension of posts of Gazetted staff in construction projects for the year 2011-12 to 2013-14 was as under-

(Figures in Crore of ₹)

Departments	Year	HAG	SAG	JAG	SS	JS/Gr. 'B'
Civil	2011-12	375	79.4	24.1	6.6	5.0
	2012-13	395	83.58	25.37	6.95	5.26
	2013-14	416	88.10	35.24	13.22	8.80
Electrical	2011-12	No yardstick prescribed	42.70	13.59	4.13	2.39
	2012-13		44.43	14.14	4.30	2.49
	2013-14		46.20	18.48	6.93	4.62
S&T	2011-12	No yardstick prescribed	42.70	13.59	4.13	2.39
	2012-13		43.18	13.74	4.18	2.42
	2013-14		44.10	17.64	6.62	4.40
Accounts	2011-12	950	253.5	174.0	50.9	40.0
	2012-13	997	266.15	182.68	53.44	42.00
	2013-14	1046	279.35	191.74	56.09	44.08
Stores	2011-12	No yardstick prescribed	273.3	109.3	38.8	
	2012-13		287.68	115.05	40.84	
	2013-14		303.24	121.27	43.05	

[168]Yardsticks for the year 2011-12 was circulated by Railway Board vide letter no. 2011/E&R/3/1(Pt.) dated 27/07/2011, for the year 2012-13 vide letter no. 2012/E&R/3/1(1) dated 28/05/2012 and for the year 2013-14 vide letter no. 2013/E&R/3(1)/1 dated 29/08/2013

Appendix II (Para 3.7.1)
Percentage Ceiling of D&G Charges for Various Works Estimates

Nature of Estimate	Establishment Charges	Other than Establishment Charges	Total
New Lines	7.83	1.30	9.13
Gauge Conversion/Doubling	5.13	1.30	6.43
Other Civil Engg. Construction works	7.83	1.30	*9.13*
Track Renewal works(Primary & Secondary)			
Through Rail Renewal			*1.35*
Through Sleeper Renewal			*2.25*
Complete Track Renewal			*1.8*
Railway Electrification	8.37	1.35	*9.72*
Electrical Projects not requiring traffic/power blocks	8.73	1.45	10.18
Electrical Projects requiring traffic/power blocks	12.11	1.45	*13.56*
S&T Projects not requiring traffic/power blocks	9.54	1.15	10.69
S&T Projects requiring traffic/power blocks	13.68	1.15	14.83
Mechanical Projects (M&P)	4.59	0.40	*4.99*
Mechanical Projects (Other than (M&P)	7.02	1.70	*8.72*

Break-Up of D&G Charges for Various Works Estimates

(Percentage to Estimated Cost)

Particulars	**Civil**			**RE**	**Electrical**		**S &T**	
	New Lines	**GC/ Doubling**	**Other Civil Engineering Construction Works**		**With out block**	**With block**	**With-out block**	**With block**
1. **Establishment**								
1.1 Deptt.								
(a) HQ. Org	0.798	0.527	0.805	1.502	1.799	2.506	1.877	2.722
(b) Field Org.	5.046	3.309	5.144	4.696	5.280	7.664	6.668	9.674
1.2 Audit & Accounts	0.910	0.580	0.913	0.858	0.852	0.846	0.314	0.311
1.3 Stores	0.361	0.240	0.370	0.631	0.532	0.529	0.419	0.415
1.4 Traffic	0.318	0.210	0.326	0 293		0.300		0.300
1.5 Personnel	0.081	0.043	0.109	0.079	0.107	0.106	0.105	0.103
1.6 Medical	0.081	0.043	0.109	0.079	0.107	0.106	0.105	0.103
1.7 Vigilance	0.154	0.135	0.054	0.153	*0.053*	*0.053*	*0.052*	*0.052*
1.8 RPF	0.081	0.043		0.079				
(a) **Total**	***7.830***	***5.130***	***7.830***	***8.370***	***8.730***	***12.110***	***9.540***	***13.680***
2. Other than Establishment								
2.1 Plant Const.	0.35	0.35	0.35	0.55	0.55	0.55	0.20	0.20
2.2. Temporary Accommodation.	0.30	0.30	0.30	0.20	0.20	0.20	0.20	0.20
2.3 Residential	0.40	0.40	0.40	0.35	0.45	0.45	0.45	0.45
2.4 Contingency	0.20	0.20	0.20	0.20	0.20	0.20	0.25	0.25
2.5 Instruments	0.04	0.04	0.04	0.03	0.03	0.03	0.05	0.05
2.6 Loss of Cash/Stores	0.01	0.01	0.01	0.02	0.02	0.02		
(b)Total	***1.30***	***1.30***	***1.30***	***1.35***	***1.45***	***1.45***	***1.15***	***1.15***
3. Grand Total **(a)+ (b)**	***9.13***	***6.43***	***9.13***	***9072***	***10.18***	***13.56***	***10.69***	***14.83***

Yardsticks for the year 2012-13 for Creation & Extension of currency of Gazetted Posts

Yardsticks for the year 2012-13 (Fig in Crore of ₹)					
Post	**Civil**	**Electrical including RE**	**S&T**	**Accounts**	**Stores**
1	***2***	***3***	***4***	***5***	***6***
SAG	83.58	44.43	43.18	266.15	287.68
JAG	25.37	14.14	13.74	182.68	115.05
SS	6.95	4.30	4.18	53.44	40.84
JS/Gr. 'B'	5.26	2.49	2.42	42.00	

Chapter 4 – Review on 'Management of vacant land in Indian Railways'

Executive Summary

Indian Railways (IR) owned 4.59 lakh hectares of land (March 2014) out of which, 0.46 lakh hectare land was vacant and 930.75 hectares, under encroachment. A proper system needs to be in place to watch safe custody of existing Railway land by ensuring clear title, prevention of encroachments and early removal of encroachments. Public Accounts Committee (PAC) had emphasised the need for setting up Land Management Cells (LMCs), to maintain accurate Land Records and to plan removal and prevention of encroachments.

Some of the important findings of this review are

- *Out of 16 Zones, separate LMCs had not been set up in headquarters of three Zones and in 37 Divisions of 13 Zones. Only three Zones had LMCs in all of their Divisions.*
- *In most of the LMCs set up in the Divisions, staff posted was neither trained to deal with land issues nor exclusively deployed on the job. As such, maintenance of important land data was deficient.*
- *The LMCs were not properly monitoring the position of vacant land. Four per cent land plans were missing, 16 per cent of available land plans had not been authenticated by State Authorities and 20 per cent land plans had not been digitised.*
- *The records connected with land mutation were available in eight Zones only and only 48 per cent of these land plans were mutated.*
- *Land Record Registers were not being maintained in 37 out of 68 Divisions and maintenance/ verification of Land Boundary Verification Registers and Encroachment Inspection Registers over IR was not proper.*
- *Construction of boundary walls along vacant land to avoid encroachment of land was not well assessed and planned. Details of encroachments were not being maintained, the process for removal of encroachments was very slow and efforts made for removing encroachments, even under Public Premises (Eviction of Unauthorised Occupants) Act, 1971 were inadequate as encroachment of Railway land was an ongoing process.*
- *The monitoring and joint inspections for encroachment management were not to the prescribed level.*

4.1 Introduction

Indian Railways (IR) require land for laying of tracks, construction of yards, station buildings, platforms, setting up of workshops, repair and maintenance facilities and housing colonies for its staff. Land is also licensed for commercial purposes. Railway land has been defined under the Railway (Amendment) Act 2005 as “any land in which a Government Railway has any right, title or interest”. As per records maintained by the Land & Amenities Directorate of the Railway Board, Indian Railways owned 458588.16 hectares of land as on 31 March 2014.

Out of this, a significant quantum of Railway land, i.e. 47339.5 hectare (10.33 *per cent*) has not been put to any use as 46408.75 hectare land is vacant (10.12 *per cent*) and 930.75 hectare (0.21 *per cent*) under encroachment. It is, therefore, imperative that IR manages both the custody of land and its utilization to its best advantage by formulating a proper system to watch safe custody of its existing land by ensuring clear title, taking action to prevent encroachment and if encroached, taking suitable action to remove the encroachment. For management of IR land, there are provisions in Indian Railway Works Manual (IRWM)[169]for maintaining various land records, providing boundaries and periodical verification thereof, maintaining land plans and removal of encroachments etc..

The issue of land management on Indian Railways was taken up earlier by Audit in Chapter 2 of the Report of the C&AG of India (Railways) - No. PA 8 of 2008. Further, the issue of commercial utilization of surplus railway land was also covered in the Report of the C&AG of India (Railways) - No. 32 of 2012. The Public Accounts Committee (PAC) in its Sixteenth Report (Fifteenth Lok Sabha) on C&AG's Railway Audit Report No. PA 8 of 2008 recommended the following to strengthen the land management in Indian Railways:

- To set up separate land management cell to deal effectively with land related matters and to make necessary arrangements to staff the cell with those who possess adequate knowledge and skills;
- To correct the inaccuracies in the existing land records; and
- To formulate a comprehensive action plan for removal and prevention of encroachments.

Accordingly, the Ministry of Railways (MOR) issued detailed comprehensive instructions in April 2010[170] to ensure the following:

- Creation of land management cells in Zonal headquarters and Divisions;
- Regular monthly meetings of SAG level officers with appropriate revenue authorities in the State Governments;
- Maintenance and up-dation of registers connected with land management, provisions of which have been made in IRWM[171];
- Formulation of action plan for prevention of encroachments; and
- Computerization of land plans.

4.2 Audit objectives

Audit examined (2014) the issue of prevention and removal of encroachments on railway land with a view to assess whether the existing provisions of IRWM, PAC's recommendations and Railway Board's instructions of April 2010 were followed in ensuring that:

[169]Para 806 to 814
[170] 2007/LML/06/10 dated 1 April 2010
[171] Para 806, 807, 812, 813 and 814

- The Land Management Cells were set up at Zonal and Divisional levels and functioning effectively;
- Land Records have been properly maintained; and
- Whether a comprehensive action plan for prevention and early removal of encroachments was formulated and followed.

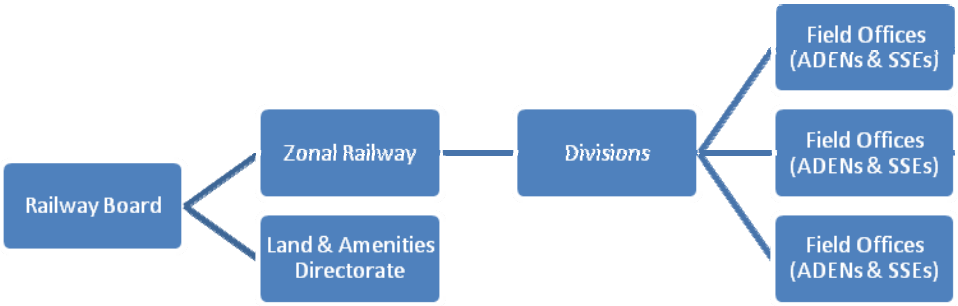
4.3 Audit scope, methodology and sample

The methodology adopted by Audit included examination of land records at various levels (Railway Board, Zonal headquarter, Railway Division and Railway Division's Field units) and analysis & comparison of data collected for a period of three years (2011-14). At macro level the data regarding land holding etc. was collected for all the Railway Divisions and Zonal headquarters. However, for the review of specific issues, viz. land boundaries, encroachments etc. records of units selected were reviewed as per sample size shown in the table below –

Table 4.1

Activity Centers	Selection Criteria	Selected Sample Size
Divisional level	one division for zones having less than four divisions and two divisions for those having four or more divisions	26
Sub-divisional level (Assistant Divisional Engineer - ADEN)	25 per cent ADENs of selected divisions	70
Field level (Sr. Section Engineer/Section Engineer – SSE/SE)	All SSE/SE in selected ADENs	223

4.4 Organizational structure



Land management at Railway Board is the responsibility of the Land & Amenities Directorate, which works under the overall direction of Member (Engineering). The primary responsibility of this Directorate is to lay down the policy in regard to land management and to ensure its implementation and monitoring at the Zonal headquarter and Railways' Divisional offices. At the Zonal headquarter the Principal Chief Engineer (PCE) under the General Manager (GM) is the

implementing and coordinating authority for the various policies and orders issued by the Railway Board. PCE is assisted by the Chief Engineer (CE) and Deputy Chief Engineer (Dy CE) or Land Controlling Officer (LCO). At Railway Division, the Sr. Divisional Engineer (Sr DEN) is responsible for implementation and execution of various instructions for regulating usage of land, prevention and removal of encroachments, execution of agreements for commercial licensing etc. In the field units of Railway Division, the Assistant Divisional Engineer (ADEN)/Senior Section Engineer (SSE) - Works/Permanent Way is responsible for maintaining the land records, demarcation of land boundaries and detection & prevention of encroachment etc.

4.5 Audit criteria

The Audit Criteria were derived from the following sources:

- Section 147 of Indian Railway Act 1989 regarding trespass and refusal to desist from trespass.
- Provisions of Public Premises (Eviction of Unauthorized Occupation) Act, 1971.
- Rules and provisions contained in Chapter 10 of Indian Railway Code for Engineering Department regarding custody, management and disposal of land.
- Chapter 8 of Indian Railway Works Manual (IRWM) regarding acquisition, management and disposal of land.
- Action Taken Report on recommendations of the PAC in its Sixteenth Report (Fifteenth Lok Sabha) on Report No. PA 8 of 2008 on Land Management in Indian Railways.
- Guidelines and instructions issued by the Railway Board from time to time.

4.6 Audit findings

4.6.1 Land Management Cell

4.6.1.1 Setting up and functioning of Land Management Cell

The Engineering Department deals with land management issues such as prevention and removal of encroachments, up-dation of land plans and authentication thereof with the State Revenue Authorities etc.

A review of the working of Land Management Cells (LMC) at Zonal headquarters and Railways' Divisions in compliance with the recommendations of the PAC and instructions of the Railway Board (April 2010) ibid revealed the following:

- Out of 16 Zonal Railways no separate LMC existed (March 2014) at Zonal headquarter of three Zones[172].
- As of the end of March 2014, none of the 18 Divisions in four Zones[173] had a LMC. Only three Zonal Railways[174] had a separate LMC in each of their

[172] SR, SECR and SWR
[173] NER, NFR, SR and SER
[174] CR, NR and NCR

Divisions (total 13 Divisions). LMC were, however, not created in 19[175] out of 36 Divisions of remaining 9 Zones[176].

- Even in 12 Zones where LMC existed in 32 Divisions out of 50 Divisions, the officials posted there were not deployed exclusively for land matters, except three Zones[177].
- As on 31 March 2014, no staff (89 nos.) posted in LMC of 15 selected Divisions in 9 Zones[178] and Metro Railway, Kolkata was imparted training in land matters This indicates that due importance was not given to land matters as untrained staff was deputed for this work.
- The maintenance of important basic land data (viz. land holdings, vacant land, encroachments etc) in the LMC of Zonal headquarters and their Divisions was deficient. There were inconsistencies in facts and figures in basic data pertaining to land holdings (in all Zones except ECoR, NER, NWR, SECR and WCR), vacant land (in all Zones except ECoR, NWR, SECR and WCR) and encroachments (in all Zones except ECoR, NCR, NWR, SECR and WCR) at various levels. There were also differences in figures relating to land plans at various levels in all Zones except ECR and NWR.

(Annexure XI)

- As against the codal provisions[179], LMC were not properly monitoring the position of vacant land and its area. The area of vacant land with each ADEN was not maintained in these cells. Position of vacant land was maintained in LMCs only in two Zones (NFR and WCR).

Thus, despite PAC's recommendation for creation of LMCs in all Zones and their Divisions, separate LMC had not been established in all Zonal headquarters and Railway Divisions. Detection of discrepancies in the maintenance of data in LMCs is also indicative of the fact that even where LMCs have been created, they were not functioning properly. The weaknesses in the working of LMCs resulted in several deficiencies in the management of land which have been brought out in the following paragraphs.

Railway Board stated (April 2015) that they have asked the Zonal Railways to setup and to strengthen LMCs and to furnish a time bound programme for the same.

4.6.2 Maintenance of land records

The PAC had observed that the failure of Railways to maintain the requisite land records registers snowballed into a big problem for not only the Railways but also for other stakeholders for the simple reason that many of the disputes and the court

[175]Howrah, Asansol, Malda Town (ER), Dhanbad, Danapur, Samastipur, Sonpur (ECR), Khurda (ECoR), Jodhpur (NWR), Hyderabad, Guntur, Nanded (SCR), Nagpur, Raipur (SECR), Hubli, Mysore (SWR), Mumbai Central, Rajkot (WR) and Bhopal (WCR)
[176] ER, WR, ECoR, SWR, SCR, WCR, SECR, NWR and ECR
[177] ER, NFR and SWR
[178]CR, ER, NR, NCR, NWR, SCR, SECR, WR and WCR
[179] Para 807 (b) of IRWM

cases stemmed from this lapse. The Railway Board in its instructions of April 2010 directed that all land record registers should be maintained and up-dated by the Zonal Railways and Railway Divisions as per codal provisions.

As per codal provisions[180], Land Plans, Land Record Register (LRR), Land Boundary Verification Register (LBVR) and Encroachment Inspection Register (EIR) are the basic land records which are required to be maintained at Zonal headquarters, Railway Divisions and field units of Railway Divisions. Audit examined the land records maintained at all the three levels in selected sample for the period 2011-14 and observed the following:

4.6.2.1 Land Plans

Land Plan is a document in which details of a piece of land such as total area, particulars of locality, dimension of land, particulars of adjoining land, title of such land etc. are given. The title of a piece of land in revenue records is changed after any transfer of title through mutation. In the absence of mutations, clear title of Railway land cannot be ensured making the Railway land vulnerable to disputes and encroachments.

Rules[181] provide that up-to-date land plans should be available in the Divisional Offices and copies thereof should also be made available to the Field Inspectors whenever required. ADENs, SSE/SE (Works /P. Way) of field units should keep with them the copies of certified land plans pertaining to their jurisdictions showing complete dimensions. Railways should get all land plans authenticated with State Revenue authorities to avoid any discrepancy of title. A review in audit, however, revealed the following:

- Out of the required 56255 land plans, 53898 land plans (96 per cent) were available with the Railways. The remaining 2357 land plans (4 per cent) were missing in 14 Zones[182].
- Area was not indicated in land plans of twelve Zones.[183]
- Out of 53898 land plans available with Railways, 8554 land plans (16 per cent) had not been got authenticated from State Revenue Authority which could cast a doubt on title of railway land to that extent. Authentication of State Revenue Authority had been obtained for all the land plans in three Zones[184]only.
- Records connected with mutation were not made available for review by three Zonal Railways[185] . Out of the remaining 13 Zones, no mutation of land had been done in five Zones[186] and Metro Railway, Kolkata. In eight

[180] Indian Railway Code for Engineering department, Indian Railway Works Manual, Joint Procedure Orders issued by Zones
[181] Para 812 (a), (b) and (c) of IRWM
[182] CR, ER, ECR, ECoR, NR, NCR, NER, NWR, SR, SCR, SECR, SWR, WR, WCR
[183] CR, ECR, ECoR, NR, NCR, NER, SR, SCR, SER, SECR, SWR and WR
[184] CR, NR and NFR
[185] NCR, WR and WCR
[186] ER, ECoR, SER, SECR and SWR

Zones[187] where land mutation records were available, out of total available 31567 land plans, only 15325 land plans (48 per cent) had been mutated with the State Revenue Authorities. Under the circumstances, Audit could not ascertain whether mutation had not been done at all or the data was not available with the Railway Administration.

(Annexure XII)

Thus, in the absence of total land plans and status of mutations, the IR was not in a position to ascertain the quantum of land in their actual possession without which proper management of land was in doubt.

Railway Board accepted (April 2015) the deficiencies in maintenance of Land Plans.

4.6.2.2 Digitization of land plans

Railways have undertaken the digitization of land plans. Rules[188]provide that certified land plans should be transferred on microfilms, requisite sets of which can be kept in safe custody in the Headquarters' office and also in the Divisional Offices. Railway Board in April 2010 also instructed that scanning and microfilming of land plans should be completed by December 2010.

It was, however, observed that as on 31 March 2014, there was 100 per cent digitization of land plans in five Zones[189]. Out of total 53898 land plans available with IR, 43342 land plans (80.41 per cent) had been digitized. No land plan was digitized in Metro Railway, Kolkata.

Shortfall in digitizing the land plans to the extent of 19.59 per cent indicates that the Railway Administration did not prioritize the issue even after clear deadline given by the Railway Board. Further, the incomplete digitisation of land plans could also not ensure an effective and robust management information system for land management.

Railway Board accepted (April 2015) that digitization of land plan was not complete and stated that instructions had been issued to complete the project. However, Railway Board has still not prescribed any time line for completion of the digitization of land plan.

(Annexure XII)

4.6.2.3 Land Record Register

IRWM provides for the maintenance of LRR in the office of Chief Engineer and Divisional Engineer showing details of railway land such as land plans, kilometerage, description of land, area, cost of and date of transfer of land. Railway

[187] CR, ECR, NR, NER, NFR, NWR, SR and SCR
[188] Para 812 (b) of IRWM
[189] NCR, NFR, SER, SWR and WCR

Board instructed[190] all Zonal Railways that a register of total railway land is also to be maintained at field level by SSE (Works).

A review in Audit, however, revealed that:

- LRR was not being maintained in 37 out of 68 Railway Divisions of all Zones except NER, NFR and WR. The register was also not being maintained in Metro Railway, Kolkata.
- The register of total railway land was also not being maintained in 40 out of 68 Railway Divisions in all Zones except NER, NFR and WR. The register was also not being maintained in Metro Railway, Kolkata.

Railway Board stated (April 2015) that instructions have been issued for the propose upkeep of land records as per IRWM.

4.6.2.4 Land Boundary Verification Register (LBVR)

All lands, permanently occupied for the purpose of Railway, should have their boundaries demarcated in such a manner as to enable such boundaries to be readily ascertained and identified. For this purpose, the boundary of the railway land has to be defined by a continuous wall, fence or ditch or by detached marks, posts or pillars. Guidelines for demarcation of land boundaries, laying of boundary stones, boundary walls, fencing etc. are enumerated in Rules 808 to 813 IRWM. As per these provisions[191], Railways are required to maintain separate printed LBVR in the prescribed format for each section showing "Details of Encroachments" and "Details of the Missing Boundary Stones" and action taken thereon. The entries in the register should be certified by the SE (Works/P. Way) of the respective sections in field and verified/inspected by the ADEN / DEN /Sr. D EN or other higher officers (Dy. CE/CE at Zonal headquarter) from time to time. A certificate is required to be given by the SE once a year that is verified and countersigned by ADEN with regard to correct demarcation of land boundaries. A review in Audit revealed that:

- Out of 223 SSEs test-checked, LBVR was being maintained by only 126 SSEs (56 per cent). The register was being maintained by all SSEs test - checked in three zones only[192].
- Selected SSEs of ER and SR did not verify the entries in register even once during the review period (2011-14). SSEs who maintained the registers verified the boundaries in their respective sections regularly only in CR, NCR and NWR. Due verification of boundaries by the ADENs and submission of these registers to Zonal headquarter for verification was noticed only in CR.
- In the remaining 11 zones[193], the registers were neither being maintained by any SSEs nor the content in the registers verified regularly by the SSEs/ADENs.

[190] Joint Procedure Order- September 2001
[191] Para 813 (d) of IRWM
[192] NR, NWR and WCR
[193] ER, ECR, NCR, NER, NFR, SR, SCR, SER, SECR, SWR and WR

- Chief Engineer/ Dy. Chief Engineer at Zones did not verify the registers at all in six Zones[194].

Railway Board stated (April 2015) that only certificate is required to be submitted to Dy. Chief Engineer/ Chief Engineer. Audit, however, observed during the review that SSEs and ADENs were recording requisite certificates in the registers that were being submitted by some of them to Dy. CE/ CE for signature/ verification. No separate certificate was being submitted to Headquarters office.

(Annexure XIII)

4.6.2.5 Encroachment Inspection Register

Railway land has been a soft target for encroachers for residential, commercial or religious purposes. There are provisions in the Railway Codes/Manuals to keep a constant watch on encroached lands and also on the attempts being made for removal of encroachments.

As per IRWM[195], Encroachment Inspection Register (EIR) showing the encroachments on Railway land noticed during inspections by various officials is required to be maintained by each SSE duly furnishing the location, name of the encroacher, area encroached, type of encroachment (commercial/ residential/ cultivation), date of commencement of unauthorized occupation, date on which the encroachment came to notice for the first time, action taken and date of removal of encroachment. The encroachment plan prepared to scale is also required to be pasted on the right side of the register. The EIR should also be verified by the SSEs quarterly.

It was, however, observed during test-check of records of 223 selected Divisions that:

- None of the SSE verified the encroachments entered in EIR in any of the selected Railway Divisions regularly as prescribed. EIR was being verified by only 138 SSEs out of 223 SSEs test-checked. Only in NR and WCR, the register was maintained by all the SSEs test-checked. Verification of encroachments was entered in the registers only 104 times as against the required 552 times during 2013-14, by 138 SSEs in the Railway Divisions selected in audit.
- No selected SSEs in SR and Metro Railway, Kolkata verified the register even once during the review period.
- Verification of the registers by the ADENs was also not regular. Against the required 138 verifications, ADENs verified the registers only 61 times during 2013-14.
- Verification of these registers by Dy. CE / CE at Zonal headquarters was also not regular.[196]These registers were never submitted to the Zonal

[194] ER, ECR, NCR, SCR, SER and SWR
[195] Para 814 (e) of IRWM
[196] ER, NCR, SR & SWR

headquarters office for verification in four Zones and Metro Railway, Kolkata.

Thus, in spite of recommendations of the PAC, clear codal instructions/ provisions in IRWM for maintenance of the above basic records and reiteration of the same in the JPO issued by the Railway Board and Zones, these records and registers were not being maintained/maintained properly at different levels of Railway Administration. Due to such deficiencies in maintenance of essential land records, an effective and robust monitoring of Railway land cannot be ensured making it vulnerable to disputes and encroachments.

Railway Board (April 2015) that a comprehensive report regarding encroachments is to be submitted to Headquarters and that was being done. Their contention was not correct. It was observed that on the basis of EIRs, a monthly certificate regarding addition, removal, encroachment etc. were to be submitted by Divisions to Headquarters office.

4.6.3Measures to prevent Railway Land from encroachment

4.6.3.1Boundary Wall

Proper maintenance of land boundary is the first and effective step towards prevention of encroachment. Guidelines for demarcation of land boundaries, laying of boundary stones, boundary walls, fencing etc. have been explicitly enumerated in rules[197]. All land permanently occupied for the purposes of Railway, should have its boundaries demarcated in such a manner as to enable such boundaries to be readily ascertained and identified. The PAC also observed that the main cause for increase in cases of encroachment was non-erection of boundary walls around the vacant Railway land. The Railway Board directed (April 2010) that the Zonal Railways should identify vulnerable locations prone to encroachments and to construct boundary walls at such locations on a programmed basis in order to prevent encroachments and the same was also informed by it in its Action Taken Note to the PAC's observations.

During the review Audit, however, noticed that:

- Only in WCR, the total vacant land (476.17 HA) had boundary wall protection. In NER, a major portion (4973.79 HA- 86 *per cent*) of total vacant land (5775.65 HA) land was not protected. However, in the remaining 14 Zones and Metro Railway, Kolkata, Railway Administration did not inform the position in regard to protection of vacant land. It indicates that due importance had not been given by IR to the protection of vacant land available with them. As a result, precious railway land has been left unprotected making it prone to encroachment.
- With a view to construct boundary wall along the Railways vacant land, Railway Administration was required to assess the requirement/measurement of boundary wall to be constructed. However, data in regard to such assessment was not made available to Audit in nine

[197]Paras 808 to 813 IRWM

Zones[198] and Metro Railway, Kolkata. This reflects lack of proper planning for construction of boundary wall.

- Out of the seven Zones[199] that assessed the requirement for construction of boundary walls, targets were not fixed by the Railway Board indicating that due seriousness was not accorded to this issue at the initial stage itself.
- In seven Zones[200] where construction of boundary wall was assessed as well as targeted, the shortfall in achievement of target ranged from 19 *per cent* to 96 *per cent* indicating that due priority was not accorded to this.

It is obvious from the above that despite PAC's specific concern for provision of boundary walls along vacant land and MOR's assurance for suitable compliance, Zonal Railways were not according due importance to this important aspect thereby leaving the Railway land prone to encroachments.

Railway Board stated (April 2015) that assessment of encroachment prone area is done and target for construction of boundary walls fixed every year depending upon availability of funds. Audit has noticed that pace of construction of boundary walls was very slow and no priority was being accorded for such construction which is evident from the fact that the assessment of requirement was not available in nine Zonal Railways.

4.6.3.2 Grow More Food Scheme

The Indian Railways introduced "Grow More Food Scheme" in July 2010, to license vacant Railway land to its employees for cultivation to protect valuable land from encroachment. It realizes license fee for the same. While the main purpose of licensing vacant Railway land to its employees was to protect Railway land from encroachment, a reasonable quantum of return by way of license fee was also to be ensured.

Audit, however, noticed that during the period covered under review, the Scheme was not implemented in 11 Zones[201] as no vacant Railway land was allotted for the same. During 2011-12, only two Zones (CR and SR) implemented the Scheme by allotting vacant land to the extent of 293.33 HA and 55.13 HA respectively. During the period 2012-14, three more Zones[202] implemented the Scheme and allotted 289.88 HA, 14.74 HA, 43.89 HA land respectively. As on 31 March 2014, total vacant land allotted to Railway employees under the Scheme was 1356.36 HA (3 *per cent* approx.).

Thus, neither was the scheme implemented in its spirit by Zonal Railways nor did MOR impress upon them the importance of the same. As a result, the vacant land was susceptible to encroachments. Besides, Railway Administration was deprived of additional revenue in the shape of license fee.

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[198] ER, ECoR, NR, NCR, NFR, NWR, SER, SWR and WCR
[199] CR, ER, NR, NCR, NWR, SER and WCR
[200] SCR (19%), NFR (20%), SECR (40%), ECR (61%), CR (70%), WR (95%) and NER (96%)
[201] ER, ECR, ECoR, NCR, NER, NWR, SCR, SER, SECR, SWR and WCR
[202] NR, NFR and WR

Railway Board stated (April 2015) that efforts were being made to protect the railway land being encroached upon by giving the same under Grow More Food Scheme. Their contention is not correct as in spite of issue of instructions (July 2010), the scheme has not been implemented in 11 Zonal Railways (March 2014).

4.6.3.3 Plantation

Plantation in vacant railway land is a measure to check encroachment of vacant railway land and also to reduce air pollution. Zonal Railway Administration has been authorized to decide the railway land for plantation. For this, targets are fixed. Audit observed that during the years 2011-12 to 2013-14 fixation of targets for plantation vis-à-vis actual plantation were as under:

- Targets for plantation were not fixed by two Zones (NER and SWR).
- Plantation was as per target in NCR and SECR only.
- Target fixed for plantation by Zones were not achieved in 12 Zones[203]. The actual plantation against the targets fixed ranged between 0 *per cent* and 91 *per cent* during 2011-14. The actual plantation was nil in CR and less than 50 *per cent* in seven Zones.

From the above it is evident that Zonal Railways' efforts to adopt plantation as a measure for safeguarding its vacant land from encroachers were not adequate.

4.6.4 Management of existing encroachment

In the context of Railway land that has been encroached it is essential that the existing encroachments are not only watched but efforts are made for their earliest removal. For this purpose, Railway Administration should have the details of encroachments and they should watch the developments through adequate monitoring and monthly joint inspections with State Revenue Authorities.

4.6.4.1Details of encroachments

Apart from details of encroachment to be maintained in EIR, details of encroachments are also to be kept in a proforma devised vide Para 2.2 of JPO of September 2001 by the SSEs at field level. Monthly progress regarding additions and removal of encroachments, filing eviction cases and their progress in court of Estate Officer and in Civil Courts etc. should be submitted by the Divisions to Headquarters.

A test-check of records of 223 SSEs in 16 Zones and Metro Railway, Kolkata revealed that:

- Out of 223 SSEs test- checked, encroachment existed in the jurisdiction of 108 SSEs (48 per cent). Total number of encroachments within jurisdiction of these 108 SSEs in all Zones (Except CR) and Metro Railway, Kolkata was 105145 involving total area of 3018890.55 square meter. Area under 8775 encroachments was not available with the selected SSEs in CR.

[203] ER (0%), SER (19%), CR (37%), SR (37%), NWR (39%), ECoR (45%), WR (49%), NFR (55%), NR (63%), SCR (76%), WCR (79%) and ECR (91%)

- Zonal Railways' vacant land had been encroached during the period between 1950 and 2013. Existence of encroachments for such long periods indicates insufficient action taken by the Railways for removal thereof. Non-availability of area under encroachments raises the concern that Railway Administration does not possess the required data to defend its claim before the adjudicating Authorities/Courts.
- Monthly progress regarding additions and removal of encroachments, filing eviction cases and their progress in court of Estate Officer, in Civil Courts etc. to be submitted by Railway Divisions to Zonal headquarter was submitted by selected Divisions in all Zones except NR and NFR. In NR, one out of two Divisions did not submit the report and in NFR, none of the divisions submitted the same.
- Proforma for maintaining details of encroachments circulated vide JPO of September 2001 was also not being maintained in any of the field offices test-checked in nine Zones[204]. In four Zones[205], the information was maintained by some of the selected SSEs. The instruction to maintain such information was followed by the selected SSEs only in NCR, WR and WCR.

Thus, basic records were not being maintained as envisaged resulting in non-availability of basic land particulars which are essential for effective monitoring and removal of encroachments.

(Annexure XIV)

4.6.4.2 Removal of encroachments

The PAC recommended that the Railway Board should take up the matter with various State Governments with a view to ascertain the causes of their reported reluctance in providing necessary assistance for removal of encroachment so that an amicable solution is arrived at for speedy reclamation of Railway land. The PAC also desired that inaction or negligence in preventing or removing the encroachment of Railway land should be viewed adversely and stringent action taken against the officials concerned for collusion or dereliction of duty. The PAC urged the Ministry of Railways to formulate a comprehensive action plan both for early removal of all the encroachments and prevention of fresh encroachments on Railway land especially those in the Safety Zones[206].

It was observed during review of records of 223 selected SSEs that:

- Due to inadequate monitoring of encroachment cases, out of 113751 encroachments existing on Railway land (except in SR and SCR) as on 1 April 2011, only 2465 encroachments (2 *per cent*) could be removed during 2011-14. In three Zones[207] and Metro Railway, Kolkata not even a single encroachment was removed during the review period.

[204] ECR, NR, NER, NFR, NWR, SR, SCR, SER and SWR
[205] CR, ER, ECoR and SECR
[206] Railway land adjacent to Railway tracks, encroachment on which may impact adversely on safe operation of trains.
[207] NER, SWR, WCR

- Besides this nominal decrease in existing encroachments, there were 1215 cases of fresh encroachment (area of 1171 encroachments -5.34 HA[208]) during 2011-14 on Railways' vacant land.
- The Position of addition and removal of encroachment during the period of review was not available in SR and SCR.

It was observed that Railway Administration failed to formulate any comprehensive action plan both for early removal of all the encroachments and prevention of fresh encroachments into any of the Railway land.

Railway Board furnished (April 2015) the position of seven out of 16 Zonal Railways regarding removal of encroachments which indicate that no comprehensive action plan was available with them for removal of encroachments over the entire Railway land.

(Annexure XV)

4.6.4.3 Removal of encroachment through PPE Act, 1971

As per Para 814 (a) of IRWM, new encroachments were required to be removed promptly under section 147 of Railway Act 1989. For old encroachments, where party is not amenable to persuasion for removal of such encroachments, action should be taken under the provisions of Public Premises (Eviction of Unauthorized Occupants) Act 1971. Rules[209] also provide that whenever encroachments are taken up under the PPE Act, the concerned officials from the Engineering branch would act as the presenting officer, and proactively help expeditious finalization of the proceedings. A review in Audit, however, revealed that:

- Though there were 113920 cases of encroachments in selected SSEs in all 16 Zones, their pursuance under PPE Act was insufficient as may be observed from the fact that only 9135 cases were outstanding with Estate Officers[210] in selected Divisions. The remaining 104785 cases remained outside the proceedings under PPE Act.
- Of these 9135 cases, 3081 cases were pending with Estate Officers for more than ten years. Out of these, 1185 cases were pending for more than 20 years. Cases pending for more than ten years were mainly noticed in CR (1483) and NER (1212), indicating ineffective pursuance of cases filed with Estate Officers.
- In all Zones except SWR, though the Estate Officers finalized 11519 cases during 2011-14, Railway Administration could not implement the orders of Estate Officers in 11169 (97 *per cent*) cases resulting in non-removal of encroachments.

(Annexure XVI, XVII, XVIII)

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[208] Area of 44 encroachments was not available.
[209] Para 815 (h) of IRWM
[210] In terms of section 3 of PPE Act 1971, the Central Government may, by notification appoint such persons, being gazetted officers of Government or officers of equivalent rank of the corporate authority, as it thinks fit, to be estate officers for the purposes of this Act.

The following significant cases of lack of action on the part of Railway Administration in removal of encroachments under PPE Act were noticed in Audit:

(a) Failure to clear encroachment from Railway land valued ₹ 51.16 crore

On Ambala Division of NR, some Railway land in village Dhakoli near Chandigarh was reported (December 2003) to be under illegal encroachment. While disposing a Public Interest Litigation (PIL) on the matter Hon'ble Punjab and Haryana High Court directed (March 2005) for demarcation of the area and removal of encroachment within four months. During demarcation (May 2005) Railway land measuring 23 acres (93077.688 sqm) was identified under illegal occupation. Therefore, Railway Administration started eviction proceedings between January and March 2006 under PPE Act. Only 36 cases of encroachments could be finalized ex-parte. But, eviction could not be implemented due to law and order problems. Later, Railway issued a public notice (August 2008) directing the encroachers to vacate the Railway land and also carried out an anti-encroachment drive (06.08.2008) which was not successful. Meanwhile, in May 2011, a temple also came up at the encroached location. In August 2011, notice to 255 encroachers was published in local newspapers wherein area encroached was shown as 3.42 acres only. These cases were pending in Estate Courts during the time covered under Audit review.

Audit observed that:

- Railway authorities were either unable to identify majority of the encroachers or their identities were not established. The Railway was yet to find out the details of parties under unauthorized occupation of remaining Railway land.
- Railways acted in a casual manner as is evident from the fact that even after eight years, the dispute resolution mechanism has been initiated only for 3.42 out of a total of 23 acres of land. Railway Authorities also failed to take action in 36 cases decided ex-parte in 2006. This indicated that the eviction cases were not monitored properly.

Failure of Railways in observing guidelines for custody of land through monthly joint inspection etc. has resulted in unauthorized occupation of prime Railway land measuring 23 acre and costing ₹ 51.16 crore.

The matter was taken up with the Railway Administration (April 2006, May 2012 and May 2013). Reply was not received (September 2014).

(b) Loss of ₹12.99 crore due to non-renewal of license agreement and non-realization of damage rent for unauthorized occupation by the private party

Rules[211] provide that the Railway Administration is permitted to grant to the outsiders, under a lease or license, rights and facilities in respect of available land for the purposes connected or not with railway working. Railway Board's orders[212] require license fee to be fixed @ 6 per cent of total value of land and liable to be

[211] Para 1013 of Indian Railway Code for Engineering department
[212] *Railway Board's letter no. 2005/LML/18-8/New Delhi dated 10.02.2005*

increased @ 10 *per cent* every year over the previous year's value prior to April 2004 and thereafter @ 7 *per cent* every year over the previous year's value. Rules[213] also provide that every year, at the close of the financial year, detailed survey of encroachments must be made and action under PPE Act is required to be taken in case of 'A' category encroachments by outsiders.

NR Administration entered (September 1994) into an agreement with a party for manufacture and supply of Pre-stressed Mono-block Concrete Sleeper (PSC sleepers) sets for turnouts and licensed to them a piece of land (3.08 acre) at Lohta (Near Varanasi) for three years from 1 July 1996 (extended up to September 2001). The party, though remaining in occupation of the Railway land, did not renew the lease agreement after expiry of the contract. Although subsequent contracts for manufacture and supply of sleepers were also awarded to the same party, Railway Administration took no action to renew the already licensed Railway land to the party. They also failed to protect their additional land (2.17 acre) adjacent to the land already in party's occupation. The party occupied un-authorisely the additional land in March 2000 and July 2001. Railway Administration did not take any action under PPE Act for removal of the party's unauthorized occupation. A proposal for realization of license fee for the year 2001 to 2010-11 submitted in April 2011 was pending for financial vetting (September 2014).

As such, the license fee for 3.08 acre of Railway land amounting ₹3.82 crore remained unrealized from 2000-01 to 2014-15 besides unauthorized occupation of 2.17 acre land resulting in non-realization of damage rent amounting to ₹9.17 crore.

The matter was taken up with the Railway Administration in March 2013, to which no reply has been received so far.

4.6.4.4 Removal of encroachments under Section 147 of Railways Act, 1989

As per provisions of Section 147 of Railways' Act 1989, if any person enters upon or into any part of Railway without lawful authority or having lawfully entered upon or into such part, misuses such property or refuses to leave, he shall be punishable with imprisonment for a term which may extend to six months or with fine which may extend to ₹ 1000/- or both. Such person may also be removed from the Railway premises by a Railway servant or by any other person whom such Railway servant may call to his aid.

A review in audit revealed that 37149 cases of encroachments were registered under Section 147 of Indian Railway Act in CR, ER, ECR, NWR, SECR and WR from 2011-12 to 2013-14. Out of these, only seven cases (NWR) remained un-disposed as on March 2014.

(Annexure XVI, XVII, XVIII)

[213] Para 814 (d) of IRWM

4.6.4.5 Monitoring

As per Railway Board's instructions[214], an ABC analysis of encroachments on Railway land should be done. The level of monitoring as per these instructions is as under:

(a) 'A' category stations: Should be monitored at GM's level through CE/CGE

(b) 'B' category stations: Should be monitored at DRM's level through Sr. DEN (Co.)/DEN (Estate).

(c) The remaining may be monitored at the Divisional Officer's level.

While monitoring of encroachments at 'A' and 'B' category stations is to be done by GM and DRM respectively, review for 'A' category is to be done by Railway Board for which six monthly progress reports are to be sent by Zonal headquarter. For 'B' category, review is to be done at GM level. For others, review is to be done at DRM level. In order to send the six monthly progress reports to Board for 'A' category, Divisions should send the information as per Board's proforma (Annexure 'C' of Board's letter of 31.3.98) within the last week of the fifth month positively. Six monthly progress reports for 'B' category stations which are to be reviewed at GM's level should also be sent by the Divisions while sending the reports for 'A' category. Information for 'B' category should be submitted in a proforma similar to that of 'A' category.

A review of records of selected Divisions and all Zonal offices revealed that:

- Six monthly progress reports for encroachments at 'A' and 'B' category stations as prescribed in Railway Board instructions ibid was not being submitted by any of the selected divisions except NR, SCR and SWR. In NR, one out of two Divisions submitted the required details of encroachments.
- Similar reports to be submitted by Zonal offices to Railway Board were also not being submitted by any Zone except NR and SCR.

Thus, Railway Administration did not follow its own instructions regarding monitoring of cases of encroachment at Zonal and Divisional levels. This points to inadequate monitoring and lack of robust follow-up at each level of Railway Administration in dealing with cases of encroachments.

4.6.4.6 Monthly Joint Inspection

As per Para 6.1 of JPO of Railway Board (September 2001), a monthly joint inspection should be conducted by the officials specified in Para 3.1 of JPO duly co-opting the Section Engineer (Works) wherever other departments are responsible, to study the old and new encroachments on the spot for taking immediate necessary action. The inspection report should be made out in the prescribed format. Such report should be sent to the higher officials (Branch officer) of the respective departments by the concerned Inspectors.

[214]Railway Board's letter No. 98/LML/14/7 dated 31.3.98

Test-check of records of 223 selected SSEs revealed that no such monthly joint inspection was conducted by the SSEs with the concerned departments in all zones except CR and WR. In CR and WR also, the required joint inspection was not conducted regularly. Only two SSEs in these zones conducted the joint inspection. This in indicative of lack of sincere effort on the part of Railway Administration in preventing encroachments even after issuing a JPO for this purpose.

4.6.4.7 Regular monthly meetings at the SAG level

As per Railway Board's instructions (April 2010), regular monthly meetings at the SAG level (DRM in divisions and Chief Engineers in Zones) should be held with the appropriate State Revenue Authorities on issues regarding land acquisition, mutation of land, title disputes, eviction of unauthorized encroachers, training matters, etc.

A review of records, however, revealed that no such meetings were held in 10 Zones[215] and Metro Railway, Kolkata. Further, records relating to such meetings were not available in 4 Zones[216]. Only in CR and NWR, such meetings were held only two and five times respectively during the review period. This interaction with the State authorities is very important in view of the fact that 16 per cent of total land plans could still not be authenticated as already discussed in Para 6.2.1 above.

4.7 Conclusion

Non-implementation of provisions already mentioned in codes and manual, reiteration of the same in Railway Board's letter of April 2010 and specific recommendations of PAC resulted in deficiencies in setting up effective Land Management Cell in all the Zonal Railways and Divisions as assured by Railways in its Action Taken Note on PAC's observations. Poor maintenance of records, inconsistencies in data maintained at various levels, failure to attain the target for construction of boundary walls, inability to prevent fresh encroachments, laxity in removal of existing encroachments, ineffective pursuance under the PPE Act are all indicative of lack of robust and effective land management system in Indian Railway resulting in poor performance in safeguarding of its valuable assets.

Recommendation

- ***MOR may set up on priority and in a time bound manner Land Management Cells in the remaining Zonal headquarters and Railway Divisions. Railway's land management may also be strengthened by posting qualified and dedicated staff in these cells and laying greater emphasis on training and capacity building measures.***
- ***MOR may ensure on priority and in a time bound manner the maintenance of all essential land records at various levels. To ensure the safe custody of Railway land and prevention of the encroachments, MOR should also ensure that such land records are regularly updated and verified as per periodicity prescribed.***

[215] ER, ECoR, NCR, NEFR, SR, SCR, SER, SECR, SWR, WR
[216] ECR, NR, NER and WCR

- ***Railways should streamline the system of authentication and mutation of land plan by regular liasoning with the State Government authorities. Computerization of land records should be taken up on priority to ensure a robust and effective land management information system.***
- ***With a view to prevent encroachments of vacant land, MOR should ensure on priority and in time bound manner the demarcation with adequate structures around all such land.***
- ***MOR may vigorously pursue the matter regarding removal of existing old/ fresh encroachments through strict compliance to the provisions of PPE Act/ Railways Act and implementation of recommendations of the PAC to ensure the reclamation of encroached Railway land. IR may ensure compliance with the instructions of 1998 to facilitate effective monitoring of encroachments.***

Chapter 5 – Paragraphs related to Engineering department of Indian Railways

5.1 East Central: Railway (ECR) Poor planning in construction of railway quarters led to avoidable extra expenditure including payment for leased accommodation

Poor planning/indecision of ECR Administration in acquiring land and poor contract management in construction of quarters led to avoidable extra expenditure of ₹63.90 crore including recurring expenditure (₹18.64 crore till December 2014) on leased accommodation for officers/staff posted in ECR. Besides, indecision on part of the ECR in acquisition of land led to forfeiture of ₹1.23 crore out of amount paid as deposit.

Indian Railway Code for Engineering Department (Para 1917) stipulates that private buildings are primarily to be hired when suitable accommodation owned by the Railway does not exist in that locality. Further, as per Railway Board's (RB) instructions (5 May 2006), number of houses to be leased should be limited to the barest minimum. The proposal for leasing should inter-alia indicate the number of units under construction, also specifying as to when they would be completed and available for allotment.

From the above, it is evident that the priority of Indian Railways is to have its own accommodation as early as possible and that owned accommodation is preferable over leased accommodation.

Contrary to the above rules/instructions, ECR Administration had incurred avoidable expenditure of ₹18.64 crore[217] for leased accommodation to officers/staff posted in ECR as the staff/ officers quarters could not be constructed even after 12 years of sanction (2003) of Railway Board. The details of the lapses in acquiring of land and construction of staff quarters (including poor contract management), as noticed by Audit, are discussed below:

1. Consequent upon formation (October 2002) of ECR, Hajipur, RB sanctioned (2003) an amount of ₹78.88 crore for setting up the new zone, which included purchase of land at Patna (2.9 acres at ₹2.17 crore) for construction of staff/ officers quarters. However, ECR Administration subsequently found (January 2006) this insufficient and also unsuitable due to exorbitant land cost at Patna. Instead, ECR proposed (January 2006) for acquisition of land (50 acres) at Hajipur on Hajipur-Bidhpur Road for construction of centralized colony along with other facilities like officers club, marketing complex, health unit etc.
2. Though RB sanctioned (March 2006) an amount of ₹19.20 crore for acquisition of land (40 acres) at Hajipur, ECR Administration belatedly initiated the acquisition process in August 2007 and deposited an amount of ₹6 crore with District Land Acquisition Officer (DLAO), Hajipur for acquiring the land.

[217] Amount paid by ECR for leased accommodation for the period 2010-11 to December 2014 - ₹18.64 crore

3. Audit further noticed that ECR Administration reversed (September 2009) its decision to purchase land at Bidhpur/ Hajipur, stating that this was necessitated by steep rise (from ₹19.20 crore in 2005 to ₹40.85 crore in 2007) in cost of land. ECR decided to construct staff quarters at available railway land (Dighaghat/Patna – 25 acres and Hajipur station complex – 21 acres). On account of change in decision, State Government deducted ₹1.23 crore from the deposit money (₹ 6 crore) with DLAO as establishment cost and the balance amount (₹4.77 crore) was adjusted against other work (acquisition of land for construction of new line between Hajipur-Gigauli section).

As such, due to indecisiveness on part of ECR Administration in acquisition of land, they had to forfeit ₹1.23 crore which was deducted by DLAO, Hajipur. Besides, delay in taking decision for acquiring land also delayed the construction of railway quarters, which is detailed as under:

1. ECR Administration engaged (February 2006 to January 2008) five contractors at a total cost of ₹45.46 crore for construction of 572 Railway quarters as against the sanction (2005) of 604 quarters (reduced to 601 quarters in revised estimate sanctioned in 2012). The target date of completion of these contracts was between June 2007 and July 2009. Out of five contracts only one contract for 28 quarters has been completed (June 2007) and other four contracts were short closed/ terminated prior to 2012-13. Total expenditure of ₹25.89 crore had been incurred in these five contracts.
2. Reasons attributed by ECR Administration for short closure/ termination of contracts and consequential non-completion of construction of quarters included change of sites, delayed release of drawings, shortage of skilled/un-skilled labour and of materials.
3. For completion of balance work of construction of quarters, ECR Administration awarded (March 2013 to October 2013) eight contracts at a total cost of ₹64.83 crore (including cost of one work for which tender was under finalization till November 2014) with different dates of completion between February 2014 and November 2014.
4. Audit noticed that only 217 quarters (including 28 quarters completed through earlier contract) were constructed till date (November 2014) and work on 218 quarters was under execution. Moreover, for the balance 166 quarters, even tenders were not finalized (November 2014).

Above findings clearly indicate poor contract management on part of ECR Administration as they were able to construct only 217 quarters 10 years after their sanction (2005). Further, on account of re-tendering of contracts due to short closure/termination of contracts, ECR Administration had to bear extra expenditure amounting to ₹45.26 crore (₹64.83 crore + ₹25.89 crore - ₹45.46 crore).

Besides, due to delay in construction of quarters, ECR Administration had to bear an expenditure of ₹18.64 crore from 2010-11 to 2014-15 (December 2014) towards payment for leased accommodation to officers/staff posted in ECR. This could have been avoided if the quarters were constructed on time i.e. by July 2009. This expenditure is of recurring nature till the construction of all quarters.

Thus, poor planning/indecision in acquiring land and poor contract management in construction of quarters led to avoidable expenditure of ₹63.90 crore[218] that also includes recurring expenditure on account of payment of lease accommodation.

When the matter was taken up with ECR Administration in June 2014, they stated (November 2014) that delay in construction of quarters was mainly due to unavailability of sufficient fund from Railway Board prior to financial year 2012-13. They also stated that acquisition of land was delayed due to unavailability of sufficient fund and other factors, which caused steep rise in cost of land at Hajipur due to normal trend of increase in cost. They further contended that the amount deducted by DLAO was very less as compared to the cost of acquisition of 30 acres of land (₹48 crore) which was saved.

The above remarks are not acceptable in view of the fact that paucity of funds was not an issue as it was evident that prior to 2009-10 a proposal of an outlay of ₹76.45 crore was already approved by the Railway Board as against the sanctioned estimate of ₹78.88 crore. Further the forfeiture of ₹1.23 crore was due to indecision on the part of the Railway. The contention that Railway saved ₹48 crore by not acquiring the land is not correct as saving occurred due to utilization of railway's own land available at Hajipur and Dighaghat, Patna for construction of quarters. However, indecisiveness for acquiring land led to forfeiture of amount deposited with DLAO/ Hajipur.

The matter was brought to the notice of Railway Board in February 2015; their reply has not been received (May 2015).

5.2 Eastern Railway (ER): Unfruitful expenditure on construction of substructure of a Railway bridge

Railway's decision to award a contract for construction of substructure of a bridge on a new line project without ensuring site clearance, in violation of Railway Board's existing orders, resulted in infructuous/ unfruitful expenditure of ₹ 46.20 crore

As per Railway Board instructions (August 1980), contracts for works should not be awarded unless soil tests, site investigations are completed, all plans, drawings and estimates are approved/ sanctioned by the Competent Authority and there is no hitch in handing over the site to the contractor for executing the work. Railway Board has reiterated (April 2010) that ER Administration should foresee all delays to the extent possible and decide calling of tenders only when they are fully prepared to hand over the sites and plans etc to the contractor.

'Special Railway Projects' are those Projects which are notified by the Central Government from time to time to provide to the public national infrastructure covering one or more States or the Union Territories in a specified time frame.

Railway Board sanctioned (October 2009) a new Broad Gauge (BG) railway line project (4.84 km) between Canning and Bhangankhali stations[219] (sanctioned cost -

[218] Extra expenditure on account of poor contract management - ₹45.26 crore
Payment for lease accommodation during 2010-11 to 2013-14 - ₹18.64 crore
Total ₹63.90 crore

₹123.71 crore). It was estimated that the project would require acquisition of approximately 18.36 hectares of private land. In order to expedite the land acquisition process, Railway Board decided (January 2010) to process the project as a 'Special Railway project'[220] and issued (March 2010) a Gazette Notification declaring the project a 'Special Railway Project'. Despite the project being a ''Special Railway Project', no date of completion was fixed by the Railway Board.

Audit observed that:

- Although ER Administration had issued (August 2010) the notices for the acquisition of private land[221] there was no acquisition (April 2013 and January 2014). There were as many as 191 encroachments on the required land. The Block Level Revenue Officer had also not issued the computerized 'Records of Rights' in respect of Bhangankhali Mouza. In respect of some plots on Kantha Iberia Mouza notices had yet to be published[222] (January 2014). No land had been acquired (December 2014) due to encroachments.
- Although no piece of land had been acquired by the ER Administration, they awarded (November 2009) a contract (cost ₹ 3.05 crore) for earthwork in embankment, blanketing, construction of minor bridges/ ROB, with date of completion 10 May 2010. However, contractor could not work due to non-availability of site for work and hindrances by encroachers and appealed (June 2010) to the Railways either to hand over the site or close the contract. Up to October 2010, the progress of work was eight per cent and payment made was ₹ 0.23 crore. The contract was short closed (December 2010) without any liability on either side.
- COER awarded (October 2010) another major contract (cost- ₹49 crore) to a contractor for construction of foundation and sub-structure[223] of a bridge over River Matla along the proposed new line, with date of completion as March 2012. The sub-structure work of the bridge portion had been completed (March 2014) at a cost of ₹46.20 crore. The work for construction of the approaches at both the ends i.e. Canning end and Bhangkhali end could, however, not be taken up due to non-availability of land due to constraints involved in land acquisition,
- No tender for the super-structure of the bridge or any other work related to new line work had been floated due to non-acquisition of required land and funds. In the two successive Rail Budgets for the years 2013-14 and 2014-15, the funds provision for this project had been reduced and a token amount of ₹1.00 crore for each year was provided for three projects[224] including this one.

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[219] As a Material Modification work to doubling of Railway track between Ghutiarisharif and Canning.

[220] Under Railway Amendment Act 2008
[221] under Section 20 A of Railway Amendment Act 2008 which is meant for
[222] under Section 20 A of Railway Amendment Act 2008
[223] lower structure (Piers) on foundation of a Bridge
[224] Bhangkhali-Basanti and Basanti- Jharkhali

When the matter was taken up with the Railway Board (March 2015) they stated (May 2015) that in June 2010 the land acquisition process was in nascent stage and then it never seemed that this process for Special Railway Project may face hurdles in course of time. It was felt judicious to float tender at the first phase for construction of sub-structure of the main bridge across river Matla as the construction of the bridge proper was a long lead activity.

Railway Board's contention is not acceptable. The sub-structure of the bridge had no use without construction of the approaches which had not been taken up for want of land acquisition. In fact, the constraints in land acquisition were very well known to Railway Administration as the work for earthwork in embankment etc. awarded in November 2009 had to be short closed due to non-availability of land site and encroachments. Since the land for both approaches had not been acquired by October 2010, the construction of sub-structure should not have been taken up in terms of Railway Board instructions (1980 and 2010).

Thus, Railway's decision to award a contract for construction of sub-structure of a bridge on a new line project without ensuring site clearance, in violation of Railway Board's extant orders, resulted in infructuous/ unfruitful expenditure to the extent of ₹46.20 crore. Also, the land could not be acquired for execution of work though it was the main reason to declare the project as a Special Railway Project.

5.3 Metro Railway (MR): Infructuous expenditure in construction of new workshop

Construction of new rehabilitation workshop (including procurement of plant and machinery for the workshop) at Noapara without exploring the potential of its utilization led to infructuous expenditure of ₹ 25.82 crore

A total of eighteen non-AC rakes (nine BHEL[225] make and nine NGEF[226] make) were commissioned in phases upto 1992 in Metro Railway, Kolkata. Periodical Overhauling (POH) of these rakes was being done at car shed, Noapara.

In addition to the existing Noapara car-shed, Railway Board approved (2009-10), the work for establishment of "Metro Rehabilitation Workshop, Noapara" at a cost of ₹76.19 crore. The work of Rake Rehabilitation Workshop was proposed with a view to making comprehensive rehabilitation works such as corrosion repair, re-cambering, refurbishing and special repairs to bogies, rotating machines and control gears of old non-AC coaches. The workshop had a capacity for rehabilitation of six rakes per year. An expenditure of ₹25.82 crore (including plant and machinery worth ₹ 10.65 crore) related to construction of the workshop was incurred so far (upto March 2014).

Review of records by Audit revealed the following:

[225] Bharat Heavy Electricals Limited,
[226] *New Government Electric Factory Limited*.

- Out of the total 144 non AC coaches (18 rakes X 8 coaches), 17 coaches were processed for condemnation after completing the extended codal life of 28 years.
- Seven rakes consisting of 56 coaches of NGEF make were being actively considered for Mid-life Special repair.
- The codal lives of 50 coaches were extended (May 2013) by the Railway Board for one POH cycle i.e. for three years. Out of these 50, 32 coaches would complete their extended codal life in March 2016 and remaining 18 coaches would complete their extended codal life in 2016-17.
- Only 21 coaches (144-(17+56+32+18)) remained for rehabilitation in the future.

Thus, the decision to establish a new workshop that would actually serve the purpose of rehabilitation of only these 21 coaches (9 reaching expiry of codal life within 2014-2015 to 2016-2017 and 12 reaching expiry of codal life during 2017-2018 to 2022-2023), does not appear to be well considered or justified.

Moreover, the workshop would remain under-utilised till the completion of codal lives (after 25 years around 2035-2038) of newly procured 13 AC rakes during 2010-13 (all AC rakes are in service in Metro Railway). It is also observed that Railway Board had repeatedly conveyed (March 2010 and August 2011) that on receipt of new AC coaches Metro Railway should plan to liquidate the old coaches with extended life.

As such, Metro Railway took up the work of Rehabilitation Workshop without preparing any perspective plan and feasibility report, to assess whether a full-fledged workshop for rehabilitation of a limited number of over-aged rakes was at all necessary and justifiable. Hence, the expenditure incurred (₹25.82 crore) so far (March 2014) towards construction of the new shed and procurement of plant and machinery was infructuous.

The matter was brought to the notice of Railway Board in February 2015. In reply, they stated (April 2015) that codal life of BHEL coaches was extended from 25 years to 28 years in the first phase subsequently for one POH cycle due to increase in metro services. It was further stated that as there is a very limited chance of availability of new rakes in forthcoming years, the life of those coaches may be further augmented for few years more. As such, rehabilitation facilities will be utilised for POH of coaches along with special repair etc. Hence work of Rehabilitation facilities was well conceived considering future expansion and need of more number of POH/ rehabilitation. Railway Board also stated that rehabilitation facility will also augment the POH activity of Noapara in future when rake holding increases during expansion of network. As such there is no possibility of non-utilization of the rehabilitation facilities.

The above replies are not tenable in view of the following facts –

(i) The contention of Railway Board that rehabilitation facilities for POH of coaches will be adequately utilised in view of further augmentation of coaches as well as enhancement of codal lives of existing ones is an afterthought. At the time of decision for construction of new rehabilitation workshop, Metro Railway had only 21 coaches that remained to be rehabilitated in future as pointed out by Audit. As such, decision to take up

the work of new workshops without any perspective plan and feasibility report was injudicious.

(ii) To maintain the increased services, codal life of existing coaches had been extended from 25 years to 28 years. Besides, new fleet of 13 AC rakes was inducted in Metro Railway. Further, Commissioner of Railway Safety (CRS) commented (February 2015) that 12 more rakes would be received by Metro Railway in the next four years. CRS further commented that seven BHEL rakes are in service beyond codal life and need to be replaced urgently along with over-aged rolling stock. Thus any extension of over-aged rolling stock beyond 28 years appears to be a compromise with the reliability and safety aspect of the coaches.

(iii) Merely to augment the POH activity, establishment of new rehabilitation workshop is not at all a prudent decision. The POH activity can be augmented by boosting up the existing infrastructure of POH shop at Noapra.

5.4 North Eastern Railway (NER): Commencement of a new line work without acquiring land for the project

Commencement of works on a new line project of 60.70 kms length without acquiring requisite land resulted in stoppage of work after incurring expenditure of ₹15.60 crore on 3.7 km new line on railway land

Para 204 of F-I provides that except in case of residential building, assisted siding and rolling stock to which special rules are applicable, no proposal for fresh investment will be considered as financially justified unless it can be shown that the net gain expected to be realized as a result of the proposed outlay would, after meeting the working expenses, yield a return of not less than 14 per cent of the initial estimated cost. Para 523 and 562-F further provides that the proposal for route selection must list out the information and data of the various alternative routes examined and must give an insight into the factors influencing the choice of the route adopted for the project. Financial returns must be worked out for the important alternatives and the one giving the best return may be generally adopted except when there are other overriding reasons in favour of the costlier alternative.

The new line between Paniahwa and Tamkuhi Road was to be considered for construction via two alternative routes (i) Chhitauni-Pakhnaha-Dahwa to Tamkuhi Road (60.70 km. estimated cost of ₹246 crore) and (ii) Chhitauni-Pakhnaha-Baraharaganj to Tamkuhi Road (70.00 km. (to be actually constructed 31.25 km.only because the proposed line from Baraharaganj to Tamkuhi Road was on existing Kaptanganj-Thawe line) - estimated cost of ₹122 crore). Though, as per survey report, both the alternative routes were neither financially viable nor operationally required, the construction of the new line via Chhitauni-Pakhnaha-Dahwa to Tamkuhi Road was approved without considering it actually being a longer route and other demerits as well.

The construction of new line project between Chhitauni-Tamkuhi Road was sanctioned by the Railway Board in its supplementary budget of 2006-07 with a Rate of Return (-) 9.22 per cent. In January 2007 the Railway Board asked the N.E.Railway Administration to send justification for change in alignment i.e. from Chhitauni - Tamkuhi Road to Paniahwa-Chhitauni-Tamkuhi Road. On the

initiative of the Railway Board the N.E. Railway Administration stated in its revised justification in February 2007 that in order to have full utilization of the work of new line between Chhitauni-Tamkuhi Road it is desirable and necessary to connect it to Paniahwa which is only at a distance of 2 Kms and on the existing rail network. Ultimately the Railway Board sanctioned the Paniahwa –Chhitauni new line as a part of Chhitauni-Tamkuhi Road new line.

Audit scrutiny revealed that the land required for this new line project was 264 hectares with compensation to land owners of ₹33.53 crore. Out of this ₹11.486 crore was already paid in (₹4.29 crore +₹7.196 crore = ₹11.486 crore in December 2008 and March 2011) to District Administration for disbursing compensation to land owners. However, no land could be acquired even after a lapse of 8 years i.e. from 2006-07 to 2013-14 (upto February 2014). Railway Administration started the work between Paniahwa to Chhitauni on the available Railway land and incurred an expenditure of ₹15.61 crore till February 2014. Track linking work between Paniahwa to Chhitauni (about 3.7 Kms.) was completed and engine rolled out in March 2012. The Railway Administration has still to send the application for inspection by the Commissioner of Railway Safety (November 2014). Therefore, the train services have to yet to commence. .

In this connection, the following audit comments are offered:

The project was unremunerative and not financially viable as Rate of Return of the project was (-) 9.22 per cent. The Ministry of Statistics and Programme Implementation (Infrastructure and Project monitoring Division) had informed the Railway Board in August 2006 that the investment in the new line projects, which are not financially viable can be better utilized by spending the same for completing on-going new line projects which are at an advanced stage of completion. Even then the project was sanctioned and work commenced.

As per justification, given by North Eastern Railway Administration the section from Paniahwa to Chhitauni would have been useful in case of completion of Chhitauni-Tamkuhi Road new line. Thus, it is evident that the expenditure of ₹15.61 crore + ₹11.48 crore = ₹27.09 crore, incurred on construction of new line between Paniahwa – Chhitauni (3.7 Km) will remain unproductive till the completion of new line between Chhitauni-Tamkuhi Road alongwith additional liability of payment of dividend to General Revenues.

Thus, injudicious sanction of an un-remunerative new line project and its construction resulted in unproductive expenditure of ₹27.09 crore besides payment of dividend to General Revenues.

The matter was brought to the notice of Railway Board in March 2015; their reply has not been received (May 2015).

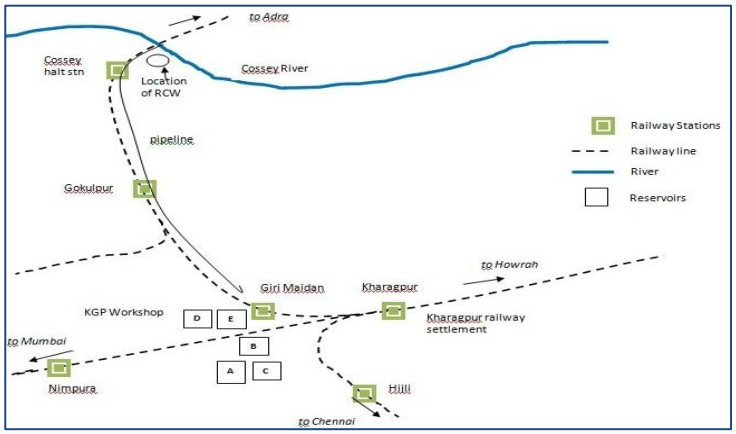
5.5 South Eastern Railway (SER): Deficient planning for procurement of water led to unfruitful expenditure

Deficient planning by the Railway Administration for procurement of water for Kharagpur railway settlement resulted in unfruitful expenditure of ₹ 11.38 crore incurred due to non-completion of Radial Collector Well, pipe line, pumps etc and extra expenditure of ₹ 3.92 crore due to sinking of Deep Tube Wells

Kharagpur is one of the biggest Railway Settlement[227] of Indian Railways. For supplying potable water for the Railway settlement, Railway Board sanctioned (1998-99) the work of Water Treatment Plant (WTP) with conventional system[228] with a capacity of 2.4 MGD, at an anticipated cost of ₹ 3.50 crore. The work was scheduled to be completed by the Railways within three years from the date of sanction i.e. by October 2002 at a revised estimated cost of ₹ 5.33 crore.

Initially (1998-99) it was decided to construct WTP, but after discussion between Construction Organisation and Divisional Railway Manager, Kharagpur it was decided (July 2003) that instead of WTP, a new Radial Collector Well[229] (RCW) of 5 MGD capacity on Cossye river bed with an improved filtration technique may be constructed on the justification that this method was economical as the water did not need treatment and would provide adequate and un-interrupted supply of potable water to meet the demand of the area.

Due to change in scope of work from WTP to RCW and also for deciding the correct location of proposed RCW, Indian Institute of Technology, Kharagpur was asked to conduct the feasibility and resistivity test for the RCW on consultancy basis in November 2004. They submitted their report in September 2005 indicating that the location initially decided does not have uniform thickness of coarse sand strata extending to a long distance in all directions, which later on may reduce the capacity of the collector well system. It was suggested to drill few more borewells in nearby locations so as to test the extent of uniform thickness of coarse sand strata.



Site of the RCW, pipelines and reservoirs

Therefore 50 nos. of borewells were dug in the nearby locations adjacent to the river and a suitable location was identified near the existing pump house for construction of the radial collector well of 5 MGD capacity. In December 2005, the initial estimate[230] for construction of RCW of ₹ 5.33 crore for the Water Treatment

[227] 14,000 residential quarters, Railway Hospital, 9 schools, 2 important Railway Institutes, etc.

[228] Conventional system indicates Water Treatment Plant consists of flush mixer, pre-chlorination arrangement, sludge wall, rapid gravity sand filter with rate controller, post chlorination and other equipment complete with one testing laboratory fully equipped to ensure satisfactory supply of potable water.

[229] Redial collector well are horizontal perforated conduits that collect ground water principally from surface water filtration.

[230] In all the estimates i.e. ₹ 5.33 crore, ₹ 6.81 crore and ₹ 7.74 crore, costs for Civil Engineering work, Electrical Engineering work and S&T Engineering work were also included

Plant was revised to ₹ 6.82 crore and further revised to ₹ 7.74 crore (2008) vide Estimate No.1363W/2008[231].

The contract for construction of RCW of 5 MGD capacity with overhead pump house was awarded in November 2005 at a cost of ₹1.98 crore with a target to complete the work within 18 months from the issue of Letter of Acceptance, and the final location was decided in May 2006. Audit observed that the SE Railway Administration sanctioned four extensions up to 31 March 2009 due to reasons such as non-availability of men and machineries[232], delay in supplying approved drawing, non-execution of the electrical works, supply of pumps etc. Construction of the RCW of 5 MGD capacity with overhead pump house work was completed in March 2009 at a cost of ₹ 1.52 crore against the sanctioned estimate of ₹ 1.98 crore. The work of laying of 4800 m pipe line between Cossey river & Gokulpur was taken up in two parts - 2500 m and 2300 m in May 2010 and July 2011 respectively. These were completed in June 2011 and March 2012 after a delay of seven and five months[233] respectively. During testing of direct water supply from Cossey RCW to D and E reservoir at Kharagpur in March and April 2013, failure/leakage in the pipe line was observed at different locations, subsequent to which replacement of pipe line between Gokulpur and reservoir at Kharagpur was proposed at an estimated cost of ₹ 2.56 crore (April 2013). It was intimated (April 2013) by the Assistant Divisional Engineer, SER, Water supply, that the existing 300 mm dia D.I. pipe line from Gokulpur to D&E Reservoir at Gate Bazar & A,B,C reservoir at workshop was old and not capable to supply water due to heavy leakage and high pressure in smaller dia pipe and hence it was proposed to provide new 450 mm dia D.I. pipe line in continuation with newly laid 450 mm dia for smooth water supply. The replacement of pipe line between Gokulpur and Kharagpur was yet to be done (February 2015).

When the matter of delay in completion of the project was earlier taken up with the SE Railway Administration in July 2011, they accepted (March 2012) that due to delay in laying pipe line and installation of booster pump at different locations, commissioning of whole project could not materialise and execution of the work got delayed to some extent. However, the present scheme would be overall cost effective and had not resulted in any additional financial liability and that the whole system would be utilised only after completion of all works. It was also stated that the work would be completed by March 2102.

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[231] In the first two estimates i.e. . ₹ 5.33 crore & ₹ 6.81 crore only Civil and S&T Engineering works were included and Electrical Engineering works were not included. The Electrical Engineering works were included in the 3rd Estimate of ₹ 7.74 crore.

[232] Men and machineries were not to be provided by the Railway Administration, it was the contractor's duty. However, extensions were granted by Railways without imposing any penalty on the contractor.

[233]

Name of the work	Year of sanction	Works to be completed	Works actually completed	Delay in completion
Laying of 2500 m pipe line	May 2010	With n 6 months from the date of issue of LOA i.e. November 2010 (year of sanction + 6 months)	June 2011	7 months [June 2011 (-) November 2010]
Laying of 2300 m pipe line	July 2011	With n 3 months from the date of issue of LOA i.e. October 2011 (year of sanction + 3 months)	March 2012	5 months [March 2012 (-) October 2011]

The above reply is not acceptable as due to inadequate planning and execution during operation of pump at RCW on 30 September 2013 the pipe line burst at different locations between Cossey river RCW and Gokulpur and the replacement of pipe line between Gokulpur and Kharagpur which was proposed in April 2013 was yet to be done (February 2015). In the meanwhile due to non-completion of the RCW at Cossey river bed to maintain regular supply of water at railway settlement, SE Railway Administration had to resort (April 2005 to December 2012) to sinking and fitting Deep Tube Well at as many as 28 locations at a cost of ₹ 3.92 crore to make good the shortfall of water supply. Moreover, all works were yet to be completed even after 28 months from the expected date of completion i.e. March 2012.

Thus, it can be seen from the above that the project was not planned holistically and all the ancillary works were not contemplated at the planning stage itself[234]. Due to lack of foresight of the SE Railway Administration in planning the Water Supply Project for the Kharagpur railway settlement the project has been completed only in parts, even 15 years after it was conceptualised. Provision of both raw and filtered water to the users at Kharagpur railway settlement could not be ensured though an amount of ₹ 15.30 crore (₹ 11.38 crore incurred on RCW, pipe line, pumps, etc and ₹ 3.92 crore on sinking and fitting Deep Tube Well at 28 locations) was spent on the project.

The matter was brought to the notice of Railway Board in February 2015; their reply has not been received (May 2015).

5.6 Southern Railway (SR): Non-utilisation of Water recycling plants (WRPs) and consequent avoidable expenditure on water charges

Failure of SR Administration to comply with rules in connection with verification of credentials and financial ability of the contractor led to subsequent termination of contracts of civil works and delay in completion of project of commissioning of WRPs. As a result, proposed savings in water charges of ₹10.69 crore could not be achieved and investment of ₹2.83 crore for installation of WRPs at the two depots of SR remained unfruitful

Coach Depots at Basin Bridge (BBQ) and Gopalsamy Nagar (GSN) of Chennai Division of SR handle over 1,000 coaches a day for coach maintenance activities. About 19.63 lakh litres of water is required per day for coach maintenance and allied activities. The required water is procured from Chennai Metro Water Supply and Sewerage Board (CMWSSB) at commercial rate (₹60/- per kilo litre) and stored in the Ground level Reservoirs (GLRs) and overhead tanks (OHTs) at the two depots.

In order to reduce the dependence on CMWSSB and to minimize the cost of water charges, SR Administration proposed (2004-05) to install Water Recycle Plant (WRP) at BBQ and GSN depots of Chennai Division, and the same was sanctioned

[234] Initially, the project was planned for WTP and estimate of ₹ 5.33 crore was prepared. Subsequently, it was decided for RCW and estimate was revised to ₹ 6.81 crore (costs for Civil Engineering work, Electrical Engineering work and S&T Engineering work were also included).

(November 2007) by Railway Board at an estimated cost of ₹5.15 crore (including civil works related to installation of WRPs).

Railway Administration (SR) assessed an anticipated saving of ₹2.73 crore per annum following installation of WRP at these two depots and consequent discontinuation of water supply from CMWSSB.

Though the project was sanctioned in November 2007, SR Administration awarded (December 2008) the contract for installation of WRP for ₹1.25 crore i.e. after a delay of one year. The work was to be completed by July 2009. However, WRP could be installed at BBQ only in February 2011 and at GSN in August 2012. Records of Chennai Division (SR) revealed that the delay of installation was primarily due to non-availability of clear site and power connections.

Audit, however, noticed that even after installation (February 2011/ August 2012), WRPs could not be put to use due to non-completion of civil works.

Audit reviewed the awarded contracts of civil works[235] related to installation of WRPs at the two depots. It was observed that while awarding the contracts, the credential and financial status of the contractor had not been verified. This was contrary to the Para 1215 of Engineering Code, which stipulates that work should not ordinarily be entrusted for execution to a contractor whose capability, credentials and financial status have not been investigated before hand and found satisfactory. The details of audit findings in this regard are mentioned below:

(i) SR Administration awarded (May 2009) a contract for execution of civil engineering works in connection with commissioning of WRPs at the two coaching depots (BBQ and GSN) to a private contractor[236] at ₹3.74 crore slightly above the estimated price mentioned in the tender provision (₹3.58 crore).

(ii) While awarding the contract, the tender committee relied on unattested copies of financial statements and experience certificate submitted by the contractor. This was contrary to the Regulations for tenders and contracts issued (June 2010) by SR Administration which stipulate submission of certified copy of audited balance sheet and attested copy of formation of the tendering firm.

(iii) Against the completion schedule of April 2010, the completion period was extended up to December 2011. SR Administration attributed the delay to re-appropriating the fund from other works, delay in deciding the design etc.

(iv) Consequent upon the receipt of complaints (October 2011) against the contractor, SR Administration made an enquiry and found (April 2012) that the partnership deed was not registered, Income Tax PAN submitted by contractor was invalid and information given in financial statements were wrong.

(v) Hence, the contract was terminated (July 2012) and security deposit and performance guarantee were forfeited by the SR Administration.

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[235] Construction of Reinforced concrete over head tank, Ground level reservoir, collection well and allied pipe line arrangements

[236] M/s Veeyer Enterprises, Chennai

(vi) The effort of SR Administration to engage another agency to execute the remaining work remained unfruitful (July 2014). Tenders floated for the balance work during March 2013, June 2013, August 2013, September 2013 and May 2014 could not be finalized. Audit observed that due to receipt of high offer price (62 per cent to 82 per cent higher than estimated value) in these tenders, the same have been discharged.

Thus, failure on part of SR Administration to comply with rules laid down in connection with verification of credentials and financial ability of the contractor led to termination of contracts of civil works and subsequent delay in completion of project of commissioning of WRPs. This resulted in non-realization of proposed savings to the extent of ₹10.69 crore during the period January 2010 to December 2013 for procurement of water from CMWSSB. This will further increase till commissioning of WRPs. Besides, the unfruitful expenditure of ₹2.83 crore made in installation of WRPs at the two depots of SR.

This would also result in extra expenditure on completion of contracts as the balance work would only be completed by incurring extra cost as is evident from the result of tenders floated for completion of contracts.

The matter was brought to the notice of Railway Board in January 2015; their reply has not been received (May 2015).

5.7 Northeast Frontier: Railway (NEFR) — *Avoidable expenditure due to deficient planning and inefficient management of contract*

Deficient planning and inadequate survey of the alignment resulted in avoidable expenditure of ₹12.20 crore which was incurred due to execution of excess quantity of works through contracts finalized on the basis of 'Special Limited Tender', besides avoidable extra expenditure of ₹2.04 crore due to non-operation of item of earthwork in filling with Railways earth

In connection with the construction of New Broad Gauge line between Dudhnoi and Mendipathar[237] (19.47 km.), Construction Organisation of North East Frontier Railway (CONEFR) entered into a contract agreement[238] (July 2009) to carry out the Civil Engineering works for the project at a face value of ₹ 53 crore with the stipulated date of completion (DOC) by November 2010.

The scope of work mainly provides for earthwork in filling and earthwork in cutting to form embankment for laying of track. As per provisions of contract agreement, the Executing Authorities may increase or decrease from the agreed quantities of items of work by 25 *per cent* at the same rate and terms and conditions of the contract agreements. Railway Board also stipulated[239] (September 2007) that if an increase of more than 25 *per cent* in the agreement quantities of various items of work is considered unavoidable, the increased quantity would be

[237] This section connects Meghalaya to the Indian Railway network. Mendipathar is situated in North Garo Hills district of Meghalaya and Dudhnoi is located in lower Assam's Goalpara District on the south bank of river Brahmaputra.
[238] CA No. CON/NMX-JPZ/1268 dated 09.07.2009
[239] Railway Board circular NO. 2007/CE.1/CT/18 dated 28.09.2007

got executed by floating a fresh tender. However, if floating of a fresh tender is considered impracticable, negotiations may be held with the existing contractor for arriving at reasonable rates for additional quantities beyond 125 *per cent* of agreement quantity.

During the execution of work, there was substantial variation in the quantities of various items of work mainly in respect of earthwork due to construction of Road Under Bridge (RUB) for elimination of Level Crossing Gates, inclusion of new major and minor bridges etc.. The revised quantities of work were carried out through the existing contractor by executing Subsidiary Contract Agreements[240] (SCA) in September 2010 and in August 2012. In September 2012, the contractor refused to carry out the work in excess of 49.96 *per cent* of the quantities of original contract agreement. As the project was targeted for completion by March 2013, CONEFR floated (September 2012) three 'Special Limited Tenders' (SLT) for carrying out the balance quantities of work which includes earthwork as one of the major items. SLTs were finalised and contract agreements[241] were executed with the three new contractors in December 2012 with the stipulated DOC by May 2013.

Scrutiny of records revealed that:

I. Due to erroneous assessment, in respect of two major items, earthwork in filling and earthwork in cutting, there was a variation of 21.5 *per cent* and 11950 *per cent* respectively. Before execution of SCA-2 (August 2012), CONEFR was aware of the substantial variation in the quantities of earthwork to be executed for completion of the work. Even then, no action was taken to get the increased volume of work (3.55 lakh cum. of earthwork in filling and 4.17 lakh cum. of earthwork in cutting[242]) done by floating open tender on the plea that calling of 'Open Tender' (OT) would not serve the purpose as it would take two to three months time. It was, however, observed that the DOC of three contracts finalised on the basis of SLT were extended till June 2014 citing law and order situation and early onset of monsoon. The work against these tenders was, however, in progress (March 2015). The purpose of finalisation of special limited tender was defeated as the work could not be completed within the target date (March 2013).

II. The execution of works at higher rates by floating SLT resulted in avoidable expenditure of ₹ 12.20 crore ***(Statement-A)*** being the difference in rates between the initial contract and the contracts executed by floating SLT for executing additional quantities of earthwork alone. The extra expenditure could have been avoided had the Railway Administration assessed the quantum of work with reasonable accuracy and considered the same in the initial contract[243].

[240] SCA-1 in September 2010 and SCA-2 in August 2012
[241] CA.No. CON/DDNI-MDPR/1638 dt. 03/01/2013, CA.No. CON/DDNI-MDPR/1641 dt. 08/01/2013 and CA.No. CON/DDNI-MDPR/1642 dated 08/01/2013
[242] Difference of quantity as per original contract and as per SCA-3 to CA No. CON/NMX-JPZ/1268 dated 9/7/2009
[243] CA No. CON/NMX-JPZ/1268 dated 09/07/2009

III. The quantum of earthwork in fillings required to be done, as per original contracts awarded through special limited tender, was also increased subsequently by 30.55 *per cent*[244]. Even then, the work could not be completed. CONEFR again executed SCA-3 (April 2014) with the first contractor[245] for carrying out additional 3,55,000 cum. of earthwork in filling and 1.87 lakh cum. of earthwork in cutting involving expenditure of ₹5.35 crore for these two items of work alone.

As seen in audit, due to inadequate survey of the alignment, the quantity of earthwork in cutting etc. against the initial contract (July 2009) was increased from 8000 cum. to 4,17,000 (11950 *per cent*). Similarly, the earthwork in filling to form embankment with contractor's own earth had also increased by 4,17,000 from 16,50,000 cum. to 20,05,000 (21.5 *per cent*). The 4,17,000 cum of earth obtained on cutting could have been utilised for earthwork in filling to form embankment by operating the scheduled item of work "Earthwork in filling in layers with Railways earth". CONEFR, however, did not operate this item which had resulted in avoidable extra expenditure of ₹2.04 crore (***Statement - B***) as the rate for carrying out earthwork with contractor's own earth was higher by ₹49 per cum. in comparison to rate for earthwork with Railways' earth.

When the matter was taken up with CONEFR Administration in June 2013, they stated (May 2015) that finalization of Open tenders would have taken more time due to which the important working season (2012-13) would have been lost. CONFER further asserted that contractor was reluctant to execute the works due to adverse law and order situation.

The contention of CONFER was not acceptable. The process of finalisation of Special Limited Tender took almost the same span of time (four months) as would have been required for finalizing Open Tender. Moreover, the plea of the Railway Administration in support of the floating of SLT to complete the work to achieve the target of the project lacked justification as the required land was not even acquisitioned before floating of tender. Reported reluctance of the contractor to execute the works due to adverse law and order situation as seen from the records was not supported by the fact that even after awarding of contracts through SLT, the initial contractor carried out 3,55,000 cum. of earthwork vide SCA-3[246] besides 11,80,250 cum. of earthwork carried out through contracts awarded on SLT basis.

Thus, due to deficient planning and inadequate survey of the alignment, avoidable expenditure of ₹12.20 crore was incurred due to execution of excess quantity of works through contracts finalized on the basis of 'Special Limited Tender'. Besides, inefficient management of contract resulted in avoidable extra expenditure of ₹2.04 crore due to non-operation of item of earthwork in filling with Railways earth.

The matter was brought to the notice of Railway Board in March 2015; their reply has not been received (May 2015).

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[244] Increased by 276250 cm of earthwork against original agreement quantity of 904000 cum
[245] Against CA No. CON/NMX-JPZ/1268 dated 09.07.2009
[246] CA No. CON/NMX-JPZ/1268 dated 09/07/2009

Statement-A

Statement showing the avoidable expenditure due to execution of earthwork through contracts executed on 'Special Limited Tender Basis'

Table I: Earthwork executed through contracts finalised on 'Special Limited Tender Basis'

Sl. No.	Description of items of work	Earthwork in filling of embankment		
		Qnty. (in cum)	Rate (in ₹)	Amt. (in crore)
1.	CA.No. CON/DDNI-MDPR/1638 dt. 03/01/2013	558000	266.48	14.87
2.	CA.No. CON/DDNI-MDPR/1641 dt. 08/01/2013	136400	258.97	3.53
	Total	*694400*		*18.40*
		Earthwork in cutting		
3.	CA.No. CON/DDNI-MDPR/1642 dt. 08/01/2013	442853	113.61	5.03
	Grand Total			**23.43**

Table II: Avoidable expenditure due to execution of excess quantities of earthwork through Contracts finalised on Special Limited Tender Basis'

Sl. No.	Description of items of work	Total Expenditure (refer table-I) (in crore)	Total Quantity (refer table-I)	Total exp. involved as per accepted rates of CA. No. CON/NMX-JPZ/1268 Dt. 9/7/2009 (in crore)	Avoidable Expenditure# (in crore)
1	2	3	4	5	6
1.	Earthwork in filling of embankment	18.40	694400	7.29 (Col. 4 X ₹105)	11.11
2.	Earthwork in cutting	5.03	442853	3.94 (Col. 4 X ₹89)	1.09
	Grand Total				**12.20**

Avoidable expenditure has been calculated with reference to the accepted rates of CA. No. CON/NMX-JPZ/1268 Dt. 9/7/2009 as the extra expenditure could have been avoided had the Railway Administration assessed the quantum of work with reasonable accuracy and considered the same in the above contract

Statement – B

Statement showing the extra expenditure due to non-utilisation of earth obtained on earth cutting against CA. No. CON/NMX-JPZ/1268 dated 09/07/2009

Earthwork in filling in layers with contractor's own earth		Earthwork in filling in layers with Railways earth	Earthwork in cutting etc. In cum.	Difference in rates per cum. Col. (2-3)	Avoidable extra expenditure
Quantity In cum.	Rate per Cum.	Rate per Cum.	Quantity executed In cum.		
1	2	3	4	5	6
20,05,000	105	56	4,17,000	49	2,04,33,000

5.8 Eastern Railway (ER): Delay and Cost overrun due to award of contract without site clearance and improper planning

Railway commenced the work for laying a new Broad Gauge line prior to clearance of land belonging to Forest department. Further, due to Railway's inefficient planning, the work was executed with a cost overrun of ₹ 12.38 crore. The clearance of the Forest department was finally obtained after eight years from the award of initial contract.

As per Railway Board instructions (August 1980), contracts for works should not be awarded unless soil tests, site investigation are complete, all plans, drawings and estimates duly have been approved/sanctioned by Competent Authority and there is no hitch in handing over the site to the contractor. Railway Board reiterated (April 2010) that Railway Administration should initiate calling of tenders only when they were fully prepared to hand over the site to the contractor for the execution of work.

Railway Board sanctioned (2000-01) a new Broad Gauge line from Deoghar to Sultanganj (116.48 km). A major portion of land along the stretch of the new line was forest land. The fact that construction of new line would involve the transfer of forest land and environmental clearance was well known to ER Administration since the initial stage of land survey (August 2000). However, after a lapse of four years i.e. in July 2004, ER Administration approached Forest department for joint survey for environment clearance and transfer of forest.

Meanwhile, ER Administration, awarded, between September 2002 and April 2003, three contracts (total contract value ₹12.63 crore) to a contractor[247] for earthwork, blanketing and minor bridges[248], as a part of laying of new line without getting the land from forest department. The contracts could not be completed due

[247] M/s. Hardev Construction Pvt. Ltd. between September 2002 and April 2003

[248] First contract for chainage from 12.300 Km. to 15.775 Km., Second contract for chainage from 15.925 Km. to 22.270 Km. and third contract for chainage from 22.340 Km. to 29.100 Km.

to non-availability of site involving forest land and contracts had to be short-closed (February 2006) without liability on either side. The total expenditure incurred on these three works till their short closure was ₹4.46 crore only, leaving residual works valuing ₹ 8.17 crore.

Although no forest land was available for execution, ER Administration awarded another contract (June 2007) to a contractor[249] (contract value of ₹ 30. 65 crore) clubbing all residual works and increasing the scope of work by 1.400 Km (from chainage 29.100 Km. to 30.500 Km), with date of completion December 2008. As major portion of the land between chainage from 15.400 Km. and 21.600 Km (6.200 km) pertained to Forest department and there were also other reasons like non-removal of obstructions of the electrical lines etc, the extensions of date of completion were given on Railway account up to March 2010.

In view of non-availability of site, the contractor requested (June 2010) for the deletion from the scope of the work of the stretch from chainage 15.900 Km to 21.600 Km (5.700Km), involving forest land. The contractor stated that in comparison to rates of various inputs at the award of contract in June 2007, there was quantum jump in June 2010 and the provisions of contract, including Price Variation Clause, were not meeting out the loss, specifically in Forest land. ER Administration accepted the request and deleted the portion of work. For this de-scoping, ER Administration executed a supplementary agreement (March 2012) with the contractor. The remaining work was completed (May 2013) at a cost of ₹ 17.28 crore.

Since ER Administration could get the clearance of the forest department in July 2010, they awarded (April 2011) the work for the deleted and de-scoped portion of work of the earlier contract to another contractor[250] (contract value-₹ 14.59 crore) with date of completion January 2012. This contract had to be terminated (January 2013) due to slow progress of the work. Till then, a sum of ₹ 2.44 crore had been paid to the contractor. The balance work of the terminated contract was awarded (April 2013) to another contractor[251] (value - ₹ 9.05 croe) with date of completion December 2013, extended up to July 2014.

In this connection, Audit observed that:

- Although ER Administration was well aware, since August 2000, that the project work would require forest land[252], they applied formally for the clearance of land only in July 2004. Finally, they could get the clearance of the department in July 2010 only. As such, it took ten years to get the clearance of the Forest department.
- ER Administration awarded contracts (first between September 2002 to April 2003, then in June 2007 for the residual work) without getting clearance from Forest department violating Railway Board orders to award contract only after ensuring the availability of site for work clear from all obstacles.

[249] M/s. Modi Projects Ltd., Ranchi
[250] M/s. Allied-Aaranya (JV)
[251] M/s. Choubatia Construction Pvt. Ltd
[252] Railways initial correspondence with Forest department was dated 22-08-2000

- Further, ER Administration took considerable time of around two years in awarding a contract for the residual work (June 2007). This inordinate delay in finalizing the work contract emerged as a major reason for substantial cost overrun and impacted adversely on the completion of the work besides deletion from the existing scope of work the portion to be executed on Forest land. The contract for the deleted/ de-scoped portion of work had to be awarded to another contractor (April 2011) at higher rates.
- Pending clearance from the Forest department ER Administration executed the total work in piecemeal manner by carrying forward the residual work to subsequent tenders that took substantial time in their finalization and also resulted in cost overrun to the extent of ₹ 12.38 crore.

Thus, due to award of contract prior to clearance of site by Forest department for execution of work and improper planning at every stage thereafter, work for laying of a new Broad Gauge line could be completed only after a lapse of more than 10 years and cost overrun of ₹ 12.38 crore[253].

When the matter was taken up with the ER Administration (August 2014), they stated (October, 2014) that delay in executing work occurred due to delay in clearance from forest department of State Government (Jharkhand). Tenders were invited in anticipation of early clearance of forest department as per directives of Minister of State for Railways (MoSR). Reasons for delay were unforeseen. If the tender had been invited after clearance by forest department railway could have incurred extra expenditure.

The fact remains that awarding work contracts for laying a new line on land without its clearance from forest department resulted in short closure of first contract after spending ₹ 4.46 crore and subsequent de-scoping of items of work related to that stretch of the line. It also led to re-tendering/execution of supplementary agreement etc. resulting in cost overrun to the extent of ₹ 12.38 crore.

The matter was brought to the notice of Railway Board in March 2015; their reply has not been received (May 2015).

5.9 North Eastern: Railway (NER) — Infructuous expenditure on construction of rake handling platform

Improper planning based on poor estimation of future demand, resulted in abrupt closure of the project and infructuous expenditure of ₹ 5.18 crore

Divisional Engineering section of North Eastern Railway (NER) proposed (September 2009) a work of widening and surfacing of rake handling platform including provision of additional loop for rake handling, Merchants Room and approach road etc. at Haldi Road (HDD) station (Rampur-Kathgodam section adjacent to Pantnagar). The proposal mentioned that various diversified products such as Maggie, TATA mini trucks, NANO car, plywood and timber for paper mills etc. were being loaded and sent to far off places of the country. Cement, paper etc. were also unloaded here. There was only one rake handling siding and the

[253] The cost overrun has been assessed in such a way that had the clear site been provided to the contractor initially, what amount would have been paid and what was actually paid.

condition of the platform was "kuchha". Hence as per directives of Railway Board's letter dated 05 June 2007 widening and improvement of platform surface was urgently required. Besides this, one additional Rake handling siding with platform and approach road was needed to be developed considering future expansion. The same was sanctioned by Railway Board in the year 2010-11 under Plan Head-16[254] on the consideration that inward and outward loading was expanding rapidly due to proximity to State Infrastructure and Industrial Development Corporation of Uttarakhand Limited (SIDCUL). The above work was justified to cater to the expected traffic from SIDCUL. The work was estimated to cost ₹ 16.79 crore, including the cost of stores (₹ 4.22 crore). Three contracts were entered into for completing the work viz.

1. CA No. E/118/TC dated 30 March 2011 for ₹ 4.46 crore for construction of approach road earth work at Haldi Road Station (HDD) in connection with the work of widening and surfacing of rake handling platform at Haldi Road station (HDD).
2. CA No. E/86/TC dated 23 December 2010 valuing ₹ 5.34 crore for construction of rake handling platform and retaining wall at Haldi Road in connection with widening and surfacing of rake handling platform at Haldi Road station (HDD).
3. CA No. E/362/4/TC/370 dated 07 March 2011 valuing ₹ 0.27 crore for Construction of Merchant Room, Goods Office etc. in connection with the said work. (The work on this contract was not started at all).

The work was stopped by the Sr .Divisional Operations Managers Izzatnagar of NER in May 2013 with remarks "The work was proposed to cater NANO traffic and it has gone to Sanand Gujarat, so there is no scope of further work. It will be winded up". Consequently, after having incurred an expenditure of ₹5.18 crore on contractual payment, supply of materials, contingency and establishment charges the work was abruptly closed without ultimately utilizing it for the desired purpose. Thus, decision of the Railway Administration to commence the work without assessing the future requirement from the users of the area and its abandonment midway, resulted in infructuous expenditure of ₹ 5.18 crore[255].

The matter was brought to the notice of Railway Administration in July 2014, Railway Administration in their reply (September 2014) conceded that an expenditure of approx. ₹3.74 crore was made in connection with contractual payment and supply of material. They further stated that the above sanctioned project was meant to cater not only to the loading of Nano Cars but also the future traffic generated by development of State of Uttarakhand. However, it was unfortunate that the loading of Nano Cars was completely stopped due to shifting of Nano plant to Sanand, Gujarat. 15 rakes per month were being loaded/ unloaded at Haldi Road station at present, for which facilities created were being utilized.

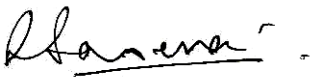
The reply is not tenable because the work carried out/completed up to the closure of the work included only earth work and construction of retaining wall, without the

[254] Capital, Depreciation Fund, Development Fund, Open Line Works (Revenue) and Accident Compensation, Safety and Passenger Amenities Fund expenditure

[255] Contractual payment for work and supply ₹4.61 crore, Railway supply of cement ₹ 0.15 crore, Contingency Charges ₹ 0.05 crore and temporary establishment charges ₹ 0.37 crore.

construction of loop line and other subsidiary work as proposed in the estimate of the work. Hence, the work had no utility for the Railways. Further, the expenditure incurred on the said work, as claimed by the Railway Administration i.e. ₹ 3.74 crore does not include the arrears of payment to the contractor for his work, the contingency charges and the temporary establishment charges. Thus, failure to assess the future requirement of traffic, resulted in abrupt closure of the project and infructuous expenditure of ₹ 5.18 crore.

The matter was brought to the notice of Railway Board in February 2015; their reply has not been received (May 2015).



(Suman Saxena)

New Delhi **Deputy Comptroller and Auditor General**

Dated:

Countersigned

(Shashi Kant Sharma)

New Delhi **Comptroller and Auditor General of India**

Dated:

Annexure - I (Para 1.7.2.1)

Statement Showing Details of Bridges identified as Distressed category - I, II & those identifed as due for rehabilitation/ reconstruction etc. as on 31 March 2014

Railway	Distressed Category-I Bridges					Distressed Category-II Bridges					Bridges identified for rehabilitation/ reconstruction other than Distressed -Category I & II					Total Number of bridges targeted for Rehabilitation/ reconstruction during the year					Total Number of bridges actually Rehabilitated/ reconstructed during the year						
	Number of bridges identified	Number of bridges for which sacntions have been given for rehabilitation/ reconstruction	Number of bridges not rehabilitated/ reconstructed within one year of sanction	Number of bridges in 25 T Axle Load routes (CC+8+2 routes) but rehabilitation/ reconstruction not completed within one year of sanction	Number of bridges in the DFC but rehabilitation/ reconstruction not completed within one year of sanction	Number of bridges identified	Number of bridges for which sacntions have been given for rehabilitation/ reconstruction	Number of bridges not rehabilitated/ reconstructed within four years of sanction	Number of bridges in 25 T Axle Load routes (CC+8+2 routes) but rehabilitation/ reconstruction not completed within four years of sanction	Number of bridges in the DFC but rehabilitation/ reconstruction not completed within four years of sanction	Number of bridges identified	Number of bridges for which sacntions have been given for rehabilitation/ reconstruction	Number of bridges not rehabilitated/ reconstructed within four years of sanction	Number of bridges in 25 T Axle Load routes (CC+8+2 routes) but rehabilitation/reconstruction not completed within four years of sanction	Number of bridges in the DFC but rehabilitation/ reconstruction not completed within four years of sanction	2010-11	2011-12	2012-13	2013-14	Total target	2010-11	2011-12	2012-13	2013-14	Total achievement	Shortfall in achievement of target in number of bridges	Percentage of shortfall
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*	*18*	*19*	*20*	*21*	*22*	*23*	*24*	*25*	*26*	*27*	*28*
CR	0	0	0	0	0	0	0	0	0	0	106	106	4	4	0	36	15	30	26	107	41	23	31	26	121	0	0.00
ECoR	0	0	0	0	0	2	2	1	1	0	226	226	15	15	0	40	35	28	26	129	48	39	40	40	167	0	0.00
ECR	0	0	0	0	0	1	1	1	0	0	949	442	207	0	194	78	77	43	38	236	54	56	43	29	182	54	22.88
ER	0	0	0	0	0	1	1	1	1	0	745	700	142	25	50	117	102	87	61	367	132	105	87	61	385	0	0.00
NCR	0	0	0	0	0	1	1	1	0	0	NA	64	20	20	0	75	50	28	27	180	49	43	32	47	171	9	5.00
NER	0	0	0	0	0	0	0	0	0	0	8	8	3	0	0	6	6	3	4	19	0	5	0	4	9	10	52.63
NFR	0	0	0	0	0	0	0	0	0	0	541	541	5	0	0	90	70	30	27	217	109	71	32	28	240	0	0.00
NR	0	0	0	0	0	2	2	0	0	0	198	160	23	20	0	53	42	32	60	187	34	19	17	37	107	80	42.78
NWR	0	0	0	0	0	0	0	0	0	0	121	121	4	0	1	66	66	66	33	231	70	66	69	37	242	0	0.00
SCR	0	0	0	0	0	3	3	0	3	0	207	207	69	69	0	91	95	89	89	364	91	95	89	89	364	0	0.00
SECR	0	0	0	0	0	6	6	1	0	0	69	69	29	17	0	73	69	48	33	223	72	69	40	33	214	9	4.04
SER	0	0	0	0	0	24	24	0	0	0	742	742	111	0	0	97	98	98	60	353	110	47	86	105	348	5	1.42
SR	1	1	1	0	0	1	1	1	0	0	178	178	40	49	0	105	80	35	45	265	88	37	38	45	208	57	21.51
SWR	0	0	0	0	0	0	0	0	0	0	98	98	3	3	0	62	79	40	26	207	62	72	50	23	207	0	0.00
WCR	0	0	0	0	0	0	0	0	0	0	265	265	0	0	0	102	65	56	43	266	90	67	57	50	264	2	0.75
WR	2	2	2	0	0	4	4	1	0	0	76	76	28	0	0	27	17	11	27	82	19	5	11	28	63	19	23.17
IR	3	3	3	0	0	45	45	7	5	0	4529	4003	703	222	245	1118	966	724	625	3433	1069	819	722	682	3292	245	

Annexure - II (Para 1.7.2.2-b)

Statement Showing details relating to execution of Works for Rehabilitation/ Reconstruction of Bridges

Railway	Number of bridgeworks selected for study	Number of bridges involved	Delay in sanction of work after identification for rehabilitation/ reconstruction		Number of works not commenced	Number of works commenced	Average time taken in commencement of work (in months)	Average time taken (in months) in completion of work as on 31 March 2014 due to										Cost over-run (Rs. in crore)	Remarks
			Number of bridgeworks involved	Average delay per work in months				Time taken in finalisation/ approval of plans/ drawings	Time taken in finalisation of tender/ award of contract	Change in scope of work after award of contract	time taken in handing over of site free from encumbrances	Award of contract without properly assessing capability of a contractor	Paucity of funds	Termination of contract due to failure of contractor and reaward	Delay due to non-availability of line block for execution of work	Other reasons	Total delay in months		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
CR	7	18	3	57	3	4	41	0	27	0	0	0	0	0	0	23	50	3.85	
ECoR	5	7	3	55	0	5	1	7	10	0	0	0	2	0	0	35	54	4.31	
ECR	6	10	3	12	0	6	82	0	0	0	0	0	0	9	0	96	105	0.62	
ER	7	7	7	23	0	7	30	0	7	0	0	0	0	2	0	0	9	61.21	
NCR	4	5	3	131	2	2	51	3	12	19	0	0	0	0	0	18	52	0.00	
NER	7	31	0	0	1	6	0	0	0	0	0	0	0	0	0	90	90	5.62	
NFR	5	5	5	10	0	5	1	0	0	2	0	0	0	0	0	37	39	1.74	
NR	7	7	0	0	1	6	11	5	7	15	1	0	0	8	0	0	36	19.41	
NWR	8	8	0	0	0	8	0	12	19	0	0	0	5	0	0	3	39	2.49	
SCR	8	8	0	0	3	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	50.25	
SECR	3	3	0	0	1	2	0	0	0	0	0	0	0	0	0	8	8	0.00	
SER	6	10	2	54	0	6	36	0	0	0	0	2	0	0	1	58	61	16.74	
SR	7	9	2	30	3	3	55	0	0	0	0	4	0	4	4	2	13	0.20	
SWR	4	4	0	0	2	2	0	NA	12	0	0	0	0	0	0	2	14	0.00	
WCR	9	9	1	30	1	8	15	7	3	0	0	0	1	1	0	15	27	5.24	
WR	8	8	2	27	1	7	37	0	0	0	0	0	0	0	0	20	20	21.01	
IR	**101**	**149**	**31**	**43**	**18**	**82**	**33**	**7**	**12**	**9**	**1**	**3**	**2**	**5**	**2**	**27**	**41**	**192.69**	
SR (cat-I)	**1**	**1**	**0**	**0**	**1**	**1**	**0**	**0**	**5**	**6**	**22**	**0**	**0**	**24**	**0**	**46**	**103**	**0.00**	

Note: 1. In regard to delay in sanction given under column-4 average delay per work was calculated for individual railway taking in to account number of works in which there was delay.

2. In respect of delay in commencement and delay on other accounts, average delay per work was calculated adopting the total number of bridgeworks checked in the individual railway.

ANNEXURE-III(Para 1.7.2.6)

ALLOTMENT AND UTILISATION OF FUNDS FOR BRIDGE WORKS (UNDER PLAN HEAD 32)

(Rupees in crore)

Railway	Rehabilitation/ reconstruction works proposed		Rehabilitation/ reconstruction works sanctioned		Average Budget Grant demanded per year	Average Budget Grant provided per year	Average Final Grant per year	Average Actual Expenditure per year	Average BG provided short of BG demanded (Col.6 - Col.7)	Percentage (Col.10x100)/ Col.6	Average BG surrendered through FG (Col.7 - Col.8)	Percentage (Col.12x 100)/Col.7	Average BG Provided short of Actuals (Col.9-Col.7)	Percentage (Col.14*100)/ Col.9	Average Actuals short of FG (Col.8-Col.9)	Percentage (Col.16x100)/ Col.8
	Number	Value	Number	Value												
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
CR	NA	NA	NA	NA	19.94	10.06	11.35	11.75	9.88	49.55	-1.29	-12.82	1.69	14.38	-0.40	-3.52
ECoR	205	189.81	61	74.12	28.43	12.15	11.26	13.61	16.28	57.26	0.89	7.33	1.46	10.73	-2.35	-20.87
ECR	30	298.88	23	228.87	109.79	56.38	51.89	46.94	53.41	48.65	4.49	7.96	-9.44	-20.11	4.95	9.54
ER	102	141.25	101	100.10	102.43	82.46	75.17	74.31	19.97	19.50	7.29	8.84	-8.15	-10.97	0.86	1.14
NCR	161	143.33	81	51.03	17.70	2.01	1.20	0.93	15.69	88.64	0.81	40.30	-1.08	-116.13	0.27	22.50
NER	10	4.59	10	4.59	13.85	9.91	8.52	8.61	3.94	28.45	1.39	14.03	-1.30	-15.10	-0.09	-1.06
NFR	412	558.46	338	420.63	49.74	18.31	13.93	13.85	31.43	63.19	4.38	23.92	-4.46	-32.20	0.08	0.57
NR	46	136.63	46	136.63	20.58	22.54	19.91	21.55	-1.96	-9.52	2.63	11.67	-0.99	-4.59	-1.64	-8.24
NWR	279	43.93	279	43.93	14.67	12.80	12.46	12.66	1.87	12.75	0.34	2.32	-0.14	-1.11	-0.20	-1.61
SCR	713	867.78	517	602.31	45.18	29.37	23.01	20.74	15.81	34.99	6.36	21.65	-8.63	-41.61	2.27	9.87
SECR	46	358.33	26	36.74	23.98	14.21	9.33	9.07	9.77	40.74	4.88	34.34	-5.14	-56.67	0.26	2.79
SER	NA	NA	NA	NA	NA	26.40	15.93	16.05	NA	NA	10.47	39.66	-10.35	-64.49	-0.12	-0.75
SR	148	204.18	73	128.49	32.34	19.23	17.36	18.09	13.11	40.54	1.87	9.72	-1.14	-6.30	-0.73	-4.21
SWR	86	204.03	39	102.09	22.00	17.67	11.89	13.35	4.33	19.68	5.78	32.71	-4.32	-32.36	-1.46	-12.28
WCR	77	156.20	67	126.32	2.03	1.30	0.18	0.05	0.73	35.96	1.12	86.15	-1.25	-2500.00	0.13	72.22
WR	117	146.12	30	34.42	50.21	30.78	23.59	23.07	19.43	38.70	7.19	23.36	-7.71	-33.42	0.52	2.20
IR	**2432**	**3453.52**	**1691**	**2090.27**	**552.87**	**339.18**	**306.98**	**304.63**	**213.69**	**38.65**	**58.60**	**17.28**	**-34.55**	**-11.34**	**2.35**	**0.77**

ANNEXURE-IV (Para 1.7.3.9)

Statement showing shortage of staff and age profile of skilled and semi-skilled (as on 31.03.2014)

Railway	Sanctioned			Available			Vacancy							Age profile of skilled and semi-skilled staff			Percentage of skilled and un-skilled staff of over 50 years ((col.16+17) *100/(col.6+7)
	SSE & JE	Skilled	Unskilled	SSE & JE	Skilled	Unskilled	SSE & JE (Col.2 - Col.5)	Vacancy of SSE/JE in percentage	Skilled (Col.3 - Col.6)	Vacancy under skilled category in percentage	Unskilled (Col.4 - Col.7)	Vacancy under unskilled category in percentage	overall vacancy per centage	< 51 years	51-55 years	56-60 years	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
CR	31	140	105	22	110	90	9	29.03	30	21.42	15	14.29	19.56	106	46	48	47.00
ECR	37	190	223	28	114	139	9	24.32	76	40.00	84	37.67	37.56	131	23	99	48.22
ECoR	23	224	195	13	131	107	10	43.48	93	41.52	88	45.13	43.21	165	45	28	30.67
ER	27	177	152	32	88	126	-5	-18.52	89	50.28	26	17.11	30.90	169	22	23	21.03
NCR	14	79	244	8	39	214	6	42.86	40	50.63	30	12.30	22.55	105	50	98	58.50
NER	13	127	161	10	88	143	3	23.08	39	30.71	18	11.18	19.93	104	21	116	59.31
NWR	11	36	101	10	27	81	1	9.09	9	25.00	20	19.80	20.27	21	25	62	80.56
NFR	46	435	223	34	269	137	12	26.09	166	38.16	86	38.57	37.50	193	52	161	52.46
NR	39	277	600	15	131	361	24	61.54	146	52.71	239	39.83	44.65	93	57	342	81.10
SCR	63	176	848	56	138	735	7	11.11	38	21.59	113	13.33	14.54	N.A	N.A	N.A	N.A
SECR	16	77	69	10	35	45	6	37.50	42	54.55	24	34.78	44.44	54	14	12	32.50
SER	16	88	90	14	46	81	2	12.50	42	47.73	9	10.00	27.32	107	12	8	15.75
SR	36	297	218	37	161	54	-1	-2.78	136	45.79	164	75.23	54.26	36	71	108	83.26
SWR	26	53	115	16	21	104	10	38.46	32	60.38	11	9.57	27.32	**57**	**34**	**34**	54.40
WCR	19	119	105	13	82	81	6	31.58	37	31.09	24	22.86	27.57	21	51	91	87.12
WR	27	186	307	17	106	172	10	37.04	80	43.01	135	43.97	43.27	118	68	92	57.55
IR	**444**	**2681**	**3756**	**335**	**1586**	**2670**	**109**	**24.55**	**1095**	**40.84**	**1086**	**28.91**	**33.28**	**1480**	**591**	**1322**	**44.95**

ANNEXURE-V (Para 1.7.3.10)

Training - Refresher /Special Course For SSE/JE (Bridges)

Railway	Number of training courses conducted	No. of slots (capacity) available for training	Number of staff due for training	Number nominated for training	Number attended training	Number of staff not trained (out of Col.4)	Percentage Shortfall in training (Col.7*100)/Col.4	Percentage Shortfall in nomination of staff for training ([Col.4- Col.5]*100/Col.4)	Percentage under-utilisation of capacity for training ([Col.3-Col.6]*100/Col.3)
1	2	3	4	5	6	7	8	9	10
CR	11	38	38	38	38	0	0.00	0.00	0.00
ECoR	15	15	16	15	15	1	6.25	6.25	0.00
ECR	20	60	32	10	3	29	90.63	68.75	95.00
ER	0	0	33	0	0	33	100.00	100.00	0.00
NCR	2	12	6	6	6	0	0.00	0.00	50.00
NER	20	60	40	3	3	37	92.50	92.50	95.00
NFR	21	63	32	32	22	10	31.25	0.00	65.08
NR	34	24	4	4	4	0	0.00	0.00	83.33
NWR	5	NA	11	11	11	0	0.00	0.00	0.00
SCR	14	60	55	60	32	23	41.82	-9.09	46.67
SECR	16	42	28	24	15	13	46.43	14.29	64.29
SER	1	2	NA	2	2	NA	NA	NA	0.00
SR	2	120	27	27	27	0	0.00	0.00	77.50
SWR	0	0	13	0	0	13	100.00	100.00	0.00
WCR	11	11	11	11	11	0	0.00	0.00	0.00
WR	3	5	56	5	5	51	91.07	91.07	0.00
IR	175	512	402	248	194	210	52.24	38.31	62.11

NOTE: NCR has given figures relating to all staff instead of SSE. The information is yet to be provided hence NA has been put.

Annexure-VI-A (Para 2.6.4-i)

Statement showing tamping requirements & machines for the year 2013-14

Name of the Zone	Total Length of track kms for mechanised mainteance	GMT ranging from and to (in round digits)*	Mechanised tamping requirements (50% of col 2 or passage of 100 GMT of traffic)	Construction unit requirements	Tamping requirements due to track renewal	Total (col 4+ col 5+ col 6)	Number of machines (CSMs,3X tamping machines, and Duomatics other than deployed with BCMs)				Remarks
							Required w.r.t. Col 7 (col 7/720)*	In use	Excess	Shortage	
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*
NWR	4831	0 to 43	2416	899	24	3339	5	9	4	0	Column No 9 does not include tamping machines working behind BCMs.
SCR	7785	1 to 66	4002	407	170	4579	7	13	6	0	
WR	5887	0.33 to 76	3009	357	70	3436	5	5	0	0	
CR	5862	0.09 to97	2931	210	112	3253	5	8	3	0	
NER	2687	1 to 45	1344	290	53	1687	3	3	0	0	
NFR	3188	0 to 84	1675	1723	115	3513	5	4	0	1	
SER	4085	1 to 95	2497	119	74	2690	4	7	3	0	
SWR	3803	7 to 36	1902	584	135	2621	4	4	0	0	
SR	6297	0.37 to 45	3149	816	72	4037	6	8	2	0	
SECR **	2881	1 - 109	1457	340	43	1840	3	8	5	0	
ECOR	3773	0.41 to 59.6	2628	338	131	3097	5	5	0	0	
NR	8484	0 to 129.6	4268	1237	400	5905	9	12	3	0	
ECR	4998	1 TO 107	2499	1500	150	4149	6	8	2	0	
WCR	4740	11 to 60	2370	0	50	2420	4	5	1	0	
NCR	4412	0 to101.94	2250	528	197	2975	5	6	1	0	
ER	4209	0-73	2201	359	149	2709	4	5	1	0	
	77922		40596	9707	1944	52247	80	110	31	1	

* Capacity of the machines is taken as 720 kms per annum as per the capacity indicated in the master plan for working out requirements of CSM & Tamping express

** MPT has been taken under points and crossings tamping machine

Source:PCE/ CTE/TMO records (PCDO,TM deployment charts etc) WTT/Statistical branch records.

Figures for col 2 is as per track statistics as on 01-04-2014

Figures for col 4 is 50% of col 2 or figures advised by respective zonal audit offices which ever is higher

Figures for col 6 is as per col2 of Annex IV-E

Col 8 to be rounded off to next integer

Statement showing requirement of Points and Crossings Tamping Machines for 2013-14

Name of the Zone	No. of Turnouts nominated for mechanised tamping	No. of Turnouts required for mechanised tamping (50% of col 2)	Requirement of tamping for planned for T/o renewal & deep screening and construction unit requirements) (No of T/Os)	Total Col 4 + col 5	Number of machines				Remarks
					Required w.r.t Col 6 (col 6/900) *	In use	Excess	Shortage	
1	2	4	5	6	7	8	9	10	11
NWR	3820	1910	318	2228	3	2	0	1	
SCR	6735	3368	1546	4914	6	8	2	0	
WR	6966	3483	671	4154	5	8	3	0	
C R	2737	1369	135	1504	2	5	3	0	
NER	2551	1276	946	2222	3	2	0	1	
NFR	2127	1064	381	1445	2	4	2	0	column 8 include 1 MPT
SER	4646	2323	240	2563	3	5	2	0	
SWR	2795	1398	356	1754	2	3	1	0	
SR	4712	2356	1747	4103	5	5	0	0	
SECR	3302	1651	786	2437	3	7	4	0	Column 8 = 4-UNIMAT+3-MPT
NR	6835	3418	6905	10323	12	8	0	4	
WCR	3017	1509	482	1990	3	5	2	0	
ECR	3610	1805	1085	2890	4	4	0	0	
ECOR	4018	2009	159	2168	3	3	0	0	
NCR	5046	2523	1538	4061	5	5	0	0	
ER	4653	2327	1606	3933	5	5	0	0	
					66	79	19	6	

*900 nos per annum is taken as rated capacity based on the capacity indicated in the master plan for working out requirements of Unimats

Source: CTE/TMO records, TM deployment charts

Col 7 rounded of to next integer

Statement showing details of premature condemnation/grounding of track machines as on 31.03.2014

Name of the Zone	Description of the Machine	Initial cost (in crs)	Life of the Machine in terms of work done in Ms/Nos as per IRTMM manual	Actual work done by the machine in Ms/Nos	Codal Life of the machine (in years)	Age of the machine as on the date of grounding.	Date of grounding of the machine	Date proposal sent to R.B for condemnation	Date of condemnation	Reasons for premature condemnation
1	2	3	4	5	6	7	8	9	10	11
NWR	KBC-121	6.00	1500 KM	130.00 KM	18	5.5	01.02.2005	Not sent.	NAP	Not available Non utilisation of the machine had also been commented vide para 4.2.2 of report No 11 of 2009-10
WR	Phooltas Tamper 80149	0.045	6000	NAV	18	10	01.04.1999	31.07.13	16.01.14	capacity of the machine was limited and quality of work was inferior and non availability of spares
CR	BCM RM 76	6.00	1000	473.75	18	20	01.08.2011	08-10-2012	13-08-2013	Machines has outlived its codal life, frequently out of order since 2009-10, low output and uneconomical repairs.
CR	TLE 02-18	0.08	330	196.18	18	25	01.02.2013	NAV	Under process	Machines have already worked 25 years and were in dipilated condition. Manufacturer has stopped production and as such spares and technical support are not available.
SER	Portal- 205	0.8	500	330	18	19	01.04.2001	11.03.02	01.07.2005	Since machines have out lived their codal life and non availability of spares
SER	Portal-218	0.8	500	330	18	19	01.04.1999	07.08.02	01.07.2005	
SER	UT-8014	0.45	2500	2141	18	16	01.04.1997	05.07.02	31.08.09	
SWR	DUO 8023	0.85	6000	5000	18	20	01.07.2005	,11/08/2005	05.07.2006	Since machines have out lived their codal life and due to major defects

SECR	DUO-8040	0.95	6000	5274	18	22	02.04.2009	21.05.09	28.07.2009	Major defectct & irrepairable condition of the machine. Cost of rehablitation is not economical
SECR	FRM-1869	10.5	3000	1869	18	18	24.10.2009	21.03.11	03-08-2011	
NR	SEM-107	NAV	NAV	NAV	18	10	25.08.2003	20.01.11	20.01.11	Due to slow out put
NR	BCM-287	6	1500	871	18	23	01.11.2012	25.03.13	13.08.13	Due to slow out put
NCR	VDM-800 No 6804	0.13	NAV	2180	18	13	01.04.1987	10.10.07	3.4.08	All parts have rusted badly on account of lying idle for along time and parts have become obsolate
NCR	PTV-800 No 501	0.11	NAV	300.31	18	5	01.04.1989	10.10.07	3.4.08	

Source: Base depot records of TMO

Annexure VII B (Para 2.6.5.3-B)

Statement showing details of condemned machines not disposed of as on 31.03.2014

Name of the Zone	Description of the Machine	Initial cost (in crs)	Life of the Machine in terms of work done in KMs/Nos as per IRTMM manual	Actual work done by the machine in KMs/Nos	Codal Life of the machine (in years)	Age of the machine as on the date of groundi-ng.	Date of grounding of the machine	Date proposal sent to R.B for condemna-tion	Date of condem-nation	Depreciated value of the machine (in crs)	Amount realised through salvaging parts (in crs)	Date of disposal as scrap	Duration in months as on mar'14 from the date of groundi-ng	Amount realised through scrap (in crs)	Whether write back adjustment to capital is made in the same financial year of disposal (Y/N)	Avoidable Dividend liability due to delay in disposal (in crs)	Avoidable Dividend liability due non/delyed write back adjustment to capital (` in crs)	Remarks
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
WR	UNO-8028	0.65	4500	24178	18	26	01-08-2012	10-01-2013	16-01-2014	0.1127	0.1966	Under Process	19	NAP	NAP	NAP	NAP	
WR	PQRS Portal-107	0.26	500	NAV	18	22	01-12-2012	07-01-2013	16-01-2014	0.024	0.0198	Under Process	15	NAP	NAP	NAP	NAP	
WR	PQRS Portal-5/223	0.26	500	NAV	18	30	01-03-2012	07-01-2013	16-01-2014	0.024	0.0144	Under Process	24	NAP	NAP	NAP	NAP	
WR	PQRS Portal-J-19	0.26	500	NAV	18	23	01-03-2012	07-01-2013	16-01-2014	0.024	0.0226	Under Process	24	NAP	NAP	NAP	NAP	
WR	Phooltas Tamper 80149	0.045	6000	NAV	18	10	01-04-1999	31-07-2013	16-01-2014	0.009018	0.00045	Under Process	179	NAP	NAP	NAP	NAP	
SER	UT7822	0.45	2500	3285	18	22	01-08-1999	05-07-2002	31-08-2009	NA	NA	NA	175	NA	N	0.09	0	Lying in the premises in the Engineering Work Shop Sini
SER	DUO-8025	0.85	6000	6534	18	19	01-07-2005	20-05-2004	31-08-2009	NA	NA	NA	104	NA	N	0.17	0	
SECR	DUO-8040	0.95	6000	5274	18	22	01-04-2009	21-05-2009	28-07-2009	0	0	NIL	59	NIL	NA	NA	NA	DUO-8040 handed over for conversation into Rail Borne Maintenance Vehicle(RBMV) vide R/y.Bd's letter No. 2007/Track-III/TK/10 Dtd.28.07.2009.

WCR	UT 6699	0.45	2500	NAV	18	NAV	01-04-1999	Not available	05-09-2005	NAP	NAP	Not disposed	179	NAP	NAP	NAP	NAP	The machine was approved for condemnation by Railway Board in Sept. 2005 on the basis of proposal sent by Western Railway. The sanction order for disposal of the machine as scrap (SS-11) was sent by TMO to Stores Department/WCR in January, 2013. However, the machine has not yet been disposed off.
NCR	VDM-800 No 6804	0.13	NAV	NAV	18	13	01-04-1987	10-10-2007	03-04-2008	Not shown	0	Nil	323	Nil	Not applicable	Not ascertainable	Not ascertainable	Not auctioned
NCR	PTV-800 No 501	0.11	NAV	NAV	18	5	01-04-1989	10-10-2007	03-04-2008	Not shown	0	Nil	299	Nil	Not applicable	Not ascertainable	Not ascertainable	Not auctioned
ER	DUO 8024	0.85	6000	1614.68 Km	18	29	06-08-2013	26-09-2013	16-01-2014		9769 Kg value not assessed	Nil	8	Nil	Nil	Nil	Nil	Awaiting for disposal.
SR	UT 6703	NAV	2500	3061.415	18	18	01-04-1993	01-10-1992	01-12-1992	-	-	-	251	-	-	-	-	-
SR	UT 8770	0.45	2500	4600	18	25	01-04-2004	01-03-2002	01-06-2002	-	-	-	119	-	-	-	-	-
SR	UT 8002	0.45	2500	4500	18	20	01-04-2000	01-06-2000	01-11-2000	-	-	-	167	-	-	-	-	-
SR	UT 8010	0.45	2500	4500	18	21	01-04-2002	01-05-2002	01-07-2002	-	-	-	143	-	-	-	-	-
SR	Duo 8020	0.45	6000	2153(**)	18	20	01-04-2005	01-01-2003	01-05-2003	-	-	-	107	-	-	-	-	-
NER	UNO-8030	0.65	4500	4626	18	22	24-12-2007	22-07-2010	20-07-2010	0.3	-	17.02.12 (Lot formation)	75	-	-	-	-	Lot formation has been done by Dy COS/depot/GKC. Further disposal is still awaited .

Source: Base depot records of TMO

Statement showing details of delay in disposal of condemned track machines and write back ad ustments as on 31.03.2014

Name of the Zone	Description of the Machine	Initial cost (in crs)	Life of the Machine in terms of work done in Ms/Nos as per IRTMM manual	Actual work done by the machine in Ms/Nos	Codal Life of the machine (in years)	Age of the machine as on the date of groundin g.	Date of grounding of the machine	Date proposal sent to R.B for condemna-tion	Date of condemna-tion	Depreciated alue of the machine (in crs)	Amount realised through sal aging parts (in crs)	Date of disposal as scrap	Delay in disposal (in months)	Amount realised through scrap (in crs)	hether write back ad ustment to capital is made in the same financial year of disposal (/N)	A oidable Di idend liability due to delay in disposal (in crs)	A oidable Di idend liability due non/delye d write back ad ustmen t to capital (in crs)	Remarks
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
SCR	UT 8005	0.5	2500	3124	18	26	01-04-2007	28-07-2009	03-03-2010	0	0	11-06-2010	27	0.09	N	0.012	0.018	
SCR	UT 8011	0.5	2500	3429	18	26	01-04-2007	28-07-2009	03-03-2010	0	0	11-06-2010	27		N			
SER	Portal- 205	0.8	500	330	18	19	01-04-2001	11-03-2002	01-07-2005	NA	NA	22-02-2011	107	0.04	N	0.096	0.112	
SER	Portal-218	0.8	500	330	18	19	01-04-1999	07-08-2002	01-07-2005	NA	NA	22-02-2011	131	0.04	N	0.096	0.112	
SER	UNO-8029	0.85	4500	6080	18	24	01-09-2010	20-05-2004	31-08-2009	NA	NA	22-02-2011	0	0.04	N	0	0.008	
SER	UT-8014	0.45	2500	2141	18	16	01-04-1997	05-07-2002	31-08-2009	NA	NA	22-02-2011	155	0.04	N	0.027	0.063	
SWR	DUO 8023	0.85	6000	5000	18	20	01-07-2005	01-11-2005	05-07-2006	0.4	0.37	01-10-2012	76	0.05	N	0.15	0.04	
SECR	CSM-919	2.33	7500	13696	18	19	24-10-2009	21-03-2011	08-03-2011	0.29	0.63	18-10-2012	24	0.14	N	0.08	0.05	
SECR	FRM-1869	10.5	3000	1869	18	18	24-10-2009	21-03-2011	08-03-2011	0.11	0.25	18-10-2012	24	0.19	N	0.03	0.03	
SECR	BCM-291	6.5	1000	1462	18	20	24.10.2009	25-10-2010	08-03-2011	0.58	0.63	13-03-2013	29	0.18	N	0.09	0.04	
NR	SLC-628	NAV	NAV	2689.41	18	30	25-10-1998	20-01-2011	20-01-2011	NA	NA	02-08-2011	142	0.3	--	NA	NA	Condemned from TMMD/LKO
NR	Portal Crane-12	0.27	500	NAV	18	18	15-06-2000	20-01-2011	20-01-2011	NA	NA	02-08-2011	122		N	0.03	0.04	
NR	Portal Crane-04	0.27	500	NAV	18	23	10-11-2004	20-01-2011	20-01-2011	NA	NA	02-08-2011	69		N	0.03	0.04	
NR	BEML-03	0.4	NAV	NAV	18	23	10-11-2004	20-01-2011	20-01-2011	NA	NA	02-08-2011	69		N	0.05	0.05	
NR	UT-8017	0.45	2500	4735 T/o 1480.76 Km.	18	21	17-05-2005	20-01-2011	20-01-2011	NA	NA	02-08-2011	63		N	0.05	0.06	
NR	UT-5876	0.45	2500	6340.91	18	28 Yrs.	20-02-2001	20-01-2011	20-01-2011	NA	NA	02-08-2011	114		N	0.05	0.06	
NR	UT-5865	0.45	2500	4526.61	18	28	30-01-2001	20-01-2011	20-01-2011	NA	NA	02-08-2011	115		N	0.05	0.06	
NR	UT-8008	0.45	2500	2730.21	18	22	13-03-2004	20-01-2011	20-01-2011	NA	NA	02-08-2011	77		N	0.05	0.06	
NR	UT-8001	0.45	2500	2805.12	18	19	16-04-2000	20-01-2011	20-01-2011	NA	NA	02-08-2011	124		N	0.05	0.06	

NR	SEM-107	NAV	NAV	NAV	18	10	25-08-2003	20-01-2011	20-01-2011	NA	NA	02-08-2011	84		---	NA	NA	Stabled at TMMD/ LKO
NR	BCM-287	6	1500	871	18	22	11-01-2012	25-03-2013	13-08-2013	NA	4.78	03-02-2014	13	0.42	N	NA	0.54	Condemned from TMMD/TKD.
NR	DUO-8022	0.85	6000	10220	18	27	10-01-2012	28-03-2013	13-08-2013	NA	0.44	13-02-2014	13		N	NA	0.08	
NR	DUO-8045	0.85	6000	8202.99	18	22	01-03-2011	13-03-2013	13-08-2013	NA	0.14	13-02-2014	24		N	NA	0.08	
NR	UNO-8031	0.65	4500	5731	18	26	17-09-2012	28-03-2013	13-08-2013	NA	0.24	13-02-2014	5		N	NA	0.06	
ER	DUO 8019	0.85	6000	2198.92 Km	18	29	16-08-2012	26-07-2012	04-12-2012	NA	9769 Kg value not assessed	15-03-2014	7	0.0746	N	0.079	0.0033	
SR	UT 6701	NAV	2500	3395.398	18	21	01-04-1995	01-10-1992	01-12-1992	-	-	01-01-1999	34	-	-	-	-	-
SR	UT 6704	NAV	2500	3539.816	18	18	01-04-1993	01-07-1993	01-09-1993	-	-	01-01-1999	58	-	-	-	-	-
SR	UT 6705	NAV	2500	3832.608	18	19	01-04-1994	01-07-1993	01-09-1993	-	-	01-01-1999	46	-	-	-	-	-

Note: Delay in disposal could be computed after allowing a reasonable period of one year from the date of grounding the machin
Source: Base depot records of TMC

Annexure VIII (Para 2.6.5.3-C)

Statement Showing the details of Track machines stabled for condemnation as on 31-03-2014

Name of the Zone	Description of the Machine	Initial cost (in crs)	Life of the Machine in terms of work done in KMs/Nos	Actual work done by the machine in KMs/Nos	Codal Life of the machine (in years)	Age of the machine as on the date of grounding.	Date of grounding of the machine	Date of detaied report sent to Zonal H.Qrs for appointment of committee	Date of appointment of committee of SAG officers	Date of proposal submitted to R.B along with recommen-dations of the committee duly accepted by PCE	Reasons for non/delayed submission of proposal to R.B	Period of stabling in months up to 31-03-2014	Remarks
1	2	3	4	5	6	7	8	9	10	11	12	13	14
NWR	KBC-121	6.00	1500 KM	130.00 KM	15	5.5 years	01-02-2005	Not sent.	Not Appointed	Not sent.	Not available	109	Audit raised a query regarding condemnation of both the
NWR	PQRS-259	0.26	500 KM	Not available	15	16 years	15-03-2008	Not sent.	Not Appointed	Not sent.	Not available	72	
SCR	Duomatic 8021	2.5	6000 km	6947 km	15	28 years	21-07-2013	08-01-2014	Not Appointed	Not sent.	It was proposed to sell the machine to IRCON as per the guidelines issued vide Rly Brd Lr dt 28.04.2014	8	
SCR	TRT 811	25	1500	1265	15	21 years	21-02-2011	07-07-2012	Committee inspected the machine on 14.12.12	28-12-2012	NAP	37	
WR	BRM 109	1 Crore	10000	14511	15 Yrs.	17 Yrs.	01-03-2012	25-01-2013	20-12-2013	27-12-2013	Non-availability of all SAG officers together to form the committee.	25	
WR	Phooltess Tamper 80129	4.5 Lakhs	NAV	NAV	15 Yrs.	23 Yrs	01-04-1994	08-10-2013	20-12-2013	27-12-2013	Delay in submission of detailed report to H.qrs by field unit	240	
WR	Phooltess Tamper 80089	4.5 Lakhs	NAV	NAV	15 Yrs.	23 Yrs	01-04-1994	08-10-2013	20-12-2013	27-12-2013		240	
WR	Phooltess Tamper 80079	4.5 Lakhs	NAV	NAV	15 Yrs.	23 Yrs	01-04-1994	08-10-2013	20-12-2013	27-12-2013		240	
WR	PTV 800-502	Not Applicable	NAV	NAV	15 Yrs.	40 Yrs.	03-12-1996	08-10-2013	20-12-2013	27-12-2013		207	
CR	BCM RM 76	6.00	1000	473.75	15	20	01-08-2011	21-09-2011	23-01-2012	08-10-2012	Delay in receipt of condemnation report from nominated standing committee	31	Rly. Bd. Approval received on 13.08.13
CR	TLE 02-18	0.08	330	196.18	15	25	01-02-2013	26-07-2013	28-06-2013	14-10-2014		14	
CR	UTV 502	0.92	Not available	Not available	15	23	01-11-2010	05-05-2014	14-03-2014	25-07-2014		41	
NER	PQRS M/c Sr. No. 90105, 90106 & 90108	Rs. 0.8 Crores	500 Kms	712.865 Kms	15 Years	23 Years	20-03-2013	19-02-2014	26-02-2014	NAV	NAV	12	
NFR	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL		
SER	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL		
SWR	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL		
SECR	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL		

NR	BRM-56	1	10000	17726.95	15	21 Yrs. 6 months	01-03-2012	06-06-2012	01-07-2014	Not submitted	Delay in formation of SAG committee	25	Proposal of condemnation is under process. Committee inspected condemned TMs on 08-07-2014 lying at TMMD/KKDE and proposal of committee is
NR	DGS-281	3.5	10000	10427	15	22 Yrs. 4 months	01-03-2012	27-05-2013	01-07-2014	Not submitted		25	
NR	RGM	5	17500	4511.73	15	15 Yrs. 2 months	13-07-2005	23-02-2013	01-07-2014	Not submitted		104	
NR	PQRS Portal Crane No. 215	0.27	500	760	15	31Yrs. 8 months	01-08-2013	01-07-2014	01-07-2014	Not submitted		8	
WCR	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL		
ECR	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL		
ECoR	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL		
NCR	UNO-8026	0.65	4500	4800	15 years	26.5 y	01-09-2013	07-05-2012	08-08-2012	26-06-2014	Not available	7	
NCR	UNO 8033	0.65	4500	5757	15 years	26 y	01-09-2013	19-06-2012	08-08-2012	09-09-2013	Not available	7	
NCR	RTRT	4.87	500	552	15 years	20 y	01-04-2012	18-04-2012	08-08-2012	Nil	Delay in conducting Joint inspection	24	
NCR	TLE 101, 113	0.22 each	500 each	NAV	15 years	25, 24 Y	01-07-2007	10-07-2013	08-08-2012	Nil		81	
ER	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL		
SR	PC6 227	Not Available	667	Not Available	15	23	01-11-2004	01-10-2012	Under process	-	Delay in constitution of SAG committee	113	-
SR	PC6 229	Not Available	667	Not Available	15	23	01-11-2004	01-10-2012	Under process	-		113	-
SR	PQRS 102	Not Available	667	Not Available	15	16	01-07-2005	01-10-2012	Under process	-		104	-
SR	PQRS 111	Not Available	667	Not Available	15	16	01-07-2005	01-10-2012	Under process	-		104	-
SR	TLE 1	Not Available	1000	Not available	15	15	01-04-2004	01-10-2012	Under process	-		120	Individual machine wise data not available for column 5.
SR	TLE 10	Not Available	1000	Not available	15	15	01-04-2004	01-10-2012	Under process	-		120	
SR	TLE 20	0.13	1000	Not available	15	18	01-04-2009	01-10-2012	Under process	-		60	
SR	TLE 21	0.13	1000	Not available	15	18	01-04-2009	01-10-2012	Under process	-		60	
SR	Phooltas tamping machine	Not Available	Not specified in IRTMM	Not Available	15	Not Available	Not Available	-	-	-		NA	-
SR	MG DUO 8046	0.85	6000	5807.615	15	18	01-12-2007	-	-	-		76	-
SR	Kersha Sleeper changing machine with bunk house	Not Available	Not specified in IRTMM	Not Available	15	Not Available	Not Available	-	-	-		NA	-
SER	UTV-31	NAV	NAV	NAV	15	24	2011-12	Not sent.	Not Appointed	Not sent.	Replay to Audit query awaited from SER railway admn	36	Included from the report.

Source: TMO records

Annexure IX (Para 3.7.2.3-g)

Statement showing details of Amount of Pay and allowances of Work Charged Gazetted and Non-gazetted staff of open line for which debit has been accepted by Construction Organisation during the year 2011-12 to 2013-14

Sr. No.	Name of Zonal Raiilway	Amount 11-12	Amount 12-13	Amount 13-14	Total
1	CR	8608762	14550238	17928288	41087288
2	ECoR	40829603	50777215	55353609	146960427
3	ECR	2454351	8026040	24054471	34534862
4	NCR	17865498	13083684	-2494661	28454521
5	NER	0	15546218	13702230	29248448
6	NFR	31753000	35069000	39426000	106248000
7	NR	18718916	38798221	47626686	105143823
8	NWR	22589809	23782173	16182058	62554040
9	SCR	67933760	56225841	67679088	191838689
10	SECR	11247377	18222578	21758148	51228103
11	SER	2852039	4441529	5536546	12830114
12	SR	89016075	122123307	198060580	409199962
13	SWR	31083043	17664552	17351724	66099319
14	WCR	63959	985987	141164	1191110
15	WR	26229575	70701608	78429202	175360385
	Grand Total	**371245767**	**489998191**	**600735133**	**1461979091**
		37.12 Crore	**49 Crore**	**60.07 Crore**	**146.2 Crore**

Annexure X (Para 3.7.2.5)

Statement showing extra expenditure as per final grant and actual expenditure due to excess operation of workcharged posts during the years 2011-12 to 2013-14

(Amount in Crore of ₹)

Sr. No.	Name of Zonal Railway	2011-12		2012-13		2013-14		Total 2011-12 to 2013-14	
		Extra Expenditure		Extra Expenditure		Extra Expenditure		Extra Expenditure	
		As per final grant	As per Actual Expenditure	As per final grant	As per Actual Expenditure	As per final grant	As per Actual Expenditure	As per final grant	As per Actual Expenditure
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
1	CR	1.76	1.76	1.53	1.53	1.97	2.25	5.26	5.54
2	ECoR	5.23	5.65	3.05	3.15	1.61	3.37	9.89	12.17
3	ECR	4.17	4.48	6.39	5.59	11.16	11.45	21.72	21.52
4	ER	0.86	0.67	0.72	0.72	3.97	4.08	5.55	5.47
5	Metro Railway	0	0	0.71	0.71	2.89	2.89	3.6	3.6
6	NCR	1.08	1.08	1.58	1.58	4.48	4.59	7.15	7.26
7	NER	0.3	0.39	1.29	0.87	1.87	1.63	3.45	2.89
8	NFR	0	0.29	0	0	0.34	0.34	0.34	0.63
9	NR	5.28	4.43	3.93	3.93	6.04	5.81	15.26	14.17
10	NWR	2.34	2.53	2.1	2.21	4.18	4.4	8.61	9.14
11	SCR	3.09	2.72	2.33	3.04	4.1	3.44	9.52	9.2
12	SECR	4.6	4.6	2.19	2.39	3.77	3.55	10.56	10.54
13	SER	0.96	1.21	0	0.25	1.08	1.3	2.04	2.76
14	SR	0.5	0.5	0.51	0.51	4.06	3.87	5.08	4.89
15	SWR	1.13	1.38	0.1	0.47	0.86	1.06	2.09	2.91
16	WCR	12.07	12.56	12.36	15.57	16.41	16.5	40.84	44.62
17	WR	7.89	7.79	5.44	5.55	6.45	6.67	19.78	20.01
	Total	**51.25**	**52.05**	**44.25**	**48.08**	**75.24**	**77.2**	**170.74**	**177.32**

Annexure XI

(Para 4.6.1.1)

Inconsistencies in reporting data as on 31.03.2014

Zone	No. of Divisions	Total land holding			Total vacant land			Total encroachments			Total land plans		
		Figures furnished by divisional Hdqrs.	Figures furnished by Zones	Variation	Figures furnished by divisional Hdqrs.	Figures furnished by Zones	Variation	Figures furnished by divisional Hdqrs.	Figures furnished by Zones	Variation	Figures furnished by divisional Hdqrs.	Figures furnished by Zones	Variation
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Central	5	29290.54	29290.54	0.00	2841.07	2871.25	-30.18	28834	26230	2604	1746	5378	-3632
Eastern	4	20938.3547	20950.3387	-11.984	2220.1942	2181.32976	38.86444	47.4959	21.312	26.1839	6235	6022	213
East Central	5	36642.2382	36297.9989	344.2393	4105.178	4283.832	-178.654	17.4792	17.4192	0.06	3528	3528	0
East Coast	3	13145.25	13145.25	0	2193.962	2193.962	0	18.99	18.99	0	2588	2458	130
Northern	5	41893.85	41462.850	431.000	11923.173	8323.090	3600.083	468.582	210.212	258.370	5715	5232	483.000
North Central	3	16974.45	17755.977	781.53	976.43	975.37	1.06	41.18	41.18	0.00	3258	3262	4
North Eastern	3	25649.61	25649.61	0	5775.762	5775.653	0.11	22.253	22.366	-0.11	1694	1697	-3.00
Northeast Frontier	5	48129.66	44928.54	3201.12	5159.61	1306.24	3853.37	174.57	147.31	27.26	2595	3137	542
North Western	4	24503.01	24503.01	0	1313.69	1313.69	0	21.29	21.29	0	2029	2029	0
Southern*	6	21579.895	22168.98	-589.085	4212.59	2297.83	1914.76	348.16	61.01	287.15	3481	NA	NA
South Central	6	32355.211	32357.423	-2.212	1365.254	1363.309	1.945	16.05	18.1191	-2.0691	4519	3921	598
South Eastern	4	41740.323	42279.56	-539.237	677.448	466.01	211.438	175.825	158.87	16.955	2524	3292	-768
South East Central	3	22089.02	22089.02	0	3146.36	3146.36	0	60.26	60.26	0	1025	1027	-2
South Western	3	13189.386	17795.83	-4606.444	4223.271	4131.97	91.301	17.0623	16.26	0.8023	1779	1701	78
Western	6	36222.2956	36312.253	-89.9574	5882.1976	5909.885	-27.6874	59.508	41.449	18.059	2882	2892	-10
West Central	3	23255.51	23255.51	0	476.17	476.17	0	37.042	37.042	0	1949	2742	793
Mtero Railway, Kolkata	No divisions in Metro Railway.												

* In SR, position of five out of six division only is given . Position of total land plans not available at zonal HQ.

Annexure XII

(Para 4.6.2.1 and 4.6.2.2)

Statement showing position of land plans as on 31.03.2014

Zone	Total land plans	Land Plans available		Land Plans missing		Land plans verified/certified by the Revenue authorities		Land plans mutated with Revenue authorities		Land plans scanned/digitised			Land plans updated	
		No.	Area (hec)	No.	Area (hec)	No.	Area (hec)	No.	Area (hec)	No.	Area (hec)	Percentage	No.	Area (hec)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Central	5378	5167	NA	211	NA	5167	NA	10	24.66	5163	NA	96.00	NA	NA
Eastern	6235	6207	20924.979	28	107.562	3827	NA	0	0	2745	NA	44.22	119	343.888
East Central	5478	5353	NA	125	NA	4624	NA	3660	NA	3660	NA	68.37	3660	NA
East Coast	2458	2259	NA	199	NA	1627	NA	0	0	2249	NA	91.50	0	0
Northern	5684	4622	NA	1062	NA	4622	NA	4622	NA	3095	NA	66.96	3850	NA
North Central	3258	3195	NA	63	NA	3191	NA	NA	NA	3195	NA	100.00	3195	NA
North Eastern	1697	1696	NA	1	NA	1170	NA	1170	NA	1247	NA	36.76	1170	NA
Northeast Frontier	3137	3137	44928.54	0	0	3137	44928.54	10	50.00	3137	44928.54	100.00	Nil	Nil
North Western	2029	2026	24476.95	3	26.06	1833	21706.77	1222	16416.95	1825	21617.22	89.95	1825	21617.24
Southern	4130	4072	NA	46*	NA	3707	NA	1022	5904.29	3992	NA	98.04	1881	10372.505
South Central	3921	3798	NA	123	NA	3087	NA	3087	NA	2705	NA	71.22	3087	NA
South Eastern	3292	3292	NA	0	0	3111	NA	0	0	3292	NA	100.00	0	0
South East Central	1027	1017	NA	10	NA	426	NA	0	0	843	NA	82.89	0	0
South Western	1898	1779	NA	119	NA	348	NA	0	0	1779	NA	100.00	0	0
Western	2892	2852	NA	40	NA	2348	NA	NA	NA	2780	NA	96.13	NA	NA
West Central***	1949	1635	17792.15	314	NA	1440	15527.02	NA	NA	1635	17792.15	100.00	1483	17792.15
Metro Railway, Kolkata	95	95	108.1579	0**	13.9221	33	20.331	0	0	0	0	0	0	0
Total	54558	52202	108230.78	2298	147.5441	43698	82182.661	14803	22395.9	43342	84337.91	80.41	20270	50125.783

* 12 land plans were not transferred from MDU division to PGT division

** Plans for an area of 2.2727 hectares are not traceable & plans for 11.6494 hectares (for Tollygunge to New Garia) had not yet been finalised.

***Details of area of land is available in respect of two divisions out of three in WCR.

Source: Land Management Cell of Zonal Railway/ Division

Macro information to be collected by all.

(Para 64..2.4)

Statement showing submission of land boundary register

Zone	Number of SSE test checked	Land boundary register being maitained in	If maintained												Joint inspections		
			No. of times required to be submitted			No. of times actually submitted			Whether certified by ADEN (Yes/No)			Whether submitted to higher authorities (Yes/No)			No. to be conducted by each SSE during 2011-12, 2012-13 and 2013-14 with other departments	No. actually conducted	Shortfall
			2011-12	2012-13	2013-14	2011-12	2012-13	2013-14	2011-12	2012-13	2013-14	2011-12	2012-13	2013-14			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Central	18	15	15	15	15	15	15	15	15	15	15	15	15	15	36	9	27
Eastern	13	1	1	1	1	0	0	0	0	0	0	0	0	0	36	0	36
East Central	8	5	3	3	3	2	1	2	0	0	0	0	0	0	36	0	36
East Coast	9	0	0	0	0	0	0	0	0	0	0	0	0	0	36	0	36
Northern	18	18	18	18	18	10	18	16	13	10	9	11	7	5	36	0	36
North Central	14	8	8	8	8	8	8	8	8	8	8	0	0	0	36	0	36
North Eastern	8	5	5	5	5	2	2	3	2	2	3	1	1	1	36	0	36
Northeast Frontier	14	12	12	12	12	8	6	6	5	1	1	1	0	0	36	0	36
North Western	12	12	12	12	12	12	7	4	11	3	2	11	4	2	36	0	36
Southern	22	3	1	0	2	0	0	0	0	0	0	0	0	0	36	0	36
South Central	22	12	12	12	12	3	2	4	3	2	4	0	0	0	36	0	36
South Eastern	20	4	4	4	4	2	3	3	0	0	0	0	0	0	36	0	36
South East Central	9	6	6	6	6	4	3	4	2	2	2	2	2	2	36	0	36
South Western	7	5	5	5	5	4	4	4	4	4	4	0	0	0	36	0	36
Western	15	9	7	9	9	5	6	5	5	6	5	1	1	2	36	5	31
West Central	11	11	11	11	11	11	8	7	11	8	5	11	8	4	36	0	36
Metro Railway, Kolkata	3	0	0	0	0	0	0	0	0	0	0	0	0	0	36	0	36
Total	223	126	120	121	123	86	83	81	79	61	58	53	38	31	612	14	598

Annexure XIV
(Para 4.6.4.1)
Position of encroachments in Encroachment Inspection Register as on 31.03.2014

Zone	Number of SSE checked	No. of SSEs where encroachment exist	Details of encroachment					Period of encroachment (range)		Action taken to remove the encroachment				Remarks
			Total number of encroachment	Area under encroachment	Type of encroachment			From year	To year					
					Commercial	residential	Other			Cases filed under PPE Act	Cases in other Courts	Damage rent recovered	No action taken	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Central	18	7	8774	NA	Type not available			2011		Action taken not available.				Details of encroachment were not available in six SSEs where encroachment exist. Encroachment inspection register was not maintained by 2 SSEs.
Eastern	13	11	31943	289709	Type not available			NA	NA	Action taken not available.				encroachment register not maintained in two SSEs.
East Central	8	5	124	5486.88	64	43	17	1954	2013	0	0	0	124	No action has bene taken in PPE Act/Otherwise. Only ADEN/Divn informed.
East Coast	9	3	2953	236500	Type not available			1988	2011	Action taken not available				
Northern	18	13	24104	469764.978	114	23978	12	1956	1995	Action taken not available				
North Central	14	5	1754	56580.35	149	1605	0	1969	2013	1660	3	0	91	Register was not maintained in 7 SSEs. 207 cases (6233.57 sqm) during Feb 2005 to Sept 2005 and 20 cases (702.00 sqm) in July 2007 decided by Estate Court but encroachment could not be removed
North Eastern	8	5	981	67460	787	188	6	1970	2000	Action taken not available				
Northeast Frontier	14	12	10433	589090	1920	8317	154	1965	1995	9968	-	-	465	Encroachment Register not maintained by 3 SSEs of 2 divisions and type of encroachment not known due to improper maintenance of encroachment regsiter. Eviction notices were served in 9950 cases bot action could not be taken to remove the encroachments. Type of encroachment not available in 42 cases.
North Western	12	7	23	3277	13	5	5	1987	2009	16	7			Register was not made available by one SSE. Area of 4 encroachments not available
Southern	22	1	5	2749.77	3	0	2	1962	2002		4		1	Register was not maintained in 17 SSEs. 3 SSEs not required to maintain register as they have no land. No encroachment in one SSE.
South Central	22	8	1414	108262	0	1413	1	1980	2012	1109	114	1	190	Register was mnot maintained in 5 SSEs. No encroachment in 9 SSEs

Name of Zonal Railway	Number of SSE checked	No. of SSEs where encroachment exist	Details of encroachment					Period of		Action taken to remove the encroachment				Remarks
			Total number of encroachment	Area under encroachment	Type of encroachment			From year	To year					
					Commercial	residential	Other			Cases filed under PPE Act	Cases in other Courts	Damage rent recovered	No action taken	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
South Eastern	20	13	12471	902423	4089	7486	0	1961	2013	1817			10719	Type of 961 encroachment was not available.
South East Central	9	4	2582	119324	19	2561	2	NA		825	70	0	1687	Period of encroachment was also not available.
South Western	7	4	602	15219.42	84	518		1965	2005	602	0	0	0	Area of 58 encroachment not available
Western	15	8	17057	68556.15	Type not available			1950	2012	2695			14362	Action taken was not available for 51830.45 sqm of land. No. of cases of encroachment was not available for 19600 sqm with one SSE. Area of encroachment with another SSE for 12000 cases was also not known.
West Central	11	0	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	No encroachment with selected SSEs in WCR.
Metro Railway, Kolkata	3	1	138	5196	Type not available			2012	2014	Departmental action has not been taken.				Local police station was informed.
Total			**106584**	**2939603.548**				**1950**	**2013**					
			8774	**Not available**										

(Para 4.6.4.2)

Details of encroachment

Name of Zonal	Year	Name of SSE test checked	Encroachment at the beginning of the year as on 1st April		New encroachment during the year		Encroachment removed during the year		Encroachment at the end of the year	
			No.	Area (in hec)	No.	Area (in hec)	No.	Area (in hec)	No.	Area (in hec)
1	2		3	4	5	6	7	8	9	10
Central	2011-12	18	9455	Not available	1	Not available	81	Not available	9375	Not available
	2012-13	18	9375	Not available	1	Not available	481	Not available	8895	Not available
	2013-14	18	8895	Not available	0	0	121	Not available	8774	Not available
Eastern	2011-12	13	31936	28.9659	0	0	0	0	31936	28.9659
	2012-13	13	31936	28.9659	253	0.698	253	0.698	31936	28.9659
	2013-14	13	31936	28.9659	173	1.097	166	1.092	31943	28.9709
East Central	2011-12	7	94	0.3767	4	0.1215	8	0.0834	90	0.4148
	2012-13	7	90	0.4148	5	0.0145	11	0.0138	84	0.4155
	2013-14	7	84	0.4155	41	0.1355	1		124	0.5487
East Coast	2011-12	9	3242	23.65	0	0	27	NA	3215	23.65*
	2012-13	9	3215	23.65	0	0	209	NA	3006	23.65
	2013-14	9	3006	23.65	0	0	53	NA	2953	23.65
Northern	2011-12	18	24117	47	0	0	4	0.013	24113	46.987
	2012-13	18	24113	46.987	0	0	0	0	24113	46.987
	2013-14	18	24113	46.987	0	0	9	0.01	24104	46.977
North Central	2011-12	14	1780	5.6838	0	0	7	0.0076	1773	5.6762
	2012-13	14	1773	5.6762	1	0.0077	13	0.0158	1761	5.6681
	2013-14	14	1761	5.6681	0	0	7	0.0099	1754	5.6582
North Eastern	2011-12	8	981	6.746	0	0	0	0	981	6.746
	2012-13	8	981	6.746	0	0	0	0	981	6.746
	2013-14	8	981	6.746	0	0	0	0	981	6.746
Northeast Frontier	2011-12	14	10578	59.95	42	NA	121	0.5	10499	59.45
	2012-13	14	10499	59.45	6	0.2	54	0.74	10451	58.91
	2013-14	14	10451	58.91	10	0.2	28	0.2	10433	58.91
North Western	2011-12	12	24	0.3248	0	0	1	0.0855	23	0.2393
	2012-13	12	23	0.2393	0	0	0	0	23	0.2393
	2013-14	12	23	0.2393	0	0	5	0.1644	18	0.0749

Southern	2011-12	22	Not available as monthly inspection not conducted							
	2012-13	22	Not available as monthly inspection not conducted							
	2013-14	22	Not available as monthly inspection not conducted							
South Central	2011-12	22	Not available as monthly inspection not conducted							
	2012-13	22	Not available as monthly inspection not conducted							
	2013-14	22	Not available as monthly inspection not conducted							
South Eastern	2011-12	20	12696	90.6228	199	0.75	199	0.75	12696	90.6228
	2012-13	20	12696	90.6228	203	1.183	171	1.183	12728	90.6228
	2013-14	20	12728	90.6228	138	0.665	395	1.0455	12471	90.2423
South East Central	2011-12	9	2612	11.97	0	0	0	0	2612	11.97
	2012-13	9	2612	11.97	0	0	0	0	2612	11.97
	2013-14	9	2612	11.97	0	0	30	0.0376	2582	11.9324
South Western	2011-12	7	602	1.521942	0	0	0	0	602	1.5219
	2012-13	7	602	1.5219	0	0	0	0	602	1.5219
	2013-14	7	602	1.5219	0	0	0	0	602	1.5219
Western	2011-12	15	17055	6.852	0	0	0	0	17055	6.852
	2012-13	15	17055	6.852	3	0.006	3	0.006	17055	6.852
	2013-14	15	17055	6.852	9	0.024	7	0.02	17057	6.855
West Central	2011-12	11	0	0	0	0	0	0	0	0
	2012-13	11	0	0	0	0	0	0	0	0
	2013-14	11	0	0	0	0	0	0	0	0
Metro Railway	2011-12	0	NA	0.2515	0	0	0	0	NA	0.2515
Kolkata	2012-13	0	NA	0.2515	136	0.2519	0	0	136	0.5034
	2013-14	0	136	0.5034	2	0.0162	0	0	138	0.5196

* Area in respect of 1206 encroachments was not available in ECoR.

(Para 4.6.4.3 and 4.6.4.4)

Statement showing age profile of cases pending under PPE Act 1971 and section 147 of Railways Act 1989

(as on 31.03.2014)

Zone	Cases under PPE Act 1971				Cases under section 147 of Railways Act 1989			
	up to 5 years	5 to 10 years	10-20 years	more than 20 years	up to 5 years	5 to 10 years	10-20 years	more than 20 years
1	2	3	4	5	6	7	8	9
Central	1	0	1483	0	0	0	13892	0
Eastern	312	17	2	0	0	0	0	0
East Central	2	0	0	0	0	0	0	0
East Coast	321	0	0	0	0	0	0	0
Northern	9	18	2	0	0	0	0	0
North Central	20	0	20	2	0	0	0	0
North Eastern	1	40	220	992	0	0	0	0
Northeast Frontier	1555	269	133	0	0	0	0	0
North Western	14	7	11	0	7	0	0	0
Southern	11	6	0	0	0	0	0	0
South Central	195	451	21	0	0	0	0	0
South Eastern	1021	406	0	0	0	0	0	0
South East Central	825	0	0	0	0	0	0	0
South Western	0	188	0	189	0	0	0	0
Western	363	0	0	2	Record not maintained			
West Central	1	0	4	0	0	0	0	0
Metro Railway, Kolkata	1	0	0	0	0	0	0	0
Total	4652	1402	1896	1185	7	0	0	0

Source: (i) Records of Engineering branch of division selected for test check for cases being dealt with under PPE Act 1971

(ii) Records of Security branch of division selected for test check for cases being dealt with under section 147 of Railways Act 1989

Annexure XVII

(Para 4.6.4.3 and 4.6.4.4)

Statement showing details of cases where Railway failed to get the land evicted after decision of Estate/ other Courts

Zone	Year	No. of cases finalised during the year		Area of land got vacated after decision		No. of cases where no action was taken after decision	
		Esate Court	Other Court	Esate Court	Other Court	Esate Court	Other Court
Central	2011-12	0	0	0	0	0	0
	2012-13	89	2	0	16.74	89	0
	2013-14	0	0	0	0	0	0
Eastern	2011-12	0	1	0	0	0	1
	2012-13	29	0	0	0	29	0
	2013-14	26	0	26	0	0	0
East Central	2011-12	0	0	0	0	0	0
	2012-13	0	0	0	0	0	0
	2013-14	85	0	NA	NA	NA	NA
East Coast	2011-12	0	0	0	0	0	0
	2012-13	35	0	NA	0	NA	0
	2013-14	54	0	NA	0	NA	0
Northern	2011-12	2	0	0	0	2	0
	2012-13	0	0	0	0	0	0
	2013-14	2	0	0	0	2	0
North Central	2011-12	0	0	0	0	0	0
	2012-13	15	0	0	0	15	0
	2013-14	0	1	0	1	0	0
North Eastern	2011-12	44	0	0	0	44	0
	2012-13	4	0	0	0	4	0
	2013-14	0	0	0	0	0	0
Northeast Frontier	2011-12	101	NA	49	0	52	0

	2012-13	609	NA	4	0	605	0
	2013-14	348	NA	63	0	285	0
North Western	2011-12	0	1	0	1	0	0
	2012-13	1	0	1	0	0	0
	2013-14	7	0	7	0	0	0
Southern	2011-12	3	3	3	3	0	0
	2012-13	1	1	1	1	0	0
	2013-14	10	3	10	3	0	0
South Central	2011-12	0	0	0	0	0	0
	2012-13	1	0	1	0	0	0
	2013-14	0	0	0	0	0	0
South Eastern	2011-12	400	0	0	0	400	0
	2012-13	784	0	0	0	784	0
	2013-14	401	0	0	0	401	0
South East Central	2011-12	4	0	4	0	0	0
	2012-13	6	0	4	0	2	0
	2013-14	121	0	0	0	121	0
South Western	2011-12	0	0	0	0	0	0
	2012-13	0	0	0	0	0	0
	2013-14	0	0	0	0	0	0
Western	2011-12	2948	0	0	0	2948	0
	2012-13	2691	0	0	0	2691	0
	2013-14	2695	0	0	0	2695	0
West Central	2011-12	0	0	0	0	0	0
	2012-13	1	Nil	1	Nil	Nil	Nil
	2013-14	1	Nil	1	Nil	Nil	Nil
Metro Railway	2011-12	1	0	1	0	0	0
Kolkata	2012-13	0	0	0	0	0	0
	2013-14	0	0	0	0	0	0

Annexure XVIII

(Para 4.6.4.3 and 4.6.4.4)

Statement showing cases being taken up under PPE Act 1971 and under section 147 of Railways Act 1989

Zone	Year	Cases under PPE Act 1971				Cases under section 147 of Railways Act 1989			
		No. cases lying pending at the beginning of the the year	No. Finalised	No. added	No. of cases at the end of the year	No. cases lying pending at the beginning of the the year	No. Finalised	No. added	No. of cases at the end of the year
1	2	3	4	5	6	7	8	9	10
Central	2011-12	1573	0	0	1573	13892	3934	3934	13892
	2012-13	1573	89	0	1484	13892	5203	5203	13892
	2013-14	1484	0	0	1484	13892	4903	4903	13892
Eastern	2011-12	19	0	0	19	0	471	471	0
	2012-13	19	30	56	45	0	577	577	0
	2013-14	45	26	312	331	0	500	500	0
East Central	2011-12	87	0	0	87	0	0	0	0
	2012-13	87	0	0	87	0	0	0	0
	2013-14	87	85	0	2	0	0	0	0
East Coast	2011-12	2	0	0	2	0	997	997	0
	2012-13	2	35	153	120	0	1667	1667	0
	2013-14	120	54	255	321	0	2082	2082	0
Northern	2011-12	32	2	0	30	0	0	0	0
	2012-13	30	0	1	31	0	0	0	0
	2013-14	31	2	0	29	0	0	0	0
North Central	2011-12	46	0	10	56	0	0	0	0
	2012-13	56	15	0	41	0	0	0	0
	2013-14	41	0	1	42	0	0	0	0
North Eastern	2011-12	1453	142	2	1313	0	0	0	0
	2012-13	1313	57	0	1256	0	0	0	0
	2013-14	1256	3	0	1253	0	0	0	0

Northeast Frontier	2011-12	2289	101	0	2188	0	0	0	0
	2012-13	2188	609	352	1931	0	0	0	0
	2013-14	1931	348	374	1957	0	0	0	0
North Western	2011-12	38	0	0	38	0	3769	3769	0
	2012-13	38	1	2	39	0	5409	5409	0
	2013-14	39	7	0	32	0	3652	3659	7
Southern	2011-12	1304	6	0	1398	0	0	0	0
	2012-13	1298	2	1	1297	0	0	0	0
	2013-14	1297	13	1	1285	0	0	0	0
South Central	2011-12	881	0	0	881	0	0	0	0
	2012-13	881	185	0	696	0	0	0	0
	2013-14	696	29	0	667	0	0	0	0
South Eastern	2011-12	2384	461	750	2673	Not provided			
	2012-13	2673	811	516	2641	Not provided			
	2013-14	2678	445	844	2535	Not provided			
South East Central	2011-12	5	4	3	4	0	1192	1192	0
	2012-13	4	6	2	0	0	1276	1276	0
	2013-14	0	121	946	825	0	1284	1284	0
South Western	2011-12	374	0	0	374	0	0	0	0
	2012-13	374	0	3	377	0	0	0	0
	2013-14	377	0	0	377	0	0	0	0
Western	2011-12	75	16	304	363	0	26	26	0
	2012-13	363	38	46	371	0	0	0	0
	2013-14	371	273	8	106	0	200	200	0
West Central	2011-12	5	0	0	5	0	0	0	0
	2012-13	5	1	2	6	0	0	0	0
	2013-14	6	1	0	5	0	0	0	0
Metro Railway	2011-12	1	1	0	0	0	0	0	0
Kolkata	2012-13	0	0	0	0	0	0	0	0
	2013-14	0	0	1	1	0	0	0	0