Report of the Comptroller and Auditor General of India

for the year ended March 2003

Union Government (Railways)
No. 9 of 2004

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PREFACE

The Report for the year ended 31 March 2003 has been prepared in two volumes (Nos.8 and 9) for submission to the President under Article 151 (1) of the Constitution of India.

This volume (No.9) contains results of the following reviews:

(i)	Planning, Approval and Material Modifications to Ongoing Projects	(Chapter 1)
(ii)	Procurement, Utilisation and Maintenance of Track Machines over Indian Railways	(Chapter 2)
(iii)	Coal Movement on Indian Railways	(Chapter 3)
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The observations included in this Report have been based on the findings of the test-audit conducted during 2002-2003 as well as the results of audit conducted in earlier years which could not be included in the previous Reports.

OVERVIEW

I. Planning, Approval and Material Modifications to the Ongoing Projects

Indian Railways draws up its development plans within the framework of the National Five Year Plans. The procedure laid down by the Railways for approval of projects emphasizes the need for taking up only financially remunerative projects. Several Parliamentary Committees in the past have also reiterated the need to take up only those new projects, which are financially viable and do not lead to spreading thin the Railways scarce resources. Despite this, as on 31 March 2003, 202 projects having a throw forward of over Rs.35,000 crore are under construction/ execution and are suffering staggering cost and time over runs.

- **An Audit review of ten projects revealed that not only were the codal provisions and guidelines/ recommendations of various Parliamentary Committees not being observed before undertaking of projects, the Railways had also been resorting to issuing approval to several material modifications (MMs) to the projects already sanctioned. The sanctions to MMs were irregular. All the MMs were to be treated as independent projects and should have been subjected to the drill of conducting surveys and obtaining approval of Railway Board (RB)/ Cabinet Committee on Economic Affairs (CCEA), if found financially viable. Thus all the ten projects and 17 MMs made to such projects at an estimated cost of Rs.3,361.19 crore were financially unremunerative and could result in recurring operating losses on completion of these projects.**

Some of the serious irregularities are highlighted below:

- **In one project (Rewari -Sadulpur), MM of Hissar-Sadulpur was approved even before approving the original project. Approval of MM even before approval of the original project is a serious impropriety committed by RB. The project originally proposed for BG connectivity between Hissar – Sadulpur – Ratangarh – Lalgarh was on strategic considerations. Approval of Rewari – Sadulpur work did not fall in the alignment indicated by the Army authorities and even today the strategic need of the Army authorities remains to be addressed.**

- **If any changes are considered necessary before commencement of a work, an amended abstract estimate should be prepared. In the case of Doubling of Kalinaraynpur – Krishnanagar BG line and Deogarh – Sultanganj New Line works, where the work had not commenced, RB approved two MMs each without preparing amended abstract estimates and obtaining the clearance of CCEA. The four MMs estimated to cost Rs.111.72 crore were actually two independent projects split up presumably to keep the estimated cost of the project**

below Rs.50 crore and thereby avoid the need for approval of CCEA. The MMs had no connection with the original projects other than the fact that they were touching a station, which was on the alignment of the original project.

- **New Line work of Eklakhi – Balurghat was approved on out-of-turn basis in November 1983. Due to changing priorities of RB, the work continues to remain in progress even 18 years after taking up the work on urgency certificate. In February 2001, RB approved a MM for construction of a new line between Gazole – Itahar to this work, which had already lost its priority. The estimated cost of Rs.87 crore on MM was much more than the estimated cost of the original project itself.**

- **The Planning Commission approved the work of Fatua-Islampur - Restoration of dismantled line at a cost of Rs.49.50 crore in May 1998 and urged the Railways to reprioritise the existing portfolio to ensure adequate provision for higher priority works. Action of RB in sanctioning of four unremunerative New Line works at an estimated cost of Rs.419.65 crores as MMs to a project not considered high priority by Planning Commission is highly objectionable.**

(Chapter 1)

II. Procurement, Utilisation and Maintenance of Track Machines over Indian Railways

Railway track consisting of rails, sleepers and ballast on formation forms the backbone of the Railway transportation system. Keeping the track in safe, sound and fit condition is, therefore, very important. On Indian Railways, for over a century, the track has been maintained manually. Introduction of track machines for mechanised laying and maintenance of track became necessary to suit the requirements of modern track structure laid with long welded rails, pre-stressed concrete sleepers and deeper ballast cushions. Audit attempted to examine the system of assessment of requirement and procurement of track machines, performance of the machines and maintenance and inspection aspects of the machines, deployment and training of staff. The findings are as under:

- **Budgetting and monitoring of expenditure on maintenance of Permanent Way with track machines and on repairs & maintenance and replacement & renewals of track machines was not effective.**

- **There was excess availability of at least 14 Universal/ Duomatic tamping machines for working behind Ballast Cleaning Machines (BCMs), 39 CSM/ 3-X tamping machines used for plain tamping work, four Dynamic Track Stabilisers machines, one BCM and 14 Plasser's Quick Relaying System (PQRS) machines as on 31 March 2003.**

- **Purchase Orders placed in 2002-03 for ten BCM, 15 DTS and 11 DTM machines at the cost of Rs.194.83 crore was avoidable.**

- **Track machines need clear lines to be worked for which the Operating Department should provide required number of block hours for carrying out maintenance works. During 1998-99 to 2002-03, the Track Machines Organisation demanded only about 83 per cent of the stipulated number of block hours. Out of this, even lesser was provided by the Operating Department (67.16 per cent). The average time of each block was only about 1.46 hours as against a minimum block spell of 2.30 hours. These factors reduced the effective track maintenance time for actual maintenance work.**

- **Tamping of tracks is a major track maintenance activity. Tamping charts required for monitoring and planning tamping work was not being maintained as required in any of the Zonal Railways. Due to this, during 2000-01 to 2002-03, 17,652.80 kms. were tamped before it became due and 27,849.62 kms. were not tamped through they were due to be tamped. The Railways incurred avoidable expenditure of Rs.13.75 crore on early tamping of tracks.**

- **While tamping carried out during the review period was short of the targetted capacity fixed by Railway Board and the unrealistic internal targets fixed by the Chief Engineers of the Zonal Railways (except North Eastern and South Central Railways), it was in excess of actual requirement by 12,084.57 kms. as per the assessment of Audit in all Railways, except Central, North Eastern, Northeast Frontier and South Eastern Railways.**

- **The field records maintained by the Sr. Section Engineers (Permanent Way) showed far less tamping work carried out as compared to the Performance Reports of the Track Maintenance Organisation that were sent to Railway Board. The figures sent to Railway Board were inflated by 83,289.28 kms. for the period 2000-01 to 2002-03 (83.16 per cent).**

- **Despite having excess machines, during 1998-99 to 2002-03 the Zonal Railways did not use tamping machines for tamping after deep screening of track. During the five years review period, 19,121.94 kms. were got tamped through manual method. Not only is manual tamping inferior, ten days more have to be provided on track tamped manually before speed restrictions are removed.**

- **Findings regarding performance of other track machines were on the same line as that found in respect of tamping machines. The targets fixed by Railway Board were almost always never achieved and so was the case with internal targets fixed by the Chief Engineers of the Zonal Railways. The internal targets set were lower than the actual requirement in respect of Ballast Cleaning Machines and Shoulder Ballast Cleaning Machines.**

- **Review of field records in respect of tamping of points and crossings and deep screening of ballast with the help of track machines during 1998-99 to 2002-03 revealed that in these cases too, the actual work**

done was far less than that reported to Railway Board through Performance Reports. The inflation was to the extent of 168.98 per cent and 39.88 per cent respectively.

- **During the period under review, deep screening of ballast along 19,536.01 kms. were done manually, despite the availability of Ballast Cleaning Machines for doing a superior quality of deep screening work.**

- **Under-utilisation of Points and Crossings Machines during the review period also need to be viewed in the light of 5,914 points laid manually and 4,118 available points and crossings that could not be laid.**

- **Maintenance Schedules were not being observed as per the instructions laid in the Indian Railways Track Machine Manual. Instances on Central and Northern Railways were found where excess time had been taken up for scheduled maintenance, resulting in loss of work, idling of staff and labour attached to the machines.**

- **The average consumption of HSD oil and average cost of repair and maintenance per km. for Plain Track Tamping, Points and Crossing Tamping and Ballast Cleaning machines test checked showed wide variation from Railway to Railway, calling for more detailed examination of the reasons for desparities and action to bring down costs. The consumption of HSD oil per km. and cost per km. on spares, consumables, staff and overheads are in reality far more than reflected in the various reports maintained by Track Maintenance Organisation, since the averages have been arrived at by adopting inflated Performance Reports of machines.**

(Chapter 2)

III. Coal Movement on Indian Railways

Transportation of coal forms a significant part of the total traffic on the Indian Railways as compared to other commodities in terms of tonnage of loading and the revenue earnings. Transportation of coal to the extent of 235.85 million tonne during the year 2002-2003 constituted 45.46 per cent of the total traffic carried by Indian Railways in terms of volume and Rs.11,480.79 crore (43.31 per cent) in terms of total revenue earnings. Audit attempted to review Railways' performance in various areas of coal transportation and identify areas where there was scope for improvement which could result in capturing a larger share in coal transportation. The review revealed the following:

- **The changes in freight tariff structure through the annual budgetary exercises failed to increase the Railways' share in transportation of coal.**

  Concession of 25 per cent introduced with effect from 1 April 1999 on short lead traffic failed to bring in additional revenue in four routes out of five short distance routes test checked.

Test check of four middle distance routes (108-402 kms.) revealed scope for capturing coal traffic moving by road which could have yielded additional revenue of Rs.60.37 crore during the review period.

- **Railways could have earned Rs.35.51 crore during the year 2002-03 if open hopper wagons were deployed for transporting coal to five of the unloading points test checked as these wagons save a substantial amount of time on unloading operations.**

- **Failure to conduct time and motion studies and reduce the allowed free time in 15 mechanised loading points and three mechanised unloading points led to avoidable grant of excess time and loss of earning capacity to the tune of Rs.86.38 crore.**

- **During the year 2002-03, the excess time taken beyond the free time allowed at 36 loading points resulted in loss of earning capacity of wagons to the extent of Rs.226.65 crore of which highest amount (Rs.180.49 crore) was on Eastern Railway. Similarly, there was loss of earning capacity of Rs.175.10 crore at 31 unloading points of which highest amount (Rs.80.66 crore) was on Eastern Railway.**

- **Levy of penal freight to minimise the overloading was not acting as a deterrent and cases of overloading was found in 20 out of the 22 sidings test checked. At Junadih Line No.4, Korba loading point all the wagons weighed were found overloaded.**

- **Diversion of coal rakes and non-issue of Supersessional Railway Receipts (SRRs) was a common feature on Eastern and South Eastern Railways.**

  494 diversion cases of coal rakes were found in respect of six loading points test checked on South Eastern Railway during the period 1 April 2002 to 31 March 2003.

  134 diversion cases of coal rakes were found in respect of five loading points test checked on Eastern Railway during the period 1 April 2002 to 31 March 2003. Freight outstanding on account of non-issue of SRRs as assessed was to the tune of Rs.20.24 crore.

- **13,794 wagons were hauled in empty condition in loaded Closed Circuit (CC) rakes and Non-CC rakes from the loading points test checked during the year 2002-03 on account of their rejection by the siding holders as unfit for coal loading. The loss of freight works out to Rs.27.37 crore.**

- **Waiving of demurrage charges has become a routine practice in the Railways defeating the very purpose of assessing and levying them. The extent of waival also was far above limits considered as reasonable. An amount of Rs.361.11 crore was leviable as demurrage charges during the period 1998-99 to 2002-03 in sidings test checked of which an amount of Rs.153.22 crore was waived. A sum of Rs.49.65 crore was waived in Eastern Railway alone.**

- **Non-realisation of earnings from coal transportation is a serious matter and has not received the attention that it deserves. The outstanding amount from State Electricity Boards/ Power Houses has steadily risen from Rs.1,139.91 crore as on 31 March 1999 to Rs.1,753.87 crore as on 31 March 2003. Out of the outstanding as on 31 March 2003, a sum of Rs.966.63 crore was due from Badarpur Thermal Power Station managed by the National Thermal Power Corporation.**

(Chapter 3)

IV. Manpower Management in Indian Railways

Indian Railways has a large workforce of over 1.5 million regular employees with an annual wage bill of Rs.19,037 crore which is 51.42 per cent of gross expenditure and 48.37 per cent of its gross receipts. The size of the workforce and magnitude of the cost in relation to its gross expenditure and receipts emphasize the importance of effective manpower management. Review of Railways' manpower planning efforts revealed that -

- **Despite instituting a mechanism of monitoring manpower strength, the manpower inventory maintained by the Railways was far from accurate.**

- **Compliance to Railway Board's instructions of 1992 to reduce the sanctioned strength by three per cent and operated strength by two per cent was poor.**

  As against an expected reduction of 4,43,232 posts in sanctioned strength, reduction of 1,73,851 posts was achieved over a period of 11 years since issue of orders. Reduction in operated strength was only 1,97,656 posts as against 3,12,038 posts expected over a period of 11 years. Non-achievement of expected reduction in operated strength is burdening the Railway exchequer by Rs.1,449 crore per annum.

- **Intake of Railway employees was to be restricted to one per cent per annum of men on roll in respect of Civil, Mechanical, Electrical, S&T, Transportation and Commercial departments and to 0.5 per cent in other departments. Compliance to this order was not achieved by most Railways. South Central Railway's performance in this regard was particularly poor.**

- **Intake by way of compassionate appointments in essential categories was excluded from the application of the orders of restrictions in intake. This resulted in large scale recruitment through this mode. A total of 23,498 compassionate appointments were made during 2000-01 to 2002-03 which was 49.91 per cent of total intake. Compassionate appointments were highest on Northern Railway.**

  The Zonal Railways flouted the orders of Railway Board by making compassionate appointments in non-essential categories . Audit found that 5,306 appointments were made in non-essential categories.

- **During the period of review 1,102 work studies were conducted and 63,939 posts were identified as surplus. 5,921 posts were declared supernumerary and the staff working against these posts continued to serve with no justifiable work resulting in unproductive expenditure of Rs.52.52 crore per annum.**

- **Test check of availability of norms in Electrical, Mechanical and Civil departments revealed that for four, two and seven activities respectively, no norms existed. Where norms existed, detailed scrutiny revealed deployment of excess staff in coach maintenance activity (Mechanical) and track maintenance activity (Civil Engineering).**

- **Benchmarking was introduced in Indian Railways as a method of rightsizing its manpower. The first benchmark introduced was in respect of track men per ETKM for track maintenance work. Northern and Central Railways were unable to achieve the benchmark even after 12 years of the issue of instructions.**

  Similar benchmarking exercise has been commenced for other activities only in the year 2000, a full nine years after recognizing the need to introduce it in all areas of Railways functioning.

- **Modernisation of Workshops has led to a number of staff being rendered surplus. As on 31 March 2003, 2,768 staff was yet to be redeployed. Apart from delay in re-deployment, retention of extra staff has led to unproductive expenditure of Rs.73.06 crore in workshops affected by modernization.**

  Staff are justified in Workshops on the basis of outturn target and any achievement less than the fixed output is a reflection of excess staff. Staff numbering 5,215 and 3,459 were found excess on the basis of actual outturn which led to extra expenditure of Rs.66.05 crore and Rs.43.80 crore during the years 2001-02 and 2002-03 respectively.

- **In Civil and Electrical departments of Construction Organization 86, 153 and 70 Gazetted posts were operated in excess of requirement as per norms during the year 2000-01, 2001-02 and 2002-03 respectively resulting in extra expenditure of Rs.3.92 crore.**

- **Delay in redeployment and not redeployment of 1,413 and 333 staff rendered surplus after completion of sanctioned works in Construction Organisations of Northern and Central Railways has led to unproductive expenditure of Rs.30.01 crore and Rs.4.13 crore respectively.**

- **Despite recognition of the system of providing peons at the residences of certain categories of officers as an anachronism that needs to be done away with, the system continues with 1,008 Bungalow Peons being engaged as on 31 March 2003. Engagement of Bungalow Peons was high on South Eastern, Northern, Central, Northeast Frontier and Southern Railways.**

- **Staff for newly created Zonal Railways in Group B, C and D cadres have been transferred only after obtaining their willingness. This resulted in transferring of 398 and 272 staff only from Western and Northern Railways as against 643 and 559 staff respectively required to be transferred to North Western Railway. Similarly only 136 and 318 staff from Eastern and North Eastern Railways was transferred as against 1,961 and 688 staff respectively required to be transferred to East Central Railway. This has resulted in excess staff in the present Railways with no justifiable workload.**

(Chapter 4)

V. Functioning of Research, Design and Standards Organisation (RDSO), Lucknow

- **The Corporate Plan 1985-2000 and the IX Plan 1997-98 to 2001-02 had stressed the need to increase outlay for research work. The expenditure was, however, far below the expectations and envisaged outlay. The expenditure in the Plan head for Railway research during the period of review was only about ten to 13 per cent of the total expenditure incurred by RDSO while 87 to 90 per cent was on salaries, pensionary benefits etc.**

- **The strength of technical staff has been declining more sharply than the strength of non-technical staff and the brunt of the vacancy position is borne more by the technical than the non-technical cadres. As on 31 March 2003, of 563 vacancies [497 (+) 66], 497 vacancies (88 per cent) were in the technical category.**

- **The Governing Council which is required to identify, approve, monitor and evaluate R&D projects and the Central Board of Railway Research which is entrusted with the responsibility of giving broad guidance and suggestions for R&D projects, met less frequently than required during the period of review. This is reflected in the poor quality of R&D activities undertaken by RDSO.**

- **Poor quality of identification, planning and execution of missions/ projects resulted in overlapping of missions and projects, termination of projects mid way and undertaking of projects outside the functional jurisdiction of RDSO.**

- **Detailed scrutiny by Audit in implementation of five projects viz. development of Overhead Equipment (OHE) Recording-cum-Test Car, Modernisation of Fatigue Testing Laboratory, Upgradation of Vehicle Dynamic Analysis Software Package, procurement and absorption of Optical Rail Profile Inspection and Analysis System and Upgradation of Track Recording Cars revealed time and cost overruns in implementation and infructuous expenditure due to non-commissioning of some projects.**

(Chapter 5)

CHAPTER 1

Planning, Approval and Material Modifications to Ongoing Projects

1.1 Introduction

Indian Railways draw up its development plans within the framework of the National Five Year Plans. Construction of New Lines, Restoration of dismantled lines, Gauge Conversion, Doubling etc., form a part of the Indian Railways' development plans and constitute a substantial portion of their Plan outlay.

The procedure laid down by the Railways for approval of projects emphasizes the need for taking up only financially remunerative projects. Several Parliamentary Committees in the past have also reiterated the need to take up only those new projects, which are financially viable and do not lead to spreading thin the Railways' scarce resources. Despite this, as on 31 March 2003, 202 projects having a throw forward of over Rs.35,000 crore are under construction/execution and are suffering staggering cost and time over runs.

1.2 Highlights

- **Pre-investment decision survey is to be conducted to assess the financial viability of a project on the basis of proposals from Zonal Railways. In four out of the ten works reviewed, survey proposals did not emanate from the Zonal Railways but were taken up at the instance of the Railway Board (RB).**

  (Para 1.7.1)

- **A project should be accepted as financially remunerative only if it gives a rate of return not less than 14 per cent by the Discounting Cash Flow technique. Out of the ten projects reviewed, the rate of return of nine projects was expected to be below the prescribed benchmark, yet RB took them all up and sanctioned four which were within their competence and sent the rest to the Planning Commission, Expanded Board and Cabinet Committee on Economic Affairs (CCEA). Four proposals were rejected by Expanded Board (EB) but RB sent them to CCEA, which approved all the projects rendering the role of Planning Commission and Expanded Board meaningless.**

  (Para 1.7.2)

- **In Kanpur- Kasganj- Mathura Gauge Conversion (GC) project that was recommended by the Expanded Board, RB included GC work involving 106 km between Kasganj and Bareilly subsequently and sought the approval of CCEA without referring it back to Planning Commission and Expanded Board for fresh appraisal.**

  (Para 1.7.3)

- **None of the 17 changes estimated to cost Rs.1,235.92 crore to the ten ongoing projects fall within the meaning of Material Modification (MM). All of them were required to be considered as independent**

project proposals and should have been subjected to the drill of conducting surveys for obtaining approval of RB/ CCEA, if found financially viable.

(Para 1.8.1)

- **All the major changes in the plans/ schemes/ specifications of works were required to be reviewed and approved by the competent authority sanctioning the original estimate. MMs to six out of the ten works originally approved by CCEA therefore required the approval of CCEA, which was not obtained by RB. The remaining four works also, which were approved by RB in view of their being below Rs.50 crore, required the approval of CCEA as the revised cost estimate of these works after including the MMs exceeded Rs.50 crore.**

(Para 1.8.3)

- **Changes to the procedure for approval of the projects vested with the CCEA/ Finance Ministry. RB issued certain guidelines relating to obtaining clearance for MMs to the sanctioned projects thereby exceeding its jurisdiction, which was highly objectionable.**

(Para 1.8.4)

- **In one project (Rewari -Sadulpur), MM of Hissar-Sadulpur was approved even before approving the original project. Approval of MM even before approval of the original project is a serious impropriety committed by RB. The project originally proposed for Broad Gauge (BG) connectivity between Hissar – Sadulpur – Ratangarh – Lalgarh was on strategic considerations. Approval of Rewari – Sadulpur work did not fall in the alignment indicated by the Army authorities and even today the strategic need of the Army authorities remains to be addressed.**

(Para 1.9.2)

- **If any changes were considered necessary before commencement of a work, an amended abstract estimate should be prepared. RB approved four MMs to Doubling of Kalinaraynpur – Krishnanagar BG line and Deogarh – Sultanganj New Line works without preparing amended abstract estimates for scrutiny & clearance by the Planning Commission, Expanded Board and CCEA. The four MMs estimated to cost Rs.111.72 crore were actually two independent projects split up presumably to keep the estimated cost of the project below Rs.50 crore and thereby avoid obtaining approval of CCEA. The MMs had no connection with the original projects other than the fact that they were touching a station, which was on the alignment of the original project.**

(Paras 1.9.3 & 1.9.4)

- **New Line work of Eklakhi – Balurghat was approved on out-of-turn basis in November 1983. Due to change in priorities RB froze the**

work in 1987 after incurring Rs.2.97 crore. The work was defreezed in 1995 but continues to remain in progress even 18 years after taking up the work on urgency certificate. In February 2001, RB approved a MM for construction of a new line between Gazole and Itahar based on a survey conducted 12 years ago. The estimated cost of Rs.87 crore on MM was much more than the estimated cost of the original project itself.

(Para 1.9.5)

- **The Planning Commission approved the work of restoration of dismantled Fatua-Islampur line at a cost of Rs.49.50 crore in May 1998 and urged the Railways to reprioritise the existing portfolio to ensure adequate provision for higher priority works. While Planning Commission did not consider even the original project as a high priority work, RB sanctioned four unremunerative New Line works costing Rs.419.65 crore approx. in the name of MM ignoring all laid down procedures for obtaining clearance of the authorities concerned.**

(Para 1.9.7)

1.3 Scope of review

The review covers various aspects of project planning, obtaining and according of sanction to projects and approving Material Modifications (MM) to ongoing projects on Indian Railways. The review focuses on the extent to which Railway Board (RB) has complied with codal provisions and guidelines/ recommendations made by various Parliamentary Committees before projects are undertaken and while they are being executed.

1.4 Sample Size

Ten ongoing works for which 17 MMs were sanctioned during 1998-99 to 2002-03 were selected for review.

1.5 Codal Provisions and Directions of various Parliamentary Committees

1.5.1 Codal Provisions and guidelines/instructions for project approval

Indian Railways Code for the Engineering Department elaborates in great detail the various procedures to be followed before a project can be approved. Undertaking of a survey is one of the initial stages in the project development process which includes assessment of future needs/ requirements, determination of various options to meet the demand, economic/ financial appraisal and selection of a project based on such appraisal. The Code also prescribes that it would be the responsibility of the concerned Zonal Railway to plan in advance the programme of surveys required to be undertaken and propose it to the RB for inclusion of the surveys in the annual works programme. On approval by RB, the concerned Zonal Railway undertakes the survey, which is in the form of pre-investment decision investigation. On the basis of the survey report, the financial viability of the project is to be examined for its eventual approval and inclusion in the Annual Works

Programme. The provisions are described in greater detail in the subsequent paragraphs along with audit comments.

Till 1994, approval of the Railway Minister was required to be taken for each new work costing over Rs.50 lakhs before its inclusion in the Railway Budget. All the major new investment proposals for new lines, gauge conversions, setting up of new production units, railway electrification, metropolitan transport projects etc. were required to be submitted to the Planning Commission for consideration and inclusion in the Five Year Plans. The Cabinet Committee on Economic Affairs (CCEA), in its meeting held in February 1994, rationalised the procedure for clearing investment proposals of Railways. According to the procedure approved by CCEA, all the proposals of project type investments of Rs.50 crore and above such as new lines, gauge conversion, electrification, major workshop expansion, setting up or expanding new factories, line doubling, metropolitan railways, computerisation, traffic facilities, signalling and telecommunications and projects of the Public Sector Undertakings under the administrative jurisdiction of the Railways, would be appraised by the Planning Commission. These proposals were then to be considered by an Expanded Board, which would comprise of the Chairman, Members and Finance Commissioner of RB, the Secretary (Expenditure) from Ministry of Finance, Secretary of the Department of Programme Implementation and the Special Secretary, Planning Commission. Finally, the proposal would be put up to CCEA for approval.

After a project is approved and included in the Railway Budget, a detailed cost estimate is to be prepared, vetted and sanctioned. Only after the detailed estimate is approved, the actual work can commence on a project. If there is any likely excess to the sanctioned estimate, revised estimates are to be prepared. The revised estimate should clearly explain the reasons for increase in the cost estimates, viz. inflation, inclusion of new items of work as MM etc. The revised estimate is sanctioned as per powers delegated.

In February 2002, Ministry of Finance communicated that only the projects costing Rs.100 crore and above would require the consideration of Expanded Board and the approval of CCEA.

1.5.2 Directions and Recommendations of Parliamentary Committees

Several Parliamentary Committees in the past have emphasised the need to take up only commercially viable projects and not to indiscriminately add projects to the already existing huge shelf of projects.

The ninth Report of the Standing Committee on Railways on the Demands for Grants for the year 2001-02 recommended that henceforth a strict moratorium be imposed on taking up new projects unless matching funds are assured even when strategically required for Defence purposes. The Committee recommended that extended portion of the already existing project be taken up for execution only after the original project gets completed. The Committee also stressed that no project should be extended in the name of MM without the prior approval of the Planning Commission, Expanded Board and CCEA.

The Committee desired that all the projects included in the Budget 2001-02 as MMs to ongoing projects be placed before the Planning Commission, Expanded Board and CCEA and their opinion placed before the Committee.

1.6 Audit Findings

The review revealed several violations and irregularities in the planning, approval and execution of projects which have been described in the following paras as (i) violation committed in according sanction to the original project and (ii) irregular actions in sanctioning MMs. Brief details of the projects referred to in the audit findings are given in the table below:

(Rupees in crore)

Sl. No	Original Work	Cost of work sanctioned	Rate of Return (%)	MMs sanctioned	Revised anticipated cost (including MM)
1	*2*	*4*	*5*	*6*	*9*
1	GC Bankura-Rainagar 96 Km	100.00	0.53	i) NL Bankura-Mukatmanipur 57 Km ii) NL Shyamsundar Nagar – Chanchai 22 Km iii) NL Bowai Chandi – Khanna 22 Km	174.00
2	GC Rewari – Sadulpur 141 Km	100.00	(-) 6	GC Sadulpur – Hissar – 70 Km	283.00
3	Doubling Kalinarayanpur – Krishnanagar 22 Km	40.00	(-)	i) GC Krishnanagar-Shantipur 12 Km ii) NL Krishnanagar-Chartala 13 Km	102.00
4	NL Deogarh – Sultanganj 110 Km	282.00	(-) 7.58	i) NL Banka – Barahat 12.5 Km ii) NL Banka - Bhitia Road 23 Km	350.00
5	NL Ekhalakhi – Balurghat 86.75 Km	36.38	(-)	NL Gazole – Itahar – 26 Km	271.41
6	GC Rajkot – Veraval 185 Km	100.00	9.89	i) GC Wansjalia – Jetalsar 90.61 Km ii) NL Veraval – Somnath 4 Km	359.80
7	Restoration of Fatuha – Islampur 44.5 Km	49.50	(-)	i) NL Daniawan – Biharshariff 35.5 Km ii) NL Biharshariff – Barbigha 19 Km iii) NL Barbigha- Shekhpura 26 Km iv) NL Daniawan – Danapur 36 Km	497.69

(Rupees in crore)

Sl. No	Original Work	Cost of work sanctioned	Rate of Return (%)	MMs sanctioned	Revised anticipated cost (including MM)
1	*2*	*4*	*5*	*6*	*9*
8	GC Ajmer – Chitaurgarh – Udaipur 300 Km	69.60	4.63	GC Udaipur – Umra 11 Km	455.18
9	GC Kanpur – Kasganj – Mathura & Kasganj – Bareilly 458 Km	395	15.04	GC Bareilly – Lalkuan 87 Km	658.11
10	GC Mansi-Saharsa	48.39	(-)	NL Duram - Madhipur	210.00
Total		**1220.87**			**3361.19**

NL – New Line **GC – Gauge Conversion**

1.7 Original Projects

1.7.1 Proposals for preliminary survey/investigations not initiated by Zonal Railways

It is the responsibility of the Zonal Railways to plan the surveys required to be conducted within their jurisdiction and intimate RB for including such surveys in the Railways Works Programme clearly stating the need for each survey. In four (Bankura-Rainagar, Rewari-Sadulpur, Ekalakhi-Balurghat and Rajkot-Veraval) out of the ten works, survey proposals did not emanate from the Zonal Railways but were taken up at the instance of RB.

In one of the works viz., Rajkot – Veraval, the State Government independently commissioned a survey through Rail Information Technical and Economic Services (RITES) without any proposal from the Zonal Railway. On the basis of the RITES survey report, RB decided to go ahead with the project after obtaining approval of the Planning Commission.

1.7.2 Pursuance by RB of projects not recommended by Zonal Railways

A project should be accepted as financially remunerative only if it gives a rate of return of not less than 14 per cent (w.e.f Annual Works Programme 1993-94) by the Discounting Cash Flow technique. All the investment decisions of the Railways will have to be governed by this principle except when the expenditure is incurred on

- a statutory obligation
- considerations of safety
- passenger amenity works and
- labour welfare works.

All the ten projects were either New Lines, Gauge Conversion works, Doubling etc. and therefore financial remunerativeness alone should have guided the investment decisions. Nine out of the ten projects (except Kanpur-Kasganj-Mathura -Serial No.9) reviewed by Audit were expected to give a

return below the threshold levels prescribed from time to time and therefore, did not qualify for investment.

Out of nine works that were financially not remunerative, Zonal Railways recommended against pursuing four. In one of the works viz. Fatuah – Islampur, which was also commented vide Para 4.1.3 of Audit Report No.9 of 2001, the Zonal Railway recommended against taking up the project on the ground that there was lack of potential for goods traffic and there was minimal prospect of passenger traffic. Similarly, in case of Deogarh – Sultanganj New Line project, the survey report suggested that there would be very light freight traffic and therefore economically unremunerative. In case of Rewari – Sadulpur Gauge Conversion project, Northern Railway stated that Gauge Conversion of this section in isolation might not serve any purpose and that it would result in demands for converting remaining Metre Gauge sections in the region. The survey report of Kalinarayanpur – Krishnanagar doubling project estimated that the proposed section would only cater to the passenger traffic and therefore, not financially viable.

In five other works which were not financially viable, the Zonal Railways recommended undertaking the work on the grounds of operational requirement for provision of alternative routes, strategic requirements, restoration of dismantled line, economic development of the area, tourist importance, etc.

RB decided to undertake all these nine unremunerative projects in clear violation of the codal provisions. RB approved four projects (Kalinarayanpur-Krishnanagar, Ekalakhi-Balurghat, Fatua-Islampur and Mansi-Saharsa) as the original cost of the projects was below Rs.50 crore and sent the remaining six projects to the Planning Commission for approval/ appraisal.

1.7.3 CCEA's approval to projects not recommended by the Planning Commission and Expanded Board

Of the six projects, one project viz. Gauge Conversion of Rajkot – Veraval was considered by the Planning Commission (September 1988) before the issue of guidelines necessitating consideration by the Expanded Board. Planning Commission advised RB to include the proposal for consideration and sanction in the Eighth Plan. This was taken as approval to the project.

In the remaining five projects that required the consideration of the Expanded Board, the Expanded Board rejected 4 proposals (Sl. Nos. 1, 2, 4 & 9), as they were not financially viable. RB, however, sent project proposals of all the five projects to CCEA for approval.

In one of the projects, i.e., Kanpur – Kasganj - Mathura & Kasganj - Bareilly, while submitting the proposal to the Planning Commission and Expanded Board, RB proposed only the Gauge Conversion work of Kanpur –Kasganj – Mathura (352 Km). However, while seeking approval of CCEA, RB also included the Kasganj – Bareilly (106 Km) Gauge Conversion work without referring the project back to the Planning Commission and Expanded Board for a fresh appraisal. CCEA approved all the five projects on the basis of the proposals submitted by RB.

Sanction of projects by CCEA when Planning Commission and Expanded Board had specifically recommended against the projects rendered the role of Planning Commission and Expanded Board meaningless.

In this connection, it may be worthwhile to note that the Standing Committee on Railways, in its Report (April 2000) disagreed with the approach of CCEA in approving projects not recommended by the Expanded Board and the Planning Commission. It is observed that even after the Standing Committee on Railways' remarks in this regard, one of the works viz. Gauge Conversion of Rewari – Sadulpur was approved by CCEA in September 2001 after being rejected by the Expanded Board.

1.8 MMs to the Original Projects: Irregular Sanctions

In the ten projects covered in the review, RB approved 17 MMs. According to Engineering Code, only those changes to New Lines/ Gauge Conversion/ Doubling projects which would involve (a) change in alignment, (b) departure from the standards of construction, (c) introduction or omission of a station/ work/ facility, (d) introduction of a new sub work or modification of a sub work involving additional outlay of above Rs.5 lakhs and (e) alteration in the standards of interlocking would be considered as MMs.

The code also prescribes that no MM to a work/ scheme should be permitted or undertaken without the prior approval of the authority that sanctioned the estimate. If major changes in the plans/ schemes/ specifications of works become necessary and are likely to lead to substantial excesses over the sanctioned estimates, the changes asked for by the concerned departments should not be agreed to unless reviewed and approved by the competent authority sanctioning the original estimate.

1.8.1 Irregular inclusion of independent projects as MMs to ongoing projects

In terms of the Codal provisions, MM to a project can be only those modifications that have become necessary due to unexpected changes that arise during the course of execution of a project. Inclusion of New Lines/ Gauge Conversion works to a doubling work or vice-versa, which are independent works cannot be termed and approved as MMs. Similarly, laying of New Line, increasing the length of line for Gauge Conversion, etc. would not fall within the meaning of MM unless such increase is warranted due to unavoidable adjustment in the alignment of the section approved in the original project.

None of the MMs to the ten ongoing projects fall within the meaning of MM as prescribed in Railway Codes as they were extensions that fell in a completely different alignment/ section to the approved work. RB, however, approved 17 independent and fresh projects in the name of MMs and that too, without following the prescribed procedure for investment decisions of referring the proposals to the Planning Commission, Expanded Board, CCEA, etc.

- In ten of the 17 MMs, the nature of MM approved was different from the original work. In eight cases, the MMs were construction of New Lines to four originally sanctioned GC projects. (all three MMs to project at Sl. No.1, MM to project at Sl. No.6, all three MMs to project at Sl. No. 7 and the MM to project at Sl. No.10). The remaining two MMs were a GC and a New Line work to an originally sanctioned Doubling work (project at Sl. No.3).
- In one case viz. Fatuah – Islampur line restoration work (Sl No.7), the length of the line approved through MM alone was more than twice the length of the line approved in the original project.
- In two works, the approved cost of MM was more than the cost of the original project (Sl. Nos.3 and 7).

1.8.2 Irregular approval of MMs without reworking the Rate of Return of original projects

The Codal provisions require that every investment decision is taken only if a project yields a minimum prescribed rate of return on the investment made on that project. Therefore, if any extensions or alterations involving substantial investments are proposed, it is necessary that the rate of return on the revised cost estimates after including the cost of such extensions/ alterations be worked out afresh. However, all the MMs have been included as extensions to the ongoing projects without working out the rate of return on the consolidated revised cost estimates. As none of the MMs were expected to yield the minimum prescribed rate of return, the revised estimates, after including the cost of these MMs would have resulted in further deterioration of the already poor rate of return of the originally sanctioned projects.

In two MMs (Sl. Nos.4 and 5), RB did not even commission a survey to assess the rate of return. The cost estimates were also made without any details. Even if these cost estimates were included to amend the revised cost estimates of the ongoing projects, the rates of return would have been much below the prescribed yield and therefore these MMs did not qualify for investment.

1.8.3 Irregular sanctioning of MMs by assumption of powers vested with CCEA

Railway Engineering Code prescribes that if major changes in the plans/ schemes/ specifications of works become necessary, the changes asked for by the concerned departments should not be agreed to unless reviewed and approved by the competent authority sanctioning the original estimate.

Six (Sl. Nos.1, 2, 4, 6, 8 and 9) out of the ten works were originally approved by CCEA and, therefore, the MMs also needed the approval of CCEA, which was not obtained.

Four works (Sl. Nos.3, 5, 7 and 10) which were approved by RB in view of their being below Rs.50 crore were also required to be sent to CCEA since

with the inclusion of the MM, the revised cost estimate of the work exceeded Rs.50 crore i.e., beyond the powers of RB.

The Standing Committee on Railway (April 2001) had also stressed that no project should be extended in the name of MM without the prior approval of the Planning Commission, Expanded Board and CCEA and that the thirteen MMs included through the Budget of 2001-02 be placed before Planning Commission, Expanded Board and CCEA and their opinion placed before the Committee. There was nothing on the record made available to audit to suggest that these 13 MMs were placed before Planning Commission, Expanded Board and CCEA as observed by the Committee. In fact, in utter disregard to the recommendations of the Standing Committee on Railways, RB approved two more MMs to two projects viz. Rajkot – Veraval (November 2001) and Fatuha – Islampur (August 2002) involving an estimated investment of Rs.225.53 crore. Approval of these MMs not only rendered the role of a Parliamentary Committee meaningless but also undermined the authority vested with the Planning Commission, Expanded Board and CCEA.

1.8.4 Issue of guidelines by RB without authority

The requirement for taking investment decisions by CCEA and guidelines for approval of projects was issued by the Ministry of Finance with the approval of CCEA. Any changes to the procedure for approval to the projects, therefore, vest with the CCEA and Finance Ministry. RB deliberated (19 February 2001) on the need to issue certain guidelines relating to obtaining clearances of the Planning Commission, Expanded Board and CCEA for MMs to the sanctioned projects and decided clearance of the Planning Commission, Expanded Board and CCEA may be obtained -

- Where introduction of MM is costing more than Rs.50 crore or ten per cent of the cost of the project originally sanctioned, whichever is higher;
- Where the cost of work as originally sanctioned was less than Rs.50 crore but as a result of MM, the original cost of the project exceeds Rs.50 crore or more than 20 per cent of the cost of the project originally sanctioned, whichever is higher;
- If a number of MMs are carried out to a project and when combined value exceeds Rs.50 crore or ten per cent of the cost of the project originally sanctioned, whichever is higher.

The above decision of RB was to be implemented in all cases with effect from 1 April 2001.

By issuing guidelines relating to obtaining clearances of Planning Commission, Expanded Board and CCEA for MM to the sanctioned projects, RB had exceeded its jurisdiction. The action is therefore highly objectionable.

1.8.5 Undertaking expansion work before completion of original projects

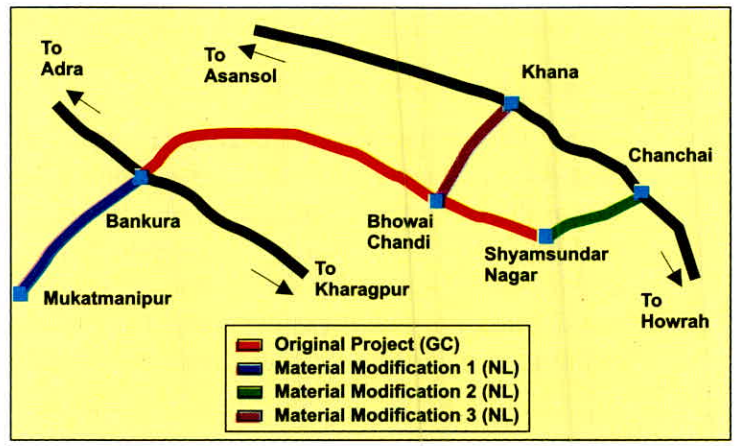
The Standing Committee on Railways in its Report (April 2001) recommended that extended portion of the already existing project should be taken up for execution only after the original project gets completed. Parliamentary Railways Committees have repeatedly highlighted the need to avoid spreading thin its resources. Railways, however, had undertaken the execution of extended portion of the projects even before completion and commissioning of the original projects. This action would also result in erosion of the net worth of the Indian Railways.

1.9 Other Findings about Individual Projects

The more serious deviations referred to above and certain irregularities specific to the individual projects are discussed in greater detail below:

1.9.1 Gauge Conversion of Bankura – Shyamsundar Nagar (96 Km)

- **MM for New Line from Bankura to Mukutmanipur (57 Km)**
- **MM for New Line from Shyamsudar Nagar to Chanchai (22 Km)**
- **MM for New Line from Bhowai Chandi to Khanna (22 km)**



RB decided (1998-99) to renew the track on the Bankura - Rainagar Narrow Gauge line that was taken over by the South Eastern Railway from the Bankura – Damodar River Railway Company at an estimated cost of Rs.4.8 crore. In the same year, RB also simultaneously included a Gauge Conversion project for the same section at an estimated cost of Rs.100 crore. Subsequently, the work of track renewal was deleted from the Annual work programme.

Inclusion of two works viz. Track renewal work and Gauge Conversion work for the same section at the same time which should have been an "either/ or" decision involving selection of one against the other shows lack of clear direction while taking major investment decisions by RB.

1.9.2 Gauge Conversion of Rewari – Sadulpur line (141 Km)

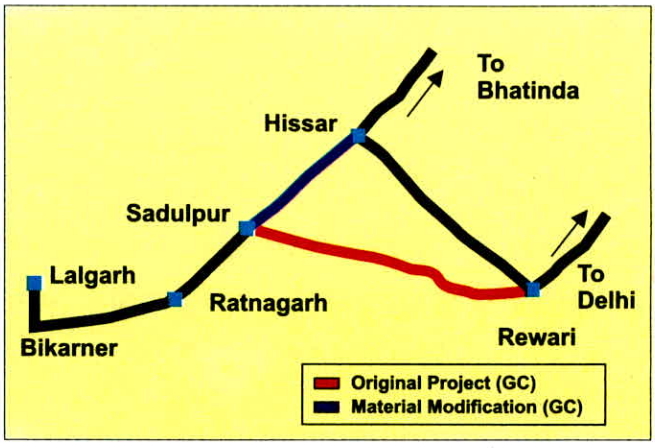
- **MM for Gauge Conversion of Sadulpur – Hissar line (70 Km)**

In November 1997, RB directed the Northern Railway to undertake a survey for Gauge Conversion of Sadulpur – Rewari section, Bikaner – Ratangarh –

Sadulpur – Hissar sections and the Ratangarh – Digana section. The project was considered necessary on account of persistent demands from the public, need to develop the area, strategic considerations etc. The Planning Directorate of RB while scrutinising the survey recommended dropping the proposal due to the unremunerative nature of the project and due to poor line capacity utilisation of the existing Metre Gauge line.

In June 1999, the Ministry, however, decided to send the Gauge Conversion proposal of only the Sadulpur – Rewari section (141 Km) to the Planning Commission for appraisal. The Planning Commission and Expanded Board did not recommend the project due to its unremunerative nature and resource constraints. In March 2000, RB sent the proposal to CCEA, which approved the project in September 2001.

In the meanwhile, the Ministry approved the proposal for conversion of Hissar – Sadulpur section (70 Km) as a MM to the Rewari – Sadulpur section along with 12 other cases of MM in February 2001.



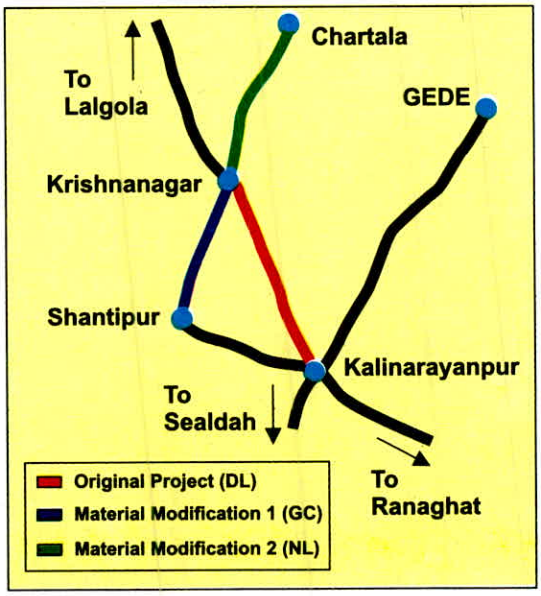
In this connection, following points arise:

- Army authorities had indicated a need to provide Broad Gauge connectivity between Hissar – Sadulpur – Ratangarh – Lalgarh (via Bikaner) on strategic considerations. Pursuing the Gauge Conversion project between Rewari – Sadulpur, which does not fall in the alignment indicated by Army authorities on the pretext of strategic considerations, was therefore irregular. The requirement of the Army authorities regarding strategic need still remains to be addressed.

- The original project of Rewari – Sadulpur Gauge Conversion was approved in September 2001, while the MM of Hissar – Sadulpur Gauge Conversion was approved in February 2001 itself. As even the original project of Rewari – Sadulpur Gauge Conversion had not been approved at the time of approval to the MM, the approval of MM is invalid. A composite proposal including Rewari – Sadulpur and Hissar – Sadulpur should have been submitted for appraisal by the Planning Commission and Expanded Board and clearance by CCEA. Approval of MM even before approval of the original project clearly indicates impropriety in the action of RB and lack of control mechanism to effectively check such improprieties.

1.9.3 Doubling of Kalinarayanpur – Krishnanagar Broad Gauge line (22 Km)

- **MM for Gauge Conversion of Krishnanagar – Shanthipur (12 Km)**
- **MM for New Line from Krishnanagar to Chartala (13 Km)**



The work of doubling from Kalinarayanpur to Krishnanagar was included in the budget 2000-01 at a cost of Rs.40 crore. The project was not sent to Planning Commission/ Expanded Board and the CCEA for clearance as the cost of the project was below Rs.50 crore. Till February 2001, only a part estimate of the work for Rs.13.13 crore was sanctioned and the work on the project was yet to commence, when two new projects viz. (i) Gauge Conversion from Krishnanagar to Shantipur for about 12 Km and (ii) a New Line from Krishnanagar to Chartala for about 13 Km at an estimated cost of Rs.63.00 crore were sanctioned as MMs to the doubling work.

In this connection, the following observations are made:

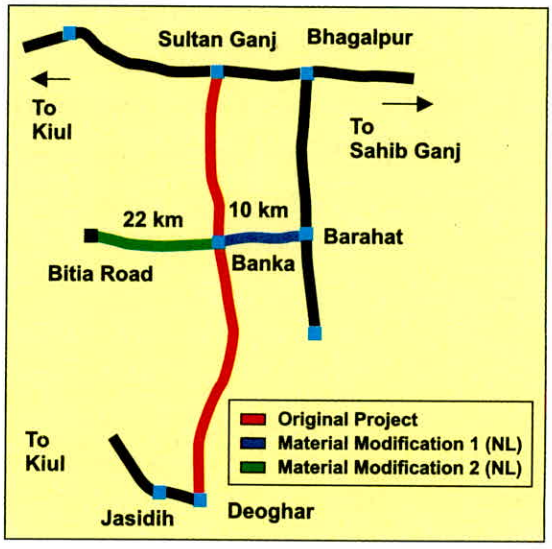
- The two MMs – one a Gauge Conversion and another a New Line have no connection with the original doubling project, other than the fact that they are touching Krishnanagar – a station that is on the alignment of the original project. These two MMs were required to be considered as new works and approvals obtained.
- If the introduction of a MM becomes necessary in a project sanctioned by RB before the work is actually commenced, an amended abstract estimate should have been prepared for the project. As the cumulative cost of the amended abstract estimate was more than Rs. 50 crore appraisal by the Planning Commission and Expanded Board and approval by CCEA should have been obtained.

1.9.4 New Line Deogarh to Sultanganj (110 Km)

- **MM for New Line from Banka to Barahat (12 Km)**
- **MM for New Line from Banka to Bithia Road (23 Km)**

CCEA approved the proposal for construction of a New Line from Deogarh to Sultanganj in February 2000 at an estimated cost of Rs.282 crore. Till October 2000, only a part land estimate for Rs.12.95 crore was sanctioned for the work, when Eastern Railway sent a survey report for construction of a new Broad Gauge line from Banka to Barahat. RB decided not to pursue the project.

On the directions of MOSR (D), Eastern Railway sent (16 February 2001) a proposal for construction of a New Line from Banka to Barahat (12.5 Km) as a MM to the approved Deogarh – Sultanganj line at an estimated cost of Rs.48.72 crore. While submitting the proposal to Minister for Railways, the MOSR (D) suo motu included another proposal for construction of a New Line from Banka to Bithia Road (23.06 Km). The MM proposals were approved on 21 February 2001.



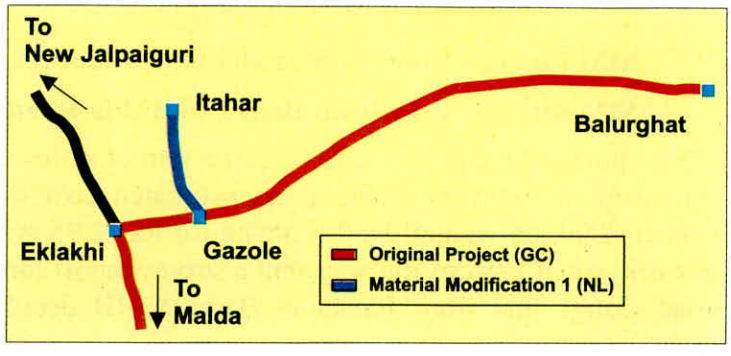
In this connection, the following comments arise:

- The two MMs have no connection with the original project other than the fact that they are touching a station viz Banka that is on the alignment of the original project. These two MMs therefore were required to be considered as new works and approvals obtained.
- The MMs to this project were approved before actual commencement of the originally sanctioned work. These projects required a fresh clearance from the Planning Commission, Expanded Board and the CCEA on the basis of the amended abstract estimate after including the MMs.
- The two MMs viz. Banka – Barahat and Banka – Bithia Road were effectively a single project between Barahat and Bithia Road via Banka and therefore should have been dealt with as one composite project. The projects were presumably split to bring down the estimated cost of each MM to below Rs.50 crore and thereby avoid the possible requirement of CCEA's approval.

1.9.5 New Line Eklakhi to Balurghat (86.75 Km)

- **MM for New Line from Gazole to Itahar (27 Km)**

A new Broad Gauge line from Eklakhi to Balurghat with extension from Eklakhi to Malda town for 36.38 Km was sanctioned (5 November 1983) on "out of turn" basis. To start the



construction, RB issued an urgency certificate (10 May 1984) and sanctioned Rs.3 crore. The work was started in 1984-85 in the first block section of about 14 km (Eklakhi – Gazole). An amount of Rs.2.97 crore was incurred till 1987.

Thereafter, the work was frozen on ground of tight financial situation and re-prioritisation of on- going works, but remained in the list of sanctioned works. In June 1992 also, after a review, RB decided to keep the work frozen. However, on the instructions of Minister for Railways, Rs.1 crore was allotted in the 1993-94 budget presented to Parliament in February 1993. Immediately thereafter, in March 1993, the Chairman, RB suggested to keep this work frozen citing the financial situation of Railways. When the proposal for defreezing the work was taken up (23 March 1993), RB had opined that since the line has no traffic worth the name and will continue to give negative return, there was a need to conduct a reappraisal of the survey to assess the cost and benefit and seek assistance from Planning Commission or the State Government (of at least 50 per cent of the cost) as the line would be on social consideration. No such action was, however, taken.

Again in 1994-95, RB decided to recommence work on the project. A detailed estimate was sanctioned in October 1995 for Rs.82.18 crore. In 2000-2001, the Zonal Railway sent a revised estimate for Rs.202.80 crore for this work and RB issued sanction for Rs.200.34 crore.

While the work was in progress, in February 2001, Minister of Railways approved a MM for construction of a New Line from Gazole to Itahar (27km).

In this connection the following points arise:

- As per the codal provision, an urgency certificate could be issued when it is considered necessary to safeguard life or property or to repair damage to the line caused by flood, accident or other unforeseen contingency. Construction of a New Line with a new alignment therefore does not fall in the category of works that can be taken up on the basis of an urgency certificate. Issue of urgency certificate for this project and RB's approval on the basis of such certificate was, therefore, irregular.

- The frequent shifting of stand by RB on the priority to be accorded to this work indicates that there is no fixed policy or programme with RB either at the time of considering a proposal or during implementation of a project. Thus, the work that was taken up on an urgency certificate 18 years ago was pushed down in the priority list and still remains in progress.

- The project was initially approved without obtaining the clearance of the Planning Commission for inclusion in the Fifth Five Year Plan on the ground that the work had to be taken up on priority and accordingly an urgency certificate was issued. In the meanwhile, instructions requiring financial appraisal by the Planning Commission, consideration by the Expanded Board and approval of CCEA had come into force from March 1995. It was, therefore, necessary for RB to obtain all the necessary clearances before according sanction to the detailed estimates submitted by

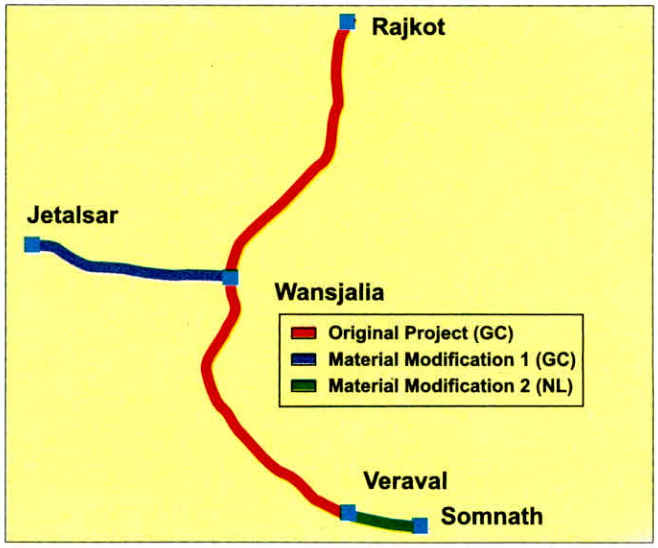
the Zonal Railway. RB's decision to accord sanction to the estimates without obtaining the requisite clearances amounted to irregular expenditure on the project.

- The Zonal Railway had carried out a survey in 1989 for construction of a New Line from Gazole – Itahar – Raiganj (131 Km), that RB decided to shelve in 1989 due to its non-feasibility. Therefore, approving an MM based on a survey conducted 12 years ago for an independent project is highly irregular. The cost of proposed New Line as MM was much more than cost of the project itself. The project should have been considered as a separate project and requisite clearance obtained based on an updated survey report.

1.9.6 Gauge Conversion of Rajkot - Veraval line (185 Km)

- **MM for Gauge Conversion of Wansjalia – Jetalsar (90 Km)**
- **MM for New Line from Veraval to Somnath (4 Km)**

The Zonal Railway recommended (June 1994) postponing investment on this project till the State Government agreed to the closure of uneconomic branch lines in Gujarat on the ground that the project would only then become financially viable. The State Government has so far not agreed for the closure of the uneconomic branch lines. RB's decision to sanction the project without obtaining a firm commitment from the State Government for closure of the branch lines amounted to investment on a financially unremunerative project.



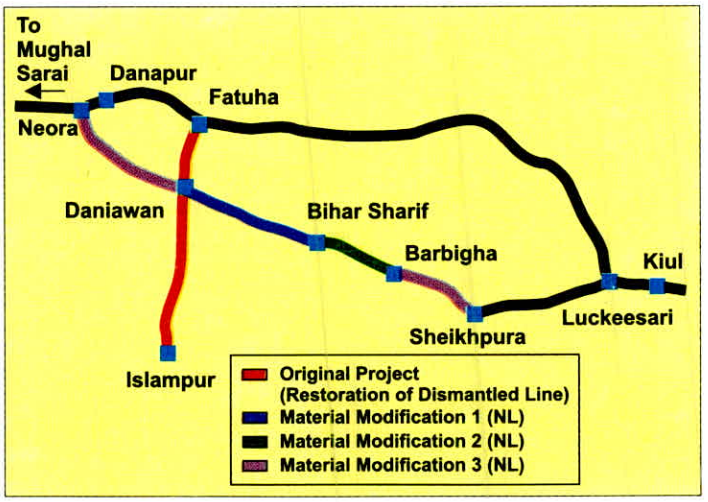
RB, on examination of a separate project report for Gauge Conversion of Wansjalia – Jetalsar decided (December 2000) to shelve it in view of the grossly unremunerative nature of the line. However, within a period of two months the project was approved as a MM without placing any justification on record.

The MM from Veraval to Somnath was justified on the grounds of reducing the hardship faced by the tourist and pilgrim traffic in alighting at Veraval and then travelling by road to Somnath. Despite Railway Standing Committee's comments (April 2001) regarding the need to place the MM proposals before the Planning Commission/Expanded Board/ CCEA and despite the fact that the project was not likely to yield any return, RB approved (September 2001) the MM without even undertaking a financial appraisal, which is irregular.

1.9.7 Restoration of Fatuha – Islampur dismantled Narrow Gauge Line (44.5 Km)

- **MM for New Line from Daniawan to Biharshariff (35.5 Km)**
- **MM for New Line from Biharshariff to Barbigha (19 Km)**
- **MM for New Line from Barbigha to Sheikhpura (26 Km) & Daniawan to Danapur (36 Km)**

The main work of Fatuah - Islampur was taken up under the plan head "Restoration of Dismantled line" at a cost of Rs.49.50 crore after obtaining clearance from Planning Commission. It was observed in Para 4.1.3 of Audit Report No. 9 of 2001 (Railways) that the project cost for restoration of Fatuah-Islampur line was kept substantially low by not providing for the cost of the land. At the detailed estimate stage the cost had gone up to Rs.78.04 crore and hence the project required recommendations of the Expanded Board and approval of CCEA. Implementation of the project without the approval of CCEA was therefore irregular.



RB sanctioned four new lines of 116.5 Km costing Rs.419.65 crore approx. to an original project of 44.5 Km estimated to cost Rs.49.50 crore in the name of MM ignoring all laid down procedures for obtaining clearance from the authorities concerned.

Some of the serious irregularities are highlighted below:

- At the time of clearing the project, Planning Commission did not agree for exemption from payment of dividend and reimbursement of operating losses. They further urged RB to re-prioritise the existing portfolio to ensure adequate provision for higher priority works. Adding construction of four new lines to a project already low in Planning Commission's priorities was, therefore, not appropriate.
- Inclusion of new lines of 116.5 Km, which perpendicularly cuts across the original restoration work, cannot be termed as MM. Sanction to these works in the name of MM is irregular and undermines the role of Planning Commission, Expanded Board and CCEA.
- The Zonal Railway conducted Reconnaissance Engineering and Traffic Survey and submitted its report for a new Broad Gauge rail line between Daniawan – Biharshariff – Biharshariff – Sheikhpura in August 1999. This independent project proposal was broken into three segments by the

Railway viz. Daniawan – Biharshariff, Biharshariff – Barbigha and Barbigha – Sheikhpura and included as MMs to the Fatuha – Islampur restoration work. The project proposal for construction of a New Line from Daniawan to Sheikhpura has been presumably split into three works to bypass the Planning Commission, Expanded Board and CCEA.

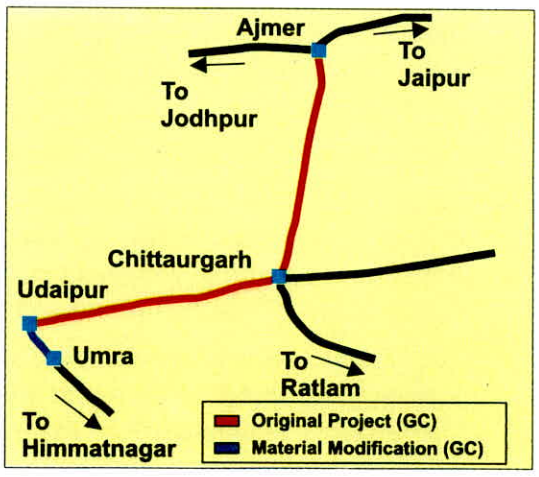
- RB in its meeting held in May 2001 decided that the guidelines approved in February 2001 regarding submission of MMs to the Planning Commission, Expanded Board and CCEA would not apply in the case of the two MMs (Daniawan – Biharshariff and Biharshariff – Barbigha) to the Fatuha – Islampur restoration work as these MMs were approved prior to 1 April 2001. This interpretation of RB when there was clear need for obtaining the approval of CCEA was against the spirit and intention of their own guidelines. Incidentally, about the same time (April 2001), the Railways Standing Committee had also stressed the need to send these MMs to the Planning Commission/ Expanded Board/ CCEA. The MMs should have rightly been forwarded to the Planning Commission, Expanded Board and CCEA as one separate project from Danapur to Sheikhpura via Daniawan, Biharshariff and Barbigha.
- The irregularity was compounded further when even approval to MM (Barbigha – Sheikhpura and Daniawan – Danapur) given after 1 April 2001 was not subjected to the drill of sending the proposal to the Planning Commission, Expanded Board and CCEA as laid down in the guidelines drawn in their meeting of 19 February 2001.
- Eastern Railway worked out the rate of return as 16 per cent for the proposal to construct a new line from Barbigha to Sheikhpura and from Daniawan to Danapur. The Rate of Return was worked out incorrectly by excluding the cost of the line between Daniawan to Barbigha but considering the revenue likely to be generated for the entire line from Danapur – Daniawan – Biharshariff – Barbigha – Sheikhpura.

1.9.8 Gauge Conversion of Ajmer – Chittorgarh – Udaipur line (300 Km)

- **MM for Gauge Conversion of Udaipur – Umra (11 Km)**

The Expanded Board is required to examine and recommend projects that are financially viable. The decision of Expanded Board to recommend the project on the ground of tourist viewpoint and Defence requirement thus is not regular.

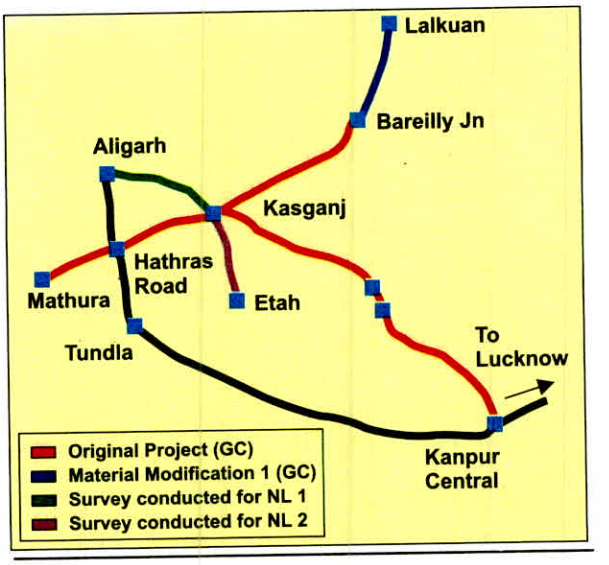
No correspondence relating to seeking financial support from the Defence Ministry for taking up the project was made available to audit.



1.9.9 Gauge Conversion of Kanpur – Kasganj – Mathura & Kasganj – Bareilly line

- **MM for Gauge Conversion of Barelly – Lalkuan line (87 Km)**

CCEA in its meeting held on 21 February 1997 approved the Gauge Conversion of Mathura – Kasganj – Kanpur Central and Kasganj – Bareilly (458 Km) after considering a note from RB prepared on the same date. The work was included in the Annual Works Programme 1997-98 at an anticipated cost of Rs.395 crore. In February 2001, the Minister for Railways (MR) approved the Gauge Conversion of Bareilly-Lalkuan as a MM to the Kasganj-Mathura and Kasganj – Bareilly Gauge Conversion work. On the basis of the detailed estimates, the MR on 12 February 2003 approved the MM at a cost of Rs.133.93 crore.



The following irregularities were noticed by Audit:

- According to the original project proposal sent to the Planning Commission and Expanded Board in July 1996, only the Gauge Conversion work of Kanpur – Kasganj - Mathura was to be taken up. Though the Planning Commission and the Expanded Board rejected the proposal, RB submitted the proposal for consideration of CCEA and the project was approved in February 1997. New work of Kasganj – Bareilly was included and approval of CCEA obtained along with the Gauge Conversion work of Kanpur – Kasganj – Mathura. The Rate of Return was not recalculated taking the Gauge Conversion of Kasganj – Bareilly in to account, before submission of the case to CCEA for approval.

- RB in July 1997 sanctioned a survey for Gauge Conversion of Bareilly – Lalkuan (86 Km) Meter Gauge line at an estimated cost of Rs.3.37 lakhs on out of turn basis. The North Eastern Railway on 6 April 1998 submitted preliminary Engineering cum Traffic Survey Report. The report projected a Rate of Return of 6.93 per cent for the project that was estimated to cost Rs.109.66 crore. The reports recommended that the Gauge Conversion might not be taken up. RB decided (April 1998) not to pursue the project. In February 2000, however, RB forwarded the proposal to the Planning Commission with a view to obtain the necessary clearance from the Expanded Board and CCEA. Sanctioning the Gauge Conversion work of Bareilly – Lalkuan as a MM to the sanctioned work of Kanpur – Kasganj – Mathura & Kasganj – Bareilly when it was referred to the Planning Commission & the Expanded Board as a separate project and required a

separate approval of CCEA is in gross violation of laid down procedures and guidelines for obtaining project approvals and an action which undermines the authority of the Planning Commission, Expanded Board and CCEA.

1.10 Conclusion

The procedure for subjecting the investment proposals of Railways to an examination by the Planning Commission, consideration/ recommendation by Expanded Board and approval by CCEA, was introduced mainly so that the investments are made in consonance with the National Plan priorities and that such investments yielded best possible returns to the Railways. By not addressing the shortcomings/ inadequacies pointed out by the Planning Commission & Expanded Board in the projects sent to them for appraisal and scrutiny, RB defeated the spirit of the procedure laid down. Its repeated action to obtain sanction of CCEA despite reservations expressed by the Planning Commission and Expanded Board and its action in altering/ adding to proposals seen by them is an indication of the scant respect shown to these institutions.

The Standing Committee on Railways and Railway Convention Committee has repeatedly expressed disapproval of the indiscriminate inclusion of unremunerative projects. Far from paying heed to the observations of these Committees, the Railways have instituted an ingenious method of allowing several projects to make back door entry in to the Annual Works Programme in the garb of MMs.

The cost of the ten ongoing projects reviewed was Rs.1,220.87 crore at the time of sanction. The estimated cost including the cost of 17 MMs (Rs.1,235.92 crore) has already escalated by about 200 per cent to Rs.3,361.19 crore. With a huge throw forward of about Rs.35,000 crore on its ongoing projects, Railways need to direct its investments to the remunerative projects failing which Railways would end up completely eroding its net worth.

CHAPTER 2

Procurement, Utilisation and Maintenance of Track Machines over Indian Railways

2.1 Introduction

Railway track consisting of rails, sleepers and ballast on formation forms the backbone of the Railway transportation system. Keeping the track in safe, sound and fit condition is, therefore, very important.

On Indian Railways, for over a century, the track has been maintained manually. The Track Machines were introduced on Indian Railways during the early 1960s for mechanised laying and maintenance of track. The change over from the manual method to the mechanised method became necessary to suit the requirements of modern track structure laid with long welded rails, pre-stressed concrete sleepers and deeper ballast cushions. The change over was also required to overcome the following deficiencies of the manual method:

(i) retentivity of packing is inferior causing the track geometry to get distorted in a short time due to higher traffic densities, heavier axle loads and greater speeds;

(ii) getting uniform quality of compaction under the sleeper is difficult due to varying physical strength of labour; and

(iii) consolidating the track fully takes considerable time leading to imposition of speed restrictions for longer periods after completing track renewal works.

On Indian Railways, as on 31 March 2003, out of 67,067 track kilometers on Broad Gauge (BG) and 5,221 track kilometers on Metre Gauge (MG), 49,968 track kilometers (74.50 per cent) and 457 track kilometers (8.75 per cent) respectively were identified for mechanised maintenance leaving a balance of 21,863 track kilometers (17,099 - BG and 4,764 - MG) for manual maintenance.

For mechanised maintenance of track, on Indian Railways, 334 track machines valued at about Rs.1,097 crore were deployed as on 31 March 2003.

(Annexure I)

2.2 Highlights

- **Budgetting and monitoring of expenditure on maintenance of Permanent Way with track machines and on repairs & maintenance and replacement & renewals of track machines was not effective.**

(Para 2.7)

- **Requirement of track machines was not being assessed by Zonal Railways on the basis of track maintenance/ track renewal works required to be carried out by the mechanical method. Assessment by Audit showed excess availability of at least 14 Universal/ Duomatic tamping machines for working behind Ballast Cleaning Machines (BCMs), 39 CSM/ 3-X tamping machines used for plain tamping**

work, three Dynamic Track Stabilisers machines (DTS), one BCM and 14 Plasser's Quick Relaying System (PQRS) machines as on 31 March 2003.

(Para 2.8)

Audit also noticed that if purchase orders placed in 2002-03 for track machines are taken into account, the excess would be far higher. Procurement of at least ten BCMs, 15 DTS and 11 DTM machines at the cost of Rs.194.83 crore was avoidable.

(Para 2.9)

- **Track machines need clear lines to be worked. The Operating Department should provide required number of block hours for putting the machines on the tracks to carry out maintenance works. It was found that during 1998-99 to 2002-03, out of the stipulated number of block hours, the Track Machines Organisation demanded only about 83 per cent of block hours during the review period and out of this even lesser was provided by the Operating Department (67.16 per cent).**

(Paras 2.10.1 and 2.10.2)

During the period of review, the average time of each block was only about 1.46 hours as against a minimum block spell of 2.30 hours. From the information provided by some Zonal Railways, it was seen that 43.17 per cent of the block hours provided were outside the corridor block.

These factors reduced the effective track maintenance time for actual maintenance work.

(Paras 2.10.3 and 2.10.4)

- **Tamping of tracks is a major track maintenance activity. It was found that tamping charts required for monitoring and planning tamping work was not being maintained as required in any of the Zonal Railways. Due to this, during 2000-01 to 2002-03, 17,652.80 kms. were tamped before it became due and 27,849.62 kms. were not tamped though they were due to be tamped. The Railways incurred avoidable expenditure of Rs.13.75 crore on early tamping of tracks.**

(Para 2.11.1)

- **While tamping carried out during the review period was short of the targetted capacity fixed by Railway Board and the unrealistic internal targets fixed by the Chief Engineers of the Zonal Railways (except North Eastern and South Central Railways), it was in excess of actual requirement by 12,084.57 kms. as per the assessment of Audit in all Railways, except Central, North Eastern, Northeast Frontier and South Eastern Railways.**

(Para 2.11.2)

- **The exact performance of the tamping machines are very much in doubt as the field records maintained by the Sr. Section Engineers (Permanent Way) showed far less tamping work carried out as**

compared to the Performance Reports of the Track Maintenance Organisation that were sent to Railway Board. The figures sent to Railway Board were inflated by 83,289.28 kms. for the period 2000-01 to 2002-03 (83.16 per cent). The inflation of figures were highest on Western, followed by South Eastern, Northern, Southern, Northeast Frontier, South Central, Central and Eastern Railways.

(Para 2.11.3)

- **Despite having excess machines, during 1998-99 to 2002-03 the Zonal Railways did not use tamping machines for tamping after deep screening of track. During the five years review period, 19,121.94 kms. were got tamped through manual method. Not only is manual tamping inferior, an extra 10 days more have to be provided on track tamped manually before speed restrictions are removed.**

(Para 2.11.4)

- **Findings regarding performance of other track machines were on the same line as that found in respect of tamping machines. The targets fixed by Railway Board were almost always never achieved and so was the case with internal targets fixed by the Chief Engineers of the Zonal Railways. It was also noticed that the internal targets set were lower than the actual requirement in respect of Ballast Cleaning Machines and Shoulder Ballast Cleaning Machines.**

  Review of field records for the period 2000-01 to 2002-03 in respect of tamping of points and crossings and deep screening of ballast with the help of track machines revealed that in these cases too, the actual work done was far less than that reported to Railway Board through Performance Reports. The inflation was to the extent of 168.98 per cent and 39.88 per cent respectively. Inflated figures were highest on Western Railway, followed by Northern, Central, South Central, South Eastern and Northeast Frontier Railways.

(Paras 2.13 and 2.15)

- **During the period of review, deep screening of ballast along 19,536.01 kms. were done manually, despite the availability of Ballast Cleaning Machines for doing a superior quality of deep screening work.**

(Para 2.16)

- **Similarly, under-utilisation of Points and Crossings Machines during the review period need to be viewed in the light of 5,914 points laid manually and 4,118 Points and Crossings which could not be laid.**

(Para 2.21.2)

- **Maintenance Schedules were not being observed as per the instructions laid in the Indian Railways Track Machine Manual. Instances on Central and Northern Railways were found that where IOH/ POH or CPOH has been done, excess time has been taken up resulting in loss of work, idling of staff and labour attached to the machines.**

(Para 2.23)

- **The average consumption of HSD oil and average cost of repair and maintenance per km. for Plain Track Tamping, Points and Crossing Tamping and Ballast Cleaning machines test checked showed wide variation from Railway to Railway, calling for more detailed examination of the reasons for disparities and action to bring down costs.**

  (Para 2.24.3)

  The consumption of HSD oil per km. and cost per km. on spares, consumables, staff and overheads are in reality far more than reflected in the various reports maintained by Track Maintenance Organisation, since the averages have been arrived at by adopting inflated Performance Reports of machines.

  (Para 2.25)

- **104 and 59 staff are deployed are in excess of actual requirement for operation of machines in the field in Northern and South Eastern Railways respectively.**

  19 and 90 staff are deployed in excess of actual requirement for maintenance of machines in base depots at Gorakhpur (North Eastern Railway) and Sini (South Eastern Railway).

  (Para 2.27.1)

2.3 Organisational Structure

2.3.1 At Railway Board level, the Track Machines Organisation is functioning under the Civil Engineering Directorate headed by Additional Member (Civil Engineering) who is assisted by Executive Director (Track Machines) and Director (Track Machines).

2.3.2 At the Zonal level, the Track Machines Organisation (TMO) is functioning under the Chief Track Engineer (Machines) reporting to the Chief Engineer through the Chief Track Engineer. He is assisted at Zonal Headquarters by the Deputy Chief Engineer (Machines)/ Executive Engineer (Machines) for monitoring utilisation and performance output of machines and coordination between Headquarters, field offices, Base and Satellite depots. In the field, there are Divisional Engineers/ Assistant Engineers/ Senior Section Engineers in-charge of operation of machines. Deputy Chief Engineers/ Divisional Engineers and Senior Section Engineers are functioning at Base depots for monitoring the work of repair and maintenance of the machines at the Base and Satellite depots.

2.4 Scope of Review

The review covers the system of assessment of requirement and procurement of track machines; targets fixed and the extent of utilisation of the machines, and maintenance and inspection aspects of the machines, deployment and training of staff for the period 1998-99 to 2002-03.

2.5 Sample Size

At the macro level, review of the records maintained and returns sent to Railway Board by the Track Machine Organisations of the Zonal Railways for the period 1998-99 to 2003-03 was undertaken.

At the micro level,

- Test check of the utilisation data of 100 per cent of Continuous Action Tamping Machines, Points and Crossings Tamping Machines, Ballast Cleaning Machines and 100 per cent of 3-X Tamper Express Machines for the period 2000-01 to 2002-03;
- 100 per cent review of the records pertaining to maintenance of all track machines at Base depots for the period 1998-99 to 2002-03; and,
- 100 per cent review of records pertaining to actual field performance for the period 2000-01 to 2002-03 maintained by the Senior Section Engineers/ Section Engineers (Permanent Way) in respect of Tamping Machines and Ballast Cleaning Machines were undertaken.

2.6 Types of Track Machines

2.6.1 On Indian Railways, the following types of Track machines are in use:

Sl. No.	Name of the machine	Number of machines held by Indian Railways as on 31 March 2003
A	***Tamping Machines***	
	(i) Plain Track Tamping Machines	
	(a) Universal Tamping Machines	23
	(b) Duomatic Tamping Machines	34
	(c) Continuous Action Tamping Machines	52
	(d) 3-X Tamping Machines	10
	(ii) Points and Crossings Tamping Machines	42
	(iii) Multipurpose Tamping Machines	09
B	***Ballast Handling Machines***	
	(i) Ballast Cleaning Machines	31
	(ii) Shoulder Ballast Cleaning Machines	21
	(iii) Ballast Regulating Machines	27
C	***Dynamic Track Stabilisers***	25
D	***Track Laying Machines***	
	(i) Plasser Quick Relaying Systems	40
	(ii) Points and Crossings Changing Machines	14
	(iii) Track Relaying Trains	04
	(iv) Sleeper Exchanger	01
	(v) Tie Replacer and Tie Crane	01
	Total	**334**

(Annexure I)

A brief description of the functions of the above machines is given below:

2.6.2 Tamping Machines

Tamping Machines are largely used for the maintenance of track and the following are the main functions of a tamping machine:

(i) Correction of alignment;

(ii) Correction of longitudinal and cross levels; and

(iii) Packing of ballast under sleepers.

While Universal Tamping Machines are capable of tamping one sleeper at a time, Duomatic Tamping Machines are capable of tamping two sleepers at a time. These machines are deployed mostly behind Ballast Cleaning Machines to enable faster resumption of traffic at normal speeds. Continuous Action Tamping Machines are of higher rated capacity machines for tamping the plain track. 3-X Tamping Machines have even higher capacity with more advanced technology.

Points and Crossings Tamping Machines (UNIMATs) are capable of lifting, levelling, aligning and tamping points and crossings. With specially designed tilting arms, they are suitable for tamping the turnouts and, therefore, exclusively used for tackling turnouts with approach track in yards and bridges with check rails etc.

Multipurpose Tamping Machines are capable of tamping plain track as well as Points and Crossings[1].

2.6.3 Ballast Handling Machines

Ballast Cleaning machines (BCMs) carry out the cleaning of ballast by removing muck and thereby improve the drainage of track and elasticity of ballast bed, without dismantling the track. BCMs excavate and pick up the ballast, carry it to a set of vibrating screens where muck is separated and thrown out and the cleaned ballast is transferred back to the track.

Shoulder Ballast Cleaning machines (SBCMs) carry out the cleaning of shoulder ballast to improve the drainage of track. The SBCMs excavate and pick up the shoulder ballast and carry it to a set of vibrating screens where muck is separated and thrown out and the cleaned ballast is deposited on shoulders of the ballast profile.

Ballast Regulating machines (BRMs) are used after leveling and tamping work for regulating the ballast profile by transfer of ballast in all directions (by collecting ballast from surplus locations and spreading it at deficient locations). The BRMs are also used in the post tamping operations for profiling the ballast and tidying up the track.

2.6.4 Dynamic Track Stabilisers

During operations for the maintenance of track, such as tamping, lifting, slewing, deep screening etc, the lateral resistance of track gets reduced which rebuilds gradually with the passage of trains. This consolidation can also be achieved faster and more effectively by causing controlled settlement of track using Dynamic Track Stabilizer (DTS) machines. This helps in relaxing the

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[1] Points and Crossings are provided to transfer Railway Vehicles from one track to another and a complete set of points and crossings with lead rails is called 'Turnout'.

speed restrictions expeditiously and extending the maintenance cycle and thus constitutes an economically sound measure. DTS machines are used at deep screening sites by deploying them immediately behind the tamping machine.

2.6.5 Track Laying Machines

Plasser's Quick Relaying System

The Plasser's Quick Relaying System (PQRS) is a semi-mechanised system for track renewal and the PQRS machines operate with four self-propelled cranes, which are capable of loading into and unloading from BFRs loads up to nine tonnes and lifting of 13-meter long pre-fabricated panel with PSC sleepers.

Points and Crossings Changing Machines

Points and crossings Changing (T-28) machines are used for relaying of points and crossings (turnouts) on PSC sleepers. The T-28 machines operate with self-propelled portal crane, motorized / non-motorized rail trolley and jib crane.

2.7 Budget Allocation and Utilisation of Funds

For track maintenance, funds are provided for by the Railway Board and accounted for by the Railways under the following minor heads of accounts:

(i) **Demand No.4** - Repairs and Maintenance of Permanent Way and Works - 200- Maintenance of Permanent Way;

(ii) **Demand No.7** - Repairs and Maintenance - Plant and Equipment 200 - Plant and Equipment - Way and Works; and,

(iii) **Demand No.16** - Assets - Acquisition, Construction and Replacement - Depreciation Reserve Fund - Replacement and Renewals - 1170 - Equipment, Plant and Machinery.

The allotment of funds, monitoring, consolidation and depiction of expenditure is done at the sub-head level which include figures in respect of maintenance works to permanent way done manually and figures of repairs to machines of other plant and equipment also. The expenditure figures relating exclusively to maintenance works with machines and repairs and maintenance of the track machines are available only at the detailed head levels. These figures were obtained from the TMO, Divisional Offices and the FA&CAO's offices. It was noted by Audit that the figures were varying which tends to indicate that there was no proper maintenance of accounts to enable necessary budgetting, monitoring and incurring of expenditure.

2.8 Requirement of track machines for mechanised maintenance of track

Requirement of various types of Track machines like Tamping Machines, BCMs and SBCMs for mechanised maintenance of track is assessed based on the following parameters.

(i) Length of track identified for mechanised maintenance.

(ii) Periodicity (cycle) of the work to be carried out by the machines.

(iii) The targets fixed by the Railway Board for each machine, after taking into account its capacity, operational conditions and availability of working hours for the machine.

(iv) Number of machines available for deployment.

The requirement of machines other than these is assessed based on the internal targets fixed by the Zonal Railway Administration.

None of the Zonal Railways [except Eastern and Central (for some machines for 2001-02 and 2002-03) Railways] has been assessing the requirement of track machines on the basis of track maintenance/ track renewal works required to be carried out by mechanical method.

In the absence of such an assessment, Audit made an assessment of requirement for track machines with reference to the above parameters and data pertaining to the year 2002-03.

The following table indicates the length of track identified for mechanised maintenance, the length of track to be attended to by the track machines in a year and the number of track machines required and available for use:

Sl. No.	Type of machine	Track identified for mechanised maintenance	Track to be attended to by the machines as assessed by Audit (per year)	No. of machines			
				Required	In Use	Excess	Shortage
		(km)	(km)	(No.)	(No.)	(No.)	(No.)
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*
A.	**1. Tamping machines — tamping after deep screening:**						
1.	Universal Tamping	50,290.64	23,318.88	30	44	14	
2.	Duomatic Tamping						
	2.-Tamping machines - Plain track maintenance works:						
3.	Continuous Action Tamping	50,290.64	33,717.30	31	70	39	
4.	3-X Tamping Express						
5.	Multipurpose Tamping						
	3. Tamping machines – Points & crossings:						
6.	Unimat Tamping	50,290.64	47,301.00	40	43	03	
7.	Multipurpose Tamping						
B.	**Track Stabilizers**						
8.	Dynamic Track Stabilizers	50,290.64	26,249.00	22	25	03	
C	**Ballast Handling machines**						
9.	Ballast Cleaning (BCM)	42695.53	4,269.55	30	31	01	
10.	Shoulder Ballast Cleaning	42695.53	8,145.31	28	20		08
11.	Ballast Regulator	50,290.64	31,407.00	28	27		01
D	**Track Laying machines**						
12.	Plasser's Quick Relaying System	50,290.64	1,510.00	25	39	14	

Zonal Railway wise information is available **Annexure - II (A) to (D)**

From the above table, it is evident that many machines are in excess of requirement. A more detailed scrutiny revealed that

- As brought out in Para 2.6.2 above, Universal tamping machines and Duomatic tamping machines are deployed mostly behind Ballast Cleaning machines. As per Audit assessment only 30 Ballast Cleaning machines are required. Assuming requirement of one tamping machine to be worked behind each of the Ballast Cleaning machines, as against the availability of 44 tamping machines in use, only 30 are sufficient. While one machine each is short on Central and Western Railways, excess tamping machines exist in all other Railways. There are four machines each in excess of requirement on Northern and North Eastern Railways, three machines each are in excess of requirement on Southern and South Central Railways and two in excess on Eastern Railway.

- The procurement and allotment of CSM and 3-X tamping machines which are used mostly for tamping works on Indian Railways was also far in excess of requirement. On South Eastern and Western Railways, against the requirement of only four tamping machines each, there are 11 machines each. Similarly, heavy excesses are on Central Railway, where there is an excess of six machines and on Eastern and Southern Railways, where the excess is five machines each.

- In the case of Plasser's Quick Relaying System, against the requirement of only 25 machines, 39 machines have been allotted to the Zonal Railways. On Eastern Railway, against the requirement of only five machines, 12 machines have been allotted. Similarly, on Northern Railway (requirement of three machines), South Eastern Railway (requirement of four machines), Southern Railway (requirement of two machines) and South Central Railway (requirement of two machines), two, three, one and one machine respectively have been allotted in excess.

- Certain machines are in excess of requirement on some of the Zonal Railways while there is a shortage in other Zonal Railways as can be seen from below. A more rational distribution of the machines over the Indian Railways could have taken care of the shortages in other Zonal Railways.

  In the case of Points and Crossing machines, while there is an excess of two machines on Southern Railway and one machine each on South Central, South Eastern and Western Railways, there was shortage of requirement by one machine each on Central and Eastern Railways.

  In the case of Dynamic Track Stabilisers, against the requirement 22 machines, 25 machines have been allotted to the Zonal Railways. There is an excess of one machine on Southern and Western Railways and two machines on Northern Railway. On the other hand, on South Central Railway, there is a shortage of one machine.

2.9 Procurement

During the period of review, the following track machines being discussed in this review were procured:

Sl. No.	BCM	SBCM	DTM	DTS	BRM	TOTAL
1	*2*	*3*	*4*	*5*	*6*	
1998-99					5	5
1999-00	6					6
2000-01	4	4	11	4		23
2001-02	4			6		10
2002-03	10	9		20		39
TOTAL	**24**	**13**	**11**	**30**	**5**	**83**
Received	***13***	***4***	***11***	***10***	***5***	***43***
YET TO BE RECEIVED	**11**	**9**		**20**		**40**

Before procurement is effected, it is essential to clearly establish the need for the machines. The need should be established with reference to the annual requirements of track maintenance, the utilisation of the already existing machines vis-à-vis the rated capacity and the targetted utilisation, the possibility of the Operating Departments to provide block hours for carrying out track maintenance with machines etc.

As has already been brought out in the previous para, there are several machines, which are available far in excess of requirement. Even these existing machines are not being fully utilised due to non-availability of block hours for carrying out maintenance activities. This has been discussed in greater detail in subsequent paragraphs. Any addition to the already existing fleet is, therefore, an avoidable financial burden on the already strained budget of the Indian Railways. Procurement of more machines will, therefore, only add to the number already idling machines. This would also lead to unnecessarily adding to the workforce as staff is provided exclusively for each machine.

The procurement details given in the table above read with the table of excess/ shortage of machines depicted in Para 2.8 above clearly indicate that the purchase orders for procurement of BCMs in 2002-03 were totally avoidable. The avoidable expenditure on these machines is to the order of Rs.88.63 crore. As regards procurement of DTS is concerned, even if assessment of requirement is linked with the requirement of BCMs and TRTs (along which the DTS machines are expected to work), as against 20 DTS procured in 2002-03, only five would have been sufficient. The expenditure of Rs.67.09 crore on 15 DTS machines was, therefore, clearly avoidable. Procurement of 11 DTMs in 2000-01 at the cost of Rs.39.11 crore was totally avoidable.

2.10 Corridor Blocks, Stipulated Block Hours and Traffic Blocks[2]

[2] **Corridor Block** is given in a section for the time interval during which no train is passing through and this is clearly defined in the Working Time Table. The TMO projects the requirement of corridor blocks on monthly basis, which is called **Stipulated Block**. Actual stoppage of movement of trains for brief periods for maintenance of track on a day to day basis is **Traffic Block**.

Track machines are self-propelled machines. Each machine works as a train and needs clear lines to be worked. For maintenance of track by machines, Traffic Blocks are requested on a day to day basis within the Corridor Blocks specified in the working time tables. Traffic is required to be blocked on the sections of tracks on which the machines are to be run as per the following options:

On Single line section	One block of four hours or two blocks of two hours thirty minutes each or in exceptional cases two blocks of minimum two hours each
On Double line section	a) One block of four hours on 'Up' or 'Down' line daily or two blocks of two hours-thirty minutes each on 'Up' or 'Down' line on alternate days.
	(b) One block of two hours thirty minutes on each line daily or in exceptional cases one block of minimum two hours on each line daily.
On Multiple line section	Working hour blocks as planned.

2.10.1 On Indian Railways, during the period of review, out of 15,05,903 stipulated traffic block hours, the Track Machines Organisation (TMO) demanded 12,48,188.67 block hours (82.89 per cent). Southern Railway demanded the lowest (71.08 per cent) against the stipulated block hours, followed by Western Railway (78.82 per cent).

The reasons for demanding less block hours for working of the track machines than the stipulated hours projected were:

(i) Machine months/ days were lost on account of IOH/ POH (Central, Northern and Northeast Frontier Railways);

(ii) Non-availability of machine allotted (Central and Eastern Railways);

(iii) Work suffered in summer months due to introduction of Holiday Specials (Central Railway);

(iv) Some of the machines were under breakdown (Central, North Eastern, Northeast Frontier and Southern Railways);

(v) Scarcity of P.Way materials (Central and Northern Railways);

(vi) Non-availability of staff deployed for the machine (Eastern, Northern, North Eastern and Northeast Frontier Railways);

(vii) Shifting of machines (Northern and North Eastern Railways);

(viii) Block not planned (Northeast Frontier Railway); and,

(ix) Old machines which had out-lived their codal life (Southern Railway).

The reasons for demanding less block hours were not available on South Central, South Eastern and Western Railways.

2.10.2 During the period of review, against the demanded block hours of 12,48,188.67, the Operating Department (OPD) granted 8,38,324.78 block hours (67.16 per cent). Operating Department of Northern Railway granted only 1,08,220 block hours (54.61 per cent), followed by North Eastern Railway (57.90 per cent), Northeast Frontier Railway (59.38 per cent) and Western Railway (62.94 per cent).

[Annexure III (A)(i)]

2.10.3 Test check for the year 2002-03 revealed that out of 1,69,662.51 traffic block hours granted (except Northern Railway where full details were not available), only 96,425.94 (56.83 per cent) was falling within the corridor block. This was 40.15 per cent of the block hours demanded by TMO. Percentage of Block hours falling within the corridor block was lowest in respect of North Eastern Railway (14.10), followed by Eastern (16.09), South Eastern (45.07), Northeast Frontier (57.82) and Southern (58.16) Railways.

[Annexure III (A)(ii)]

Apart from disturbing the schedule of maintenance works chalked out by the TMO, not granting blocks for the TMO within the corridor blocks results in disruption of traffic leading to late running of trains and accumulation of arrears of maintenance works.

2.10.4 Audit also observed that average time of each block/ spell granted by the OPD for deployment of Track machines for track maintenance works worked out to only 1.46 hours (2000-01 and 2001-02), 1.47 hours (1998-99), 1.48 hours (2002-03) and 1.49 hours (1999-2000) as against a minimum block spell of 2.30 hours.

Average time of block spells given was lowest in respect of Northeast Frontier, which ranged between 0.44 hours (2000-01) to 0.49 hours (2001-02 and 2002-03), followed by North Eastern (1.09 hours in 2002-03 to 1.22 hours in 1999-2000) and Western (1.32 hours in 1998-99 to 1.40 hours in 2001-02) Railways. On the other hand, spells given by OPD of Eastern and South Eastern Railways is around two hours and have shown an improvement from 2.08 hours in 1998-99 to 2.38 hours in 2002-03 on South Eastern Railway and 2.01 hours in 1998-99 to 2.24 hours in 2002-03 in respect of Eastern Railway.

Shorter spell impacts the effectiveness of carrying out track maintenance works as the shorter spells of block hours granted and availed is spent in just setting up and winding up of the machines, resulting in reduced effective time available for actual maintenance work to be carried out.

[Annexure III (B)]

2.10.5 The performance of the track machines in terms of the quantum of output achieved is directly dependent on the block hours made available by the Operating Department (OPD). The ability of the TMO to adhere to track maintenance schedules and targets fixed by Railway Board is also dependent on the quantum of block hours made available. From the data furnished above it is, therefore, no surprise that the machines are utilised far below their optimal capacity and the arrears in track maintenance are mounting.

The performance and utilisation of different categories of machines are discussed in further detail in the following paragraphs.

2.11 Utilisation/ performance of plain track tamping machines

2.11.1 Tamping charts

Tamping charts should be maintained at Divisions and at Headquarters for monitoring the frequency of tamping. The track structure, prescribed tamping

cycle, last tamped periods (two cycles) and condition of the track should be incorporated in the tamping charts, which have to be reviewed from time to time. The tamping cycle currently in existence is as follows:

(i) On PSC sleepers, the frequency of tamping shall be once in two years or after passage of 100 GMT of traffic whichever is earlier; and

(ii) On other than PSC sleepers, frequency of tamping will be once in a year.

There is no uniformity in the procedure of maintaining tamping charts. On North Eastern and Northeast Frontier Railways, tamping charts are maintained at Headquarters only. In respect of the other Railways, tamping charts are maintained for some sections at the Divisional/ Sr. Section Engineer level and in respect of other sections, a statement showing scope of tamping is being maintained taking them as a single unit. In view of this, it was seen that the tamping operations could not be planned in a methodical and systematic manner. Audit of the available tamping records for the period 2000-01 to 2002-03 revealed that:

- Out of 759 sections on various Railways for the year 2000-01, advance programme was drawn in respect of only 177 sections for the year 2000-01. In the remaining 582 sections, no advance programme was drawn. For 2001-02, out of 780 sections, advance programme had been drawn for 198 sections and in the remaining 582 sections, no advance programme was drawn. Similarly, for 2002-03, out of 773 sections, advance programme had been drawn only in respect of 194 sections, leaving a balance of 579 sections where no advance programme was drawn.

  On Central Railway, in 125 sections, no advance programme was drawn during these three years. No advance programme has been drawn up by Northeast Frontier (28 sections), South Central (97 sections) and Western (92 sections) Railways for the three years reviewed by Audit.

- In all, 9,491.53 kms. (2,972.66 kms. in 2000-01, 3,131.48 kms. in 2001-02 and 3,387.39 kms. in 2002-03) were tamped after making advance programme. During the same period, 43,588.82 kms. were tamped without drawing up an advance programme with reference to tamping charts.

  On Central Railway, 13,146.99 kms. were tamped without drawing up any advance programme. Similarly, on South Central (12,243 kms.), Western (11,080.33 kms.), Southern (6,326.50 kms.) and Eastern (792 kms.) Railways also, track was tamped without making advance programme.

- Due to non-maintenance of tamping charts, no tamping was carried out on 27,849.62 kms. of track, where tamping work was due. The highest was on Central (8,775.22 kms.), followed by Western Railway (6,430.32 kms.), South Central Railway (3,323 kms.), and Eastern Railway (1,652 kms.).

  On the other hand, 17,652.80 kms. were tamped by machines before it became due; the highest being on Northern Railway (6,837.18 kms.), followed by Western Railway (3,328.67 kms.), Southern Railway

(2,275.44 kms.), Central Railway (2,415.51 kms.), South Central Railway (1,970.00 kms.) and Eastern Railway (826 kms.).

The value of tamping excess done before it became due (17,652.80 kms.) on the basis of unit cost statement for the respective years of the Zonal Railways worked out to Rs.13.75 crore in respect of Western Railway (Rs.4.08 crore), Northern Railway (Rs.4.04 crore), South Central Railway (Rs.2.21 crore), Southern Railway (Rs.1.60 crore), Central Railway (Rs.1.33 crore) and Eastern Railway (Rs.0.49 crore).

This expenditure could have been avoided, had the machines been more judiciously utilised on track where tamping work was actually due as shown above.

In this connection, it may be mentioned here that at the National Technical Seminar on 'Track Standards, Formation, Ballast and Elastic Fastenings' organized by International Permanent Way Engineers (India), in December 2001 at Secunderabad, it was a considered opinion of the Technical Officers that frequent tamping results in crushing of ballast and causes increased need of ballast and screening of ballast thereby incurring more expenditure on ballast procurement.

The extent of additional expenditure for recoupment of ballast damaged due to excess tamping could not be assessed in Audit.

(Annexure IV)

2.11.2 Performance of plain track tamping machines

In Para 2.8 above, it has been brought out that the number of tamping machines allotted to each Railway is more than required. There is, therefore, not sufficient work on ground to utilise the machines to their targetted capacity as fixed by Railway Board. As per the targetted capacity fixed for each machine by Railway Board, the total tamping that can be done and expected to be done each year is 92,691 kms. (based on 2002-03 data). The Chief Engineer in each Zonal Railway also fixed internal targets for tamping to be achieved. For the year 2002-03, 78,967 kms. were to be tamped as per the internal targets fixed. The actual requirement as assessed by Audit, on the other hand, was only 60,487.63 kms. The kilometers tamped during the year was 66,240.95 kms.

- Going by the Railway Board targets, there was a shortfall in performance on all Railways. The shortfall was the highest on Northern Railway (9,411.18 kms. - 56.31 per cent), followed by Eastern (9,155.53 kms. - 56.11 per cent), and North Eastern (1,316 kms. - 35.45 per cent) Railways.

  Since the tamping requirement is far less and the machines were far in excess of requirement, the shortfall with reference to Railway Board targets should only be viewed as under-utilisation of machines and not shortfall in undertaking tamping works.

- The targets fixed by the Chief Engineer on the Zonal Railways was also unrealistic and not related to actual tamping requirements because of which, barring North Eastern and South Central Railways, in all other Railways the records show shortfall in tamping work. The targets set by

the Chief Engineer are higher by 25 per cent on Eastern (56.11 per cent), Northeast Frontier (55.33 per cent) and Central (30.67 per cent) Railways.

- The comparison of the performance of the Zonal Railways with reference to actual tamping requirement as assessed by Audit reveals that barring Central, North Eastern, Northeast Frontier and South Eastern Railways, excess tamping has been done in all Railways. The excess tamping has been to the extent of 6,257 kms. in South Central, 1,974.93 in Western, 1,883.18 kms. in Northern, 1,582.47 kms in Eastern and 386.99 kms. in Southern Railways.

(Annexure V)

2.11.3 Assessment of the performance of the tamping machines

Audit examined the matter of excess tamping in greater detail and found that the excess was mostly on account of inflated figures being furnished through the Performance Reports to Railway Board by the TMO.

A test check of the field records of Sr. Section Engineers (P.Way) pertaining to the period from 2000-01 to 2002-03 revealed that the total plain track tamping work done by the machines was 1,00,159.09 kms. whereas the Performance Reports of the TMO (submitted to the Railway Board) indicated 1,83,448.37 kms. for the same period. Thus, in the Performance Reports for the sample period, the tamping work indicated as done by the machines was inflated by 83,289.28 kms. The value of inflated figure works out to Rs.67.19 crore.

Except for figures in respect of North Eastern Railway, all other Railways had shown inflated figures in the Performance Reports sent to the Railway Board. Western Railway figures in the Performance Report was inflated to the extent of 141.67 per cent followed by South Eastern Railway (where the inflation in figures was to the extent of 116.96 per cent), Northern Railway (108.76 per cent), Southern Railway (92.63 per cent), Northeast Frontier Railway (87.36 per cent), South Central Railway (85.09 per cent), Central Railway (72.20 per cent) and Eastern Railway (20.87 per cent).

(Annexure VI)

2.11.4 Avoidable manual tamping after deep screening

During the period 1998-99 to 2002-03, on 8 Zonal Railways (except North Eastern Railway), review of records revealed that deep screening of 19,121.94 kms. of track was executed by manual method in Open Line (OL) Organisation, break up of which has been given in the following table:

Sl. No.	Railway	Deep screening work executed manually through contractors (in kms.)
1	*2*	*3*
1.	Central	1,311.01
2.	Eastern	931.37
3.	Northern	3,277.15
4.	Northeast Frontier	379.33
5.	Southern	3,618.44
6.	South Central	2,099.00

7.	South Eastern	4,143.81
8.	Western	3,361.83
TOTAL		**19,121.94**

The Schedule of works awarded to the contractors for execution of such deep screening works, included provision for one kutcha and through packing initially, followed by two to four rear packings.

Packing by manual method is inferior and is to be avoided on track laid with PSC sleepers. Moreover, it takes 20 days in case of manual packing as against ten days in case of mechanised packing for removal of speed restrictions, after packing work is completed. Therefore, the available machines should (which are in fact available in excess of requirement) have been employed for rear packing required to be carried out after manual deep screening also.

2.12 Utilisation/ performance of Points & Crossings tamping machines

2.12.1 The following table indicates the target of work to be carried out as fixed by the Railway Board by the UNIMATs and Multi Purpose Tamping Machines (at 50 per cent of the target fixed by Railway Board), internal target fixed by the CE and the work done during the period of review:

Year	Total Target of work to be done as fixed by Railway Board	Internal target fixed by the CE	Total work done	Percentage of work done to	
	(No. of P&C)			Railway Board's target	Internal Target fixed by CE
(1)	(2)	(3)	(4)	(5)	(6)
1998-99	41,327	35,482	27,429	66.37	77.87
1999-00	44,260	39,982	35,642	80.53	89.15
2000-01	47,820	43,102	38,797	81.13	90.01
2001-02	48,643	43,752	40,378	83.01	92.29
2002-03	48,000	46,551	37,997	79.16	81.62
Total	**2,30,050**	**2,08,869**	**1,80,243**	**76.35**	**86.20**

(Annexure VII)

2.12.2 A review of the performance with reference to Railway Board's targets revealed that the performance by the various Railways was erratic during the period of review – in some years, the performance was more than 100 per cent and in other years less than targets. Overall performance over the five years period, however, revealed the following:

The performance of work done with reference to Railway Board's targets was the poorest on Southern Railway; against the target of 29,628 points and crossings to be tamped, only 12,221 were tamped, a shortage of 17,407 points and crossings (58.75 per cent). This was followed by Northeast Frontier Railway, where only 3,642 points and crossings were tamped against the target of 6,866, a shortage of 3,224 (46.96 per cent). On Eastern Railway, the shortage was 40.23 per cent and on North Eastern Railway, the shortage was 32.46 per cent.

On Central and South Eastern Railway, the work done was in excess of the Board's target by 708 and 113 points and crossings respectively.

On other Railways, there was shortage in terms of work done with reference to the target fixed by the Chief Engineers.

2.12.3 On Central Railway, during the period from 2000-01 to 2002-03, 413 points and crossings were tamped before it became due and 1,380 points and crossings were not tamped at all.

2.13 Assessment of the performance of points & crossings tamping machines

A test check of the field records pertaining to the period from 2000-01 to 2002-03, revealed that the total Points and crossings tamping work done by all the machines was 43,159 numbers whereas the Performance Reports of the TMO (submitted to the Railway Board) indicated 1,16,090 numbers for the same period. Thus, in the Performance Reports for the sample period, the tamping work indicated as done by the machines was inflated by 72,931 numbers. This was 168.98 per cent over the tamping work indicated in the field records.

Review of the field records on the Zonal Railways revealed that only on North Eastern Railway, the figures reported to the Railway Board through Performance Reports tallied with the figures shown in the records of the field offices. On all the other Zonal Railways, the figures reported through the Performance Reports were inflated. As per the records maintained by the Western Railway, the Performance Reports indicated 17,407 points and crossings having been tamped, as against 3,500 numbers as per records of the AENs/ SSEs (P.Way). The figures were inflated in the Performance Report to the extent of 397.34 per cent. This was followed by Northern (the inflation in figures being 295.01 per cent), Central (189.01 per cent), South Central (178.65 per cent), Southern (147.61 per cent), South Eastern (140.76 per cent), Northeast Frontier (95.52 per cent) and Eastern (54.68 per cent) Railways. The value of the inflated figures of all Railways worked out to Rs.38.97crore.

(Annexure VIII)

2.14 Utilisation/ performance of Ballast Cleaning Machines

2.14.1 Deep screening of ballast is undertaken to ensure that a clean ballast cushion of required depth is available below the bottom of sleepers for providing proper drainage of track and giving elasticity to the ballast bed. In the absence of deep screening of ballast, the track geometry may get disturbed and thereby adversely affect the running of trains on the track. Deep screening of ballast by manual method is considered highly inefficient and unsafe and thus, the usage of modern machines for deep screening of ballast has become inevitable. Deep screening of ballast is required to be done at an interval of ten years.

2.14.2 Performance of ballast cleaning machines

Audit review of the performance of ballast cleaning machines held by the various Zonal Railways (except North Eastern Railway where no BCM was in use as on 31 March 2003) during 2002-03 with reference to the target fixed by

the Railway Board, internal target fixed by the Chief Engineer and the requirement of deep screening work as assessed by Audit revealed the following.

- As against the Railway Board target of 3,260 kms. of deep screening, the work actually done during 2002-03 was only for 2,150.34 kms. Barring South Eastern Railway, where 32.75 kms. of deep screening was done in excess of the Railway Board targets, on all other Railways there was shortage. The shortage was the highest on Northern – 514.17 kms., Eastern – 302.46 kms., South Central – 184 kms. and Western – 104.08 kms. Railways.

- Except on South Eastern Railway, where the internal target was fixed as per the maximum capacity based on Railway Board targets, on all other Railways the target fixed was lower than the rated capacity and also lower than the actual requirement. Shortage as per targets so fixed were, therefore, not a true reflection of the actual shortage in utilising BCMs for deep screening.

- The requirement of deep screening work to be done as assessed by Audit for 2002-03 worked out to 4,185.56 kms. The work done was short by 2,035.22 kms. All Zonal Railways showed shortage, the highest being on Central Railway - 376.36 kms. This was followed by Southern - 371.37 kms., Northern - 346.15 kms., South Central - 290.10 kms., Western - 282.73 kms. and South Eastern - 242.25 kms. Railways.

(Annexure IX)

2.15 Assessment of the performance of the ballast cleaning machines

A test check of the field records pertaining to the year 2002-03, revealed that the total deep screening work done by all the machines was 1,718.63 kms. whereas the Performance Reports of the TMO (submitted to the Railway Board) indicated 2,150.34 kms. This was 39.88 per cent over the deep screening works with machines indicated in the field records.

The figures of deep screening work as shown in the Performance Report sent to Railway Board by Northeast Frontier and South Central Railways was less than actual work done. On the other six Zonal Railways, the figure shown in the Performance Report was inflated to the extent of 516.71 kms. The value of the inflated figure was Rs.3.31 crore.

The inflated figure was the highest on Western Railway (179.32 kms.), followed by South Eastern (179.14 km.), Central (78.20 kms.) and Eastern (64.32 kms.) Railways.

(Annexure X)

2.16 Avoidable deep screening work done by manual method

Deep screening of ballast by manual method is considered highly inefficient and unsafe and thus, the usage of modern machines for deep screening of ballast has become inevitable.

A review in Audit revealed that while BCMs remained underutilised (as pointed out in Para 2.14.2), Railways resorted to manual method of deep screening. On seven Zonal Railways (except Northern Railway, where full details were not available and North Eastern Railway, where no BCM was available), Railways resorted to manual method of deep screening for a track length of 19,536.01 kms. during the period 1998-99 to 2002-03.

(Annexure XI)

2.17 Performance of shoulder ballast cleaning machines

Audit review of the performance of shoulder ballast cleaning machines (SBCMs) held by the various Zonal Railways (except North Eastern and Northeast Frontier Railways where no SBCM was in use as on 31 March 2003) during 2002-03 with reference to the target fixed by the Railway Board, internal target fixed by the Chief Engineer and the requirement of deep screening work as assessed by Audit revealed the following.

2.17.1 As against the Railway Board target of 3,986 kms., the work actually done during 2002-03 was only for 2,389.45 kms. There was shortage on all the seven Zonal Railways. The shortage was the highest on Eastern - 570.15 kms., followed by Northern - 381.15 kms., South Central - 281 kms., Central - 167.14 kms., Southern - 153.31, Western - 34.44 and South Eastern - 9.36 kms.

2.17.2 Except on South Eastern Railway, where the internal target was fixed as per the maximum capacity based on Railway Board targets, on all other Railways the target fixed was lower than the actual requirement. Shortage as per targets so fixed were, therefore, not a true reflection of the actual shortage in utilising SBCMs for deep screening.

2.17.3 The requirement of work to be done as assessed by Audit for 2002-03 worked out to 8,145.13 kms. The work done was short by 5,755.68 kms. All Zonal Railways showed shortage, the highest being on Central Railway - 1,156 kms. This was followed by South Eastern - 924.36 kms., Western - 864.75 kms., Southern - 856.51 kms., Eastern - 711.75 kms., South Central - 657.20 and Northern - 585.11 kms.

(Annexure XII)

2.18 Ballast Regulating Machines

Ballast profile is regulated, after leveling and tamping of track, by transfer of ballast in all directions (by collecting ballast from surplus locations and spreading it at deficient locations).

2.18.1 Performance of ballast regulating machines

The following table indicates the target of work to be done by the BRMs as fixed by the Railway Board, internal target fixed by the CE and the work done by the machines during the period of review:

Year	Total target as fixed by Railway Board	Internal target fixed by the CE	Work done by the BRMs
	(km)		
(1)	*(2)*	*(3)*	*(4)*
1998-99	20,600	20,700	17,589.21
1999-00	19,700	21,780	22,654.71
2000-01	26,833	28,200	24,405.73
2001-02	27,600	31,600	28,606.44
2002-03	29,057	30,411	27,953.36
Total	**123790**	**132691**	**1,21,209.45**

(Annexure XIII)

During the period of review, the Ballast Regulating machines (BRMs) carried out ballast regulating works to the extent of 1,21,209.45 kms. as against their total target of 1,23,790 kms. as fixed by the Railway Board resulting in shortfall to the extent of 2,580.55 kms. (2.08 per cent).

Southern Railway achieved only 2,893.69 kms. against the target of 11,818 for the five years; a shortage of 8,924.31 kms. (75.51 per cent). In respect of Western Railway, the shortage was to the extent of 4,367.77 kms. (24.58 per cent), followed by Central Railway, where the shortage was to the extent of 2,895.43 kms. (13.50 per cent).

2.18.2 The utilisation of BRMs for ballast regulating work was to the extent of 1,21,209.45 kms. as against the total target fixed by the CE for 1,32,691 kms.; a shortage of 11,481.55 kms. (8.65 per cent). The shortage was the highest on Southern Railway; a shortage of 8,924.31 kms. (75.51 per cent). In respect of Central Railway, the shortage was to the extent of 4,446.21 kms. (19.33 per cent), followed by Western Railway, where the shortage was 3,371.39 kms. (18.98 per acent).

2.19 Utilisation/ performance of Dynamic Tracks Stablizers

2.19.1 During operations for track maintenance (such as tamping, lifting, slewing, deep screening etc.), the lateral resistance of track gets reduced which rebuilds gradually with the passage of trains and DTS machines are deployed, behind tamping machines, with a view to achieving the track stablisation faster and more effectively (for relaxing the speed restrictions expeditiously).

2.19.2 Performance of Dynamic Track Stabilizers

The following table indicates the target fixed by the Railway Board for the DTS machines, internal target fixed by the CE and the work done by the machines during the period the period of review:

Year	Total target fixed by the Railway Board (Km.)	Internal target fixed by the CE (Km.)	Work done by the DTS Machines (Km.)
1	*2*	*3*	*4*
1998-99	19,716	18,303	10,014.22
1999-00	17,636	13,614	9,613.13
2000-01	23,136	22,072	16,700.00
2001-02	23,136	23,704	18,304.99
2002-03	26,302	26,309	19,524.69
Total	**1,07,632**	**1,02,459**	**75,523.86**

(Annexure XIV)

With reference to the target fixed by the Railway Board (1,07,632 kms.), the work executed by the Zonal Railways during the review period was only 75,523.86 kms.; a shortage of 32,108.14 kms. (29.83 per cent). Percentage-wise, the shortage was highest on Southern Railway, where the work executed was 61.51 per cent (7,290.44 kms.) less than the Railway Board's target of 11,853 kms., followed by Northern Railway, which executed 58.38 per cent (11,301.72 kms.) less than the Railway Board's target of 19,360 kms., followed by Western Railway, where the shortage was 43.63 per cent, North Eastern Railway (40.25 per cent) and Eastern Railway (40.11 per cent).

During the period of review, the Dynamic Track Stabiliser (DTS) machines carried out Track stabilization works to the extent of 75,523.86 kms. as against the total internal target of 1,02,519 kms. fixed by the Chief Engineer resulting in net shortfall to the extent of 26,163.90 kms. (28.45 per cent). The highest shortage was on Central where the work done was short by 6,635.49 kms. Percentage-wise, the shortfall was the highest on Southern Railway, where the work executed was short by 61.51 per cent (7,290.44 kms.), followed by Western (30.78 per cent) and Central (41.96 per cent) Railways.

2.20 Utilisation/ performance of Track Laying Machines

2.20.1 Plasser's Quick Relaying System

Track renewal works are carried out to keep the track safe and in good running condition. These works are carried out either by manual method or by mechanical method and the following are the advantages in carrying out the track renewal works by mechanical method:

(i) Damage to the concrete sleepers is avoided;

(ii) Concrete sleepers can be laid radially on curves;

(iii) Work of better quality is done; and

(iv) Work done is economical due to requirement of less labour and time.

2.20.2 Performance of PQRS machines

The following table indicates the target fixed by the Railway Board for the PQRS machines, internal target fixed by the CE and the work done by the PQRS machines during the period of review:

Year	Total target fixed by the Railway Board	Internal target fixed by the CE	Work done by the PQRS Machines
	(km)	(km)	(km)
(1)	*(2)*	*(3)*	*(4)*
1998-99	1,676	1,706.00	996.44
1999-00	1,382	1,263.60	1,019.89
2000-01	1,660	1,450.41	929.42
2001-02	1,575	1,730.00	1,042.35
2002-03	1,882	1,501.00	1,179.05
Total	**8,175**	**7,651.01**	**5,167.15**

(Annexure XV)

During the period under review, the PQRS machines carried out Track renewal works to the extent of 5,167.15 kms. against as the total target of 8,175 kms. as fixed by the Railway Board, resulting in shortfall to the extent of 3007.85 kms. (36.80 per cent). The shortage was highest on North Eastern Railway, where the shortage was 278 kms. (75.96 per cent) against the Railway Board's target of 366 kms., followed by Eastern (54.12 per cent) and South Central (53.45 per cent) Railways.

With reference to the internal target fixed by the Chief Engineer, the shortfall was highest on North Eastern Railway, where the shortage was to the extent of 278 kms. (75.96 per cent) against the internal target of 366 kms., followed by South Central (48.55 per cent) and Southern (47.29 per cent) Railways.

2.21 Points and crossing changing machines (T-28)

Relaying of points and crossings (turnouts) on PSC sleepers is undertaken, either by manual method or by mechanical method, to keep the track safe and in good running condition.

2.21.1 Performance of T-28 machines

The following table indicates the Railway Board target for the T-28 machines, internal target fixed by the CE and the work done by the T-28 machines during the period of review:

Year	Total target fixed by the Railway Board	Internal target fixed by the CE	Work done by the T-28 Machines
	(No. of P&C)		
(1)	*(2)*	*(3)*	*(4)*
1998-99	939	953	679
1999-00	1,296	1,410	956
2000-01	1,844	1,927	773
2001-02	2,016	2,056	684
2002-03	1,550	1,475	746
Total	**7,611**	**7,821**	**3,838**

(Annexure XVI)

During the period of review, the T-28 machines changed 3,838 Points and crossings as against as the total Railway Board target to change 7,611 Points and crossings, resulting in shortfall to the extent of 3,773 Points and crossings (49.57 per cent). The shortage was highest on Northern Railway, where the shortage was to the extent 970 (77.72 per cent), followed by Western (67.90 per cent), Southern (62.55 per cent), North Eastern (59.72 per cent) and Central (41.96 per cent) Railways.

With reference to the internal target fixed by the Chief Engineer, the shortage was highest on Northern Railway, where the shortage was to the extent of 706 (71.75 per cent), followed by Western (64.63 per cent), Southern (62.55 per cent), Central (55.14 per cent) and North Eastern (53.97 per cent) Railways.

2.21.2 Avoidable accumulation of points and crossings

On eight Zonal Railways (except Eastern Railway, where full details were not available), during the period of review, the TMO received 13,035 Points and

crossings, out of which only 8,917 were laid (5,914 by manual method and 3,003 by mechanical method) leaving a balance of 4,118 Points and crossings. Thus, 4,118 layouts received were not laid due to under-utilisation of T-28 machines to the level of the Railway Board target.

Except on Western Railway (where all the layouts received during the review period were laid) and Eastern Railway (where more layouts were laid than received during the review period), on all the other six Zonal Railways, less layouts than received were laid. Central Railway received 4,849 layouts but laid only 2,360 (545 mechanically and 1,815 by manual method), leaving a balance of 2,489 layouts (51.33 per cent), followed by Northern and North Eastern Railways, where 41.30 per cent and 30.04 per cent of the layouts received during the period of review were not laid.

(Annexure XVI)

2.22 Utilisation of Track Machines vis-à-vis available Working days

It has been brought out in the previous paragraphs that the track machines available with the Zonal Railways were under-utilised. An attempt was made in audit to analyse the reasons for such under-utilisation of the machines. Test check by Audit in respect of seven categories of machines revealed that out of 4,63,816 days available these machines were utilised only on 2,92,262 days (63.01 per cent) only. For the remaining 1,71,554 days, the machines were idling for various reasons like 'block not planned' (37,917 days),), 'under repair' (30,917 days), 'transit/ days under shift' (18,003 days), 'no block by traffic department' (17,738 days), 'periodical/ intermediate overhaul' (17,531 days),'staff rest' (17,527 days) and 'other reasons' (31,921 days). Machine-wise utilisation details are given in the following table:

Sl. No.	Machine	Working days available	Number of days worked	Percentage of col.4 to Col.3
(1)	*(2)*	*(3)*	*(4)*	*(5)*
1.	Plain Tamping machine	1,80,433	1,30,613	72.39
2.	Points and Crossings Tamping machines	77,769	58,488	75.21
3.	Ballast Cleaning machines	47,492	27,113	57.09
4.	Ballast Regulating machines	43,228	28,857	66.76
5.	Dynamic Track Stablisers	37,509	27,082	72.20
6.	Plasser's Quick Relaying System	54,079	15,057	27.84
7.	Points Relaying machines	23,306	4,052	17.39
TOTAL		**4,63,816**	**2,92,262**	**63.01**

The targets fixed by the Railway Board have already been scaled down from the rated capacity of the machines and there should, therefore, have been no reason for further fall in their utilisation capacities and loss of working days for reasons cited.

2.23 Maintenance Schedules

2.23.1 The normal life of a track machine is 15 years computed in terms of gross units of work done as indicated in Annexure 5.9 of Indian Railways

Track Machine Manual (IRTMM). It is necessary that for the optimum and efficient utilisation of track machines, maintenance schedules as stipulated in the IRTMM are carried out regularly. Failure to do so may result not only in reducing the life of the machine, but also increase the cost of operation and maintenance of the machines and bring down the effective utilisation of the machine.

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

Schedule	Periodicity	Duration	Location
(1)	*(2)*	*(3)*	*(4)*
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)

2.23.2 On Indian Railways, the position in regard to maintenance Schedules carried out during the period of review (from 1998-99 to 2002-03) is indicated below:

(i) Schedules I to III: These Maintenance Schedules were stated to have been carried out in the field (viz. at the sites at which the track machines were based for day-to-day working). However, no returns were forwarded to Headquarters in support of the Maintenance Schedules stated to have been carried out. Therefore, Audit was unable to verify the compliance of these maintenance Schedules on zonal Railways.

(ii) Schedule-IV: This Maintenance Schedule was not being carried out on Zonal Railways due to non-availability of Mobile Van for carrying out the same.

(iii) Schedules V to VI: These maintenance schedules were not being carried out at the periodic intervals specified in the IRTMM. These machines were only given need based attention at the site or at satellite Depots.

A test check on Central and Northern Railways conducted by Audit revealed a steep rise in the number of days for which the machines had to be detained for repair/maintenance. On Central Railway 6 machines attended by Track Machine Depot at Jhansi had consumed 693 days ranging from 51 to 244 days per machine. Similarly, on Northern Railway 10 machines attended by base depot (KKDE) had consumed 1028 days ranging from 47 to 219 days per machine. Thus, by ignoring the prescribed schedules 1721 days had been consumed by just 16 machines (at an average of 107 days per machine) on these two Railways. This has resulted in loss of work due to non-availability of machines for regular work, idling of staff and labour attached to these machines.

(iv) Schedule VII: During the period from 1998-99 to 2002-03, out of total 323 track machines held, only 75 track machines were sent to Central Periodical Overhauling Workshop (CPOH), Allahabad and 248 machines were not sent at all.

A test check conducted by Audit revealed that on Central Railway, out of 13 machines sent, 10 machines had taken 1172 days for CPOH as against scheduled 900 days. Thus, 272 days had been consumed in excess of the days required for CPOH.

2.23.3 A further review of IOH/ POH days exhibited in the Performance Report of Central Railway sent to Railway Board and days on which the machines were actually attended either by IOH Workshop or by CPOH Workshop revealed that as against the actual 1,218 IOH/ POH days in respect of 27 machines, Railway Administration had furnished information in the Performance Reports sent to Board that 4,297 days were utilised for IOH/ POH. Thus, the track machines were kept idle for long time for the reasons not on record and the idle days were put under IOH/ POH days of the machine.

2.24 Consumption of stores and oils by track machines

2.24.1 Consumption of stores

Zonal Stores Depot of Track Machines Organisation is responsible (i) for timely procurement of stores and spares required for the maintenance of track machines and supply them to the Base depot or Sub-depots and also (ii) for collection of released materials and their disposal either by reconditioning or condemning them.

- On Central, Eastern, Northern, Southern, South Central and Western Railways, the Zonal Stores Depots were holding 27,627 items of stores and spares valuing Rs. 27.63 crore. Stores items valuing Rs. 0.76 crore (1854 items) which had become obsolete due to technological changes were neither condemned nor disposed off.
- The age-wise break-up of the spares which had become obsolete and awaiting disposal as on 31 March 2003 is indicated in the following table:

Sl. No.	Particulars of obsolete items awaiting disposal	Spares declared obsolete	
		Total number of items (PL)	Total value (Rs. in crore)
1	*2*	*3*	*4*
1.	For less than three years	84	0.13
2.	For more than three years but less than five years	305	0.32
3.	For more than five years but less than ten years	768	0.21
4	For more than ten years	697	0.10

2.24.2 Consumption of spares

The mandatory spares require replacement at specified periodical intervals. The consumption of mandatory spares should be reviewed from the monthly

reports and cases of excess consumption, involving additional expenditure, should be critically reviewed for initiating corrective action.

2.24.3 Consumption of oils

Diesel oil, lube oil, hydraulic oil and gear oil are very essential for the running of the track machines and their consumption by each machine should be monitored for keeping at specified level. The consumption of oils by each machine should be monitored from the daily reports/ monthly reports and cases of excess consumption, involving additional expenditure, is required to be monitored and reviewed for initiating corrective action.

A test check of the consumption of HSD oil on Zonal Railways [except South Eastern (for all years) and Eastern Railway (for 2002-03)] by Plain Track Tamping machines, Points and Crossings Tamping machines and Ballast Cleaning machines for the years 2000-01 to 2002-03 revealed the following position:

(i) Plain Track Tamping Machines

As per Performance Reports of the TMO, the Plain Track Tamping machines had executed 1,56,804.04 kms. of work during 2000-01 to 2002-2003 and the consumption of HSD oil was to the extent of 1,03,30,527 kls., averaging 65.88 kls. per km.

As was pointed out in earlier paras, the extent of work reported to Railway Board in the Performance Reports is highly exaggerated in respect of most Railways as compared to the quantum of work shown as done in the field records. Taking that into consideration the average consumption of oil per km. would be much higher. Going by the field records, the average consumption was 115.19 kls. per km. as against 65.88 kls. per km. reported for the three year period based on Performance Reports.

The consumption was highest on Northeast Frontier 173.49 kls. per km., followed by Western (152.14 kls. per km.), Southern (139.16 kls. per km.) and Northern (115.13 kls. per km.) Railways. The lowest was on North Eastern Railway (32.23 kls. per km.), followed by Eastern Railway (66.52 kls. per km.).

(Annexure XVII)

(ii) Points and Crossings Tamping machines

As per Performance Reports of the TMO, Points and Crossings Tamping machines had executed 1,00,968 turnouts (Points and Crossings) of work during 2000-01 to 2002-03 and the consumption of HSD oil was to the extent of 47,29,536 kls. averaging 46.84 kls. per turnouts. But it was observed that the work executed, as per the records of the field records was 36,878 turnouts and the average worked out to 128.25 kls. per turnouts.

The consumption was highest on Southern 334.22 kls. per turnouts, followed by Western (206.89 kls. per turnouts), and Northern (149.62 kls. per turnouts) Railways. The lowest was on North Eastern Railway (29.29 kls. per turnouts), followed by Eastern Railway (74.28 kls. per turnouts).

(Annexure XVII)

(iii) Ballast Cleaning machines

As per Performance Reports of the TMO, Ballast Cleaning machines had executed 4,865.15 kms. of work during 2000-01 to 2002-03 and the consumption of HSD oil was to the extent of 35,64,824 kls. averaging 732.73 kls. per km. But it was observed that the work executed, as per the records of the field offices was 3,480.35 kms. and the average worked out to 1,024.27 kls. per km.

The consumption was highest on Western 1,863.05 kls. per km., followed by Southern (1,383.14 kls. per km.), and Northern (1,284.04 kls. per km.) Railways. The lowest was on Northeast Frontier Railway (526.60 kls. per km.), followed by Eastern Railway (806.37 kls. per km.).

(Annexure XVII)

2.25 Cost of operation and maintenance of track machines

2.25.1 A review of the expenditure on operation and maintenance of track machines on Indian Railways was undertaken in Audit. The expenditure includes expenditure incurred at base depots/ satellite depots and workshops for repairs and maintenance of track machines (including IOH/ POH) and during operation of machines online on spares, consumables, staff and other overheads. The following table indicates the extent of such expenditure for the period 1998-99 to 2001-02 on Indian Railways.

(Rs. in crore)

Year	Spares	Consumables	Salaries	Overhead	Total
1	*2*	*3*	*4*	*5*	*6*
1998-99	15.42	8.85	19.47	2.45	46.19
1999-00	17.14	12.36	21.89	1.71	53.10
2000-01	19.77	12.61	24.19	1.58	58.06
2001-02	24.40	16.47	24.29	1.94	67.10

It may be observed that the expenditure increased from Rs.46.19 crore in 1998-99 to Rs.67.10 crore in 2001-02; an increase of 45.27 per cent. While the percentage of expenditure on salaries shows a gradual increasing trend over the period (24.76 per cent), the expenditure on spares and consumables showed high increase in percentage - 58.24 per cent and 86.10 per cent respectively.

Review of expenditure incurred by the Zonal Railways revealed that Central, Northern and Western Railways have been apportioning the overhead costs of the workshops, while others have not, showing a lack of uniformity and a need for issue of instructions for following a uniform procedure.

It was seen that there was a wide variation in the expenditure figures for five main categories of machines, as attempted by Audit using figures of 2001-02. The findings are discussed below:

2.25.2 Continuous Tamping Machine (CSM)

Out of the tamping machines, CSM, which is the mainstay of tamping operations on all Railways, was selected for comparison. The cost per km.

was the lowest on Northern Railway - Rs.926, as against Southern Railway, where the figure was as high as Rs.7,737 per. km. The position of the various components of this cost is discussed below:

Spares: The average expenditure per km. on spares was the highest on Southern Railway (Rs.3,449), followed by South Central Railway (Rs.3,297), Western (Rs.2,697) and North Eastern (Rs.2,617) Railways. The lowest was on Northern (Rs.525), followed by Eastern (Rs.1,053) Railways.

Consumables: The average expenditure per km. on consumables was the highest on North Eastern Railway – Rs.2,147 followed by Western (Rs.1,863), Central (Rs.1,750) and South Central (Rs.1,629) Railways. The lowest was on Northern (Rs.33) followed by Eastern (Rs.971) Railways.

Staff: The average expenditure per km. on staff was the highest on Northeast Frontier Railway (Rs.2,909), followed by Southern (Rs.2,794) and North Eastern (Rs.2,579) Railways. The lowest was on Northern (Rs.277) followed by South Eastern (Rs.557).

The figures for Northern Railway were far less for all the items in comparison to other Railways. The average expenditure per km. for spares, consumables and staff were Rs.525, Rs.33 and Rs.277 respectively as against the All- India average of Rs.2,025, Rs.1,374 and Rs.1,652 respectively. Since the variation is so high, it calls for a more detailed examination as to whether the figures of Northern Railway are correct. The wide variations amongst other railways also indicate a need for control over expenditure by the high spending Railways.

(Annexure XVIII)

2.25.3 Ballast cleaning machines (BCM)

The total holding of BCM on Indian Railways was 26 as on 31 March 2002. The cost per kilometre of these machines was lowest on Western Railway - Rs.27,944, as against Southern Railway, where the figure was as high as Rs.1,56,187 per km. The position of the various components of this cost is discussed below:

Spares: The average expenditure on spares was Rs.23,689 per km. It was highest on South Central (Rs.48,488), followed by Southern (Rs.37,947) and Central (Rs.26,438) Railways. The lowest was on Western Railway (Rs.6,185), followed by Northeast Frontier Railway (Rs.9,539).

Consumables: The average expenditure on consumables was Rs.18,030 per km. It was the highest on Southern (Rs.53,656), followed by Central (Rs.22,281), and South Eastern (Rs.10,538) Railways.

Staff: The average expenditure on staff was Rs.20,488 per km. It was highest on Southern Railway (Rs.64,584), followed by Central Railway (Rs.21,619). The lowest was on South Eastern Railway (Rs.4,571).

(Annexure XVIII)

The wide variation in expenditure figures across the Zonal Railways calls for tighter control over expenditure by some Railways.

2.25.4 Ballast Regulating Machines (BRM)

The total holding of BRM on Indian Railways was 26 as on 31 March 2002. The cost per kilometre of these machines was lowest on Northern Railway - Rs.374, as against Southern Railway, where the figure was as high as Rs.3,590 per km. The position of the various components of this cost is discussed below:

Spares: The average expenditure per km. on spares was Rs.327 per km. It was the highest on South Central Railway (Rs.799), followed by Southern (Rs.723) and Eastern (Rs.577) Railways. The lowest was on Northern Railway (Rs.61), followed by Northeast Frontier Railway (Rs.109).

Consumables: The average expenditure per km. on consumables was Rs.203 per km. It was the highest on Central Railway (Rs.393), followed by Western (Rs.300) and South Central (Rs.260) Railways. The lowest was on Northern (Rs.14) followed by Southern (Rs.171) Railways.

Staff: The average expenditure per km. on staff was Rs.740 per km. It was the highest on Southern Railway (Rs.2,696), followed by Northeast Frontier Railway (Rs.1,548). The lowest was on South Eastern Railway (Rs.176) followed by South Central Railway (Rs.183).

The figures for Northern Railway were far less for all the items in comparison to other Railways. The average expenditure per km. for spares, consumables and staff were Rs.61, Rs.14 and Rs.229 respectively, as against the All-India average Rs.327, Rs.203 and Rs.740 respectively. Since the variation is so high, it calls for a more detailed examination as to whether the figures of Northern Railway are correct. The wide variations amongst other Railways also indicate a need for control over expenditure by the high spending Railways.

(Annexure XVIII)

2.25.5 Dynamic Track Stabilisers (DTS)

The total holding of DTS on Indian Railways was 25 as on 31 March 2002. The cost per kilometre of these machines was lowest on South Eastern Railway - Rs.980, as against North Eastern Railway, where the figure was as high as Rs.3,373 per km. The position of the various components of this cost is discussed below:

Spares: The average expenditure on spares was Rs.264 per km. It was the highest on South Central (Rs.987) followed by Southern (Rs.332) and Eastern (Rs.324) Railways. The lowest was on Western (Rs.29) followed by Northeast Frontier (Rs.74) Railways.

Consumables: The average expenditure on consumables was Rs.420 per km. It was the highest on Central Railway (Rs.889), followed by Southern (Rs.624) and South Eastern (Rs.534) Railways. The lowest was on Northern (Rs.30) followed by North Eastern (Rs.214) Railways.

Staff: The average expenditure on staff was Rs.1,215 per km. It was the highest on North Eastern Railway (Rs.3,078), followed by Southern Railway

(Rs.2,369). The lowest was on South Central (Rs.164) followed by South Eastern (Rs.213) Railways.

(Annexure XVIII)

2.25.6 Plasser's Quick Relaying System (PQRS)

The total holding of PQRS on Indian Railways was 33 as on 31 March 2002. The cost per kilometre of these machines was lowest on Northern Railway - Rs.12,487, as against South Central Railway, where the figure was as high as Rs.1,05,077 per km. The position of the various components of this cost is discussed below:

Spares: The average expenditure on spares was Rs.12,635 per km. It was the highest on South Central Railway (Rs.54,846), followed by Central (Rs.21,483) and Eastern (Rs.13,563) Railways. The lowest was on Northern (Rs,1,325), followed by North Eastern (Rs.1,667).

Consumables: The average expenditure on consumables was Rs.7,887 per km. It was the highest on Western (Rs.22,284), followed by South Central (Rs.17,385), and Central (Rs.15,178) Railways. The lowest was on Northern (Rs.58) followed by Southern (Rs.490) Railways.

Staff: The average expenditure on staff was Rs.32,390 per km. It was the highest on Southern Railway (Rs.64,939), followed by North Eastern Railway (Rs.64,250). The lowest on South Eastern (Rs.5,952) followed by Northern (Rs.8,344) Railways.

(Annexure XVIII)

2.26 Inspection of track machines

2.26.1 By Officers of track machines organisation

The Dy.CE (Machines) and the Senior Engineer are required to conduct inspection of track machines but the periodicity is not prescribed for such inspections. On Zonal Railways (except Central and Southern Railways), the particulars of inspections conducted, if any, by these Officers were not made available to Audit.

The periodicity prescribed for conducting inspections by the other officers of the Track Machine Organisation is indicated below:

Sl. No.	Type of Machine	Inspection Schedule	
		AEN/MC	SSE/MC
1	*2*	*3*	*4*
1	Universal	Monthly	Fortnightly
2	Unomatic	Monthly	Fortnightly
3	Duomatic	Monthly	Fortnightly
4	CSM	Monthly	Fortnightly
5	3-X Tamping Express		
6	Unimat	Monthly	Fortnightly
7	Multi Purpose Tamping		
8	Dynamic Track Stabilizer	Once in 2 months	Monthly
9	Ballast Cleaning	Fortnightly	Weekly

Sl. No.	Type of Machine	Inspection Schedule	
		AEN/MC	SSE/MC
1	*2*	*3*	*4*
10	Shoulder Ballast Cleaning	Monthly	Fortnightly
11	Ballast Regulator	Once in 2 months	Monthly
12	PQRS	Monthly	Fortnightly
13	Track Relaying Train	Weekly	Daily
14	P&C Changing (T-28)	Monthly	Fortnightly

Copies of the inspection reports are to be sent to the SSE (TM) and the Dy. CE (TM) and the JE-in-charge of the track machine.

On Central Railway the Inspection Reports for the year 2002-03 were made available to Audit. Scrutiny of these Reports revealed that Dy. Chief Engineer, Jhansi had conducted inspection of only one machine during the year.

Scrutiny of the inspection reports for the year 1999-00 to 2002-03 of Central Railway revealed that as per periodicity prescribed for conducting inspection, the other officers (AEN/ XEN) of Track Machine Organisation were required to conduct 2,564 inspections of 42 to 48 Track Machines. As against this, AEN/ XEN had conducted 1,540 inspections (60.06 per cent). However, during 2002-03 the percentage of inspection conducted by the officers was 25.88 per cent only. The reasons for conducting fewer inspections was stated to be due to shortage of Officers.

On Southern Railway the officials of TMO are visiting the work sites to monitor the effective functioning/ utilization of the machines and for attending to the day to day problems faced at site. No separate record of inspections carried out is being maintained.

On Eastern, Northern, North Eastern, Northeast Frontier, South Central, South Eastern and Western Railways, although the inspections as prescribed were stated to have been conducted during the period from 1998-99 to 2002-03, the reports on such inspections conducted were not made available to Audit.

2.26.2 By officers of open line organisation

The AEN is required to inspect once in a month all the track machines working at the sites in his jurisdiction and copies of the inspection report are required to be sent to the Sr. DEN of the Division and to the Dy. CE (TM). However, the reports in respect of inspections conducted by the AENs were not made available to Audit by Zonal Railways.

2.27 Staff

2.27.1 Deployment of staff

Scales of staff (i) for field operation as well as for field supervision, technical and general services, and (ii) for repairs and maintenance at Base depot are specified in Chapter 8 of Indian Railways Track Machine Manual.

On Zonal Railways, the requirement and deployment of staff for the year 2002-03 is indicated below:

(A) For operation in the field

For 304 track machines in operation in the field (except Northeast and Southern Railways where full details were not available), the total number of staff required (including for supervision, etc.) works out to 3,327 as against which sanction exists for 3,764 posts while 2,996 posts are operated.

On Northern Railway the sanction exists for 366 posts in excess of the actual requirement while 104 posts were operated in excess of the requirement. The operation of posts in excess of requirement was attributable to creation of 41 posts in ministerial cadre over and above the requirement; the reasons for creation of excess posts in other categories, however, could not be ascertained. Similarly, on South Eastern Railway the sanction exists for 64 posts in excess of the actual requirement while 59 posts are operated in excess of the requirement. The reasons for operation of posts in excess of requirement are not available.

(B) For Base depot

For the maintenance of the track machines at the Base Depots, the total number of staff required as per norms prescribed, works out to 304 as against which sanction exists for 435 posts while 383 posts are operated.

On North Eastern Railway (Base depot at Gorakhpur Cantt.), the sanction exists for 34 posts while 53 posts were operated i.e. 19 posts in excess to the sanction. Similarly on South Eastern Railway (Base depot at Sini), the sanction exists for 161 posts in excess of the actual requirement while 90 posts were operated in excess of the sanctioned posts.

The reasons for operation of posts in excess to the sanctioned strength were not on record.

2.27.2 Training of staff

The Zonal Training Centre of IRTMTC (ZTC), Allahabad, provides training to the operators (of TMO) in train working rules and the Dy. CE (Machines) issues competency certificate valid initially for 3 years and renews it for further period of 3 years. The operator is required to undergo a Refresher Course in ZTC, Allahabad, within a period of 6 years.

No records were produced to Audit to see whether the operators had undergone the required training during the period under review in all Railways, except Central Railway.

On Central Railway during the period from 1998-99 to 2002-2003 scrutiny of training courses framed by IRTMTC/ Allahabad for technical staff, slots asked for, slots nominated by TMO and number of staff actually attended the courses revealed that for 190 courses minimum 570 candidates and maximum 950 candidates were asked for by IRTMTC/ Allahabad from Central Railway. As against this, 703 candidates were nominated by TMO and only 360 number of staff actually attended the courses (51.21 per cent).

The reasons attributed to less attendance in courses were stated by TMO as under:-

1) The persons nominated for the course could not be relieved in time due to acute staff position.

2) Sufficient trainee reserves were not provided in the staff sanctions.

3) The nominated staff could not attend the training course due to their personal problems.

2.28 Conclusion

The thrust of introduction of mechanised track maintenance in the Indian Railways was to improve the quality of track maintenance and to cut down track maintenance time. The review has revealed that these objectives remain to be achieved to a very large extent. Despite availability of machines in excess of requirement, there has been gross under-utilisation of the machines even with reference to scaled down capacities fixed by Railway Board. The under-utilisation is mostly on account of the Operating Department not making available blocks for undertaking of track maintenance. The review also revealed high consumption of oil, spares and consumables, wide variation in expenditure on the same across Railways and large scale inflation of performance in the reports sent to Railway Board by the Zonal Railways. The following recommendations can be considered in this regard:

- Procurement of track machines should be based on requirement assessed with reference to the number of block hours that the Operating Department is able to provide for track maintenance works. The Railways, however, should make serious efforts to provide more and longer block hours to enable optimum utilisation of track machines.
- Strict monitoring of consumption of oil, spares and consumables by fixing machine-wise standards for consumption should be done.
- Performance Reports of track machines should be based on actual figures of track maintenance available in the field records.

CHAPTER 3
Coal Movement on Indian Railways

3.1 Introduction

Transportation of coal forms a significant part of the total traffic on the Indian Railways as compared to other commodities in terms of tonnage of loading and the revenue earnings. Transportation of coal to the extent of 235.85 million tonne during the year 2002-2003 constituted 45.46 per cent of the total traffic carried by Indian Railways in terms of volume and Rs.11480.79 crore (43.31 per cent) in terms of total revenue earnings.

There are about 117 stations serving 227 coal loading points/ sidings situated over Indian Railways from where coal is loaded and transported to different destinations. Coal of improved quality is also imported from foreign countries and loaded from 11 sidings over Indian Railways and transported mainly to various steel plants. The Railways carry coal to about 208 unloading points/ sidings. About 60 Thermal Power Plants/ Power Houses, 12 Steel Plants and 55 Cement factories which are major consumers of coal, receive coal by rail.

3.2 Highlights

- **The changes in freight tariff structure through the annual budgetary exercises failed to increase the Railways' share in transportation of coal.**

  Concession of 25 per cent introduced with effect from 1 April 1999 on short lead traffic failed to bring in additional revenue in four routes out of five short distance routes test checked.

  Test check of four middle distance routes (108-402 kms.) revealed scope for capturing coal traffic moving by road which could have yielded additional revenue of Rs.60.37 crore during the review period.

  (Para 3.6 & 3.7)

- **Railways could have earned Rs.35.51 crore during the year 2002-03 if open hopper wagons were deployed for transporting coal to five of the unloading points test checked as these wagons save a substantial amount of time on unloading operations.**

  (Para 3.8.1)

- **Failure to conduct time and motion studies and reduce the allowed free time in 15 mechanised loading points and three mechanised unloading points led to avoidable grant of excess time and loss of earning capacity to the tune of Rs.86.38 crore during the year 2002-03.**

  (Para 3.9.2)

- **During the year 2002-03, the excess time taken beyond the free time allowed at 36 loading points resulted in loss of earning capacity of wagons to the extent of Rs.226.65 crore of which highest amount**

(Rs.180.49 crore) was on Eastern Railway. Similarly, there was loss of earning capacity of Rs.175.10 crore at 31 unloading points of which highest amount (Rs.80.66 crore) was on Eastern Railway.

(Para 3.10.1)

- **Levy of penal freight to minimise the overloading was not acting as a deterrent and cases of overloading was found in 20 out of the 22 sidings test checked. At Junadih Line No.4, Korba loading point all the wagons weighed were found overloaded.**

(Para 3.10.3)

- **Diversion of coal rakes and non-issue of Supersessional Railway Receipts (SRRs) was a common feature on Eastern and South Eastern Railways.**

  494 diversion cases of coal rakes were found in respect of six loading points test checked on South Eastern Railway during the period 1 April 2002 to 31 March 2003.

  134 diversion cases of coal rakes were found in respect of five loading points test checked on Eastern Railway during the period 1 April 2002 to 31 March 2003. Freight outstanding on account of non-issue of SRRs as assessed was to the tune of Rs.20.24 crore.

(Para 3.10.4)

- **13794 wagons were hauled in empty condition in loaded Closed Circuit (CC) rakes and Non-CC rakes from the loading points test checked during the year 2002-03 on account of their rejection by the siding holders as unfit for coal loading. The loss of freight works out to Rs.27.37 crore.**

(Para 3.11.1 & 3.11.2)

- **Waiving of demurrage charges has become a routine practice in the Railways defeating the very purpose of assessing and levying them. The extent of waival also was far above limits considered as reasonable. An amount of Rs.361.11 crore was leviable as demurrage charges during the period 1998-99 to 2002-03 in sidings test checked of which an amount of Rs.153.22 crore was waived beyond the permissible limits. A sum of Rs.49.65 crore was waived in excess of limits in Eastern Railway alone.**

(Para 3.12.1)

- **Non-realisation of earnings from coal transportation is a serious matter and has not received the attention that it deserves. The outstanding amount from State Electricity Boards/ Power Houses has steadily risen from Rs.1139.91 crore as on 31 March 1999 to Rs.1753.87 crore as on 31 March 2003. Out of the outstanding as on 31 March 2003, a sum of Rs.966.63 crore was due from Badarpur Thermal Power Station managed by the National Thermal Power Corporation.**

(Para 3.12.2)

3.3 Organisational structure

Policy matters governing the movement of coal, fixation of target of loading to be achieved by Zonal Railways etc. are dealt with by Traffic Transportation Directorate of Railway Board under the Member (Traffic), Railway Board who is assisted by an Executive Director.

At Zonal Headquarters' level Chief Operating Manager is responsible for monitoring the operations of train movements, Chief Commercial Manager is responsible for fixation of various charges for Coal sidings and the Financial Adviser and Chief Accounts Officer for ensuring collection of freight and other charges.

At Divisional level, Senior Divisional Operating Manager, Senior Divisional Commercial Manager and Senior Divisional Accounts Officer respectively are responsible for operation and movement of coal rakes, implementation of Headquarters' instructions on the subject and realisation/collection of freight and other charges as fixed by the Headquarters.

3.4 Scope of review

The review broadly covers the following areas :-

- Coal production, despatch and Railway's share in its transportation.
- Indian Railways' coal traffic achievements versus projections and impact of annual budgetary exercise on Railways share in coal transportation.
- Availability of rolling stock and performance of improved freight stock.
- Impact of modernisation of infrastructure at coal loading and unloading points.
- Operational efficiency at coal loading and unloading points.
- Efficiency in revenue realisation.

The review covers the period from 1998-99 to 2002-03. However, in respect of certain areas, the period has been restricted to the year 2002-03.

3.5 Sample size*

A macro review of coal loading, net tonne kilometres (NTKMs) and revenue earnings for the period 1998-99 to 2002-03 was carried out from the records available at Railway Board and Ministry of Coal.

At micro level, test check at loading points, unloading points was carried out as detailed below:

(i) Loading of indigenous coal is mostly done in sidings served by stations on five Zonal Railways (Central, Eastern, Southern, South Central and South Eastern). 26 serving stations (with a minimum of five on each) and 69 loading points/ sidings served by them on these Railways were selected. In addition, eight serving stations and nine loading points/ sidings on Northeast Frontier and Western Railways were selected (**Annexure XIX**).

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* The number of Zonal Railways has been taken as 9 based on the jurisdiction prior to re-organisation of Zonal Railways made with effect from 1 October 2002 and 1 April 2003.

(ii) 19 Thermal Power Plants, seven Steel Plants, 11 Cement Factories, two Fertiliser Plants and one Port siding which represent a minimum of five unloading points on each zonal Railway were selected except North Eastern and Northeast Frontier Railways where one Thermal Power Plant on each Railway was selected (**Annexure XIX**).

(iii)Five short distance routes between loading - unloading points in Central, Eastern, Southern, South Central and South Eastern Railways were selected to examine the impact of Railways efforts to capture short lead traffic.

3.6 Coal production, desptatch and Railways' share in its transportation

All India figures of coal production (excluding Meghalaya Coal) during 1998-99 to 2002-03 were as follows:

(In million tonnes)

Year	Production
1998-1999	292.27
1999-2000	299.97
2000-2001	309.63
2001-2002	322.64
2002-03 (April to December – provisional)	239.76

Source : Annexure IX –Annual Report 2002-03- Ministry of Coal

To bridge the gap between the requirement and indigenous availability and to improve the quality of overall blend for technological reasons, coking coal is mainly being imported by Steel Authority of India Limited and other Steel sector.

3.6.1 Despatch of coal

Keeping in view the requirement of Power and Cement sectors in terms of quantity and quality of coal, the available capacity for production of coal and the available modes of transport, linkages are drawn up by Standing Linkages Committee (Long term) and Standing Linkages Committee (Short term). These Committees are represented by the representatives from the Ministry of Power, Ministry of Industries, Central Electricity Authority, Coal India Limited (CIL) etc. functioning under the Chairmanship of Additional Secretary, Ministry of Coal. Supply of coking coal to Steel Plants is made by the coal companies themselves on the basis of linkages established by a competent linkage Committee.

Major sector-wise despatch of Coal during the period from 1998-99 to 2002-03 was as follows:

(In million tonnes)

Sector	Year				
	1998-99	1999-00	2000-01	2001-02	2002-03 (April to December – provisional)
Power Houses	204.68	222.63	234.60	242.76	189.36
Steel Plants and Cokeries (raw coking coal)	24.98	21.40	19.98	20.28	19.30
Cement Plants	8.61	9.50	10.33	11.85	9.52
Fertilizer Plants	4.11	3.37	3.18	3.20	1.19
Others	46.20	47.49	47.52	47.72	26.00
Total	288.58	304.39	315.61	325.81	245.37

Source : Annexure X –Annual Report 2002-03- Ministry of Coal.

Important modes of transportation of coal are Railways, Road, Merry-go-Round (MGR) System, Conveyor Belt and the Rail-cum-Sea Route. The share of these modes of transport in the total movement of coal was approximately as under:

(In percentage)

(a)	Railways	53.0
(b)	Road	14.0
(c)	MGR System	22.1
(d)	Others (Conveyor Belt, Rail-cum-Sea Route etc.)	10.9
	Total	**100.0**

Source: Annual Report 2002-03 – Ministry of Coal

About 85 per cent of the total coal production in the country comes from the collieries of CIL. The percentage of Railways share vis-a-vis Road/ MGR and others in transportation of coal produced by CIL during the period 1998-99 to 2002-03 was as under:

(In million tonnes)

Mode	1998-99		1999-00		2000-01		2001-02		2002-03	
	Tonnage	Per centage	Tonnage	Per-centage	Tonnage	Per-centage	Tonnage	Per-centage	Tonnage	Per centage
Rail	148.19	60.38	156.09	60.46	161.71	60.02	166.47	60.01	167.82	58.91
Road	29.54	12.04	30.23	11.71	31.06	11.53	32.1	11.57	36.48	12.90
MGR & Others	67.71	27.58	71.83	27.83	76.64	28.45	78.82	28.42	80.03	28.19
Total	245.44	100.00	258.15	100.00	269.41	100.00	277.39	100.00	284.33	100.00

Source: Marketing Manager, CIL, Kolkata.

Review of the performance of wagon coal loading on Indian Railways during the year 2002-03 revealed that there was scope for increasing the share of Railways in coal transportation. The Railway was not able to load coal to the extent offered by the CIL. The average figures of offer and loading are given below:

(Wagons in Four Wheeler Units/ day)

Particulars	CIL	Non-CIL	Total
Offer	21120	6858	27978
Loading	19281	6950	26231
Excess/ shortfall in loading	**-1839**	**92**	**-1747**

On an average the wagon loading on Eastern Railway was to the extent of 8048 wagons/ day against the offer of 9488 wagons/ day i.e. a major shortfall in loading of 1440 wagons/ day followed by South Eastern Railway where the loading was 12006 wagons/ day against the offer of 12303 wagons/ day i.e. a shortfall in loading of 297 wagons/ day.

In the following paragraphs Audit has attempted to review Railways' performance in various areas of coal transportation and identify areas where there was scope for improvement which could result in capturing a larger share in coal transportation.

3.7 Indian Railways' coal traffic projections and achievements

As a part of the annual budget exercise, Indian Railways draw up targets for coal loading, the NTKMs to be achieved and the revenue to be earned therefrom. These projections are based on the Railways' performance in the previous year, the anticipated growth in the coal sector, the freight tariff

structure etc. The performance of the Railways vis-à-vis the budget projections and the impact of the changes made in the freight tariff structure on achievements of the budgeted projections are depicted and discussed below.

Year	Budgeted/ Revised/ Actual	Tonnage Originating (in million)	NTKMs (in million)	Earnings (Rupees in crore)
1997-98	Budgeted	205.00	125118	8501.00
	Revised	209.50	128929	8779.03
	Actual	**208.75**	**127515**	**9245.03**
1998-99	Budgeted	218.00	137340	9489.00
	Revised	201.50	123922	9481.68
	Actual	**197.60**	**121779**	**9050.50**
1999-00	Budgeted	214.00	133750	10395.08
	Revised	211.00	127734	10079.86
	Actual	**209.96**	**126771**	**9929.82**
2000-01	Budgeted	221.50	133731	10627.70
	Revised	223.00	129558	10418.76
	Actual	**223.69**	**133444**	**10552.16**
2001-02	Budgeted	234.50	134628	11173.06
	Revised	227.30	135307	11032.52
	Actual	**229.82**	**141091**	**11241.32**
2002-03	Budgeted	232.50	137386	11433.37
	Revised	235.00	140003	11440.74
	Actual	**235.85**	**141724**	**11480.79**

During the year 1998-99 to 2002-03, the following changes in freight rates were made which had direct impact on the loading and earnings from coal traffic.

1998-1999:

Adjustment in freight rates for coal over shorter distances was made, the increase being in the range of about two per cent for different distances upto 500 Kms. There was no increase beyond 500 Kms. upto 1500 Kms. but there was a reduction of one per cent beyond 1500 Kms. To make the freight rates more attractive over middle and long distances, the taper of rates for coal were so adjusted that the rates would reduce at longer distances, by about one to two per cent. It was expected that this would not only give a boost to the core sector, but also enable this sector to offer more traffic.

From the performance figures shown in the table above, it can be seen that the strategy of making adjustment in freight rate with the expectation of attracting more traffic failed completely. The Railways failed to achieve the projected originating tonnage, NTKM and revenue earnings compelling them to make downward revision in the Revised Estimates. Even the revised targets were not achieved. In fact the achievements were lower than that of last year.

1999-2000:

The freight rates were increased by four per cent on all commodities including coal. The classification for charge in respect of Washed coal was so adjusted that increase was by one step only. Based on representations from the trade to reduce the burden of idle freight on short lead traffic, which was charged for a minimum of 100 Kms., a concession of 25 per cent was allowed in the freight rate for traffic hauled for distances upto 50 km.

Though the performance was better in comparison to the previous year, the originating tonnage, NTKMs and earnings were less than the Budget Estimates and the lowered targets of the Revised Estimates. Despite giving concession for short lead traffic, the Railways could not even regain the NTKMs position of the year 1997-98.

A test check of five short distance routes between loading-unloading points was carried out to see the impact of extending the concession of 25 per cent allowed in the freight rate for traffic hauled for distances upto 50 kms. In two routes (Chennai Harbour/ Port (Attipattu) to Ennore Thermal Power Station on Southern Railway and Colliery (Pit Head) to Bhajudih coal washery on South Eastern Railway) out of five routes test checked, Railways already had 100 per cent share of coal traffic moving on these routes. The concession therefore only benefited the trade and did not help the Railways in increasing their loading or revenue earnings. On the contrary, the earnings only reduced due to the concession and reduced coal loading on these routes in comparison to the earnings from these routes in the year 1998-99.

Out of the remaining three routes, in one route (Ghugus Colliery to New Thermal Power Station, Chandrapur on Central Railway) despite increase in loading over the previous year (1998-99) the revenue earnings actually reduced and percentage share of the Railway remained more or less same which is a clear indication that offering the concession was not in Railway's interest. In respect of route on Eastern Railway (Colliery – Pit Head to Patherdih Coal washery), the Railway's share did increase from 76.16 per cent to 98.95 per cent, but as a combined result of reduced availability of coal for transportation and concessional tariff, the earnings were on continuous decline. Only on route in South Central Railway (Rudrampur siding to Kothagudem Thermal Power Station), there was an increase in loading and in earnings.

[Annexure XX(a)]

2000-2001:

A general increase of five per cent in the rates of all commodities except essential commodities was proposed. However, with a view to encourage higher industrial growth, the increase of five per cent was contained to less than five per cent in respect of coal (a core sector commodity) by down grading the classification.

The performance was more or less as per expectations in regard to the originating tonnage and NTKMs. However, the actual earnings fell short of Budget Estimates by Rs.75.54 crore.

2001-2002:

The freight rates for coal (not meant for household consumption) were increased by two per cent.

The performance was more or less as per expectations.

2002-2003:

Marginal increase in freight rates of coal was enforced due to rationalisation of freight structure.

The Railways were able to achieve the projected targets in terms of originating tonnage and earnings. It however, came to notice that the average lead for coal traffic, which was 614 kms in 2001-02, had decreased to 601 kms in 2002-03. Thus, while the Railways were able to bring in additional coal traffic, they had actually suffered loss of long lead traffic at the cost of short lead traffic.

An analysis of data relating to Railway's share in coal transportation (Para 3.6) and the results of the annual budgetary exercise of the Indian Railway clearly reveal that the increase in originating tonnage of coal transported by rail was directly related to the increase in coal production by the collieries and the increase in revenue earnings of the Railways were due to the tariff revisions. The annual budgetary exercise of the Railways failed to increase Railway's share in coal transportation. On the other hand, the share has marginally reduced in favour of Road, Merry-Go-Round System and others. Thus, there was no clear focus in the Railway Budget to aim at replacing other modes of transport, especially road transportation of coal.

A micro study of coal carried in certain other routes was also carried out by Audit to examine the impact of Railways effort to capture the coal traffic moving by road. The findings are discussed below:

Review of four other points revealed that from one point (Bhajudih coal washery, Santaldih) the Railway's share of coal transportation was nil and on another point (Ambuja Cement Company Limited Siding, Bhatapara), the Railway's share was on declining trend and the traffic was only 4.17 per cent in 2002-03. Out of remaining two points, on one point (Larcen & Toubro Cement Plant, Juturu on South Central Railway) though Railway's share of coal transportation was 100 per cent during the year 1998-99 to 2000-01, it suddenly declined to 37.85 per cent in 2001-02 and further went down to 12.23 per cent in the year 2002-03. The coal transportation by rail in respect of Mejia Thermal Power Station on Eastern Railway only was on increasing trend. Though the distance traversed from collieries/ washeries to these points was considerable and ranged between 108 and 402 kms., road transportation was being preferred/ resorted to. Railway Administration did not try to find out the reasons for coal transportation by road. Had the Railways been able to capture the total coal traffic moving by road, they could have earned Rs.60.37 crore more during 1998-99 to 2002-03 **[Annexure XX(b)]**.

A test check of one unloading point Chandrapura Thermal Power Station (CTPS) on Eastern Railway where coal was being received from other sources also revealed that 18.14 lakh metric tonnes of coal were transported by road

and 19.75 lakh metric tonnes by rail. Though the distance travelled was 17 Kms., the freight was being charged for the distance of 60 Kms. from Katrasgarh to CTPS via Gomoh, as per the distance table effective from January 1995. Since the actual distance travelled was only 17 kms., and attracted 25 per cent concession with effect from April 1999, a review and correction of the freight charges being levied could have attracted the coal traffic which is moving by road. Audit assessed the possible additional revenue earnings at about 8.99 crore for the period 1999-2000 to 2002-03.

Efforts to improve the performance in coal transportation through other means like increasing and improving the Rolling Stock, upgrading and modernising infrastructure at coal loading and unloading points, improving operational efficiency in transportation of coal were also studied by Audit. The findings are discussed below.

3.8 Rolling Stock

High sided bogies open wagons namely BOX 'N', BOX and open Hopper wagons with bottom discharge arrangement namely BOBS, BOBX, BOBR etc. are mainly used for transportation of bulk commodities like coal, iron ore etc. Since Coal transportation by rail constitutes nearly 45.46 per cent of the total traffic in terms of volume, the importance of adequate availability of these wagons with the Railways cannot be over emphasised. To generate adequate rail transport capacity for handling additional freight traffic, the Indian Railways had proposed to introduce new types of wagons in place of conventional type of wagons. Four wheeler stock was to be phased out and replaced with higher capacity roller bearing 8 wheeler stock and pay load to tare ratio of wagons was to be improved by increasing axle load.

The authorised stock of High-sided open bogie wagons on Indian Railway during the years 1998-99 to 2002-03 was as follows:

Year	Units available at the end of the year				
	BOX	BOXN	Open Hopper wagons with bottom discharge arrangement	Total	Percentage of Open Hopper wagons to Total
1998-99	25351	55483	6159	86993	7.08
1999-00	21650	59204	6089	86943	7.00
2000-01	16446	62523	6783	85752	7.91
2001-02	14610	64687	7299	86596	8.43
2002-03	13586	66142	8766	88494	9.91

In addition, 301 BOXNHA wagons were procured which were got manufactured based on a design developed by RDSO.

3.8.1 Technological upgradation of wagons

Technological upgradation of the wagons not only help in improving axle load, speed and pay load to tare ratio and increasing the freight traffic but also in effecting substantial reduction in operational and maintenance costs.

- In 1983, Railway Board approved the development of design of Bogie Open Rapid Bottom Hopper wagon for transportation of coal from coal fields to nominated thermal power plants. The main feature of this Hopper wagon was the automatic rapid discharge of coal rakes (within two-three hours) with the help of electro-pneumatic operation of the bottom doors, facilitating quick and complete discharge. Before introduction of these Hopper wagons (1986), coal was being largely carried in BOX 'N' wagons for which time permitted was 11 hours in manual unloading and 10 hours in mechanical unloading for a rake of 58 wagons.

Review in audit of the performance of unloading during the year 2002-03 at five unloading points where BOXN and open hopper wagons were being run revealed that difference in average time taken in unloading of one rake of BOXN wagons and one rake of hopper wagons was 9.27 hours at New Thermal Power Station, Chandarpur (Central Railway), 16.56 hours at Calcutta Electric Supply Corporation, Budge Budge (Eastern Railway), 9.15 hours at National Thermal Power Corporation, Unchahar (Northern Railway), 9.05 hours at Kothagudem Thermal Power Station, Gajulagudem (South Central Railway) and 22 hours at Kolaghat Thermal Power Plant, Mecheda (South Eastern Railway). The highest difference in time taken (22 hours) was at unloading point on South Eastern Railway (**Annexure XXI**).

Despite the big difference in average time of unloading of these wagons and the advantages accruing in terms of reduced detention and improved turn round time, it was noticed that during the period 1998-99 to 2002-03, out of the total number of rakes unloaded in these points, the percentage share of rakes consisting of open hopper wagons was 45.23 only. The percentage share of deployment of these rakes was lowest at unloading point of Eastern Railway (28.34) (**Annexure XXI**).

Further, at unloading point of South Central Railway, the deployment of open hopper rakes was on decline vis-à-vis BOXN wagons rakes. The number of open hopper rakes (790) deployed in 1998-99 came down to 486 in the year 2002-03 while the number of BOXN rakes deployed increased from 719 in 1998-99 to 1349 in 2002-03.

In this context, it is relevant to note that authorised stock of open hopper wagons was only to the extent of 9.91 per cent of the total stock of High sided open bogie wagons as on 31 March 2003 (refer para 3.8). Had the Railway Administration increased their stock of hopper wagons and used them for transporting coal, they could have achieved better turn round time and increased their coal earnings figures. Audit attempted an assessment of the possible earnings that could have accrued to the Railways on the selected unloading points by taking into account the savings in unloading time by using hopper wagons and found that an amount of Rs.35.51 crore could have been earned during the year 2002-03 (**Annexure XXI**).

- BOXNHA wagons with the speed potential of 100 kmph, higher axle load of 22.1 tonnes for coal loading and higher payload of 65.13 tonnes were designed with the help of Research Designs and Standard Organisation (RDSO). With the introduction of BOXNHA wagons payload per rake was

to increase to 3783 tonnes as against 3411 tonnes in the existing BOXN wagons resulting in 11 per cent increase in throughput per rake. Railway Board procured five rakes (301 BOXNHA wagons) at a total cost of Rs.32.66 crore between November 1999 and March 2000.

Scrutiny in audit revealed that the wagons could not run at the expected higher speed with high axle load as the existing track structure/ infrastructure did not permit such speed and load. Therefore, Railway Board in their order dated 23 May 2001 reduced maximum load to be carried by these wagons to 60.1 tonne for all commodities having Carrying Capacity (CC) weight condition. Fixing of reduced weight condition by the Railway Board thus defeated the very purpose of introduction of such upgraded wagons. A comment on this was made in para 4.2.1 of Railway Audit Report No.8 of 2003. A further review in this regard revealed that though all the five rakes were put in use in May 2001, they were withdrawn from traffic and stabled at Mughalsarai from 26 April 2002 to 7 June 2002 for want of Headquarter's permission for running. One rake was again stabled from 10 February 2003 till date (November 2003) due to all wagons being sick in the rake. It was further noticed, that the existing track structure being inferior to the standards specified for BOXNHA wagons, these wagons could not be run at the stipulated speed of 100 kmph. These wagons were cleared for speed of 100 kmph only in Dhanbad-Gomoh and Sonnagar-Mughalsarai sections of Gomoh-Gaya-Mughalsarai section on Eastern Railway. Even on Mughalsarai – Dehri-on-son sections where these rakes were cleared for 100 kmph, it was seen that average speed of these rakes was not exceeding 68.91 kmph in UP direction and 78.57 kmph in DN direction.

Thus Railways efforts to introduce high speed wagons with higher axle load and payload have not met with success. This type of wagons manufactured and put on line based on design developed by RDSO have been kept stabled for major part of the period of review or have been put to use with lesser payload and running speed defeating the very purpose of their introduction.

3.9 Modernisation of coal handling at loading/ unloading points

Efficiency of terminal operations constitutes one of the most important parameters of asset utilisation of Railway. It was estimated in the Ninth Plan document that the terminal detention constitutes nearly one-third of the total detention of rolling stock. Minimisation of detention time to increase the wagon turn round by means of mechanical handling devices was proposed as a need to increase efficiency and improve services to the customers.

3.9.1 A review in Audit revealed that 26 sidings/ loading points still continue to have manual loading facility. Of these, 17 sidings/ loading points are on Eastern Railway alone. There are 208 unloading points/ sidings for unloading of coal over Indian Railways. In 83, unloading was done manually and in 125 facility for mechanical/ mechanised system of unloading (tippler) was available. Railway should pursue with the siding holders to provide the mechanised system of loading and unloading (tippler) to enable them to utilise the rolling stock more efficiently.

3.9.2 Railway Administration should carry out time and motion studies as soon as mechanised facilities for loading/ unloading are introduced and stabilised. The existing free time limits for loading and unloading operations should be reduced based on the time and motion studies.

Test check revealed that on 15 sidings/ loading points where the mechanised system was introduced prior to 1998, the actual time taken for loading of rakes was less than the permitted time. Non-conducting of time and motion studies to revise the permissible free time after the introduction of mechanised system at loading points resulted in loss of earning capacity of Rs.70.62 crore during the year 2002-03 **[Annexure XXII(a)]**.

Similar, review in this regard revealed that on three sidings/ unloading points on three Railways where the mechanised system was introduced prior to 1998, the actual time taken for unloading of rakes was less than the permitted time. Non-conducting of time and motion studies to revise the permissible free time after the introduction of mechanised system at unloading points resulted in loss of earning capacity of Rs.15.76 crore during the year 2002-03 **[Annexure XXII(b)]**.

3.9.3 A further scrutiny of loading/ unloading operations at Vizag Port revealed that as per agreement with the Port Trust Railway, for consistent good performance by way of availing lesser time than free time allowed, an incentive is given to the Port Trust Authorities in the form of credit hours which would go towards reducing the hire charges for Rolling Stock used by them.

A review of the position for one year revealed that in most of the months credit hours were earned by the Port Trust Railway, Vizag resulting in less hire charges to the Railway Administration. It was also noticed that the allowed free time was fixed as long back in 1983 whereas there was a considerable increase in the operational efficiency due to modernisation of the infrastructure at the Vizag Port. The Railway Administration should consider revision of the required free time taking note of the modernisation of infrastructure.

3.10 Operational efficiency in the transportation of coal

3.10.1 Detention to rolling stock at loading/unloading points

Detention to Rolling Stock at loading and unloading points also occur due to Railway's inefficiency in providing power for placing the rakes for loading and for removing the empties after unloading, inadequate capacity in the sidings to load/ unload full rakes, bunching of rakes etc. The Railway Administration has taken various steps to minimise the detention of rakes. Despite the steps taken by the Railway Administration several instances of detention of rakes at both coal loading and unloading point were noticed by Audit.

Loading Points

Test check revealed that on 36 loading points (six each on Central and Northeast Frontier, seven each on Eastern, South Central, South Eastern and

three on Western Railways) 22,97,950 wagons (four-wheeler) were detained during the year 2002-03 beyond permissible time limits. The excess time taken by these wagons worked out to 17,07,378 wagons days resulting in loss of earning capacity to the tune of Rs.226.65 crore. On Eastern Railway, the number of wagon days lost (14,05,195) and loss of earning capacity (Rs.180.49 crore) was highest amongst all the Railways **(Annexure XXIII)**. The detention at the following loading points was alarming and requires attention by the Railways.

Railway	Name of loading points/ sidings/ stations	No. of wagon days lost
Eastern	Andal	443990
	Katrasgarh	379465
	Patherdih	261870
	Ray Churi Monkey and Bachra	156020
	KD Heslong	111505
South Central	Godavari Khani Incline No.1	49169
	Strutt Pit siding/ Singareni Collieries	42339

Unloading Points

Similar test check revealed that at 31 unloading points (three each on Central and Western, five each on Southern and South Central, four each on Eastern and Northern, one on North Eastern and six on South Eastern Railways) that 20,17,916 wagons (four wheeler) were detained during the year 2002-03 beyond the permissible free time allowed for unloading. The excess time taken by these wagons worked out to 11,57,514 wagon days resulting in loss of earning capacity of Rs.175.10 crore. On Eastern Railway, the number of wagon days lost (6,28,140) and loss of earning capacity (Rs.80.66 crore) on account of detention was highest amongst all the Railways **(Annexure XXIV)**.

The detention on following unloading points was very high and requires attention by the Railways:

Sl. No.	Railway	Name of the unloading point	Number of wagon days lost
1.	Central	New Thermal Power Station, Chandrapur Uttar Pradesh Electricity Board, Paricha	46885 29191
2.	Eastern	Durgapur Steel Exchange Yard, Durgapur	474730
		Calcutta Electric supply Corporation, Budge Budge	65250
		Bandel Thermal Power Station	62930
		Chanderpur Thermal Power Station	25230
3.	South Central	Kothagudam Thermal Power Station	61870
		Rayalaseema Thermal Power Station	38596
		Jindal Vijayanagar Steel	23068
4.	South Eastern	Kolaghat Thermal Power	85895
		Bhajudih Washery	27574
5	Western	Wanakbori Thermal Power Station	46451
		Ahmedabad Electricity Company Limited	36809

3.10.2 Irregular placement of empty rakes in the siding without any indent from the consignors

As per existing rules empty rake should be supplied to the siding holders when an order/indent is received from them for loading. Therefore, supply of empties without indents or prior to receipt of indents lead to unwarranted detention of rolling stock on Railway's accounts resulting in loss of earning capacity of these empties.

Test check revealed that on five sidings/ loading points (Baihata and Jogighopa on Northeast Frontier Railway, Pandhar Pavani (old) and New Sasti (Pandhar Pavani – New) on South Central Railway and Bhujudi Washery siding/ Santaldih on South Eastern Railway) empty rakes consisting of 820 wagons, 9637 wagons and 11745 wagons respectively were placed in the sidings/ loading points during the year 2002-03 without any indent from the consignors. This led to detention of empty wagons resulting in loss of 21857 wagon days (1521 on Northeast Frontier Railway, 6476 on South Central Railway and 13860 on South Eastern Railway). Though Railway Administration raised demurrage charges against the consignors, the payment was not made by the consignors on the ground that there were no indent from their side. Thus, Railway Administration suffered a loss of earning capacity of these empty wagons to the extent of Rs.3.48 crore (Rs.0.22 crore on Northeast Frontier Railway, Rs.0.95 crore on South Central Railway and Rs.2.31 crore on South Eastern Railway).

On Eastern Railway, figures for placement of rakes without indent/ allotment and period of detention of such rakes were not maintained at the Coal Demurrage section of the Office of the Senior Divisional Operation Manager. However, a review of available statement of allotment of rakes vis-à-vis supply of loading of rakes revealed that during 2002-03, 349 rakes were supplied in excess of allotment in different sidings served by five sidings/ loading points test checked. A perusal of the minutes of meetings held in connection with the waival of demurrage revealed that in respect of collieries of BCCL, the amount of demurrage charged for advance supply/ transferred supply (i.e. wagons allotted for some other collieries were supplied to another colliery) was deleted from the demurrage bills as invalid amount. For collieries in Andal area, the amount of demurrage for excess/ advance supply of rakes were available which were subsequently waived. The figures for such invalid/ waived amount for collieries served by Patherdih, Katrasgarh and Andal revealed that an amount of Rs.4.40 crore was treated as invalid/ waived for excess/ advance/ transferred supply of rakes. It was not clear as to how the amount of invalid/ waived amount of demurrage charges were assessed by the Railway Administration in the meetings of demurrage waiver when the figures of excess/ advance/ transferred supply of wagons were not maintained at the Coal Demurrage section of Divisional Headquarters.

3.10.3 Weighment of wagons

As per existing rules, penal charges on the excess weight of coal loaded in wagons beyond permissible limits are to be levied. The restrictions are imposed as a measure of safety to avoid accidents and damages to wagons.

Test check on 22 loading points/ sidings revealed that out of 1,32,19,599 wagons (four wheelers) loaded, 1,29,10,281 wagons (97.66 per cent) were actually weighed during the year 2002-03. Out of the wagons weighed 8.76 per cent were found over loaded and penal freight amounting to Rs.48.89 crore was levied. At Junadih Line No.4/ Korba loading point on South Eastern Railway, all the wagons weighed were found overloaded. Percentage of wagons found overloaded to wagons weighed was as much as high 76.56 at BOCM I, II & III/ Belpahar loading points on South Eastern Railway followed by 55.29 at Andal and 51.24 at Katrasgarh on Eastern Railway, 43.89 at Junadih and New Kusumunda/ Korba on South Eastern Railway and 34.91 at Pateherdih on Eastern Railway **(Annexure XXV)**.

It would appear from the above position that levy of penal freight to minimise the overloading is not acting as a deterrent. The reasonable course to deal with the overloading of wagons is to unload the excess coal and recover the cost of such unloading and demurrage for the detention to wagons on this account from the consignor, as permissible under proviso of Section 73 of the Railway Act. But, instead, when overloading is detected by weighment, Railway Receipt (RR) is issued for the total weight including excess and overloaded wagons are carried upto destination station. Obviously, Railways overlook overloading although, it is a safety hazard, as they carry overloaded wagons for long distances with full knowledge and acquiescence. A case of damage to rolling stock on account of overloading occurred on Eastern Railway which is as under.

Twenty wagons moving with a carrying load of 52 BOBR wagons got derailed at Km.291/13 between Daltonganj and Kajiri section on 16 January 1999. 18 wagons were so badly damaged that they had to be condemned. Against their codal life of 35 years, the life of these wagons ranged from one to ten years. These wagons, after loading, were weighed at the forwarding station before despatch and the extent of overloading was known to the Railway. Though the wagons were found to be overloaded (ranging from 0.1 tonne to 5.7 tonne), these wagons were allowed to run. A Fact Finding Committee constituted by the Railway concluded that overloading was the sole cause of the accident and the party (loading authority) was held responsible for such overloading which led to the accident. Subsequently, Railway preferred a claim of Rs.2.12 crore against the party for damage to the Railway property. The party, however, refused to pay the bills on the plea that accident occurred outside their siding premises. Realising that the possibility of recovery of the bills as remote, the Railway finally withdrew the bills. Though the reasons for damage to Railway property was established, no action could be taken against those responsible for the loss.

3.10.4 Diversion of coal rakes and delay in issue of Supersessional Railway Receipts (SRR)

Diversion of coal rakes is a common phenomenon on Indian Railways. Diversion may take place on two accounts: (a) at the request of the consignor, (b) due to operational constraint. As laid down in Para 1873 of Indian Railway Commercial Manual, (IRCM) Vol. II, diversion of goods/ consignments should not be made as a matter of course. Under exceptional

circumstances (viz. accidents, breaches, civil commotion or heavy congestion etc.) goods/ consignments in transit may be diverted to destinations other than the originally booked destination under the order of the competent authority obtained on the basis of the application to this effect submitted by the party in possession of Railway's Receipt at the booking station. On receipt of the advice, that the consignment has actually been diverted, the Station Manager of the booking station will issue a fresh invoice to the diverted station in supersession of the invoice issued to original destination station, the freight and other charges (like diversion fee etc.) to be collected at the booking Stations for the diverted destination stations.

In order to expeditiously complete all formalities required for early realisation of freight and refund of dues and settlement of claims of major customers arising out of diversion of coal rakes, a Joint Procedure order was issued on 2 May 1988 and 1 December 1998 on Eastern and South Eastern Railways respectively. Special cells were created in the Operating, Commercial and Traffic Accounts offices for settling the cases of diversion and these cells had to work in a coordinated manner. The cells in the Operating offices were to produce a fortnightly statement of diversions and submit the same to the concerned Chief Claim Officer with a copy to FA&CAO (WST). These statements were to form the basis for settlement of claims and realisation of Railway's dues. Non observance of the laid down procedure has led to a number of diversions not being followed by issue of SRRs and non collection of differential freight as discussed below:

South Eastern Railway

During the review of fortnightly diversion statements prepared at Headquarters during the period 1 April 2002 to 31 March 2003, 494 diversion cases of coal rakes were found recorded in respect of six loading points test checked.

No SRR was issued either by Station Manager of booking station or Chief Claims office against the diversion cases ordered and recorded in the fortnightly statements in respect of loadings made at six loading points during the year 2002-03. Freight outstanding in such cases could not, therefore, be assessed.

A comparison of the fortnightly diversion statements prepared by the Chief Operations Manager (COM) of Headquarters and those prepared by the Divisional Operations Manager (DOM) of the divisional Headquarters also revealed a wide variation of figure of diversion cases as detailed below:

Name of the originating station	No. of diversion cases shown in the fortnightly diversion statements prepared by the COM's office of headquarters	No. of diversion cases shown in the fortnightly diversion statements prepared by the DOM's office at Divisional headquarters	Difference
Belpahar	109	2	107
Brajarajnagar	132	1	131
Korba	214	9	205
Gevra	23	1	22

This indicates that there was lack of coordination between the Headquarters authorities (Commercial) ordering the diversions and Divisional Headquarters as well as station authorities who are required to issue SRRs.

Eastern Railway

During the review of fortnightly diversion statements prepared at Headquarters during the period 1 April 2002 to 31 March 2003, 134 diversion cases of coal rakes were found recorded in respect of five loading points test checked. Against these, only in eight cases SRRs were issued and not a single SRR was issued within the stipulated time limit. The exact amount of outstanding towards freight accrued on the diverted rakes where SRRs were yet to be issued, were still to be assessed by the Railway. Taking into account the freight rate for the distances of the diverted destination, it was assessed in audit that an amount of Rs.20.24 crore was outstanding towards freight accrued on these diverted rakes. Further, there was a likelihood of claims amounting to Rs.15.47 crore (freight element only) to be preferred by the original consignees against Railway.

3.10.5 Claims

Claim cases arise due to diversion of coal rakes and non-receipt of the same by the consignees at the destination stations. Settlement of claims to the original consignees and non-raising of the bills against the consignees of the diverted destination points results in huge losses to the Railways.

Audit scrutiny revealed that in the case of diversion of coal rakes meant for Kolaghat Thermal Power Plant (KTPP), the Railway Administration had failed to settle these claims expeditiously which led to unilateral decision taken by the KTPP to adjust their freight bills with their pending claims. While an amount of Rs.90.57 crore has been paid/ adjusted with the claim of KTPP after prolonged correspondence and long drawn process involving adjustment of Railway's dues against the claim of KTPP, an amount of Rs.41.46 crore is yet to be realised from TNEB, the consignee of the diverted destination points.

3.11 Maintenance of rolling stock

3.11.1 In order to improve utilisation of rolling stock, Railway Board had issued instructions to the Railways to run the rakes in a closed circuit (CC) in specified routes. The salient feature of this system was that the CC rakes were to run generally for 4,500 kms. between two consecutive examinations of wagons. Each Zonal Railways were to nominate some examination points where the CC rakes were to be brought back after a fixed circuit operation for intensive examination and issue of Brake Power Certificate.

Test check of the loading position of CC rakes at 19 loading points (four on Central, two each on Eastern and Southern, five on South Central and six on South Eastern Railways) revealed that 5,321 wagons were hauled empty in loaded CC rakes during the year 2002-03 on account of their rejection by the siding holders. The reasons for not loading these wagons were (i) damages to body, floor & panel (ii) defective & missing doors and (iii) door jam etc. This indicates that the wagons were not properly examined by the Carriage and Wagons staff at the nominated examination point resulting in incidence of

wagons becoming unloadable in the CC rakes. Railway Administration suffered loss of freight to the tune of Rs.8 crore during 2002-03.

3.11.2 Non CC rakes are required to be intensively examined in empty condition at the unloading station and moved to loading station as per requirement of traffic. If no examination facility existed at the unloading station, the empty/ back loaded rakes were required to be examined at the first train examination point in the direction of movement. Hence, there should be no occasion for non loading of the wagons at the loading points.

Similar test check of the loading position in respect of non CC rakes at 24 loading points (four each on Eastern, Central, South Central and South Eastern, three each on Southern and Western and two on Northeast Frontier Railways) revealed that 8,473 wagons were hauled empty in loaded Non CC rakes during the year 2002-03 on account of their rejection by the siding holders as unfit for coal loading. The reasons for not loading these wagons were (i) damages to body, floor & panel (ii) defective & missing doors and (iii) door jam etc. Railway Administration suffered loss of freight to the tune of Rs.19.37 crore during 2002-03.

3.12 Revenue Realisation

3.12.1 Irregular waiver of Demurrage charges

Demurrage charges are levied for the detention of wagons beyond the prescribed free time. These charges are more in the nature of penalties than source of revenue. The Public Account Committee (PAC), in its hundred and forty eighth report (1974-75), had pointed out that accruals of demurrage charges reflect on the poor mobility of wagons. Railway Board had also directed (March 1995) that normally not more than 25 per cent of the amount should be waived in each case and detailed reasons for waiver of ten per cent and above of the amount accrued should be recorded in each case.

Records of loading/ unloading sidings test checked revealed that a total amount of Rs.361.11 crore was leviable during the period 1998-99 to 2002-03 as demurrage charges. Out of this an amount of Rs.243.50 crore (67.42 per cent) was waived. This was much in excess of 25 per cent of the amount prescribed by the Railway Board. The percentage of waiver of demurrage charges was highest on Western Railway (87.63) followed by 83.32 on Northern Railway, 78.73 on North Eastern Railway, 77.57 on South Central Railway, 66.06 on Central Railway, 65.53 on South Eastern Railway, 65.45 on Northeast Frontier Railway, 61.67 on Southern Railway and 59.87 on Eastern Railway. Though in terms of percentage waiver of demurrage charges, the figure of Eastern Railway was on lower side, the actually waived demurrage charges (Rs.85.25 crore) on this Railway was the highest amount. Such routine waiver of demurrage charges defeats the very purpose of levying the charges and undermines the very intention of Board's guidelines. The excess waiver of demurrage charges beyond the limit of 25 per cent considered as reasonable resulted in loss of Rs.153.22 crore during the period of review, of which Rs.49.65 crore was on Eastern Railway alone. Further, out of the amount actually levied, a sum of Rs.9.38 crore was outstanding. **(Annexure XXVI)**.

3.12.2 Outstanding freight

Non-realisation of earnings is a great concern to Indian Railways. Out of unrealised earnings of Rs.2058.61 crore as on 31 March 2003, an amount of Rs.1753.87 crore (85.19 per cent) was on account of outstanding freight, wharfage and demurrage etc. against the State Electricity Boards/ power houses in connection with the coal movement. An amount of Rs.966.63 crore was due from Badarpur Thermal Power Station (BTPS) managed by the National Thermal Power Corporation (NTPC).

The position has only been deteriorating over the years as can be seen from the table below:

Period ending	Amount outstanding against State Electricity Boards/ Power Houses (Rs. in crore)
As on 31 March 1999	1139.91
As on 31 March 2000	1306.19
As on 31 March 2001	1661.06
As on 31 March 2002	1616.45
As on 31 March 2003	1753.87

The Union Cabinet, in August 1996, decided that with effect from 1 October 1996, the Railways would transport coal to Power Houses only on pre-payment of freight. As regards old outstanding, it was decided that the outstandings would be set off against recoveries from the Central Plan Assistance to the State Governments. In reply to Paragraph 1.4 of Railway Audit Report for the year 2000-01, the Ministry had stated in their Action Taken Note that they had introduced the system of adjustment of freight with the traction bills to avoid the increase in outstanding dues. It was, however, noticed that the management of freight collection from the Power Houses/ State Electricity Boards continues to be highly ineffective. The outstanding dues against the main defaulting Power Houses/ State Electricity Boards was as follows:

(Rupees in crore)

Sl No.	Name of State Electricity Board/ Power House	Outstanding dues as on 31 March 2002	Outstanding dues as on 31 March 2003	Increase in dues during the year
1.	Badarpur Thermal Power Station (BTPS)	957.61	966.63	9.02
2.	Punjab State Electricity Board	325.31	424.05	98.74
3.	Delhi Vidyut Board	160.86	179.88	19.02
4.	Rajasthan State Electricity Board	105.75	109.92	4.17
5.	Uttar Pradesh State Electricity Board	8.27	27.36	19.09
6.	Damodar Valley Corporation	4.75	7.94	3.19
7.	West Bengal State Electricity Board	4.21	8.11	3.90
8.	Madhya Pradesh State Electricity Board	2.99	6.29	3.30

Figures indicate that neither the Cabinet's directives regarding prepayment of freight were followed nor could the Railways device a mechanism to ensure that the outstanding dues against the Power Houses/ State Electricity Boards are liquidated. It was also noticed that outstanding freight of Rs.751.05 crore accrued against BTPS for the period upto 30 April 1997 was frozen as per instructions issued (May 1997) by the Railway Board. No decision to recover/ adjust the freight has been taken despite lapse of more than 6 years.

3.13 Conclusion

Railways have the inherent advantage of being a low cost carrier of large volumes of goods moving in trainloads over long distances. Despite this, the percentage of rail transportation of coal remained more or less same during the review period and in fact declined slightly in the year 2002-03. The changes in freight tariff structure through the annual budgetary exercises failed to increase the Railways' share in transportation of coal. Railways failed to take full advantage of modernisation of infrastructure and make suitable reduction in loading and unloading time. Detention, diversions and overloading continue to plague the Railways and reduce their operational efficiency. The following recommendations can be considered in this regard:

- Indian Railways should make all out efforts to sustain the existing coal traffic as well as attract more coal traffic by adopting suitable strategies. Use of the Freight Operation Information System should be made to optimise the utilisation of Rolling Stock, provide real time information to customers in regard to booking, movement and delivery of freight consignment.
- Railways should replace Four-Wheeler stock with more Open Hopper Wagons (BOBS/ BOBX) with bottom discharge arrangement for transportation of coal from coal fields to achieve better turn round time and increase their coal earnings figures.
- Railways should pursue with the siding holders to provide mechanised system of loading and unloading (tipplers) to enable optimum utilisation of the Rolling Stock.
- Railways should carry out time and motion studies at regular intervals to determine free time that is realistic and enables achieving better turn round time of Rolling Stock.
- The Railway Administration should enforce strict measures to prevent overloading of wagons which is compromising Railway safety.

CHAPTER 4

Manpower Management in Indian Railways

4.1 Introduction

Indian Railways is a labour intensive industry having a workforce of over 1.5 million regular employees with an annual wage bill amounting to about Rs.19037 crore. Productivity of costly physical assets owned by Indian Railways for carrying out its core business of transporting men and material all over the country is largely dependent on effective manpower management.

In the past couple of decades there have been vast changes in the operational technologies in Indian Railways by way of modernisation, electrification, computerisation and mechanisation of track maintenance. These changes, in turn, require a completely new approach to manpower planning.

4.2 Manpower Position in Indian Railways

Railway employees are working in various categories in the Zonal Railways and Productions Units. There are around 700 categories of staff divided into four Groups viz. Group A, B, C & D assigned according to working responsibilities. The manpower is mainly distributed in Open line & Construction Wings having Engineering, Signal & Telecommunication, Electrical, Administration, Accounts and Stores departments. Open line in addition has staff working in the Transportation, Mechanical, Commercial, Medical and Security departments.

The staff expenditure for 15,10,759 employees of the Indian Railways as on 31 March 2002 was 19037.20 crore. This is 51.42 per cent of gross expenditure and 48.37 per cent of gross revenue receipts. A comparison of present staff expenditure and staff cost with that of 1990-91 would reveal that the staff strength has reduced by about 8.54 per cent but the staff expenditure has gone up by 268.51 per cent.

The increasing staff cost and the magnitude of the cost in relation to gross expenditure and gross receipts only emphasises the importance of effective management of manpower over Indian Railways.

4.3 Highlights

- **Despite instituting a mechanism of monitoring manpower strength, it was observed in audit that the manpower inventory maintained by the Railways was far from accurate. A review of the figures reported in the monthly PCDO's, the Annual statistical statements and the Book of Sanctions for the period 1999-2000 to 2002-03 revealed that all the figures were at variance with each other.**

  (Para 4.8.1)

- **Compliance to Railway Board's instructions of 1992 to reduce the sanctioned strength by three per cent and operated strength by two per cent was poor.**

As against an expected reduction of 4,43,232 posts in sanctioned strength, reduction of 1,73,851 posts was achieved over a period of 11 years since issue of orders. The compliance by Northern and South Eastern Railways was particularly poor.

(Para 4.9.1)

Reduction in operated strength was only 1,97,656 posts as against 3,12,038 posts expected over a period of 11 years. The compliance of South Eastern, Northern, Central and South Central Railways was far below the expected level. Non-achievement of expected reduction is burdening the Railway exchequer by Rs.1449 crore per annum.

(Para 4.9.2)

- **Intake of Railway employees was to be restricted to one per cent per annum of men on roll in respect of Civil, Mechanical, Electrical, S&T, Transportation and Commercial departments and to 0.5 per cent in other departments. Compliance to this order was not achieved by most Railways. South Central Railway's performance in this regard was particularly poor.**

[Para 4.9.3 (i)]

- **Intake by way of compassionate appointments in essential categories was was excluded from the application the orders pertaining to restrictions of intake. This resulted in large scale recruitment through this mode. A total of 23498 compassionate appointments were made during 2000-01 to 2002-03 which was 49.91 per cent of total intake. Compassionate appointments were highest on Northern Railway.**

  The Zonal Railways flouted the orders of Railway Board by making compassionate appointments in non-essential categories. Audit found that 5306 appointments were made in non-essential categories.

[Paras 4.9.3 (iii) & (iv)]

- **During the period of review 1102 work studies were conducted and 63939 posts were identified as surplus. Out these 31195 posts were surrendered and staff working against 7300 posts was re-deployed elsewhere. 5921 posts were declared supernumerary and the staff working against these posts continued to serve with no justifiable work resulting in unproductive expenditure of Rs.52.52 crore.**

(Para 4.10.2)

- **Closure of 25 Carriage & Wagons maintenance yards in five Zonal Railways rendered 863 staff a surplus. Only 456 have been re-deployed so far. There has been delay in re-deployment. On Eastern Railway 282 staff still await redeployment.**

  Due to introduction of electric traction, two Diesel Loco Sheds were closed during review period. 153 staff of Mughalsarai Shed are yet to be redeployed.

(Paras 4.10.5 & 4.10.6)

- **Test check of availability of norms in Electrical, Mechanical and Civil departments revealed that for four, two & seven activities respectively, no norms existed. Where norms existed, detailed scrutiny revealed deployment of excess staff in coach maintenance activity (Mechanical) and track maintenance activity (Civil Engineering).**

  (Paras 4.12.1 & 4.12.2)

- **Benchmarking was introduced in Indian Railways as a method of rightsizing its manpower. The first benchmark introduced was in respect of track men per ETKM for track maintenance work. Northern and Central Railways were unable to achieve the benchmark even after 12 years of the issue of instructions.**

  Similar benchmarking exercise has been commenced for other activities only in 2000 , a full nine years after recognizing the need to introduce it in all areas of Railways functioning.

  (Para 4.13)

- **Modernisation of Workshops has led to a number of staff being rendered as surplus. As on 31 March 2003, 2768 staff was yet to be redeployed. Apart from delay in re-deployment, retention of extra staff has led to unproductive expenditure of Rs. 73.06 crore in workshops affected by modernization.**

  Staff are justified in Workshops on the basis of outturn target and any achievement less than the fixed output is a reflection of excess staff. Staff numbering 5215 and 3459 were found excess on the basis of actual outturn which led to extra expenditure of Rs.66.05 crore and Rs.43.80 crore during the years 2001-02 and 2002-03 respectively.

  (Paras 4.14.1 & 4.14.2)

- **In Civil and Electrical departments of Construction Organization 86, 153 & 70 Gazetted posts were operated in excess of requirement as per norms during the year 2000-01, 2001-02 and 2002-03 respectively resulting in extra expenditure of Rs.3.92 crore.**

  (Para 4.15.1)

- **Delay in redeployment and non redeployment of 1413 and 333 staff rendered surplus after completion of sanctioned works in Construction Organisations of Northern and Central Railways has led to unproductive expenditure of Rs.30.01 crore and Rs.4.13 crore respectively.**

  (Para 4.15.2)

- **Despite recognition of the system of providing peons at the residences of certain categories of officers as an anachronism that needs to be done away with, the system continues with 1008 Bungalow Peons being engaged as on 31March 2003. Engagement of Bungalow Peons**

was highest on South Eastern, Northern, Central, Northeast Frontier and Southern Railways.

(Para 4.16)

- **Staff for newly created Zonal Railways in Group B, C & D cadres have been transferred only after obtaining their willingness. This resulted in transferring of 398 and 272 staff only from Western and Northern Railways as against 643 and 559 posts respectively required to be transferred to North Western Railway. Similarly only 136 and 318 staff from Eastern and North Eastern Railways was transferred as against 1961 and 688 staff respectively required to be transferred to East Central Railway. This has resulted in excess staff in the present Railways with no justifiable workload.**

(Para 4.17)

4.4 Organisation

Ministry of Railways (Railway Board) has a full fledged Manpower Planning Directorate headed by Member (Staff) who is assisted by an Executive Director, Joint Directors and Directors. The Directorate takes all policy decisions for the management of manpower on Indian Railways.

At the Zonal Railway Headquarter, Chief Personnel Officer (CPO) implements the policies relating to the manpower management. CPO is assisted by Deputy Chief Personnel Officer/Senior Personnel Officers and Assistant Personnel Officers. A Planning Branch, under the control of CPO, is functioning in each Zonal Railway. The Planning Branch comprises the Corporate Planning Cell, the Efficiency Cell and Staff Inspection Units also called Work Study Cells. The Corporate Planning Cell draws up five year and 15 year Plans and prepares the annual integrated budget. The Efficiency Cell conducts work studies and suggests ways of minimising wages, steps for improving efficiency and effecting economy. Staff Inspection Unit conducts inspections of various departments to review staff requirements based on actual time studies of various activities of the department/ unit.

Senior Personnel Officers/ Personnel Officers and Assistant Personnel Officers look after the work of personnel management at Divisions and other units of the Railways.

4.5 Scope & Audit Objectives

This review is focused on the efficacy of efforts made by the Railways for achieving economy and increasing productivity in the context of technological changes taking place in open line & construction organisations. The specific areas of focus are -

- Control systems available for monitoring the utilisation of manpower to ensure its efficiency & effectiveness;
- Norms/standards adopted for computation, allocation and actual deployment of manpower;

- Job analysis, job description & job specification for various categories of posts and
- Impact of reorganisation of Zonal Railways

4.6 Sample Size

At the macro level, records maintained in CPO's office have been audited to review the adequacy of managerial and administrative controls. A general review of manpower relating to Civil Engineering, Mechanical Engineering and Electrical Engineering departments was undertaken. At the micro level the review was conducted on 19 Divisions (minimum of two Divisions in each Zonal Railway) with specific focus on all the electric and diesel loco sheds in the selected Divisions and 26 Workshops on nine* Zonal Railways. Macro review covers the period from 1998-99 to 2002-03 and micro review from 2000-01 to 2002-03.

[Annexure XXVII]

4.7 Manpower Planning

Manpower planning in any institution involves -

- An appreciation or evaluation of existing manpower;
- Forecasting of manpower requirement for the future in terms of both quantity and quality; and
- Taking of suitable measures to ensure that manpower is deployed according to the requirement of specific jobs.

Keeping in view the increasing trend in the wage packet of its employees, Indian Railway Corporate Plan 1985-2000 envisaged institution of a formal system of manpower planning. Railway Board appointed Rail India Technical and Economic Services Limited (RITES) in January 1990 to undertake a diagnostic study to identify the strengths and weaknesses of its current manpower.

RITES in its report (1991) had observed that the manpower deployment in various activities of the Railways was very high and recommended effective monitoring of manpower strength, reduction in staff by freezing of existing vacancies, putting a recruitment ban, ad-hoc cut in staff strength, introduction of voluntary retirement scheme, timely identification of surplus staff, controlling quality and level of recruitment, etc.

The progress made by Railways in implementing the recommendations along with other steps taken by Railway Board for manpower planning were reviewed in Audit and following observations are made:

4.8 Monitoring of Manpower Strength

Availability of accurate inventory of manpower in an institution is vital for effective utilisation of the resource. RITES in their report had observed that

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** Nine Zonal Railways became eleven from 1 October 2002 and 16 from 1.4.2003 but for the purpose of this review they are reckoned as 9 Zonal Railways as per original jurisdictions.*

suitable manpower information for the purpose of monitoring was not readily available on the Railways or was insufficiently detailed. It was, therefore, recommended that manpower information system of the Railway may be redesigned and a system of reporting manpower strength at various levels be introduced which will force the field units to be realistic in setting manpower targets and achieving them.

4.8.1 In July 1992, Railway Board emphasised the need of setting up of a effective monitoring system at the Divisional, Zonal and Railway Board's level. The Divisional Authorities were to intimate every month to the Zonal Headquarter, the inflow/outflow of the staff (Group C and D) through every means of appointment/retirement including transfers from/to other units. Similarly the Zonal Railways were to intimate to the Board through monthly PCDO the number of posts at the beginning and end of every month indicating increase/ decrease in the sanctioned post (as per Book of Sanctions) and Operated posts.

Despite instituting a mechanism of monitoring manpower strength, it was observed in audit that the manpower inventory maintained by the Railways was far from accurate. A review of the figures reported in the monthly PCDO's, the Annual statistical statements and the Book of Sanctions for the period 1999-2000 to 2002-03 revealed that the figures were at variance with each other.

4.8.2 In August 2002, Railway Board taking note of huge variation in the figures appearing in the Annual Statistical Statements and those reported to them through PCDO, issued instructions to carry out census of employees and furnish unit wise details of all staff based on the paid salary bills. Census of staff on Zonal Railways was carried out only in respect of Group C & D employees. Even after carrying out the census, the figures of March 2003 in various records continued to be different.

4.9 Reduction in staff strength

In order to achieve reduction in the staff strength, RITES had suggested resorting to putting immediate ban on recruitment, ad-hoc cuts in staff strength, early retirement by offering some incentive in the shape of enhanced retirement benefits and voluntary retirement scheme. In May 1992 during the General Manager's conference, Chairman Railway Board had expressed that every year about three to four per cent staff retire and thus there was adequate scope for manpower planning. Zonal Railways were, therefore, directed to review the existing vacancies and surrender those which were not necessary. Instructions were also issued to achieve a reduction of three per cent in sanctioned strength and two per cent in operated strength.

The position of total sanctioned and operated strength of Group C and D on Indian Railway as on 31 march 1992 was compared with sanctioned and operated strength as on 31 March 2003 to ascertain the extent to which Board's instructions were implemented.

4.9.1 Audit scrutiny revealed that the sanctioned staff strength which stood at 16,67,851 as on 31 March 1992 was reduced to 14,94,000 as on 31 March

2003 achieving a reduction of 1,73,851 (10.42 per cent) as against 4,43,232 (28.47 per cent) required to be achieved at the rate of three per cent per annum over a period of 11 years. Railway wise position in achieving the expected reduction is discussed below:

- On Northern Railway the reduction in sanctioned strength was a mere 1,221 (0.5 per cent) as against 70,052 (28.47 per cent) required.
- South Eastern Railway achieved a reduction of 4,901 (2.22 per cent) as against 31,128 (14.13 per cent) required to be achieved between 1998-99 and 2002-03.
- The reduction achieved by Central, Northeast Frontier, Southern, North Eastern, South Central, Western and Eastern Railways was 8.83 per cent, 10.50 per cent, 11.01 per cent, 12.25 per cent, 12.54 per cent, 14.53 per cent and 22.77 per cent respectively.

[Annexure XXVIII(i)]

4.9.2 The operated strength of Group C and D which stood at 15,65,673 on 31 March 1992 was reduced to 13,68,017 as on 31 March 2003. The reduction achieved over a period of 11 years was 1,97,656 (12.62 per cent) as against 3,12,038 (19.93 per cent) required to be achieved at the rate of two per cent per annum over a period of 11 years. Thus due to non achievement of the reduction target in operated strength, Indian Railway is incurring extra expenditure of approximately Rs.1,449 crore per annum. Railway wise position in reduction of operated strength is given below:

- As against the expected reduction of 39,503, 49,039, 42,894 and 25,035 by South Eastern, Northern, Central and South Central Railways, reduction was only 9,438 (4.76 per cent), 14,481 (5.89 per cent), 14,462 (6.72 per cent) and 11,236 (8.94 per cent) respectively.
- The actual reduction achieved by North Eastern (12.48 per cent), Northeast Frontier (15.45 per cent), Southern (15.47 per cent), Central (17.12 per cent) and Western (17.44 per cent) was better than the Railways mentioned above.

[Annexure XXVIII (ii)]

4.9.3 Reduction of Manpower through restriction in recruitment

The intake of the Railway employees in various groups (Group A, B, C & D) is made by resorting to direct recruitment through Union Public Service Commission and Railway Recruitment Board, recruitment from open market, recruitment on compassionate grounds etc. RITES in its report had recommended immediate ban on recruitment. No action was taken till August 2000 when in view of the Government's policy of rightsizing its manpower, Railway Board issued instructions to Zonal Railways for restricting the intake of manpower to a maximum of one per cent per annum separately in Civil, Mechanical, Electrical, Signal & Telecommunication, Transportation & Commercial Departments and a maximum of 0.5 per cent of the men on roll for other departments. The restriction of one and 0.5 per cent was to include intake from all sources including inter department transfers but excluding

compassionate appointments made in essential categories where no surpluses were likely to be generated in foreseeable future. These instructions were slightly modified in December 2001, when Railway Board permitted the General Managers/Divisional Railway Managers to decide the number of employees to be inducted in each department subject to overall intake limit of one per cent per annum to whole group of departments viz Civil, Mechanical, Electrical, Signal & Telecommunication, Transportation & Commercial and intake limit of 0.5 per cent to whole group of other departments.

(i) In view of the fact that intake limit of one per cent and 0.5 per cent was to be observed separately for each department up to December 2001, Audit reviewed department wise intake of manpower during the year 2001-02 and found that:

- Six Zonal Railways failed to observe the one per cent intake limit in one or more departments. The excess intake in six departments was Mechanical (266), Transportation (258), Electrical (136), S&T (132), Commercial (75) and Civil (7) involving extra expenditure of Rs.11.07 crore per annum.
- The excess was very high on South Central in Mechanical (264) and Electrical (90); Central in Transportation (213) and S&T (72); Southern in Commercial (59); South Eastern in Electrical (46) and Western in Transportation and Electrical (37 each).
- Almost all the Zonal Railways except Northern failed to observe the 0.5 per cent intake limit in one or more departments. The excess intake was in Medical (271) followed by Administration (50), Personnel (44), Accounts (23) and stores (11). The extra expenditure involved was of Rs.5.04 crore.
- The Railways where the excess intake in Medical department was very high are South Eastern (121), Central (59), in Eastern (48), and Western (22).

The total excess intake due to non-observance of Railway Board's instruction aggregated to 1,273 resulting in financial burden of Rs.16.11 crore per annum.

[Annexure XXIX (i)]

(ii) As the intake limit of one and 0.5 per cent was to be observed for whole group of departments after December 2001, Audit undertook review of overall intake of manpower within the two groups of departments for the year 2002-03 and found that:

- South Central Railway failed to observe the one per cent intake restriction for whole group of departments viz. Civil, Mechanical, Electrical, Signal & Telecommunication, Transportation & Commercial and exceeded the limit by 452 resulting in extra expenditure of Rs.5.72 crore per annum.
- Similarly six employees were inducted in excess of prescribed intake limit of 0.5 per cent in other Departments of South Central Railway resulting in extra expenditure of Rs.0.07 crore per annum.

[Annexure XXIX (ii)]

(iii) Audit observed that by excluding the compassionate appointments in essential categories from the application of orders regarding restriction of

intake limit, the Zonal Railways were prompted to resort to heavy recruitment on compassionate grounds defeating the very purpose of issuing orders to restrict recruitment. As against the total intake of 15,635 during 2000-01, 15,633 during 2001-02 and 15,813 during 2002-03, the intake through compassionate appointments was 71,78 (45.91 per cent), 79,32 (50.74 per cent) and 8,388 (53.04 per cent) respectively. Railways where the intake on compassionate grounds was very high are given below:

- The intake through compassionate appointments was highest by Northern, Railway viz. 1,142 (70.89 per cent) as against the total intake of 1,611 during 2000-01, 1,410 (74.13 per cent) as against 1,902 during 2001-02 and 1,192 (82.32 per cent) as against 1,448 during 2002-03.
- The intake of 497 (82.56 per cent) in 2000-01, 684 (62.82 percent) in 2001-02 and 498 (64.18 per cent) in 2002-03 as against total intake of 602, 1,089 and 776 respectively on Northeast Frontier Railway was also very high.

(iv) Not only was the intake through compassionate appointments very high, they were also in non-essential categories which is against the Railway Board's orders. On Southern Railway where the figures were available for all the years, it was seen that the intake on compassionate grounds in other than essential categories was 1,279. On Central and Northern Railways where the figures for the years 2001-02 and 2002-03 were available it was found that a total of 1,384 and 2,182 appointments were made in other than essential categories as against 696 and 420 respectively made in essential categories. The appointments in other than essential categories made by Eastern, Northeast Frontier and Western Railways during the year 2002-03 were 95, 19 and 347 respectively.

[Annexure XXIX (iii)]

4.9.4 Reduction of manpower through Early Retirement/Voluntary Retirement

RITES in their report had observed that an option available for reducing the size is to induce outflow from the organisation and suggested retirement of those above the age of 50 by offering some incentives in the form of enhanced benefits or weeding out on the basis of performance. Government of India introduced (February 2002) a 'Special Voluntary Retirement Scheme'(SVRS) to all its Employees who have been declared surplus.

Scrutiny by Audit, however, revealed that despite a large number of employees on Zonal Railways having been declared surplus (as discussed in ensuing paragraphs), no action has been taken by Railway Board to introduce a similar scheme for its employees.

4.10 Timely identification of Surplus staff and their useful redeployment

In view of major technological changes taking place in the Indian Railway system it is imperative to identify activities that have become redundant and re-deploy the staff that become surplus. RITES in their report had recommended the concept of zero base budgeting in manpower planning at

least once in five years as in such budgeting the Managers in the organisation had to justify presence of every employee. In each Zonal Railway Work Study Teams/ Staff Inspection Units (SIUs) undertake studies from time to time to identify such activities and suggest efficient methods of operation to effect manpower savings.

A review was undertaken to ascertain the impact of studies undertaken by Work Study Cells/ SIUs and following observations are made:

4.10.1 Every year in the month of February, Zonal Railways are required to send their annual work study programme to the Railway Board for approval. Apart from the work studies approved by Board, General Managers of Zonal Railways also approve some work studies (known as crash studies). The position of work study programmes submitted to Board, work studies approved by Board/ General Managers and work studies actually undertaken during the year 1998-99 to 2002-03 was reviewed in Audit and it was noticed that:

- The work study programmes were not sent to Railway Board on due dates which caused delays in approval also.
- Out of a total of 1,304 work studies approved by Board/ GMs during the period from 1998-99 to 2002-03, 113 were not undertaken at all.
- Out 113 work studies not undertaken, 61 were on Central Railway. The reason put forth was "no saving potential exists". South Central Railway did not take up 20 work studies for similar reasons. This only indicates that adequate care was not exercised by the Railways before drawing up the programmes for RailwayBoard/ GM's approval.

4.10.2 As soon as the Work Study Team completes the study, a report on its recommendations is prepared and submitted to CPO for approval. On receipt of approval, a copy of the report is sent to the department concerned for acceptance of recommendations. Simultaneously, a copy of the study report is also sent to the Railway Board for information. The findings of the SIU/Work Study Cell should be implemented within a period of three months and the posts identified as surplus should be surrendered/ re-deployed. The implementation of the accepted recommendations is followed up by the Central Planning Cell and progress in this regard is sent to the Railway Board every quarter.

The position of the work studies conducted during the period 1998-99 to 2002-03, number of posts identified as surplus and the follow up action taken to surrender/ re-deploy the surplus posts/ staff was reviewed in audit and it was found that:

In 1,102 work studies conducted, 63939 posts were identified as surplus. Out of these 31,195 posts were surrendered and staff working against 7,300 posts was re-deployed elsewhere. 5,921 posts were declared supernumerary and the staff working against these posts continued to serve with no justifiable work resulting in unproductive expenditure of Rs.52.52 crore.

[Annexure XXX]

4.10.3 Test check of 191 work study reports prepared and accepted by the concerned departments during the period 1999-2000 to 2001-02 was carried out to see the progress of implementation of recommendations. The check revealed the following:

- Out of total of 8,287 staff working against posts identified as surplus, only 698 staff were re-deployed. The delay in re-deployment ranged between one month to 25 months, beyond the period of three months allowed as per instructions, resulting in avoidable expenditure of Rs.6.20 crore. The Railways where the implementation was slow resulting in heavy avoidable expenditure of more than one crore during the review period are depicted in the table below:

Railway	No of staff	Period of delay in re-deployment	Avoidable expenditure (Rs. in crore)
North Eastern	133	Eight to 15 months	1.69
Eastern	207	Six to 21 months	1.50
South Eastern	104	Five to 25 months	1.30
Western	134	Seven to 15 months	1.05

- After acceptance of staff as surplus, 4306 posts were declared as supernumerary. However, there was delay ranging from one to 21 months in declaring such posts as supernumerary resulting in avoidable expenditure of Rs.5.11 crore. The Railways where there was delay in declaring the posts supernumerary resulting in heavy avoidable expenditure of more than one crore during the review period are depicted in the table below:

Railway	No of staff	Period of delay in declaring the posts supernumerary	Avoidable expenditure (Rs. in crore)
Central	670	Three to 13 months	2. 58
Northern	2896	One to 21 months	1.59

- The period for which the staff continued to work in supernumerary posts/ waiting for redeployment without any justification ranged from six months to 42 months involving unproductive expenditure of Rs.12.36 crore. The Railways on which the unproductive expenditure of more than Rs.1 crore was incurred are depicted in the following table:

Railway	No of staff	Period for which posts remained supernumerary/ waiting for redeployment	Avoidable expenditure (Rs. in crore)
Central	670	Six to 42 months	3.47
South Eastern	275	10 to 42 months	6.33
South Central	83	18 to 20 months	1.66

[Annexure XXXI]

4.10.4 Test check of 56 reports prepared and issued during the period 1999-00 to 2001-02 but not accepted or partially accepted by the concerned department revealed that 5,012 posts were identified as surplus by WSC/ SIU. Out of these recommendations regarding treating 2,393 posts as surplus were not

acceptable to the department concerned. The reasons for non- acceptance were stated to be:

- increase in workload,
- cadre restructuring under process,
- scrutiny of work study reports yet to be completed,
- scientific study of work load not done.

There has been delay ranging from two to 41 months in taking decision either to accept the recommendations of the SIUs/ Work Study Cells or to furnish proper justification for continuance of these posts. The avoidable expenditure incurred on this account works out to Rs.49.37 crore. The Railways where the avoidable expenditure of more than one crore has been incurred are depicted in the table below:

Railway	No. of posts not accepted/decision awaited	Period for the which the posts are under dispute	Avoidable expenditure (Rs. in crore)
Central	966	10 to 41 months	34.97
Western	554	Seven to 20 months	6.11
Eastern	236	Nine to 25 months	3.51
Southern	173	11 to 27 months	2.16
South Eastern	80	Five to 25 months	1.33

[Annexure XXXII]

4.10.5 During discussion of RITES recommendations on Manpower planning in Mechanical Department in May 1991, Member (Staff) had mentioned that due to closure of various yards, carriage and wagons maintenance staff rendered surplus may be identified and action taken to re-deploy such staff. Audit scrutiny in this regard revealed that:

- Closure of 25 carriage & wagon maintenance yards on five Zonal Railways up to March 2003, rendered 863 staff as surplus. Out of this, 456 staff was re-deployed.
- Delay in redeployment of 51 staff on Central Railway ranged from two to 18 months resulting in avoidable expenditure of Rs.0.15 crore.
- On Western Railway 94 staff were re-deployed after delay of seven months resulting in avoidable expenditure of Rs.0.07 crore.
- Delay in re-deployment of 25 staff on South Eastern Railway has resulted in avoidable expenditure of Rs.0.17 crore.
- On Eastern Railway 282 staff was still awaiting re-deployment. Details regarding the date from which the posts were rendered as surplus was not available on records.

4.10.6 Due to introduction of electric traction on almost all major routes of the Railways, there has been general shift from Diesel Locomotives to Electric Locomotives. On most of such sections, the Diesel maintenance sheds have been closed or the work load has decreased significantly.

A review of diesel maintenance activity on all the selected Divisions of nine Zonal Railways was carried out and it was found that only two Diesel Sheds -

one at Mughalsarai over Lucknow Division of Northern Railway and one at Angul over Khurda Road Division on South Eastern Railways were closed during the year 2001-02 and 2002-03 respectively. On Northern Railway 338 staff was rendered surplus. Out of this 153 staff was deployed after a delay 16 months resulting in avoidable expenditure of Rs.2.58 crore. All the 41 staff rendered as surplus on South Eastern Railway were re-deployed.

4.11 Forecasting of Manpower Requirement

An assessment of future manpower requirements is essential for planning recruitment levels and developing redeployment strategies. In order to use the existing manpower judiciously and take decision regarding recruitment, it is essential that proposals for staff requirement of various activities are prepared well in advance by adopting certain yardsticks/ norms.

A review of records of Zonal Railways conducted in this regard revealed that proposal for future requirements of staff were not prepared annually in advance except for Construction Organisation and Running staff (Guard, Drivers etc.) in open line. The proposals for requirement of staff in all other activities were processed as and when need arose.

4.12 Availability of norms/ yardsticks and their observance

Availability of norms/ yardsticks for deployment of staff in various activities and their correct application is an essential tool for manpower management.

Test check on availability of norms was carried out in three major departments viz. Electrical, Mechanical and Civil Engineering and it was found that:

- In Electrical Department, out of 11 major activities, norms for staff deployment in four activities viz. Maintenance of AC Coaches and Train lighting, Sub-station maintenance, Administrative work (non-gazetted staff) and Headquarter office work (Gazetted staff) were not available except on Eastern and South Eastern Railways. On Eastern and South Eastern Railways out of the four activities mentioned above norms for maintenance of AC Coaches and Train lighting were available.
- In Mechanical Department, out of five activities, norms for one activity viz. staff deployment for wagons maintenance were available only on Eastern, South Eastern and Western Railways. Norms for administrative work and Divisional work (Gazetted staff) were not available in any of the Zonal Railway.
- In Engineering departments, out of ten activities, norms for seven activities were not available on any of the Zonal Railways.

Micro study regarding observance of norms/yardsticks, manpower planning in three departments was carried and the results are depicted in the following paragraphs.

4.12.1 Mechanical Department

Mechanical department handles three main maintenance activities i.e., carriages, wagons and diesel locomotives maintenance. The deployment of

staff in two activities were reviewed with reference to existing norms and the findings are discussed in the following paragraphs.

Carriage Maintenance Activity

Norms for this activity were revised in December 2001 from 3.3 men per coach to 2.4 men per coach for primary maintenance. Test check of 99 Coaching Yards on 20 Divisions of the Zonal Railways except NF Railway revealed that 398 men were deployed in excess of the requirement resulting in extra expenditure of Rs.5.04 crore per annum. Railway wise position of excess deployment is given below:

- In South Eastern Railway the excess deployment in seven Coaching yards was 264 men involving extra expenditure of Rs.3.34 crore per annum.
- The excess deployment of staff was on Southern Railway (39) in seven Coaching yards, Central Railway (37) in three Coaching yards, Northern Railway (23) in four Coaching yards, South Central (22) in two Coaching yards and North Eastern Railway (13) in three Coaching yards. The extra expenditure involved on these Railways was Rs.1.69 crore per annum.

[Annexure XXXIII]

Diesel Loco Sheds

The Yardstick for maintenance staff in the Diesel Sheds has not been revised since 1979. A review of 27 Diesel Loco Sheds on the Zonal Railways except Northeast Frontier Railway revealed that the operated strength of staff was less than the staff requirement as per norms in all the Diesel sheds except Motibagh-Nagpur on South Eastern Railway where two men were deployed in excess. This would indicate that the norms fixed in 1979 call for downward revision.

[Annexure XXXIV]

4.12.2 Engineering Department

Engineering department (Open Line) is entrusted with maintenance of track, assets related to track and other works, acquisition and management of land and construction and maintenance of buildings and bridges. Audit reviewed the position of staff engaged for maintenance of tracks and the findings are discussed below:

Permanent Gang

Norms for calculation of gang strength for the maintenance of track are specified in the Report of Special Committee (1979) set up for evolving Gang strength Formula for uniform adoption on Indian Railways. Audit review of gang strength calculated as per norms, sanctioned strength and operated strength of gang men revealed the following:

- Sanctioned strength was not revised to bring it at par with the requirement as assessed in terms of norms. As a result of this the sanctioned strength of gang men as on 31 March 2003 was more than the required strength on

South Eastern (4318), Northern (3433). Western (2944), Eastern (2860), Central (881) and South Central (362) Railways.

- While the overall operated strength was less than the required strength as per norms on almost all Railways except on Northern and Western, the operated strength on certain Divisions within the Railways was in excess. There were three Divisions each on Northern and Western, two on Central and one on Eastern Railways, which had excess staff. The excess deployment on Northern (1874), Western (759), Central (698) and Eastern Railway(608) involved extra expenditure of Rs.49.25 crore per annum.

[Annexure XXXV]

- A deeper analysis at the level of five sub offices on each of the 19 selected Divisions of the Zonal Railways revealed that out of 95 sub offices test checked, there was excess deployment from one to 188 gang men in 46 sub offices. The total excess deployment in 46 sub offices was of 1830 gang men resulting in extra expenditure of Rs.23.19 crore per annum. The sub-offices where the deployment was more than 25 per cent of the requirement are tabulated below:

Name of Railway	Name of Division	Name of sub office (Chief Permanent Way Inspector/ Permanent Way Inspector/Section Engineer)	Percentage of excess deployment
Central	Nagpur	SE, Ajni	37.04
Eastern	Asansol	Kalipahari	127.03
		Sitarampur	53.04
		Barakar	110.83
		Kalubathan	100.79
		Madhupur	53.93
North Eastern	Lucknow	Badshahnagar	25.34
South Central	Secundrabad	Belampalli	32.89
		Kazipet	34.62
		Manikgarh	30.49
		Secundrabad	25.64
South Eastern	Chakradharpur	Manoharpur	37.24
Western	Ratlam	Nagda	35.66
		Ujjain	61.08
		Meghnagar	34.87
		Shujalopur	111.71
		Piplod	25.74

[Annexure XXXVI]

4.12.3 Electrical Department

Electrical department handles maintenance of electric locomotives, over-head equipment, sub-stations and distribution of power supply etc.

(i) Audit review of manpower for various activities required as per existing norms and actually deployed as on 31 March 2003 revealed that:

- The operated strength of staff engaged in almost all the activities except three activities was less than the requirement.

- In one activity viz. General Power Supply, there was excess deployment of staff. Excess deployment was 588 on Eastern, 224 on Northeast Frontier and 85 on Western Railway involving extra expenditure of Rs.11.36 crore per annum.
- The deployment of staff for maintenance of Electric locomotives was more by 48 men on Southern Railway involving extra expenditure of Rs.0.61 crore per annum.
- On Western Railway, in traction distribution activity, 51 men were deployed in excess of requirement involving extra expenditure of Rs.0.65 crore per annum.

[Annexure XXXVII]

(ii) Norms for maintenance work of AC Coaches do not exist on Zonal Railways except Eastern Railway where 2.1 and 3.57 men per coach per day were prescribed for primary and secondary maintenance respectively. Test check of manpower deployed during March 2003 for AC coach maintenance activity was conducted in 20 yards of nine Zonal Railways applying Eastern Railway's norms and it was found that -

- The actual deployment of manpower at Sealdah and Howrah yards on Eastern Railway was 11 and 3.85 men per coach per day as against prescribed combined average deployment of 2.84 men per coach per day.
- The deployment of 7.26 men per coach per day at Lucknow yard of Northern, 7.09 men per coach per day at Guwahati of Northeast Frontier, 5.95 men per coach per day at Chennai Egmore of Southern and 4.5 & 3.79 men per coach per day at Tata & Santragachi yards respectively on South Eastern Railways indicate that action is required to fix norms and distribute the existing manpower judiciously.

4.13 Rightsizing of manpower through Bench Marking

Benchmarking is a method of determining the minimum manpower per unit of representative workload. A comparison of manpower per unit engaged for similar activities in different Railways and adopting the best figure as a benchmark has been recognised as the best solution for rightsizing manpower. RITES in their report had indicated that there was considerable variation from Railway to Railway in respect of number of track men per Equated Track Kilometre (ETKM) in Civil Engineering department and had recommended for similar comparison in other activities to achieve economy through proper deployment of manpower.

4.13.1 A workshop of Railway Officers was held in May 1991 to discuss the recommendations of RITES and chalk out an action plan. In the Action Plan for Civil Engineering it was agreed that if all Zonal Railways adopted the best figure of track men per ETKM. of South Eastern Railway having 1.68 track men per ETKM (in 1991-92) as against all India average of 2.12 track men per ETKM, there would be saving of about 61,000 employees.

The implementation of this benchmark was reviewed in audit and it was found that:

- The deployment of staff during the year 2002-03 on Northern and Central Railways was 2.15 and 1.82 track men per ETKM respectively. The failure of these two Railways to bring down the deployment to 1.68 track men per ETKM resulted in excess staff of 9,857 on Northern and 2,793 on Central Railways. The extra expenditure involved was Rs.12.63 crore and 5.13 crore per month respectively.
- The deployment of staff on Western (1.72 per ETKM) and Southern (1.69 per ETKM) Railways was also slightly higher than the benchmark of 1.68 track men per ETKM.
- The deployment of staff per ETKM on all other Railways showed more than the expected reduction and ranged from 1.15 track men per ETKM on South Central to 1.56 track men per ETKM on North Eastern Railway.

4.13.2 In the Action Plan (May 1991), Central, Northern and Western Railways, where the deployment of track men was 2.34, 2.45 and 2.69 track men per ETKM respectively, were specifically asked to make in-depth study for identification of surplus labour on P.Way and bring deployment of staff per ETKM to All India level. Audit found that the efforts put forth by these Railways to bring down the manpower deployment to the All India level were not sufficient. The All India average deployment of track men during the year 2002-03 was 1.58 per ETKM and the deployment on Northern (2.15), Central (1.82), and Western (1.72) track men per ETKM continued to be above All India average. The deployment of 1.69 track men per ETKM on Southern Railway was also above All India level. There is scope for reduction of around 20884 track men on these Railways which would result in a saving of Rs.22.04 crore per month.

[Annexure XXXVIII]

4.13.3 Immediate action to initiate similar exercise to right size the manpower in respect of other activities should also have been taken by Railways to bring about parity in deployment of its existing manpower. However, the process was initiated only in August 2000. This exercise is being carried out by Efficiency & Research Directorate on Indian Railways. So far two study reports on Benchmarking have been forwarded for time bound implementation to all Zonal Railways & Production Units by Railway Board in May 2001 and May 2002 covering 12 major activities & five indirect activities respectively. By adopting these benchmarks as a goal to be attained by each activity centre, there is a considerable potential of improving manpower productivity.

The exercise of fixing upper benchmark was to be completed by 30 September 2001. It was also directed that till the above exercise is completed, no fresh induction of staff (including compassionate appointees) was to be made in Divisions/units where the average strength as indicated in the benchmarking report was above the benchmark.

A test check conducted on 19 selected Divisions of Zonal Railways revealed that the exercise of fixing upper benchmark limit in respect of 12 major and five indirect activities in almost all the Divisions has not been completed except on Eastern and Western Railways. Eastern and Western Railways have completed the exercise of fixing upper benchmark for ten out of 12 major activities. The two remaining activities were in respect of Buildings and Bridges. Western Railway completed the exercise in respect three out of five indirect activities.

4.14 Manpower assessment for Workshops

4.14.1 Railway Administration has invested huge amounts in modernisation of workshops with a view to increase productivity in workshops and large number of semi-skilled trades have been reclassified as skilled to increase the availability of skilled workforce. These developments have a direct impact on the productivity and allowed time for various jobs in workshops. Due to revision in allowed time and closure of certain activities, the staff have become surplus. Test check was conducted in 26 workshops on nine Zonal Railways to find out the impact of modernisation and action taken by Railways to reduce the staff. The findings are given below:

- In Liluah and Kanchrapara workshops on Eastern Railway due to modernisation of certain activities, a large number of staff was identified as surplus during the year 2001-02 to 2002-03. The actual reduction in staff was either not effected or was effected after a delay ranging from one to 21 months resulting in avoidable expenditure of Rs.71.74 crore.
- The repair of LB springs in Ponmalai (Golden Rock) and closure of carriage repair shop in Perambur workshops of Southern Railway was effected from November 2001 and March 2003 respectively. However, 21 and 190 staff identified surplus in these activities respectively has not been reduced from the staff strength (June 2003) resulting in unproductive expenditure of Rs.0.80 crore.
- In Gorakhpur Workshop of North Eastern Railway, 142 employees were identified as surplus in July 2002. There was average delay of 3.5 months in effecting actual reduction in staff strength resulting in avoidable expenditure of Rs.0.52 crore.

[Annexure XXXIX]

4.14.2 Manpower requirement of various activities in a Workshop is dependent on the target set for production of various items. Non-achievement of targets would thus indicate idling of manpower. Test check of certain shops engaged in various activities in the 26 Workshops of nine Zonal Railways was conducted for the year 2001-02 to 2002-03 to compare the manpower deployed, targets set for the year and actual outturn. The test check revealed that the shortfall in achieving the targets ranged from 2.42 per cent to 89.33 per cent. Based on the actual outturn, the manpower deployment in the shops test checked was in excess by 5,215 on all Railways during the year 2001-02 and 3,459 during the year 2002-03 resulting in extra expenditure of Rs.66.05

crore and 43.80 crores respectively. The Railway-wise position is tabulated below:

Railway	No. of excess staff			Extra Expenditure (In crore rupees)		
	2001-02	2002-03	Total	2001-02	2002-03	Total
CR	506	328	834	6.40	4.15	10.55
ER	3456	2428	7884	43.77	30.75	74.52
NR	100	75	175	1.27	0.95	2.22
NF	644	131	775	8.16	1.66	9.82
SR	344	233	577	4.36	2.95	7.31
SC	128	255	383	1.62	3.23	4.85
SE	25	9	34	0.32	0.11	0.43
WR	12	-	12	0.15	0.00	0.15
TOTAL				66.05	43.80	**109.85**

[Annexure XL(i)&(ii)]

4.15 Manpower planning for Construction Organisation

Each Zonal Railway has a Construction Organisation headed by Chief Administrative Officers. The main functions of this organisation are construction of new lines, bridges etc. Assessment of manpower requirement for the construction organisation is generally done on the basis of the provision in the estimates relating to the works to be executed by this organisation. All the posts thus created are called 'Work charged posts'.

4.15.1 Creation & Extension of currency of Gazetted Posts

For every financial year yardstick for the creation/ extension of Gazetted staff for construction project is fixed by the Railway Board. According to these yardsticks, proposals for creation/ extension of number of gazetted posts are sent by the concerned executives departments to FA&CAO (C) for concurrence. The proposal shows the details of the outlay for the year in respect of the works to be executed by the concerned department and also gives the list of the works where provision for the proposed staff exist. These Proposals are scrutinised by the Accounts department after verifying all the facts & figures and the vetted proposals are sent back to the concerned department to take the sanction of the competent authority. Proposals for creation/extension of SAG level posts are required to be sanctioned by Railway Board. Other proposals of Gazetted staff are sanctioned by the CAO (C).

The yardsticks for creation of posts for the year 2000-01 prescribed by Railway Board stipulate that in Civil, Electrical and S&T Departments the total number of posts in Junior Scale/ Class II and Senior Scale posts should be determined by taking these posts together and not separately. It was also stipulated that the number of posts in Senior Scale should be kept at about one half of the Junior Scale posts. The formula to calculate the posts in these categories was that the number of posts in Junior Scale multiplied by the monetary yardstick per post plus the number of posts in Senior Scale multiplied by the yardstick per post should equal to the total outlay. From the

year 2001-02 onward a further cut of ten per cent was to be applied on the posts calculated as per above formula.

Audit review of the creation and operation of the Gazetted posts for the year 2001-02 to 2002-03 in Civil and Electrical Departments was carried out and findings are discussed in the following paragraphs:

Civil Engineering

Test check of posts required on the basis of prescribed norms revealed that:

- During the year 2000-01, one post in Senior Administrative Grade (SAG) on South Central, four posts in Junior Administrative Grade (JAG) out of which, three were on South Eastern Railway alone were in excess of the requirement. In Senior Scale (SS) out of 36 excess posts, the excess was mainly on Southern (20), South Central (nine), Central (five), Eastern and South Eastern (one each). The excess deployment of ten posts in Junior Scale (JS) was eight on South Central and one each on North Eastern and South Eastern Railways. The deployment of posts in excess of the prescribed norms resulted in extra expenditure of Rs.0.65 crore.
- During 2001-02, two SAG posts one each on Southern and South Eastern, 18 JAG posts out of which six each were on South Central and South Eastern, three on Southern, two on Western Railway and one on North Eastern Railways were operated in excess of the norms. Out of 56 excess posts in SS, 25 were on Southern Railway, ten were on South Central, seven were on South Eastern, five each on Central and Western, two on Eastern and one each on North Eastern and Northeast Frontier Railways. In JS out of 39 excess posts 13 were on South Eastern, ten on South Central, eight on Western, five on Northeast Frontier and three on North Eastern Railways. The total extra expenditure involved works out to Rs.1.46 crore.
- During the year 2002-03, the number of posts operated in excess than the requirement were two in SAG , five in JAG, 30 in SS and 11 in JS. Out of 31 posts in SS, 14 were on Southern, 11 on Central and one on South Central Railways. The total extra expenditure involved works out toRs.0.61 crore.

[Annexure XLI (i)]

Electrical Department

Test check of posts required as per norms and actually operated reveal that:

- During the year 2000-01, out of four excess post in JAG, two were on Southern and one each on South Central and South Eastern Railways. Out of 19 excess posts in SS, five were on South Central and three each on Central, Southern & Western, two on Northeast Frontier and one each on Eastern, Northern and South Eastern Railways. 12 posts in JS were operated in excess of the norms and the excess was on Eastern (five), South Central (four) and South Eastern (three). The extra expenditure involved works out to Rs.0.44 crore.

- During the year 2001-02, out seven excess posts in JAG, three were on South Eastern Railway alone. Out of 23 excess posts in SS, nine were on Central, four on Western, three on South Eastern, two each on Southern & South Central and one each on Eastern, Northeast Frontier & Northern Railways. Out of eight posts operated in excess in JS, five were on South Eastern and three on South Central Railways. The extra expenditure involved works out to Rs.0.48 crore.
- During the year 2002-03, the excess posts operated were SAG (one), JAG (two), SS (14) and JS (five). The excess in SS was mainly on Central (five) and Western (four) Railways. The extra expenditure was to the tune of Rs.0.28 crore.

[Annexure XLI(ii)]

4.15.2 Delay in redeployment/non-deployment of staff

As soon as the work on a sanctioned project is near completion, the Railway Administration should take immediate action for assessing the further requirement of staff and the staff that is not required should be re-deployed elsewhere. Audit review the position of staff management on the works/project which were completed or were near completion and found that -

- In Central Railway, 333 posts were declared surplus during the period 2000-01 and 2002-03. These surplus posts could not be re-deployed till 31 March 2003 as the Open Line Organisation was not willing to take them. Non-deployment of these staff has resulted in unproductive of expenditure of Rs.4.13 crore.
- Northern Railway Construction Organisation has declared 1,413 posts of staff as surplus to the requirement after completion of certain works in 1999. However, the re-deployment process was very slow and even after 4 years, 79 persons were to be re-deployed (March 2003). The delay in re-deployment/non-deployment has resulted in unproductive expenditure of Rs.30.01 crore.

4.16 Bungalow Peons

Bungalow Peons are provided at the residences of the certain officers who, by the nature of their duties, were called upon to be available round the clock to attend to emergencies such as interruption to traffic, accidents, mishaps, agitation & other operational problems which needed immediate attention, and in discharging these functions the assistance of the bungalow peons was needed. In terms of Board's criteria fixed in 1956, General Managers were entitled for two bungalow peons and other Administrative Officers one each provided the nature of their duties justify the sanctioning of bungalow peon.

The third pay commission recommended (March 1973) that "the system of providing peons at the residences of certain categories of officers is an anachronism and should be done away with". In December 1974, a committee appointed by the Board recommended that only General Manager, Head of Departments & Secretary to General Managers may be allowed bungalow peons and no officer of Stores, Accounts, Vigilance, Medical, Civil

Engineering & Personnel Departments in the Divisions & Headquarters (except Head of Departments) should be allowed bungalow peons. After considering these recommedations, Railway Board referred (January 1978) them to the General Managers for their views in. The General Managers favoured continuance of the existing provision of bungalow peons.

A comment regarding continuous unjustified engagement of peons at the residences of various officers despite availability of advanced communication network was made in the Report of Comptroller & Auditor General of India-Union Government (Railways) for the year 1989-90. Consequently Railway Board had felt the need for review of posts of bungalow peons attached to officers lower than Administrative Grade and instructed Zonal Railways to make critical review immediately.

Audit review of engagement of bungalow peons during the period 1998-99 to 2002-03 revealed that:

- The strength of Bungalow peons as on 31st March 2003 was highest on South Eastern (264) followed by Northern (183), Western (139), Central (127), Northeast Frontier (126), Southern (113), North Eastern (83), Eastern (58),) and South Central (33). The total expenditure incurred on engagement of bungalow peons during the review period works out to Rs.38.76 crore.
- The engagement of bungalow peons for officer below the rank of Administrative Grade was also highest on South Eastern Railway (62) followed by Southern (nine), Central (seven) and Eastern (four). The expenditure incurred on engagement of bungalow peons for officers below the rank of Administrative Grade during the review period was 2.47 crore.
- On Western 15 bungalow peons were attached with the officers belonging to Stores, Accounts and EDP departments. Out of these, eight were provided to officers other than Heads of Departments whose duties do not justify the engagement of bungalow peons.

4.17 Reorganisation of Zonal Railways

Railway Board issued a notification on 14 June 2002 for creation of North Western Railway (NWR) and East Central Railway (ECR) with effect from 1 October 2002. NWR has been created by carving out certain divisions of Northern and Western Railways and ECR by carving out certain divisions of North Eastern and Eastern Railway. Another notification has been issued on 4 July 2002 for creation of East Coast Railway, South Western Railway, West Central Railway, North Central Railway & South East Central Railway with effect from 1 April 2003. Due to this reorganisation, posts and personnel were transferred from the existing zones to the newly created zones.

A review was conducted in Audit on Eastern, Northern, North Eastern and Western Railways to see whether the posts identified for transfer to new Zonal Railways, which came into being from 1 October 2002, were actually transferred. The findings are as follows:

- In Eastern Railway, 2,626 posts were identified for transfer to newly created ECR. However, out of 1,961 live posts, only 136 posts were actually transferred till 1 July 2003 leaving excess staff strength of 1,825 on Eastern Railway without any justifiable work
- In North Eastern Railway a total of 944 posts (688 live and 256 vacant) were identified for transfer to ECR. Out of 688 live posts only 318 staff were actually transferred The posts of 370 staff have been declared supernumerary and are being operated on NE Railway without any justified work resulting in unproductive expenditure of Rs.0.39 crore per month.
- In Northern Railway 559 posts were identified for transfer to newly created NWR. Out of these, only 272 posts were actually transferred. The information regarding the number of live posts identified for transfer was not available.
- In Western Railway, 643 posts were identified for transfer to NWR. The information regarding the number live posts identified for transfer was not available. However, it was noticed that 398 staff was transferred to NWR on the basis of their willingness.

From the above it is evident that excess staff remain on Eastern, North Eastern, Northern and Western Railways without any justified work. Since the transfer of Group B, C & D staff has been done on the basis of options and number of staff willing to move to new Zonal Railways is less, Indian Railway is now facing a situation of lop-sided distribution of manpower in various Zonal Railways throwing the whole exercise of manpower planning discussed in the earlier part of the review into disarray. The Railways should have sorted out the matter regarding manpower deployment before embarking on the reorganisation of the Zonal Railways.

4.18 Conclusion

Indian Railways had recognised the importance of manpower planning more than a decade ago when RITES was appointed to undertake a diagnostic study to identify the strengths and weaknesses of its manpower existing at that time. The Railways have brought down the manpower strength from 16.52 lakh in 1991 to 15.11 lakhs as on 31 March 2002 but the reduction is not enough if one consider the changes in operational technologies in Indian Railway by way of modernisation, computerisation and mechanisation of track maitenance. Audit review has revealed that 5,921 posts identified as surplus in work studies conducted during the review period continue to be operated. Several other areas were also noticed by Audit where surrender of staff is warranted. Benchmarking, which has been recognised as an effective method of rightsizing, has been implemented in a very tardy fashion. Efforts to reduce the manpower strength by way of restricting intake has also not been very effective. The intake through compassionate appointments has been heavy and an anachronistic practice of engaging bungalow peons continues. The re-organisation of Zonal Railways in likely to prove a big setback in the Railway's efforts to rightsize manpower.

CHAPTER 5

Functioning of Research, Design and Standards Organisation (RDSO), Lucknow

5.1 Introduction

Prior to 1930, the Indian Railway Conference Association (IRCA), set up in 1903, was enforcing standardisation and co-ordination amongst various Railway systems. In 1930, a Central Standard Office (CSO) was set up for preparation of designs, standards and specifications. In 1952, a new organisation called Railway Testing and Research Centre (RTRC) was set up at Lucknow for testing and conducting applied research for development of Railway rolling stock, permanent way etc. In 1957, the CSO and RTRC were integrated into a single unit named Research, Designs and Standards Organisation (RDSO) under Ministry of Railways at Lucknow.

5.2 Highlights

- **The Corporate Plan 1985-2000 and the IX Plan 1997-98 to 2001-02 had stressed the need to increase outlay for research work. The expenditure was, however, far below the expectations and envisaged outlay. The expenditure in the Plan head for Railway research during the period of review was only about ten to 13 per cent of the total expenditure incurred by RDSO while 87 to 90 per cent was on salaries, pensionary benefits etc.**

  (Para 5.6)

- **The strength of technical staff has been declining more sharply than the strength of non-technical staff and the brunt of the vacancy position is borne more by the technical than the non-technical cadres. As on 31 March 2003, of 563 vacancies, 497 vacancies (88 per cent) were in the technical category.**

  (Para 5.7)

- **The Governing Council which is required to identify, approve, monitor and evaluate R&D projects and the Central Board of Railway Research which is entrusted with the responsibility of giving broad guidance and suggestions for R&D projects, met less frequently than required during the period of review. This is reflected in the poor quality of R&D activities undertaken by RDSO.**

  (Paras 5.8.1 & 5.8.2)

- **Poor quality of identification, planning and execution of missions/ projects resulted in overlapping of missions and projects, termination of projects mid way and undertaking of projects outside the functional jurisdiction of RDSO.**

  (Para 5.8.3)

- **Detailed scrutiny by Audit in implementation of five projects viz. development of Overhead Equipment (OHE) Recording-cum-Test Car, Modernisation of Fatigue Testing Laboratory, Upgradation of Vehicle Dynamic Analysis Software Package, procurement and absorption of Optical Rail Profile Inspection and Analysis System and Upgradation of Track Recording Cars revealed time and cost overruns in implementation and infructuous expenditure due to non-commissioning of some projects.**

(Para 5.9)

5.3 Organisational Set up

RDSO is headed by a Director General. He is assisted by an Additional Director General. There are 22 Directorates. The activities of these Directorates are managed by Senior Executive Directors/ Executive Directors. RDSO has subordinate offices located at Bangalore, Bharatpur, Bhopal, Mumbai, Burnpur, Kolkata, Bhilai and New Delhi for liaison, inspection and development work for Railway Production Units and industries. The Indian Railway Centre for Advanced Maintenance Technology (CAMTECH) at Gwalior also functions under the administrative control of RDSO.

An apex body, the Governing Council (GC), comprising Chairman Railway Board as Chairman, Financial Commissioner, all the Members of the Board and Director General, RDSO as its members, functions to identify, approve, monitor and evaluate the progress of Research and Development (R&D) projects for technology development on Indian Railways. Besides, a Central Board of Railway Research (CBRR) comprising eminent scientists, technologists, engineers and senior executives of other research organisations, universities and industrial units related to railway technology and materials functions under the Chairmanship of Chairman Railway Board (Director General/ RDSO since February 2002) and guides RDSO in its research activities.

5.4 Functions of RDSO

The corporate objectives and main functions of RDSO include the following:

- Development, adoption and absorption of new technologies,
- Development of new and improved designs,
- Development of standards for materials and products,
- Technical investigation, statutory clearances, testing and providing consultancy services,
- Inspection of rolling stock, locomotives, signalling and telecommunication equipment, track components etc. for ensuring quality,
- Quality audit of Railway Workshops and Production Units.

5.5 Scope of Audit

A review of the activities of RDSO during the period 1998-99 to 2002-03 was undertaken to ascertain its achievements vis-à-vis its functions. The review covers financial management, manpower management and project management.

5.6 Financial Management

5.6.1 During the period of review, the funds allotted for revenue expenditure under Grant No.2 and 13 (Salaries and Pensionary benefits etc.) and Plan Head 1800 (Railway Research) by RDSO under Grant No.16 were as under:

(Rs. in crore)

Year	Revenue Grant No.2, 13 and 14(b)		Plan Head-1800 (Railway Research) Grant No.16				Percentage share of total expenditure	
	Funds allotted	Expen-diture incurred	Funds demanded	Original allotment	Final allotment	Expen-diture incurred	Grant No.2, 13 and 14(b)	Grant No.16
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*
1997-98	48.46	47.50	6.57	3.00	3.18	5.16	90	10
1998-99	54.22	55.17	10.00	10.00	6.94	8.20	87	13
1999-00	56.31	58.18	9.06	10.00	6.75	7.06	89	11
2000-01	60.94	61.64	13.50	8.53	8.70	9.21	87	13
2001-02	62.64	63.17	14.50	10.25	7.49	7.56	89	11
2002-03	66.04	65.43	51.87	20.00	7.77	7.58	90	10

From above, it would be seen that:

- While funds expended on revenue grant ranged between Rs.47.50 crore and Rs.65.43 crore per annum, the expenditure incurred on Plan Head 1800 (Railway Research) ranged from a poor figure of Rs.5.16 crore to Rs.9.21 crore per annum.
- The final allotment for Plan Head (Railway Research) was always less than the funds demanded. The funds allotted for Research work for 2002-03 were only about 14-15 per cent of the funds demanded.
- While expenditure on RDSO's main function i.e. Railway research activities during the period of review was only ten to 13 per cent, the expenditure on other heads was 87 to 90 per cent.

The RDSO stated (November 2003) that demand No.2 includes also expenditure on research related activities by way of necessary staff and cost of equipment. This is not tenable because cost of research related equipments/ machinery etc. forms a part of capital expenditure under Grant No.16.

5.6.2 In the IX Plan (1997-98 to 2001-02), the Plan outlay for Research work, was estimated at Rs.250 crore. From the table under Para No.5.6.1 above, it would be seen that the funds finally allotted aggregated Rs.33.06 crore (about 13 per cent of projected outlay) and expenditure incurred was Rs.37.19 crore (about a poor 15 per cent of the projected outlay).

5.6.3 In the Corporate Plan 1985-2000, it was stated that expenditure on R&D as a proportion of gross earnings has been about 0.20 per cent and, that, it needed to be stepped up to atleast 0.50 per cent. From the table given

below, it would be seen that the expenditure on R&D continued to be less than on around 0.20 per cent of gross earnings of Railways during 1998-99 to 2002-2003.

(Rs. in crore)

Year	Gross Earnings	Total expenditure on RDSO (Revenue and Capital)	Percentage of total expenditure to Gross Earnings
1	*2*	*3*	*4*
1998-99	29824.86	63.37	0.21
1999-00	33124.71	65.24	0.20
2000-01	35287.58	70.85	0.20
2001-02	37858.54	70.73	0.19
2002-03	41855.98	73.01	0.17

RDSO stated (November 2003) that though expenditure on R&D activities has remained static at 0.20 per cent, this has not adversely affected the execution of research/ projects.

The reply is not tenable because the stepping up of expenditure to 0.50 per cent was intended to boost and step up the R&D activities and this objective remained unachieved.

From the above position, it is evident that the research work was not given due priority and lofty ideas conceived about R&D activities for Indian Railways remained on paper only.

5.7 Manpower Management

5.7.1 The sanctioned and working strengths of RDSO Gagetted and non-Gazetted posts are shown below:

Year	Gazetted		Non-Gazetted		Total	
	Sanctioned	Working	Sanctioned	Working	Sanctioned	Working
1997-98	356	329	3443	3047	3799	3376
1998-99	378	362	3496	3120	3874	3482
1999-00	379	360	3490	3105	3869	3465
2000-01	380	365	3436	3089	3816	3454
2001-02	428	399	3310	2937	3738	3336
2002-03	423	378	3300	2782	3723	3160

It would be seen from the above table that sanctioned strength and working strength in both the categories viz. Gazetted and non-gazetted increased during 1998-99. The increase in non-gazetted category was on account of 142 Safaiwalas being appointed in 1998 as a result of a special drive and transfer of administrative control of a Hospital from Divisional Railway Manager, Lucknow to Director General, RDSO. Audit was unable to appreciate the need for an R&D organisation to recruit such a large number of safaiwalas or take over the administrative control of the Railway hospital.

Again in the year 2001-02, there was quantum jump in the sanctioned strength and working strength of staff – but this time it was in the Gazetted category only. The justification for these increases is not known.

5.7.2 Activity-wise strength and vacancy position

Category	Men power position as on 31 March					
	Technical			Non-Technical		
Year	SS	WS	VP	SS	WS	VP
1	*2*	*3*	*4*	*5*	*6*	*7*
1996-97	3349	2852	497	469	451	18
1997-98	3066	2704	362	733	672	61
1998-99	3109	2789	320	765	693	72
1999-00	3109	2780	329	760	685	75
2000-01	3061	2756	305	755	698	57
2001-02	3050	2704	346	688	632	56
2002-03	3041	2544	497	682	616	66

SS- Sanctioned Strength **WS- Working Strength** **VP- Vacant posts**

The review for this purpose has been done for a longer period going back to 1996-97 to bring out in sharp focus the lopsided priorities in sanctioning posts and filling up vacancies. From the above table, it would be seen that while Sanctioned Strength (SS) and Working Strength (WS) under technical category decreased considerably from 3349 (SS) and 2852 (WS) in 1996-97 to 3041 (SS) and 2544 (WS) in 2002-03, the strength in non-technical (Administrative and Supporting) category registered a phenomenal increase from 469 (SS) and 451 (WS) in 1996-97 to 682 (SS) and 616 (WS) in 2002-03.

From the above, it can also be seen that the technical category is bearing the brunt of vacancy constraint. As on 31 March 2003, of 563 vacancies [497 (+) 66], 497 vacancies (88 per cent) were in the technical category.

5.8 Planning and Management of Projects

5.8.1 Identification, Planning and Monitoring of Projects

Identification and approval of R&D projects as well as their monitoring and evaluation are mainly done by the Governing Council (GC). The GC is required to meet at least once in three months. It was observed that during the period of review, GC held eight meetings against the minimum 20 meetings required to be held. This reflects apathy towards stepping up and completion of R&D activities.

RDSO stated (November 2003) that in the 17th meeting of GC (June 1999) it was decided to reduce the frequency of meetings.

The reply is not tenable because no formal orders in this regard were issued.

5.8.2 Guidance and suggestions on projects

Central Board of Railway Research (CBRR) is entrusted with the responsibility of giving broad guidance and suggestions for research and developmental activities. The CBRR is required to meet at least three to four times a year and at least once prior to the meetings of the GC. It was, seen

that only five meetings of the CBRR were held during the period of review as against about 20 meetings required to have been held. This affects adversely the control by CBRR over the quality of research projects undertaken by RDSO.

RDSO stated (November 2003) that the meetings are now being held regularly.

5.8.3 Technological Missions

In order to achieve its identified goals within a time frame, RDSO frames technological missions which, after approval of GC, are entrusted to the concerned Directorates. Till March 2003, 19 technological missions were undertaken by RDSO. Of these, 15 were completed/ terminated and the remaining four missions were in progress. Besides, out of five missions proposed in the IX Plan, four missions were not taken up at all.

Time Frame of Missions

The GC in their 15th meeting held in May 1998, deliberated that all the missions may be planned for a time period of two years each. It was observed in audit that seven missions were approved by GC during the period of review. No time frame for completion was fixed for any of the missions. Four of these missions taken up during October 1998 to June 1999 were still in progress as on 30 June 2003 as indicated in the table below:

Name of mission	Number of projects	Date when taken up	Number of projects completed/ closed	Number of projects not completed or awaiting Railway Board's clearance	Period for which the mission had been in progress as on 30 June 2003
1	*2*	*3*	*4*	*5*	*6*
13- Improving safety on level crossings	16	October 1998	11	5	4 years 8 months
15 – Improving the suburban services on Indian Railways	13	May 1998	7	6	5 years
17 – Technical inputs for enhancing safety	21	June 1999	11	10	4 years
19 – Upgradation of on-board services on passenger trains	25	January 1999	16	9	4 years 5 months

From the above, it would be seen that against time frame of two years considered by GC as reasonably adequate for completion of each of the missions, these four missions had been in progress for a period of four - five years as of 30 June 2003.

Admitting the delay, RDSO stated (November 2003) that some of the remaining projects are in the final stage of completion.

Missions Completed/ Terminated during the period of review

No intended benefits accrued to Railways from the following three missions, which were completed/ terminated during the period of review:

- **Mission No.14** – "Increasing throughput by introduction of Higher Axle load wagon on Hospet-Bellary-Chennai Harbour section".

  This project was taken up (6 October 1998) with a view to designing and developing axle load wagon of 22.1 tonnes (BOXNHA wagon) with speed potential of 100 kmph. Railway Board procured five rakes (301 BOXNHA wagons) at a total cost of Rs.32.66 crore between November 1999 and March 2000.

  Review in audit revealed that the wagons could not run at the expected higher speed with high axle load as the existing track structure/ infrastructure did not permit such speed and load. The rakes were sent to Mughalsarai yard of Eastern Railway, of which one has been recently stabled and the remaining four are running with much less payload and speed.

- **Mission No.16** – "High speed Technology for running passenger trains at 250-300 kmph on dedicated track"

  This mission was approved and started in October 1998. The mission was, however, closed in March 2000 without achieving its objectives on the ground of its high cost.

- **Mission No.18** – "Identification of Technical Inputs for enhancement of Line Capacity".

  This mission was taken up (October 1998) to improve the asset reliability and to enhance line capacity by technical inputs. RDSO recommended (20 December 2001) closure of this mission on the grounds that all future stocks were being designed for 100 kmph speed potential.

Audit contention in respect of the above three missions has been accepted by RDSO (November 2003)

From the manner in which the missions were completed/ terminated, it is apparent that due care is not exercised by RDSO at the time of identification and planning of missions and by GC at the time of according approval.

Overlapping Missions and Projects

An audit scrutiny revealed that some of the missions had very broad terms of reference and their objectives were not specified clearly. Resultantly, such missions had overlapping objectives and had to be closed and recast. For instance, Mission No.6 – "Optimising of existing assets and operations including reduction in equipment failure so as to increase the throughput" and Mission No.8 – "Reduction in accidents" were closed and recast as Mission No.11 – "Design Improvement for augmentation of safety and reliability" and 12 – "Design Improvement for optimising maintenance schedule of equipment and assets".

RDSO stated (November 2003) that decision to close projects of the missions and to start new ones are taken based on the actual requirement.

The reply is not tenable because the recast missions (11 & 12) had the same objectives as had been envisaged in earlier missions (6 & 8).

Not only were some missions overlapping, same projects also were included in the different missions as indicated below:

Name of project	Project/ Mission in which appeared	
	Project	Mission
Development of solid wheels for EMUs	9	15
	11	17
Provision of solar panel for signal lamp	12	13
	20	17
Provision of reflective strips on lifting barrier booms	13	13
	21	17

Such instances again provide evidence of poor identification, planning and execution of missions and projects.

Undertaking projects outside the purview of RDSO

A review of the nature of projects undertaken by RDSO and the recommendations made to Railway Board while seeking orders for closure of projects under on going missions revealed that ten projects entrusted to and undertaken by RDSO do not fall within the legitimate functional jurisdiction of RDSO. No real contribution other than reiteration of already existing codal provisions was made by RDSO. Some illustrative cases are listed below:

Sl. No.	Project No.	Status/ recommendations
1	*2*	*3*
Mission No.13		
1	Upgradation of level crossings (Sl. No.1)	Programmes of manning of unmanned level crossings is contained in Railway Board's letter dated 13/ 18 November 1998 circulated to all Zonal Railways.
2	Provision of Road over bridge (ROB)/ Road under bridge (RUB) in lieu of level crossings (Sl. No.3)	It shall be ensured that ROB/ RUBs are provided as per Para 923 of Indian Railway Permanent Way Manual (IRPWM).
3	Review of provision of approach road and speed breakers (Sl. No.4)	It shall be ensured that the approach road and speed breakers at level crossings are provided as per provisions contained in IRPWM along with the detailed instructions incorporated vide correction slip No.50 to IRPWM.
4	Provision of lifting barriers (Sl. No.6)	All manned level crossing gates shall be provided with lifting barriers on programmed basis as instructed by Railway Board vide their letter dated 22 April 1999.

5	Pay scales and promotional aspects of gate keepers (Sl. No.7)	An independent separate cadre should be made for gatekeeper.
6	Need for educational qualification and training for gate keepers (Sl. No.8)	(i) It is recommended that minimum qualification for gate keeper should be matriculation. (ii) Training of gate keepers must be ensured in Divisional Engineering Training School at a periodical interval of three years and a competency certificate issued.
7	Residential facilities for gate keepers (Sl. No.9)	It is recommended that residential facilities for gate keepers should be provided at the nearest Railway station so that they get the minimum civic and basic amenities.
8	Review of the working rules of manned level crossings (Sl. No.10)	Review of the working rules of manned level crossings have been completed and standard gate working instructions have been issued by Railway Board vide their letter dated 8 May 2002.
	Mission No.19	
9	Mugs to be provided in toilets of AC coaches (Sl. No.2)	Implemented from August 2000.
10	Defining job profile and selection of on board staff (Sl. No.5)	Report was submitted to Railway Board defining job profile and selection procedure for on board staff. Railway Board advised all Zonal Railways in October 1999 for implementation of RDSO's report.

Further, action in respect of the above projects was taken by Railway Board based on the recommendations of RDSO.

5.9 Status of Projects

Forty five projects had been sanctioned till March 2003. Of these, two projects had been completed by March 1998, 28 projects were completed during the period of review, while the remaining 15 projects were in progress as of 31 March 2003. Of 30 completed projects, 27 projects had achieved their objectives and three projects were terminated mid-way.

Twenty projects costing over Rs.50 lakh each (seven projects sanctioned prior to 1998-99 and 13 new projects sanctioned during the period of review) were examined in audit. The major irregularities noticed in respect of five of these projects are detailed in the succeeding paragraphs.

5.9.1 OHE Recording-cum-Test car

With a view to recording overhead equipment (OHE) parameters, monitoring and evolving improved design of the same on Indian Railways, a proposal was made by RDSO to the Railway Board to procure one OHE Recording-cum-Test Car in the Rolling Stock Programme of 1988-89 at a cost of Rs.4 crore. The proposal also envisaged savings of Rs.25.68 crore per annum for a run of 18000 TKM. The detailed estimate of Rs.3.47 crore for this work was also sanctioned (October 1990) by RDSO.

Global tenders were invited (August 1991) by Railway Board for this purpose but the same were rejected on account of very high cost (Rs.16 crore).

Meanwhile, GC emphasised (May 1992) maximising efforts for indigenisation and minimising imports in view of the shortage of foreign exchange. Accordingly, RDSO undertook (May 1993) in-house development of an OHE recording-cum-test car in two phases but the work was finally discontinued (January 1998) even in its first phase after incurring an expenditure of Rs.13.94 lakh on the plea that an OHE Car was being procured by RDSO.

The Board had decided (December 1993) to procure another test car against an ADB loan so that both could be used simultaneously. The procurement of an OHE Recording-cum-Test Car was sanctioned (December 1995) by the Board at a cost of Rs.9.78 crore (foreign exchange Rs.5.84 crore). The purchase order for procurement of the OHE Recording-cum-Test Car was placed (June 1997) on M/s. Bharat Heavy Electrical Limited (BHEL) at a cost of Rs.5.11 crore. However, the OHE car could be installed and commissioned only in February 1999 and May 2000 respectively.

In this connection, the following observations are made:

- The project suffered a time overrun of more than 11 years.
- Non-completion of in-house development of OHE car rendered the expenditure of Rs.13.94 lakh infructuous.
- The car could run 18252 TKM only (June 2000 to March 2003) as against the projected run of 51000 TKM. Thus under utilisation of OHE Car resulted in loss of projected savings of Rs.46.72 crore during this period.

RDSO stated (November 2003) that experience and knowledge gained during in house development of OHE Car proved helpful in framing technical specification for OHE car (Netra Car) procured through a global tender.

The reply is not tenable. It was decided not to procure the OHE Recording-cum-Test Car, in question, due to its high cost and thereafter Railway Administration's decision to develop it indigenously. Its in-house development in two phases was taken up. When the progress reached the stage of installation of instrumentation system in the first phase, the further development to finality and results was dropped suddenly on the plea that an OHE car was being procured through global tender. It is not understood asto how the experience gained from a work which was dropped midway and which had not produced any results could help framing the specifications for the OHE car which was proposed to be procured from the open market even before. Moreover, high cost and not specification was the reason for not buying it earlier.

5.9.2 Modernisation of Fatigue Testing Laboratory

In order to modernise/ augment the existing Fatigue Testing Laboratory, a project 'Modernisation and Augmentation of Fatigue Testing Laboratory at RDSO' was sanctioned in the Works Programme 1987-88 at an anticipated cost of Rs.2.35 crore. The project envisaged annual savings of Rs.1.52 crore and Rs.42.84 lakh on account of reduction in weight of freight vehicles and

passenger coaches respectively. The project was to be completed by December 1990.

The tendering process was commenced in 1990 but purchase order was placed only in February 1994 on a United Kingdom based company at a cost of Rs.5.34 crore (inclusive of a Rs.39.82 lakh for indigenous items to be supplied by their Indian agent based in Delhi).

The imported items were received by RDSO in February 1995. However, the Indian agent started the work in June 1996. The project could be completed only in May 2001. The delay in completion of the project was due to subsequent changes in lay out, incorrect assessment of requirement of material, frequent changes in specifications of computer hardware networking material and, delay in finalisation of drawing of Portal Frame etc. Evidently, the project suffered a time over run of more than six years even after receipt of imported equipment which deprived Railways of anticipated savings of Rs.11.70 crore for the period March 1995 to April 2001.

RDSO stated (November 2003) that period from the date the work of commissioning the machines started (June 1996) to the date, it was commissioned (September 1997) was about 15 months. Thereafter, the period from September 1997 to May 2001 may be treated as a period of finetuning and stabilisation.

The reply is neither specific nor has it been supported by any documentary evidence.

5.9.3 Upgradation of Vehicle Dynamic Analysis Software Package

RDSO invited (March 1998) global open tenders for upgradation of Vehicle Dynamic Analysis Software. The purchase orders were placed in March 2000 on M/s. Hewlett Packard. Asia Pacific (HPAP) Limited, Hongkong for a computer hardware system at a cost of US $ 67,000 (Rs.29.01 lakh), M/s. Mechanical Dynamics Inc.(MDA), USA for ADAMS Rail software including training at US $ 204086 (Rs.88.37 lakh) and M/s.EDS Technologies Pvt Ltd., Bangalore for warranty, upgradation, system integration and technical support at Rs.64.17 lakh. As per the terms and conditions of the agreement with M/s. MDI, USA, the delivery, installation and commissioning including validation for the entire system was to be done within eight months of the date of opening of the Letter of Credit (10 October 2000). The computer hardware and ADAMS software were received in September 2000 and installed at RDSO between December 2000 and March 2001. The ADAMS Rail training had also been completed in March 2003. However, the commissioning including validation of the software has not been done.

Thus due to delay in commissioning and validation of the software, investment of Rs.1.28 crore had been lying unproductive for a period of over two years. Besides, benefits such as unlimited number of simulations, non-requirement of field trials to be accrued from the project also remained unachieved.

RDSO stated (November 2003) that computer hardware was installed in April 2001 but completion and commissioning certificate has not been signed

(November 2003) because knowledge of the system can be achieved only after the Railway personnel have obtained training in the working of the system.

The reply is not tenable. The training of Railway personnel was completed in March 2003. The system has not yet been validated by way of commissioning certificate even after a period of 2 ½ years of its commissioning in April 2001 and 8 months of completion of training in March 2003.

5.9.4 Optical Rail Profile Inspection and Analysis System

In Indian Railways there was no proper rail-wear measuring system and rail renewal works were being undertaken by measuring rail-wear manually at a few isolated places. It was, therefore, difficult to timely plan the rail renewal. There was also a possibility of premature or post mature rail renewal. As such, an automatic wear measurement and analysis system was necessary. This system was to yield financial savings in terms of optimal performance of track structure coupled with reduction in incidence of accidents due to rail wear.

Accordingly, Railway Board approved (September 1995) the procurement of two Optical Rail Profile Inspection and Analysis Systems at a cost of Rs.5.49 crore in 1996-97. Subsequently, Railway Board directed (August 1996) RDSO to procure one machine in the first instance and to repeat the order only after successful field trials and identification of future savings.

In pursuance, RDSO framed the technical specification of the system and submitted (December 1996) the same to the Board along with a certified copy of the sanctioned estimate costing Rs.2.49 crore. The target date of completion of this project was fixed as 31 December 1998.

RDSO invited (February 1997) tenders for procurement of one Optical Rail Profile Inspection and Analysis System and four offers were received in response thereto. However, the Tender Committee (TC) rejected (December 1997) the tender on account of the failure to send tender notices to Indian Embassies abroad and Foreign Embassies in India and recommended re-tendering by following correct procedures. Accordingly, tenders were re-invited (January 1998) and a purchase order was placed (February 1999) on M/s. E.H. Reeves and Associates, of United States at a cost of Rs.1.51 crore. The equipment was to be supplied by October 1999. Though the system was received by RDSO in August 2001 and installed in May 2002, it had not been commissioned as of June 2003. Thus due to poor contract management and inefficient monitoring of the project, the project suffered a time overrun of more than nine years and the investment of Rs.1.51 crore remained unproductive for about two years.

In their reply of November 2003, RDSO attributed the delay to unforeseen circumstances.

5.9.5 Upgradation of Track Recording Cars

In order to increase the productivity of Track Recording Cars (TRCs), the Railway Board decided (December 1990) to upgrade the two existing TRCs.

A contract was awarded in May 1994 to a firm for two sets of contactless sensors at a cost of Rs.87.90 lakh. These two sets were received in 1995 at a cost of Rs.78.76 lakh. Though it was not possible to simulate actual

environmental conditions in the laboratory, the two systems were fitted on TRCs after laboratory tests. Thereafter, the field validation trials indicated that the system had been giving problems since the very beginning. Though further trials conducted (February to May 1996) also indicated that the system had not been stable and its performance was not satisfactory, a certificate of successful commissioning of both the systems was issued by RDSO in November 1996.

The results of subsequent trials conducted in May 1997/ September 1997 were also found unsatisfactory. As the contract was finalised at the Board's level, RDSO requested (October 1997) the Board to take necessary action as per terms of the contract. In reply, the Board advised (April 1999) RDSO to recover the cost of the system from the firm. However, the recovery of Rs.0.79 crore could not be made from the firm as the matter was subjudice as of 30 June 2003. Thus RDSO's imprudent decision to issue certificate of successful commissioning of these systems without ensuring their performance in actual field conditions led to infructuous expenditure of Rs.0.79 crore.

In their reply of November 2003, RDSO accepted the contention of Audit and stated that the case was subjudice.

5.10 Conclusion

The RDSO over the years has been focusing less on R&D activities and more and more on its functions like development of standards for materials and inspections of Rolling Stock, Signalling & Telecommunication equipment, traction components etc. The identification of projects is a sad commentary on the indifference and inability of RDSO and senior most functionaries of the Railways, forming a part of the Governing Council, in prioritising and selecting projects which are within the basic framework of objectives of RDSO. The execution and monitoring of projects have also been very poor as is reflected in the considerable delays in completion of projects and failures in adopting and absorbing the new technologies.

Sudha Rajagopalan

(SUDHA RAJAGOPALAN)
Deputy Comptroller and Auditor General

New Delhi
Dated: 1 JUL 2004

Countersigned

(VIJAYENDRA N. KAUL)
Comptroller and Auditor General of India

New Delhi
Dated 2 JUL 2004

Annexure I

(Paras 2.1 and 2.6)

Statement showing the details of Track Machines held on Indian Railways as on 31 March 2003

Sl. No.	Railway	Tamping Machines						Ballast Handling Machines			Dynamic Track Stabilisers	Track Laying Machines				
		Universal Tamping	Duomatic Tamping	Continuous Tamping	3-X Tamping	Points and Crossings Tamping	Multi-purpose Tamping	Ballast Cleaning	Shoulder Ballast Cleaning	Ballast Regulating		PQRS	Points Relaying	Sleeper Exchanger	Track Relaying Trains	Tie Replacer and Crane
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*
1	Central	3	4	8	2	7	1	6	4	4	4	4	2		2	
2	Eastern	1	6	6	1	3	1	5	3	4	3	12	2			
3	Northern	3	5	6	1	5	1	5	3	4	4	5	2		1	
4	North Eastern	3	1	2		2	1				1	1				
5	Northeast Frontier	0	1	2		2	1	1		1	1		1			
6	Southern	3	5	6	1	6	1	3	2	2	3	3	2	1		
7	South Central *	4	4	6	1	6	1	3	3	3	2	3	2			
8	South Eastern	5	6	8	2	5	1	4	3	5	4	8	2			
9	Western	1	2	8	2	6	1	4	3	4	3	4	1		1	1
TOTAL		**23**	**34**	**52**	**10**	**42**	**9**	**31**	**21**	**27**	**25**	**40**	**14**	**1**	**4**	**1**
Cost (Rs. in crore)		**10.86**	**37.60**	**191.01**	**84.26**	**146.52**	**35.77**	**214.99**	**144.20**	**30.01**	**94.06**	**21.08**	**40.28**	**Cost not known**	**45.75**	**1.00**

Note

1 7 out of 23 Universal tamping machines (Central - 3, Eastern - 1, Southern - 2 and South Central - 1) are not in working condition.

2 1 out of 8 Multipurpose tamping machines (South Central) is not in working condition.

3 No BCM, SBCM and BRM are available on North Eastern Railway

4 7 out of 26 BCMs (Eastern - 1, Northeast Frontier - 1 and South Eastern - 5) are not in working condition

5 1 out of 21 BRMs (Southern) is not in working condition

6 The only Sleeper Exchanger on Southern Railway is not in working condition

* SBCM - 1 machine was transferred to Western Railway during January 2003

Annexure II (A)

(Para 2.8)

Statement showing tamping machines (Continuous Action Machines, 3X Tamping Machines and Multipurpose Tamping machines) required for track maintenance on Indian Railways with reference to track identified for mechanised maintenance during 2002-03

(length of track in kms.)

Sl. No.	Railway	Total track identified for mechanised maintenance			Length of track with reference to tamping cycle			Length of track to be tamped during the year						Number of machines			
		PSC	Other than PSC	Total [Col. 3 (+) 4]	To be tamped once in 2 years (Track with PSC sleepers)	To be tamped once in 1 year (Track with other than PSC sleepers)	Bad bank (To be tamped once in 9 months)	50 per cent of Track with PSC sleepers	100 per cent of track with other than PSC sleepers	133 per cent of Track identified as Bad bank	Total (Col.9 to 11)	Add 10 per cent (over Col.12) for slack packing	GRAND TOTAL [Col. 12 (+) Col.13]	Required @	In use	Excess	Shortage
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*	*18*
1	Central #	7404.32	2159.10	9563.42	7404.32	2159.10	0.00	3702.16	2159.10	0.00	5861.26	586.13	6447.39	5	11	6	
2	Eastern	5208.00	298.00	5506.00	5208.00	254.60	43.40	2604.00	254.60	57.72	2916.32	291.63	3207.95	3	8	5	
3	Northern	5519.80	607.05	6126.85	4601.80	1495.05	30.00	2300.90	1495.05	39.90	3835.85	383.59	4219.44	4	8	4	
4	North Eastern	1344.72	921.37	2266.09	1344.72	921.37	0.00	672.36	921.37	0.00	1593.73	159.37	1753.10	2	3	1	
5	Northeast Frontier	1126.00	843.00	1969.00	1126.00	843.00	0.00	563.00	843.00	0.00	1406.00	140.60	1546.60	2	3	1	
6	Southern	4716.00	138.00	4854.00	4508.00	138.00	208.00	2254.00	138.00	276.64	2668.64	266.86	2935.50	3	8	5	
7	South Central	5381.00	610.32	5991.32	4462.00	1124.00	405.00	2231.00	1124.00	538.65	3893.65	389.37	4283.02	4	7	3	
8	South Eastern	7380.87	198.00	7578.87	7380.87	198.00	0.00	3690.44	198.00	0.00	3888.44	388.84	4277.28	4	11	7	
9	Western	5116.54	1318.55	6435.09	4289.77	1242.29	903.03	2144.89	1242.29	1201.03	4588.20	458.82	5047.03	4	11	7	
TOTAL		**43197.25**	**7093.39**	**50290.64**	**40325.48**	**8375.41**	**1589.43**	**20162.74**	**8375.41**	**2113.94**	**30652.09**	**3065.21**	**33717.30**	**31**	**70**	**39**	**0**
Net Excess/ Shortage																**39**	

Note : # Central Railway has been adopting a different cycle which is not in accordance with Railway Board stipulated cycles. Audit has, therefore, for purposes of assessment of machines required taken PSC sleepers as requiring tamping once in 2 years and other than PSC as requiring tamping once in one year.

@ At the rate of 1200 kms. per annum which is the rated capacity of Continuous Action Tamping machines fixed by Railway Board.

Annexure II (B)
(Para 2.8)
Statement showing requirement of Points and Crossings Tamping Machines for the year 2002-03

(length of track in kms.)

Sl. No.	Railway	Track identified for mechanised maintenance	Internal target fixed by Chief Engineer for 2002-03	Number of machines			
				Required *	In use	Excess	Shortage
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*
1	Central	9563.42	9139	8	7		1
2	Eastern	5506.00	5400	5	4		1
3	Northern	6126.85	5851	5	5		
4	North Eastern	2266.09	2380	2	2		
5	Northeast Frontier	1969.00	2246	2	2		
6	Southern	4854.00	4428	4	6	2	
7	South Central	5991.32	6486	5	6	1	
8	South Eastern	7578.87	4897	4	5	1	
9	Western	6435.09	6474	5	6	1	
TOTAL		**50290.64**	**47301**	**40**	**43**	**5**	**2**
Net Excess/ Shortage						3	

* **At the rate of 1200 points per annum which is the rated capacity fixed by Railway Board for Points and Crossings Tamping machines.**

Annexure II (C)
(Para 2.8)

(length of track in kms.)

Sl. No.	Railway	Length of Track on PSC sleepers identified for mechanised	Track requiring Ballast cleaning #	Number of Ballast Cleaning machines				Number of Tamping Machines			Track requiring Shoulder Ballast cleaning	Number of Shoulder Ballast Cleaning machines			
				Required (at the rate 144 Kms. per annum) @	In use	Excess	Shortage	Total Tamping Machines in use	Excess	Shortaage		Required (at the rate 300 Kms. per annum) @	In use	Excess	Shortage
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*
1	Central	7404.32	740.43	5	6	1		4		1	1480.86	5	4		1
2	Eastern	5208.00	520.80	4	5	1		6	2		1041.60	4	3		1
3	Northern	5519.80	551.98	4	5	1		8	4		1103.96	4	3		1
4	North Eastern *		134.47					4	4						
4	Northeast Frontier	1969.00	196.90	1	1			1			0.00				
5	Southern	4716.00	471.60	3	3			6	3		943.20	3	2		1
6	South Central	5381.00	538.10	4	3		1	7	3		1076.20	4	2		2
7	South Eastern	7380.87	738.09	5	4		1	5			1476.17	5	3		2
8	Western	5116.54	511.65	4	4			3		1	1023.31	3	3		
TOTAL		**42695.53**	**4404.02**	**30**	**31**	**3**	**2**	**44**	**16**	**2**	**8145.31**	**28**	**20**	**0**	**8**
Net Excess/ shortage						**1**			**14**						**8**

Note

Worked out on the basis of ballast cleaning of 10 per cent of length of track on PSC sleepers to be done each year.

@ Requirement of machines have been worked out by dividing the track requiring ballast cleaning (Col.4) by the rated capacity of the machines fixed by Railway Board.

* There is no BCM/ SBCM in use on North Eastern Railway.

Annexure II (D)

(Para 2.8)

Statement showing the requirement of Dynamic Track Stabilisers, Ballast Regulators and PQRS machines with reference to Internal Target fixed by Chief Engineer for 2002-03

(length of track in kms.)

Sl. No.	Railway	Total track identified for mechanised maintenance ^	Internal target fixed by Chief Engineer for DTS	Number of DTS				Internal target fixed by Chief Engineer for Ballast Regulators	Number of Ballast Regulators				Internal target fixed by Chief Engineer for PQRS	Number of PQRS			
				Required (at the rate of 1320 kms. per annum) @	In use	Excess	Shortage		Required (at the rate of 1200 kms. per annum) @	In use	Excess	Shortage		Required (at the rate of 60 kms. per annum) @	In use	Excess	Shortage
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*	*18*
1	Central	9563.42	4800.00	4	4			4800.00	4	4			216.00	4	4		
2	Eastern	5506.00	3168.00	3	3			4800.00	4	4			300.00	5	12	7	
3	Northern	6126.85	2349.00	2	4	2		4880.00	4	4			150.00	3	5	2	
4	North Eastern	2266.09	613.00	1	1								66.00	1	1		
5	Northeast Frontier	1969.00	996.00	1	1			996.00	1	1							
6	Southern	4854.00	2349.00	2	3	1		2218.00	2	2			66.00	2	3	1	
7	South Central	5991.32	3840.00	3	2		1	5400.00	5	3		2	120.00	2	3	1	
8	South Eastern	7578.87	5524.00	4	4			5129.00	5	5			238.00	4	7	3	
9	Western	6435.09	2610.00	2	3	1		3184.00	3	4	1		220.00	4	4		
TOTAL		**50290.64**	**26249.00**	**22**	**25**	**4**	**1**	**31407.00**	**28**	**27**	**1**	**2**	**1376.00**	**25**	**39**	**14**	**0**
Net Excess						**3**						**1**				**14**	

Note ^ This includes total track (PSC and other than PSC) identified for mechanised maintenance.

@ The assessment of requirement of the machines has been made with reference to internal target fixed by Chief Engineer for different types of machines divided by the rated capacity fixed by Railway Board

Annexure - III (A) (i)
(Para 2.10.2)

Statement showing the details of Block Hours on Indian Railways during the period 1998-99 to 2002-03

Sl.No.	Railway	Block Hours			Percentage of		
		Stipulated	Demanded by TMO	Granted by OPD	Demanded to stipulated block hours	Granted to stipulated block hours	Granted to demanded block hours
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*
1	Central	239300	211314.67	141086.78	88.31	58.96	66.77
2	Eastern	177433	149606.00	98010	84.32	55.24	65.51
3	Northern	236245	198177.00	108220	83.89	45.81	54.61
4	North Eastern	60361	50121.00	29019	83.04	48.08	57.90
5	Northeast Frontier	22004	18738.00	11126	85.16	50.56	59.38
6	Southern	180463	128274.00	94676	71.08	52.46	73.81
7	South Central	159369	143493.00	109658	90.04	68.81	76.42
8	South Eastern	234816	194051.00	149337	82.64	63.60	76.96
9	Western	195912	154414.00	97192	78.82	49.61	62.94
TOTAL		**1505903**	**1248188.67**	**838324.78**	**82.89**	**55.67**	**67.16**

Annexure III (A) (ii)
(Para 2.10.3)
Percentage of Block Hours granted by OPD falling within the Corridor Block on various Zonal Railways during 2002-03

Sl.No.	Railway	Block Hours				Percentage of block hours granted by OPD/ availed by TMO falling within the Corridor Block
		Stipulated	Demanded by OPD	Granted by OPD/ Availed by TMO	Falling within the Corridor Block	
1	*2*	*3*	*4*	*5*	*6*	*7*
1	Central	47329.00	43982.00	30410.27	21967.00	72.24
2	Eastern	38497.66	39155.00	24166.95	3887.95	16.09
3	Northern	47704.00	43368.00	23823.00		
4	North Eastern	12224.00	11128.00	5928.00	836.00	14.10
5	Northeast Frontier	4700.00	4698.00	2482.00	1435.00	57.82
6	Southern	36095.00	26811.00	19406.00	11287.00	58.16
7	South Central	37781.00	38627.00	29174.00	21615.00	74.09
8	South Eastern	48434.00	42189.00	35205.29	15866.99	45.07
9	Western	41171.00	33575.00	22890.00	19531.00	85.33
TOTAL		**313935.66**	**283533.00**	**193485.51**	**96425.94**	**49.84**
TOTAL (excluding		**266231.66**	**240165.00**	**169662.51**	**96425.94**	**56.83**

Annexure - III (B)

(Para 2.10.4)

Statement showing the Average Block Spell granted by the Operating Department (OPD)

Sl. No.	Railway	Block Hours granted by OPD						Number of Block Spells given by the OPD						Average Block per Spell (in Hrs. and Mts.)					
		1998-99	1999-00	2000-01	2001-02	2002-03	TOTAL	1998-99	1999-00	2000-01	2001-02	2002-03	TOTAL	1998-99	1999-00	2000-01	2001-02	2002-03	TOTAL
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*	*18*	*19*	*20*
1	Central	25716.73	27724.19	27452.62	29782.97	30410.27	141086.78	14107.00	15587.00	16848.00	18122.00	17943.00	82607.00	1.49	1.47	1.38	1.38	1.41	1.43
2	Eastern	17284.49	17022.12	19200.53	20335.48	24166.95	98009.57	8607.00	8570.00	9347.00	10222.00	10771.00	47517.00	2.01	1.99	2.03	1.99	2.24	2.06
3	Northern	19943.00	19599.00	21015.00	23840.00	23823.00	108220.00	10646.00	11323.00	13054.00	14126.00	13557.00	62706.00	1.52	1.44	1.37	1.41	1.46	1.44
4	North Eastern	4220.00	5927.00	6241.00	6703.00	5928.00	29019.00	3313.00	4354.00	4826.00	5036.00	5156.00	22685.00	1.16	1.22	1.18	1.20	1.09	1.17
5	Northeast Frontier	2428.00	1736.00	1759.00	2721.00	2482.00	11126.00	3021.00	2315.00	2403.00	3311.00	3044.00	14094.00	0.48	0.45	0.44	0.49	0.49	0.47
6	Southern	20297.00	20770.00	17007.00	17196.00	19406.00	94676.00	10944.00	10804.00	9522.00	9156.00	11228.00	51654.00	1.51	1.55	1.47	1.53	1.44	1.50
7	South Central	20844.00	25536.00	27029.00	27919.00	29174.00	130502.00	11812.00	15040.00	15872.00	17090.00	18460.00	78274.00	1.46	1.42	1.42	1.38	1.35	1.40
8	South Eastern	20057.60	30530.59	30728.29	32815.57	35205.29	149337.34	9387.00	12322.00	12336.00	13552.00	13330.00	60927.00	2.08	2.29	2.29	2.25	2.38	2.26
9	Western	14720.00	17840.00	18973.00	22769.00	22890.00	97192.00	9561.00	11244.00	12000.00	13677.00	13862.00	60344.00	1.32	1.35	1.35	1.40	1.39	1.36
TOTAL		**145510.82**	**166684.90**	**169405.44**	**184082.02**	**193485.51**	**859168.69**	**81398.00**	**91559.00**	**96208.00**	**104292.00**	**107351.00**	**480808.00**	**1.47**	**1.49**	**1.46**	**1.46**	**1.48**	**1.47**

Annexure - IV

(Para 2.11.1)

Statement showilng the position of tamping charts maintained on Zonal Railways for monitoring the frequency of tamping by machines during 2000-01 to 2002-2003

(Length of track in kms.)

Sl. No.	Year/ Railway	Number of sections	Sections on which advance programme was drawn	Length of track out of Col.5 where machines were deployed	Number of sections on which advance programme was not drawn for tamping	Length of track out of Col.6 where machines were deployed	Length of track on which machines were not deployed		Length of track tamped by machines before it became due	
							Number of sections	Length of track	Number of sections	Length of track
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*
I					**2000-01**					
1	Central	125	0	0.00	122	3913.42	104	2763.46	59	804.24
2	Eastern	50	40	2089.00	10	228.00	31	693.00	9	289.00
3	Northern	126	50		76			2556.36		2487.85
4	North Eastern	5	5		0					
5	Northeast Frontier	28	0		28					
6	Southern	115	18	883.66	97	1750.64	0	0.00	27	259.30
7	South Central	97	0	0.00	97	3462.00		1624.00		508.00
8	South Eastern	121	64		57					
9	Western	92	0		92	3281.66	38	1378.65	39	437.57
	TOTAL	**759.00**	**177.00**	**2972.66**	**579**	**12635.72**	**173.00**	**9015.47**	**134.00**	**4785.96**
II					**2001-02**					
1	Central	125	0	0.00	125	4588.77	104	2895.71	61	772.93
2	Eastern	70	57	2259.00	13	231.00	19	473.00	11	261.00
3	Northern	126	52		74			2556.36		2466.95
4	North Eastern	5	5		0					
5	Northeast Frontier	28	0		28					
6	Southern	116	19	872.48	97	1891.52	0	0.00	59	960.88
7	South Central	97	0	0.00	97	4493.00		164.00		773.00
8	South Eastern	121	65		56					
9	Western	92	0	0.00	92	4046.51	29	2368.74	68	1640.48
	TOTAL	**780.00**	**198.00**	**3131.48**	**582**	**15250.80**	**152.00**	**8457.81**	**199.00**	**6875.24**
III					**2002-03**					
1	Central	122	0	0.00	125	4644.80	99	3116.05	55	838.34
2	Eastern	65	51	2466.00	14	333.00	21	486.00	10	276.00
3	Northern	126	52		74			2556.36		1883.18
4	North Eastern	5	5		0					
5	Northeast Frontier	28	0		28					
6	Southern	117	19	921.39	98	2684.34	0	0.00	61	1055.26
7	South Central	97	0	0.00	97	4288.00		1535.00		689.00
8	South Eastern	121	67		55					
9	Western	92	0	0.00	92	3752.16	30	2682.93	61	1250.62
	TOTAL	**773.00**	**194.00**	**3387.39**	**583**	**15702.30**	**150.00**	**10376.34**	**187.00**	**5992.40**

Annexure V

(Para 2.11.2)

Statement showing details of work done with reference to target fixed by Railway Board, Internal Target and Requirement of work as assessed in Audit in respect of Plain track Tamping Machines during 2002-03

(length of track in kms.)

Sl. No.	Railway	Target fixed by		Requirement of work as assessed in Audit	Work actually done	Excess work done with reference to			Shortfall of work done with reference to		
		Railway Board	Internal			Railway Board target	Internal target	Requirement of work as assessed in Audit	Railway Board target	Internal target	Requirement of work as assessed in Audit
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*
1	Central	10572	13032	12471.48	9035.16				1536.84	3996.84	3436.32
2	Eastern	16318	16318	5580.00	7162.47			1582.47	9155.53	9155.53	
3	Northern	17654	8647	6359.64	8242.82			1883.18	9411.18	404.18	
4	North Eastern	3712	2380	2554.98	2396.00		16.00		1316.00		158.98
5	Northeast Frontier	2019	2019	3519.00	1572.00				447.00	447.00	1947.00
6	Southern *	6811	6811	5141.90	5528.89			386.99	1282.11	1282.11	
7	South Central	14310	6500	5772.00	12029.00		5529.00	6257.00	2281.00		
8	South Eastern	11115	11115	11115.00	10326.05				788.95	788.95	788.95
9	Western	10180	10145	7973.63	9948.56			1974.93	231.44	196.44	
TOTAL		**92691**	**76967**	**60487.63**	**66240.95**	**0**	**5545.00**	**12084.57**	**26450.05**	**16271.05**	**6331.25**

Note * Internal Target not available and, therefore, Railway Board target adopted as internal target.

Annexure VI

(Para 2.11.3)

Statement showing the work done by Plain Tamping Machines as per Performance Reports of Track Machine Organisation and as per the information indicated in the Field Records for the period 2000-2001 to 2002-03

Sl. No.	Railway	Tamping work done (in kms.)					Inflated figures [Col.3 (-) Col.7]	Percentage of inflated figure [Col.8 (x) 100/Col.7]	Value of the inflated figure (Rs. in crore)
		As indicated in Performance Report sent by TMO to Rly.Bd.	As per the records of the AEN/ SSE (P. Way)	For Construction Organisation	For other Zonal Railways	Total (Cols.4 to Col.6)			
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
1	Central	26831.87	15562.50	19.10	0.00	15581.60	11250.27	72.20	6.23
2	Eastern	20632.02	17069.40	0.00	0.00	17069.40	3562.62	20.87	3.94
3	Northern	23709.26	11357.19	0.00	0.00	11357.19	12352.07	108.76	7.19
4	North Eastern	6446.00	5594.00	852.00	0.00	6446.00	0.00	0.00	0.00
5	Northeast Frontier	4152.00	2216.00	0.00	0.00	2216.00	1936.00	87.36	1.59
6	Southern	19156.86	9004.02	1812.80	0.00	10816.82	8340.04	77.10	5.84
7	South Central	32277.00	17098.00	630.00	0.00	17728.00	14549.00	82.07	16.35
8	South Eastern	28940.83	13339.54	0.00	0.00	13339.54	15601.29	116.96	18.18
9	Western	27748.53	11080.33	970.21	0.00	12050.54	15697.99	130.27	7.87
TOTAL		**189894.37**	**102320.98**	**4284.11**	**0.00**	**106605.09**	**83289.28**	**78.13**	**67.19**
TOTAL (except NE Rly.)		**183448.37**	**96726.98**	**3432.11**	**0.00**	**100159.09**	**83289.28**	**83.16**	**67.19**

Annexure VII

(Para 2.12.1)

Statement showing the details of work done with reference to the target fixed by Railway Board, Internal Target and work to be done as assessed in Audit on Indian Railways in respect of Points and Crossings Tamping Machines during 1998-99 to 2002-03

Sl. No.	Year/ Railway	Total Target of work to be done as fixed by Railway Board	Internal fixed by the CE	Actual work done	Excess work done with reference to				Shortage of work done with reference to			
					Taraget fixed by Railway Board	Per-centage	Internal Target	Per-centage	Taraget fixed by Railway Board	Per-centage	Internal Target	Per-centage
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*
1	Central	35113	39199	35821	708	2.02					3378	8.62
2	Eastern	22350	22350	13358					8992	40.23	8992	41.13
3	Northern	34522	24551	30856			6305	25.68	3666	10.62		
4	North Eatern	10000	8830	6754					3246	32.46	2076	23.51
5	Northeast Frontier	6866	6866	3642					3224	46.96	3224	46.96
6	Southern	29628	29628	12221					17407	58.75	17407	58.75
7	South Central	36600	25054	28219			3165	12.63	8381	22.90		
8	South Eastern	22897	23397	23010	113	0.49					387	1.65
9	Western	32074	28994	26362					5712	17.81	2632	9.08
	TOTAL	**230050**	**208869**	**180243**	**821**	**0.36**	**9470**	**4.53**	**50628**	**22.01**	**38096**	**18.24**

Annexure VIII

(Para 2.13)

Statement indicating the work done by Points and Crossings Tamping Machines as per the Performance Report of TMO and as per the information indicated in the Field Records on Indian Railways during 2000-01 to 2002-03

Sl. No.	Railway	Number of Points and Crossings identified for tamping by machines	Tamping work done as per Performance Report sent to Railway Board	Tamping work done as per the records of the AENs/ SSEs - P. Way	Inflation in figures reported to Railway Board	Percentage of inflated figure [Col.6 (x) 100/Col.5]	Value of the inflated figure exhibited under Col.7 (Rs. in crore)
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*
1	Central	19638	23884	8264	15620	189.01	4.26
2	Eastern	0	8605	5563	3042	54.68	1.31
3	Northern	28977	19328	4893	14435	295.01	6.98
4	North Eastern	4990	4159	4159	0	0.00	0.00
5	Northeat Frontier	4946	2053	1050	1003	95.52	1.57
6	Southern	5613	6361	2569	3792	147.61	1.71
7	South Central	14570	19171	6880	12291	178.65	11.38
8	South Eastern	22736.61	15122	6281	8841	140.76	7.10
9	Western	18834	17407	3500	13907	397.34	4.66
TOTAL		**120304.61**	**116090**	**43159**	**72931**	**168.98**	38.97

Annexure IX
(Para 2.14.2)

Statement showing the yearwise details of work done with reference to the target fixed by Railway Board, Internal Target and work to be done as assessed in Audit on Zonal Railways in respect of Ballast Cleaning Machines during 2002-03

(length in kms.)

Sl. No.	Railway	Target fixed by		Requirement of work to be done as assessed by Audit	Work done during the year	Excess work done with reference to			Shortage of work done with reference to		
		Railway Board	By Chief Engineer (Internal) *			Target fixed by Railway Board	Internal Target	Requirement as assessed by Audit	Target fixed by Railway Board	Internal Target	Requirement as assessed by Audit
1	2	3	4	5	6	7	8	9	10	11	12
1	Central	374.00	498.00	740.43	364.07				9.93	133.93	376.36
2	Eastern	720.00	432.00	520.80	417.54				302.46	14.46	103.26
3	Northern	720.00	267.00	551.98	205.83				514.17	61.17	346.15
4	Northeast Frontier	72.00	72.00	113.00	90.00	18.00	18.00				23.00
5	Southern	146.00	146.00	471.60	100.23				45.77	45.77	371.37
6	South Central	432.00	216.00	538.10	248.00		32.00		184.00		290.10
7	South Eastern	463.00	463.00	738.00	495.75	32.75	32.75				242.25
8	Western	333.00	240.00	511.65	228.92				104.08	11.08	282.73
TOTAL		**3260.00**	**2334.00**	**4185.56**	**2150.34**	**50.75**	**82.75**	**0.00**	**1160.41**	**266.41**	**2035.22**

Note * Where internal target was not available, the Railway Board target has been adopted.

Annexure X
(Para 2.15)

Statement indicating the work done by Ballast Cleaning Machines as per the Performance Reports of TMO and as per the information indicated in the Field Records on Indian Railways during 2002-03

Sl. No.	Railway	Deep screening of ballast done by BCMs as per Performance Report sent by TMO to Railway Board	Deep screening work done as per records of AENs/ SSEs (P.Way)	Inflation in figures reported to Railway Board	Unit cost per Km./ number (capital cost excluded) (In rupees)	Value of the inflated figure exhibited under Col.5 (Rs. in crores)
		(In Kms.)				
1	2	3	4	5	6	7
1	Central	364.07	285.87	78.20	71746.67	0.56
2	Eastern *	417.54	353.22	64.32	63699.00	0.41
3	Northern	205.83	199.05	6.78	157589.00	0.11
4	Northeast Frontier	90.00	130.00	-40.00		0.00
5	Southern	100.23	91.28	8.95	108733.00	0.10
6	South Central	248.00	293.00	-45.00	190333.00	0.00
7	South Eastern	495.75	316.61	179.14	91547.00	1.64
8	Westrn	228.92	49.60	179.32	27427.44	0.49
TOTAL		**2150.34**	**1718.63**	**431.71**		**3.31**
TOTAL	**(except NF & SC)**	**1812.34**	**1295.63**	**516.71**		

Annexure XI

(Para 2.16)

Statement showing the details of Deep Screening work done vis-à-vis overdue on Indian Railways during 1998-99 to 2002-03

Sl. No.	Railway	Length of track identified for deep screening of ballast	Opening balance of arrears of deep screening of ballast to be done at the beginning of the year	Requirement of deep screening of ballast (Col.3) to be done during the year with reference to the length of track identified for deep screening	Total length of track due for deep screening of ballast during the year (Col.4 + Col.5)	Total work of deep screening of ballast done			Work of deep screening of ballast overdue at the end of the year [Col.6 (-) Col.9]	Work of deep screening of ballast done in excess of the track due for deep screening
						By manual method	By Machines	TOTAL		
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*
1	Central	33498.04	0.00	3349.80	3349.80	4195.50	1127.40	5322.90	0.00	1973.10
2	Eastern	24184.00	3772.77	2418.40	6191.17	750.09	1288.05	2028.14	4163.03	
3	Northern					3277.75	799.11	4076.86	0.00	0.00
4	North Eastern	25546.41	12449.03	2554.64	15003.67	746.14	4.60	750.74	14252.93	0.00
5	Northeast Frontier	9316.00	859.58	931.60	1791.18	621.19	275.00	896.19	894.99	0.00
6	Southern	42866.00	11952.00	4286.60	16238.60	3618.44	266.09	3884.53	12354.07	0.00
7	South Central	5337.00	0.00	5337.00	5337.00	2099.00	1114.00	3213.00	2124.00	0.00
8	South Eastern	4980.00	0.00	498.00	498.00	4143.81	1790.01	5933.82	0.00	5435.82
9	Western	26509.99	0.00	2651.00	2651.00	3361.84	721.46	4083.30	0.00	1432.30
	TOTAL	**172237.44**	**29033.38**	**22027.04**	**51060.42**	**19536.01**	**6586.61**	**26112.62**	**33789.02**	**8841.22**

* 10 per cent of the length of track identified for deep screening of ballast to be done every year.

Annexure XII

(Para 2.17)

Statement showng the details of work done with reference to the target fixed by Railway Board, Internal Target and work to be done as assessed in Audit on Zonal Railways in respect of Shoulder Ballast Cleaning Machines during 2002-03

(length of track in kms.)

Sl. No.	Year/ Railway	Railway Board Target	Internal Target	Work to be done as assessed by Audit	Actual work done	Excess of work done with reference to			Shortage of work done with reference to		
						Railway Board Target	Internal Target	Requirement as assessed by Audit	Railway Board Target	Internal Target	Requirement as assessed by Audit
1	*2*	*3*	*4*		*5*	*6*	*7*	*8*	*9*	*10*	*11*
1	Central	492	540	1480.86	324.86				167.14	215.14	1156.00
2	Eastern	900	900	1041.60	329.85				570.15	570.15	711.75
3	Northern	900	498	1103.96	518.85		20.85		381.15		585.11
4	Southern	240	240	943.20	86.69				153.31	153.31	856.51
5	South Central	700	360	1076.20	419.00		59.00		281.00		657.20
6	South Eastern	561	561	1476.00	551.64				9.36	9.36	924.36
7	Western	193	193	1023.31	158.56				34.44	34.44	864.75
TOTAL		**3986**	**3292**	**8145.13**	**2389.45**	**0**	**79.85**	**0**	**1596.55**	**982.40**	**5755.68**

Annexure XIII

(Para 2.18.1)

Statement showing the details of work done with reference to the target fixed by Railway Board and Internal Target fixed by Chief Enigneer on Zonal Railways in respect of Ballast Regulating Machines during 1998-99 to 2002-03

(length of track in kms.)

Sl. No.	Railway	Target fixed by		Work done during the year	Excess work done with reference to		Shortage of work done with reference to	
		Railway Board	Internal target (by Chief Engineer)		Railway Board target	Internal target	Railway Board target	Internal target
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*
1	Central	21444	23000	18553.79	5.22	5.22	2895.43	4446.21
2	Eastern	21600	21600	21641.59	872.09	872.09	830.50	830.50
3	Northern	20833	18960	18534.76	90.80	578.37	2389.04	1003.61
4	Southern	11818	11818	2893.69			8924.31	8924.31
5	South Central	18000	27000	26814.00	8814.00			186.00
6	South Eastern	12329	13329	19151.61	1570.56	570.56	66.05	66.05
7	Western	17766	16984	13620.01	221.78	704.00	4367.77	3371.39
Total		**123790**	**132691**	**121209.45**	**11574.45**	**2730.24**	**19473.10**	**18828.07**

Annexure XIV

(Para 2.19.2)

Statement showing the details of work done with reference to the target fixed by Railway Board and Internal Target fixed by Chief Engineer on Zonal Railways in respect of Dynamic Track Stabilising Machines during 1998-99 to 2002-03

(length of track in kms.)

Sl. No.	Railway	Railway Board target	Internal Target	Work done during the year	Excess work done with reference to		Shortage of work done with reference to	
					Railway Board Target	Internal Target	Railway Board Target	Internal Target
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*
1	Central	13316	17980	11573.22	816.47	228.71	2559.29	6635.49
2	Eastern	19580	15840	11725.51			7854.49	4114.49
3	Northern	19360	12465	8058.28			11301.72	4406.72
4	North Eastern	3687	3517	2203.00			1484.00	1314.00
5	Northeast Frontier	4972	4972	3635.00			1337.00	1337.00
6	Southern	11853	11853	4562.56			7290.44	7290.44
7	South Central	13200	15600	14396.00	1196.00			1204.00
8	South Eastern	11860	12092	13412.43	1908.87	1676.87	356.44	356.44
9	Western	9804	8140	5957.86	431.82	323.18	4277.96	2505.32
TOTAL		**107632**	**102459**	**75523.86**	**4353.16**	**2228.76**	**36461.34**	**29163.90**

Annexure XV

(Para 2.20.2)

Statement showing the details of work done by PQRS machines with reference to the Railway Board target and Internal Target during 1998-99 to 2002-03

(length of track in kms.)

Sl. No.	Railway	Railway Board Target	Internal Target	Work done during the year	Excess work done with reference to		Shortage of work done with reference to	
					Railway Board's Target	Internal Target	Railway Board's Target	Internal Target
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*
1	Central	853	958.00	582.61	10.64	0.00	281.03	375.39
2	Eastern	1680	1100.00	770.86	0.00	0.00	909.14	329.14
3	Northern	1470	1450.00	897.51	0.00	43.64	572.49	552.49
4	North Eastern	366	366.00	91.00	3.00	3.00	278.00	278.00
5	Southern	446	446.00	235.06	0.00	0.00	210.94	210.94
6	South Central	840	760.00	391.00	0.00	0.00	449.00	369.00
7	South Eastern	1848	1913.00	1695.95	55.38	55.38	207.43	272.43
8	Western	672	658.01	503.16	0.00	0.00	168.84	154.85
TOTAL		**8175**	**7651.01**	**5167.15**	**69.02**	**102.02**	**3076.87**	**2542.24**

Annexure XVI

(Paras 2.21.1 and 2.21.2)

Statement showing the details of points and crossings received and laid by mechanical/ manual method during 1998-99 to 2002-03

Sl. No.	Railway	Railway Board Target	Internal Target	Work done during the year	Excess of work done with reference to		Shortage of work done with refereance to		Points and Crossings		
					Railway Board Target	Internal Target	Railway Board Target	Internal Target	Received	Laid by mechanical method	Laid by manual method
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*
1	Central	939	1215	545	0	0	635	703	4849	545	1815
2	Eastern	1200	1200	632	4	4	572	572	1338	632	685
3	Northern	1248	984	278	0	0	970	706	2828	278	1382
4	North Eastern	216	189	87	0	0	129	102	436	125	180
5	Northeast Frontier								218	45	179
6	Southern	980	980	367	0	0	613	613	1116	344	664
7	South Central	1406	1679	826	0	0	614	853	1142	826	109
8	South Eastern	974	986	895	69	69	148	160			
9	Western	648	588	208	0	0	440	380	1108	208	900
TOTAL		**7611**	**7821**	**3838**	**73**	**73**	**4121**	**4089**	**13035**	**3003**	**5914**

Annexure XVII

[Paras 2.24.3 (i) to (iii)]

Statement showing average consumption of HSD oil per km. in respect of Plain Tamping Machines, Points and Crossings Tamping Machines and Ballast Cleaning Machines during 2000-01 to 2002-03 as shown in the Performance Report vis-à-vis the field office records

Sl. No.	Railway	Work done (*) as per		Consumption of HSD oil (in kls.) as per Performance Reports	Average consumption of HSD oil (in kls.) per km as per	
		Performance Reports	Field Office records		Performance Reports	Field Office records
1	*2*	*3*	*4*	*5*	*6*	*7*
I	**Plain Tamping Machines**					
1	Central	26831.87	15562.50	1936604.00	72.18	124.44
2	Eastern	20632.02	17069.40	1135453.00	55.03	66.52
3	Northern	23709.26	11357.19	1615978.00	68.16	115.13
4	North Eastern	6802.00	6446.00	207754.00	30.54	32.23
5	Northeast Frontier	4154.00	2216.00	384445.00	92.55	173.49
6	Southern	14649.36	8855.00	1232242.00	84.12	139.16
7	South Central	32277.00	17098.00	2132340.00	66.06	124.71
8	Western	27748.53	11080.33	1685711.00	60.75	152.14
	TOTAL	**156804.04**	**89684.42**	**10330527.00**	**65.88**	**115.19**
II	**Points and Crossings Tamping Machines**					
1	Central	23884.00	8264.00	1007653.00	42.19	212.93
2	Eastern	8605.00	5563.00	413234.00	48.02	74.28
3	Northern	19328.00	4893.00	732078.00	37.88	149.62
4	North Eastern	4159.00	4159.00	121803.00	29.29	29.29
5	Northeast Frontier	2053.00	1050.00	134800.00	65.66	128.38
6	Southern	6361.00	2569.00	858618.00	134.98	334.22
7	South Central	19171.00	6880.00	740029.00	38.60	107.56
8	Western	17407.00	4659.00	721321.00	41.44	206.89
	TOTAL	**100968.00**	**38037.00**	**4729536.00**	**46.84**	**128.25**
III	**Ballast Cleaning Machines**					
1	Central	818.19	672.17	759426.00	928.18	1129.81
2	Eastern	1849.00	950.22	766231.00	414.40	806.37
3	Northern	487.43	480.72	617263.00	1266.36	1284.04
4	Northeast Frontier	202.00	300.00	157980.00	782.08	526.60
5	Southern	184.66	235.36	325535.00	1762.89	1383.14
6	South Central	732.00	684.00	644250.00	880.12	941.89
7	Western	591.87	157.88	294139.00	496.97	1863.05
	TOTAL	**4865.15**	**3480.35**	**3564824.00**	**723.23**	**1024.27**

* In kms. in respect of Plain Tamping machines and Ballast Cleaning machines and in number of turnouts in respect of Points and Crossings Tamping machines.

Annexure XVIII

(Paras 2.25.2 to 2.25.6)

Statement showing the expenditure incurred by the Zonal Railways during 2001-02 in the maintenance of Continuous Tamping Machines, Ballast Cleaning Machines, Ballast Regulating Machines, Dynamic Track Stabilisers and Plasser's Quick Relaying System

Sl. No.	Railway	Total expenditure on (Rs. in lakhs)					Total output of the machines (in kms.)	Average expenditure (in Rs.) per km. on				
		Spares	Consumables	Staff	Overhead	Total		Spares	Consumables	Staff	Overhead	Total
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*
I	**Continuous Tamping Machines**											
1	Central	96.57	95.42	108.88	4.02	304.89	5453.00	1771	1750	1997	74	5591
2	Eastern	44.08	40.64	54.77	13.94	153.43	4185.00	1053	971	1309	333	3666
3	Northern	24.40	1.51	12.85	4.25	43.01	4645.00	525	33	277	91	926
4	North Eastern	31.30	25.68	30.85		87.83	1196.00	2617	2147	2579		7344
5	Northeast Frontier	12.76	16.66	33.08		62.50	1137.00	1122	1465	2909		5497
6	Southern	79.95	34.64	64.76		179.35	2318.00	3449	1494	2794		7737
7	South Central	231.78	114.53	74.66		420.97	7031.00	3297	1629	1062		5988
8	South Eastern	95.92	57.18	31.55		184.65	5660.00	1695	1010	557		3262
9	Western	180.04	124.35	92.18	59.00	455.57	6675.00	2697	1863	1381	884	6825
TOTAL		**796.80**	**510.61**	**503.58**	**81.21**	**1892.20**	**38300.00**	**18226**	**12362**	**14865**	**1382**	**46836**
AVERAGE								**2025**	**1374**	**1652**	**154**	**5204**
II	**Ballast Cleaning Machines**											
1	Central	75.43	63.57	61.68	3.57	204.25	285.31	26438	22281	21619	1251	71589
2	Eastern	68.17	38.95	58.75	14.68	180.55	514.00	13263	7578	11430	2856	35126
3	Northern	39.21	3.04	33.21	12.76	88.22	172.24	22765	1765	19281	7408	51219
4	Northeast Frontier	7.25	6.68	15.83		29.76	76.00	9539	8789	20829		39158
5	Southern	18.89	26.71	32.15		77.75	49.78	37947	53656	64584		156187
6	South Central	122.19	44.13	21.10		187.42	252.00	48488	17512	8373		74373
7	South Eastern	77.65	32.88	14.26		124.79	312.00	24888	10538	4571		39997
8	Western	14.54	20.07	31.08		65.69	235.08	6185	8538	13221		27944
TOTAL		**423.33**	**236.03**	**268.06**	**31.01**	**958.43**	**1896.41**	**189513**	**130657**	**163907**	**11516**	**495593**
AVERAGE								**23689**	**16332**	**20488**	**1439**	**61949**

Sl. No.	Railway	Total expenditure on (Rs. in lakhs)					Total output of the machines (in kms.)	Average expenditure (in Rs.) per km. on				
		Spares	Consumables	Staff	Overhead	Total		Spares	Consumables	Staff	Overhead	Total
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*
III	**Ballast Regulating Machines**											
1	Central	6.55	16.59	29.14	1.60	53.88	4226.08	155	393	690	38	1275
2	Eastern	28.85	12.12	35.04	8.76	84.77	5002.00	577	242	701		1520
3	Northern	2.96	0.69	11.08	3.40	18.13	4845.26	61	14	229	70	374
4	Northeast Frontier	1.04	2.04	14.72		17.80	951.00	109	215	1548		1872
5	Southern	2.33	0.55	8.69		11.57	322.27	723	171	2696		3590
6	South Central	42.37	13.81	9.70		65.88	5304.00	799	260	183		1242
7	South Eastern	18.31	11.94	8.97		39.22	5085.05	360	235	176		771
8	Western	6.10	11.46	16.64		34.20	3821.78	160	300	435		895
	TOTAL	**108.51**	**69.20**	**133.98**	**13.76**	**325.45**	**29557.44**	**2944**	**1829**	**6658**	**108**	**11539**
	AVERAGE							**327**	**203**	**740**	**12**	**1282**
IV	**Dynamic Track Stabilisers**											
1	Central	2.94	17.45	23.86	1.51	45.76	2091	141	834	1141	72	2188
2	Eastern	8.95	11.23	34.36	8.58	63.12	2763	324	406	1243		1974
3	Northern	3.69	0.47	10.62	4.25	19.03	1570	235	30	676	271	1212
4	North Eastern	0.41	1.07	15.42		16.90	501	82	214	3078		3373
5	Northeast Frontier	0.70	4.20	14.60		19.50	950	74	442	1537		2053
6	Southern	3.80	7.15	27.12		38.07	1145	332	624	2369		3325
7	South Central	34.63	10.28	5.77		50.68	3510	987	293	164		1444
8	South Eastern	7.01	20.84	8.32		36.17	4102	171	508	203		882
9	Western	0.48	7.22	8.69		16.39	1673	29	432	519		980
	TOTAL	**62.61**	**79.91**	**148.76**	**14.34**	**305.62**	**18305**	**2373**	**3783**	**10931**	**343**	**17430**
	AVERAGE							**264**	**420**	**1215**	**38**	**1937**
V	**Plasser's Quick Relaying System**											
1	Central	25.35	17.91	35.68	0.94	79.88	130	19500	13777	27446	723	61446
2	Eastern	28.21	10.35	51.54	12.88	102.98	208	13563	4976	24779		43317
3	Northern	2.04	0.09	12.85	4.25	19.23	154	1325	58	8344	2760	12487
4	North Eastern	0.40	0.80	15.42		16.62	24	1667	3333	64250		69250
5	Southern		0.24	31.82		32.06	49	0	490	64939		65429
6	South Central	14.26	4.52	8.54		27.32	26	54846	17385	32846		105077
7	South Eastern	1.72	0.89	1.25		3.86	350	492	254	357		1104
8	Western	9.88	23.28	36.88	13.45	83.49	102	9686	22824	36157	13186	81853
	TOTAL	**81.86**	**58.08**	**193.98**	**31.52**	**365.44**	**1043**	**101078**	**63097**	**259118**	**16669**	**439963**
	AVERAGE							**12634.8**	**7887**	**32390**	**2084**	**54995**

Annexure XIX

[Paras 3.5 (i) and (ii)]

Statement showing name of serving stations and number of coal loading points/ sidings and name of coal unloading points/ sidings selected for detailed check

Sl. No.	Railway	Name of the serving stations and number of coal loading points/ sidings		Name of coal unloading points/ sidings
		Name	Number	
1	*2*	*3*	*4*	*5*
1	Central	Nagothane Butibori Ghugus Wani Majri Khadan	6	New Thermal Power Station, Chandrapur, Uttar Pradesh State Electricity Board, Paricha, Associated Cement Corporation, Kymore, Maihar Cement Works, Diamond Cement
2.	Eastern	Katrasgarh Petherdih Ray Khalari Andal	42	Chandrapur Thermal Power Station, Bandel Thermal Power Station, Kolkata Electric Supply Corporation , Indian Iron and Steel Company, Durgapur Steel Plant
3.	Northern	-	-	Badarpur Thermal Power Plant, National Thermal Power Corporation, Gujrat Ambuja Cement Limited, National Fertilizers Limited, Diwana, National Fertlizers Limited, Bhatinda
4.	North Eastern	-	-	Thermal Power Plant
5.	Northeast Frontier	Ledo New Guwhati Rangiya Baihata Jogighopa	6	Bongaigaon Thermal Power
6.	Southern	Chennai Beach Attipattu Korukkupe Cochin Harbour Terminus Marshalling yard of new port of Tuticorin	5	Ennore Thermal Power Station, Mettur, Thermal Power Plant, Southern Iron & Steel Co. Limited, Viswesvaraya Iron & Steel Limited, Associated Cement Company Limited
7.	South Central	Ramagundam Bhadrachalam Road Singareni Colleries Manuguru Pandhar pavani	7	Rayala-seema Thermal Power Station, Kotha-gudem Thermal Power Station, Jindal Vijayanagar Steel Limited, Vasavadatta Cements Limited, Larsen & Tubro Limited
8.	South Eastern	Korba Gevra Road Belpahar Brajrajnagar Visakhapatnam Talcher	9	Kolaghat Thermal Power Project, Koradih Thermal Power Station, Talcher Thermal Power Project, Bokarao Steel City and Tata Iron & Steel Plant, Ambuja Cement Company Limited, Bhatapara and Larfage Cement Factory, Akaltara, Vizag,
9.	Western	Bharuch Bhimasar and Mundra Port Navlakhi	3	Wanakbori Thermal Power Station, Ahmedabad Electricity Company Limited, Gujarat Electricity Board, Birla Cement Works, Shree Cement Works
Total		**34**	**78**	**40**

Note:

10 per cent of serving stations dealing with coal loading points/ sidings have been selected for detailed check/ review subject to minimum of 5 serving stations. If more than one loading point/ siding are served by selected serving station, further selection of loading points/ sidings has been made.

10 per cent of all Unloading points subject to minimum of 5 have been selected covering two Thermal Power Houses, two Steel plants and one Cement factory (in case of non existence of required number, the shortage has been met with by covering more Thermal Power Houses, Cement Factories and Fertiliser plants). In all 40 unloading points includes – 19 Thermal Power Plants, 7 Steel Plants, 11 Cement Factories, 2 Fertiliser Plants and 1 Port.

Annexure XX (a)
(Para 3.7)
Statement showing quantity of coal moved by Rail/ Road/ other means of transport on 5 short distance routes from loading points

Sl. No.	Railway	Route test checked and distance in Kms.	Year	Total coal carried (in metric tonne)	Coal carried by Rail (in metric tonne)	Percentage	Revenue Earnings (Col.6) (Rs. in crore)	Coal carried by road/ other means of transport (in metric tonne)
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*
1	Central	From Ghugus Colliery to New Thermal Power Station, Chandrapur (42 Kms.)	1998-99	9558000	5723000	59.88	84.28	2417000
			1999-00	11064000	6599100	59.64	68.58	2699500
			2000-01	11133500	6829800	61.34	77.87	2992000
			2001-02	11892400	7205500	60.59	86.84	3236000
			2002-03	10817400	6986000	64.58	89.62	2805000
2.	Eastern	From Colliery (Pit Head) to Patherdih Coal washery (10 Kms)	1998-99	739341	563064	76.16	5.56	176277
			1999-00	632561	439509	69.48	3.40	193051
			2000-01	559325	438712	78.44	3.46	120614
			2001-02	394484	322427	81.73	2.59	72057
			2002-03	241436	238912	98.95	2.02	2524
3	Southern	From Chennai Harbour/ Attipattu to Ennore Thermal Power Station, Ennore (21 Kms/ 15 Kms)	1998-99	*2026010	2026010	100.00	19.40	Nil
			1999-00	*987823	987823	100.00	7.43	Nil
			2000-01	*1093244	1093244	100.00	8.38	Nil
			2001-02	^1060956	1060956	100.00	8.35	Nil
			2002-03	**1667790	1667790	100.00	13.62	Nil
4	South Central	From RUSG siding to Kothagundem Thermal Power Station, Bhadrachalam Road (27 Kms)	1998-99	5412806	446906	8.26	3.31	@ 614458
			1999-00	6354433	1050525	16.53	6.83	@ 424380
			2000-01	6563157	1573756	23.98	12.02	@ 264352
			2001-02	6574858	2371415	36.07	19.51	@ 583
			2002-03	6627294	2903282	43.81	23.60	@ 317170
5.	South Eastern	From Colliery (Pit Head) to Bhajudih Coal washery (18 Kms)	1998-99	1480020	1480020	100.00	11.85	Nil
			1999-00	2350019	2350019	100.00	10.38	Nil
			2000-01	1271438	1271438	100.00	9.90	Nil
			2001-02	1025138	1025138	100.00	7.34	Nil
			2002-03	766097	766097	100.00	6.40	Nil

Note: The remaining coal in respect of Kothagundem Thermal Power Station was carried by rail from other loading points which were at a distance of more than 50 Kms.

@ Received by road from stations other than RUSG siding.

* From Chennai Harbour, ^ From Chennai Harbour and Attipattu, ** From Attipattu.

Annexure XX (b)
(Para 3.7)
Statement showing the coal traffic moved through road for longer distances

Sl. No.	Railway	Name of the points	Year	Distance from Colliery/ washery siding (in Km.)	Total coal transported (in metric tonnes)	Coal carried by Rail from colliery siding/ washery (in metric tonne)	Percentage of total	Coal carried by Road (in metric tonne)	Percentage of total	Additional earnings by capturing coal traffic moving by road (Rs. in crore)
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*
1.	Eastern	From Colliery to Mejia Thermal Power Plant	1998-99	In the range of 115 to 174	487434	58723	12.00	428711	88.00	6.88
			1999-00		1003803	431623	43.00	572180	57.00	9.07
			2000-01		1594759	1219467	76.50	375292	23.50	5.99
			2001-02		1994683	1807987	90.60	186696	9.40	3.00
			2002-03		1878961	1717987	91.40	160974	8.60	2.58
		Total								**27.52**
2.	South Central	From Chennai Harbour siding to Larsen and Tubro Company Limited, Juturu	1998-99	402	91513	91513	100.00	-	-	-
			1999-00		158608	158608	100.00	-	-	-
			2000-01		132678	132678	100.00	-	-	-
			2001-02		55272	20918	37.85	34354	62.15	1.10
			2002-03		28581	3496	12.23	25085	87.77	0.83
		Total								**1.93**
3.	South Eastern	From Bhojudih Coal Washery to Mejia Thermal Power Plant	1998-99	108	*200000	Nil	Nil	200000	100	2.11
			1999-00		*200000	Nil	Nil	200000	100	2.20
			2000-01		*200000	Nil	Nil	200000	100	2.24
			2001-02		*200000	Nil	Nil	200000	100	2.28
			2002-03		*200000	Nil	Nil	200000	100	2.31
		Total								**11.14**
		From Colliery to Ambuja Cement Company Limited, Bhatapara	1998-99	In the range of 357 to 361	134547	44850	33.33	89697	66.67	2.44
			1999-00		158131	28553	18.06	129577	81.94	3.58
			2000-01		171867	24515	14.26	147351	85.74	4.16
			2001-02		177526	7052	3.97	170474	96.03	4.89
			2002-03		166939	6953	4.17	159986	95.83	4.71
		Total								**19.78**
GRAND TOTAL										***60.37***

Note: * Estimated figures.

Annexure XXI
(Para 3.8.1)
Statement showing the performance and extent of utilisation of rakes consisting of Open Hopper wagons in unloading of coal vis a vis rakes of BOXN wagons

Sl. No.	Railway	Name of the siding test checked	Number of rakes consisting of BOX N wagons unloaded	Average time taken for unloading of one BOXN rake	Number of rakes consisting of open Hopper wagons unloaded	Average time taken for unloading of one rake of Open Hopper wagons	Difference in average of unloading time (Col.5-Col.7)	Possible additional earnings (Rs. in crore)	Number of rakes unloaded during the period 1998-99 to 2002-03			Per-centage of rakes of Open Hopper wagons
									Number consisting BOXN wagons	Number consisting Open Hopper wagons	Total number of rakes unloaded	
During the year 2002-03												
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*
1.	Central	New Thermal Power Station, Chandarpur	1261	12.25	1113	2.58	9.27	5.00	7735	4922	12657	38.89
2.	Eastern	Calcutta Electric Supply Corporation, Budge Budge	306	21.88	288	5.32	16.56	3.93	1332	527	1859	28.34
3.	Northern	National Thermal Power Corporation, Unchahar	437	13.31	702	4.16	9.15	5.76	2702	2211	4913	45.00
4.	South Central	Kothagudem Thermal Power Station, Gajulagudem	1349	11.56	486	2.51	9.05	10.78	5168	3516	8684	40.48
5.	South Eastern	Kolaghat Thermal Power Plant, Mecheda	454	29	1029	7	22	10.04	2585	4950	7535	65.69
Total								**35.51**	**19522**	**16126**	**35648**	**45.23**

Note: Figures in Col.5, Col.7 and Col.8 are in Hours and Minutes.

Annexure XXII(a)
(Para 3.9.2)

Statement showing the loss of earning capacity during 2002-03 at loading points due to non-conducting of time and motion study after the introduction of mechanised system of loading and resultant non-refixing of permissible free time

Sl. No.	Railway	Name of the siding/ loading points in which mechanised loading was introduced prior to 1998	No. of rakes/ wagons loaded		Permissible free time per rake (in hours)	Total permitted free time for rakes (Col.4) (in hours)	Actual time taken for loading of rakes (Col.4) (in hours)	Excess free time allowed (Col.7-Col.8) (in hours)	No. of extra wagon days involved by allowing extra free time	Loss of earning capacity (Rs. in crore)
			Rakes	Wagons (in 4-wheeler)						
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*
1.	Central	Wani	805	93854	9	7245	5694	1551	7530	1.31
		Ghugus	1524	170214	*10/9	14811	8997	5814	27057	4.70
		Chargaon	708	40958	9	6372	4336	2036	4910	0.85
Total			**3037**	**305026**		**28428**	**19027**	**9401**	**39497**	**6.86**
2.	Eastern	KD Hesalong	1409	202040	10	14090	9756	4334	26185	3.36
		RCM & Bachra	2978	427089	10	29780	14685	15095	91199	11.71
Total			**4387**	**629129**		**43870**	**24441**	**19429**	**117384**	**15.07**
3.	South Central	Pandhar Pavani (old)	324	46572	9	2916	2682	234	1401	0.20
		Rudrampur	937	135270	10	9370	8529	841	5059	0.74
		Manuguru	1269	181445	10	12690	8695	3995	23801	3.48
Total			**2530**	**363287**		**24976**	**19906**	**5070**	**30261**	**4.42**
4.	South Eastern	Old Kusumunda/ Gerva Road	1582	228132	9	14238	6488	7750	46823	7.79
		Junadih & New Kusumunda, Korba	2989	431673	9	26901	19978	6923	41826	6.96
		Lajkura Open Cast Mine I & II, Brajrajnagar	1068	152276	9	9612	3204	6408	38715	6.44
		BOCM I & II/ BPH	1551	224942	9	13959	5428	8531	51541	8.58
		Talcher	6885	998325	9	61965	48952	13013	78620	13.08
Total			**14075**	**2035348**		**126675**	**84050**	**42625**	**257525**	**42.85**
5.	Western	Mundra Port Terminal	286	40565	9	2574	2469	105	620	0.15
		Navlakhi	243	35047	9	2187	1288	899	5403	1.27
Total			**529**	**75612**		**4761**	**3757**	**1004**	**6023**	**1.42**
Grand Total			***24558***	***3408402***		***228710***	***151181***	***77529***	***450690***	***70.62***

* Permissible free time of 10 and 9 hours for BOBR and BOXN wagons respectively.

Annexure XXII (b)

(Para 3.9.2)

Statement showing the loss of earning capacity during 2002-03 at unloading points due to non-conducting of time and motion study after the introduction of mechanised system of unloading and resultant non-refixing of permissible free time

Sl. No.	Railway	Name of the sidings/ unloading points in which mechanised unloading was introduced prior to 1998	Number of rakes/ wagons unloaded		Permissible free time per rake (in hours)	Total permitted free time for rakes (Col.4) (in hours)	Actual time taken for unloading of rakes (Col.4) (in hours)	Excess free time allowed (Col.7-Col.8) (in hours)	Number of extra wagon days involved by allowing extra free time	Loss of earning capacity (Rs. in crore)
			Rakes	Wagons (in 4 wheelers)						
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*
1.	Eastern	Indian Iron and Steel Company, Burnpur Steel Exchange Yard	84	12180	33	2772	1225	1547	9346	1.20
2.	South Central	Jindal Vijayanagar Steel Limited	108	14587	* 21	2268	1739	529	2977	0.44
3.	South Eastern	Tata Iron Steel Company, Tatanagar	1277	185050	21	26817	12770	14047	84867	14.12
TOTAL			**1469**	**211817**		**31857**	**15734**	**16123**	**97190**	**15.76**

* Upto 21 May 2002.

Annexure XXIII
(Para 3.10.1)
Statement showing the loss of earning capacity due to detention of coal wagons (at loading points) in excess of free time during the year 2002-2003

Sl. No.	Railway	Number of loading points/ siding test checked	Number of rakes/ wagons detained beyond permissible free time		Excess time taken by wagons [Col.4 (b)] (in hours)	Number of wagon days lost	Loss of earning capacity (Rs. in crore)
			Rakes	Wagons (in 4 wheeler unit)			
1	*2*	*3*	*4(a)*	*4(b)*	*5*	*6*	*7*
1.	Central	6	1806	209558	1119056	46628	8.10
2.	Eastern	7	10350	1459222	33724680	1405195	180.49
3.	Northeast Frontier	6	375	38383	937423	39058	5.58
4.	South Central	7	3221	464490	4318716	179947	26.29
5.	South Eastern	7	799	115609	841527	35062	5.84
6.	Western	3	74	10688	35709	1488	0.35
	Total	**36**	**16625**	**2297950**	**7262122**	**1707378**	**226.65**

Annexure XXIV
(Para 3.10.1)
Statement showing the loss of earning capacity due to detention of coal wagons (unloading point) in excess of free time during the year 2002-2003

Sl. No.	Railway	Number of unloading points/ siding test checked	Number of rakes/ wagons detained beyond permissible free time		Excess time taken by wagons (in hours)	Number of wagon days lost	Loss of earning capacity (Rs. in crore)
			Rakes	Wagons (in 4 wheeler unit)			
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*
1.	Central	3	1613	183910	1863161	77632	13.49
2.	Eastern	4	1798	252288	15075360	628140	80.66
3.	Northern	4	818	115059	635192	26465	6.23
4.	North Eastern	1	66	9570	1369	57	1.31
5.	Southern	5	933	129014	11181	42308	5.36
6.	South Central	5	2995	422929	3281280	136718	19.97
7.	South Eastern	6	4223	598619	3424175	142675	23.75
8.	Western	3	2126	306527	2484475	103519	24.33
	Total	**31**	**14572**	**2017916**	**11705165**	**1157514**	**175.10**

Annexure XXV
(Para 3.10.3)
Statement showing the extent of overloading of coal wagons during the year 2002-2003 with point-wise details of Eastern and South Eastern Railways

(Wagons in Four Wheeler Units)

Sl. No.	Railway	Number/ name of the loading points/ sidings test checked	Number of wagons loaded	Number of wagons weighed	Percentage of wagon weighed to total loaded	Number of wagons found over loaded	Percentage of wagons found over-loaded to wagons weighed	Penalty imposed for overloading (Rs. in crore)
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*
1.	Central	(5) **Total**	**9989075**	**9980887**	**99.91**	**62441**	**0.62**	**1.29**
2.	Eastern	Andal	290205	283650	97.74	156838	55.29	3.96
		Katrasgarh	305290	301707	98.83	154597	51.24	11.34
		Patherdih (5)	163470	157172	96.15	54870	34.91	1.44
		Ray	435215	396720	91.16	117816	29.70	9.80
		Khalari	260342	224440	86.21	59902	26.69	3.60
Total			**1454522**	**1363689**	**93.76**	**544023**	**39.89**	**30.19**
3.	Southern	(1) **Total**	**170510**	**42155**	**24.72**	**8425**	**19.98**	**0.80**
4.	South Central	(4) **Total**	**109933**	**108209**	**98.43**	**7015**	**6.48**	**0.26**
5.	South Eastern	Old Kusumunda/ Gevra Road	228133	225808	98.98	41165	18.23	0.50
		Bhajudih Coal Washery, Santaldih	7105	6380	89.80	1650	25.86	0.40
		Junadih & New Kusumunda, Korba	431673	402665	93.28	176733	43.89	9.52
		Junadih-Line No.4 Korba 7)	55344	22724	41.06	22724	100.00	0.93
		Lajkura Open Cast Mine I & II,	152276	151301	99.36	44645	29.51	0.27
		Brajrajnagar	224943	223510	99.36	171123	76.56	1.58
		BOCMI, II&III/BPH	396085	382953	96.68	51289	13.39	3.15
		Jagannath Colliery, Talcher						
Total			**1495559**	**1415341**	**94.64**	**509329**	**35.99**	**16.35**
Grand Total		***(22)***	***13219599***	***12910281***	***97.66***	***1131233***	***8.76***	***48.89***

Annexure XXVI

(Para 3.12.1)

Statement showing excess waiver of demurrage charges in the sidings test checked during 1998-99 to 2002-03

(Rs. in crore)

Sl. No.	Railway	Demurrage charges accrued	25 per cent of the demurrage charges accrued	Demurrage charges actually waived	Percentage of demurrage charges waived	Excess demurrage charges waived	Demurrage charges actually levied	Demurrage charges actually recovered	Demurrage charges outstanding
1	*2*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*
1.	Central	40.16	10.04	26.53	66.06	16.49	13.63	13.54	0.09
2.	Eastern	142.38	35.60	85.25	59.87	49.65	57.13	52.22	4.91
3.	Northern	19.37	4.84	16.14	83.32	11.30	3.22	2.27	0.95
4.	North Eastern	4.09	1.02	3.22	78.73	2.20	0.87	0.87	0.00
5.	Northeast Frontier	1.10	0.27	0.72	65.45	0.45	0.38	0.27	0.11
6.	Southern	30.24	7.56	18.65	61.67	11.09	11.59	11.57	0.02
7.	South Central	37.91	9.47	29.41	77.57	19.94	8.50	8.48	0.02
8.	South Eastern	52.80	13.20	34.60	65.53	21.40	18.20	14.94	3.26
9.	Western	33.07	8.27	28.98	87.63	20.71	4.09	4.07	0.02
Total		**361.11**	**90.28**	**243.50**	**67.42**	**153.22**	**117.61**	**108.23**	**9.38**

Annexure XXVII

(Para 4.6)

Statement showing the name of the Railway units selected for micro review

Railway	Divisions (19)	Workshops (26)
1	2	3
Central	Bhusaval	Matunga
		Kurdwadi
Eastern	Asansol	Jamalpur
	Malda Town	Kanchrapara
		Lilluah
Northern	Lucknow (LKO)	Jugadhari
	Allahabad	Kalka
	Firozpur	Charbagh, Lucknow
North Eastern	Lucknow(LJN)	Gorakhpur
	Izatnagar	Izatnagar
Northeast Frontier	Lumding	New Bongaigaon
	Katihar	Dibrugarh
		Lumding
Southern	Trichhirapalli	Carriage workshop Parel
	Palghat	Loco Worksho Parel
		Central worksho Goldenrock
South Central	Secundrabad	Hubli
	Vijayawada	Lalguda
		Guntapalli
		Tirupati
South Eastern	Kharagpur	Kharagpur
	Chakradharpur	NG Workshop, Nagpur
		Mancheswar
Western	Vadodara	Partapnagar
	Ratlam	Dahod
		Ajmer

Annexure XXVIII (i)

(Para 4.9.1)

Statement showing shortfall in achievment of target set for reduction in Sanctioned Staff strength of Group C & D during the period 1 April 1992 to 31 March 2003

Railway	Sanctioned strength			Reduction required to be achieved [col.2 (-) col.4)	Reduction actually achieved [col.2 (-) col.3]	Percentage of reduction achieved	Shortfall [col.5 (-) col.6]
	As on 31.3.92	As on 31.3.03	Should be as on 31.3.03 after reduction of 3% every year				
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*
CR	236940	216025	169483	67457	20915	8.83	46542
ER	249815	192935	178693	71122	56880	22.77	14242
NR	246057	244836	176005	70052	1221	0.50	68831
NE	108490	95201	77603	30887	13289	12.25	17598
NF	91215	81634	65246	25969	9581	10.50	16388
SR	155289	138191	111078	44211	17098	11.01	27113
SC	145008	126245	103724	41284	18763	12.94	22521
SE* (1.4.98)	220347	215446	189219	31128	4901	2.22	26227
WR	214690	183487	153568	61122	31203	14.53	29919
Total	**1667851**	**1494000**	**1224619**	**443232**	**173851**	10.42	**269381**

** the figures of sanctioned strength as on 31.3.1992 were not made available. Hence the reduction of 2.22% achieved is against 14.13% required to be achieved.*

Annexure XXVIII (ii)

(Para 4.9.2)

Statement showing shortfall in achievment of target set for reduction in operated staff strength of Group C & D during the period 1 April 1992 to 31 March 2003

Railway	Operated strength			Reduction required to be achieved [col.2 (-) col.4]	Reduction actually achieved [col.2 (-) col.3]	Percentage of reduction achieved	Shortfall (col.5 (-) col.6]	Extra expenditure per annum (in Rs.) [Col.8 (x) Rs.10554 (x) 12] **
	As on 31.3.92	As on 31.3.03	Should be as on 31.3.03 after reduction of 2% every year					
1	2	3	4	5	6	7	8	9
CR	215221	200759	172327	42894	14462	6.72	28432	3600855936
ER	240855	177233	192853	48002	63622	26.42	-15620	-1978190911
NR	246057	231576	197018	49039	14481	5.89	34558	4376701584
NE	102091	89355	81744	20347	12736	12.48	7611	963917928
NF	85155	71998	68184	16971	13157	15.45	3814	483035472
SR	148862	125838	119194	29668	23024	15.47	6644	841449312
SC*	125616	114380	100581	25035	11236	8.94	13799	1747615752
SE*	198207	188769	158704	39503	9438	4.76	30065	3807672120
WR*	203609	168109	163030	40579	35500	17.44	5080	643371840
Total	**1565673**	**1368017**	1253634	**312038**	**197656**	**12.62**	**114383**	**14486429033**

**Figures of operated strength in respect of SC,SE and WR as on as on 31.3.92 have been taken from Annual Statistical Statements as the figures of CPO's office were not available.*

***Expenditure has been worked out by adopting average annual cost per employee (Rs.10554) per month as given in Statement 40 of Annual Statistical statements for the year 2001-02*

Annexure XXIX (i)
[Para 4.9.3 (i)]

Statement showing Department wise intake, excess intake and financial implications for the year 2001-2002

S.No.	Department Railway	Men on roll as on 1 April 2001	Permissible intake @ 1%	Acual intake excluding compassionate appointments	Excess intake	Per Annum expenditure
1	2	3	4	5	6	7
1	**Transportation**					
	Central	33255	333	546	213	26976024
	South Central	13856	139	147	8	1013184
	Western	19662	197	234	37	4685976
	Total(1)	**66773**	**669**	**927**	**258**	**32675184**
2	**Civil**					
	Northeast Frontier	21670	217	224	7	886536
	Total(2)	**21670**	**217**	**224**	**7**	**886536**
3	**Commercial**					0
	Southern	10779	108	167	59	7472232
	South Eastern	11823	118	134	16	2026368
	Total(3)	**22602**	**226**	**301**	**75**	**9498600**
4	**Electrical**					
	South Central	10052	101	191	90	11398320
	South Eastern	24904	249	295	46	5825808
	Total(4)	**34956**	**350**	**486**	**136**	**17224128**
5	**Mechanical**					
	Southern	33157	332	334	2	
	South Central	28361	284	548	264	253296
	Total(5)	**61518**	**616**	**882**	**266**	33435072
6	**S&T**					**33688368**
	Central	10157	102	174	72	
	Southern	5221	52	71	19	9118656
	South Eastern	8108	81	85	4	2406312
	Western	10074	101	138	37	506592
	Total(6)	**33560**	**336**	**468**	**132**	4685976
(A)	**TOTAL(1-6)**	**241079**	**2414**	**3288**	**874**	**16717536**
1	**Accounts**					**110690352**
	Central	3439	17	40	23	
	Total (1)	**3439**	**17**	**40**	**23**	2912904
2	**Administration**					**2912904**
	Central	3001	15	25	10	
	Eastern (including Personnel)	6462	32	39	7	1266480 886536
	North Eastern	675	3	4	1	126648
	Southern	1066	5	8	3	379944
	South Central	2361	12	28	16	2026368
	Western	6560	33	46	13	1646424
	Total (2)	**20125**	**100**	**150**	**50**	**6332400**
3	**Medical**					
	Central	5714	29	88	59	7472232
	Eastern	7031	35	83	48	6079104
	North Eastern	3692	18	20	2	253296
	Northeast Frontier	4684	23	29	6	759888
	South Central	3805	19	27	8	1013184
	South Eastern	7188	36	157	121	15324408
	Western	5601	28	50	22	2786256
	Total (3)	**37715**	**188**	**454**	**271**	**34321608**
4	**Personnel**					
	Central	3146	16	28	12	1519776
	Southern	2354	12	20	8	1013184
	South Central	2446	12	33	21	2659608
	Western	2543	13	15	2	253296
	Total (4)	**10489**	**53**	**96**	**44**	**5445864**
5	**Stores**					
	Central	4245	21	27	6	759888
	North Eastern	2304	12	17	5	633240
	Total (5)	**6549**	**33**	**44**	**11**	**1393128**
(B)	**TOTAL(1-5)**	**78317**	**391**	**784**	**399**	**50405904**
	TOTAL (A) +(B)	**319396**	**2805**	**4072**	**1273**	**161096256**

Note : Intake of 1 per cent was to be restricted in Transportation, Civil, Commercial, Electrical, Mechanical & S&T and 0.5 per cent in Accounts Administration, Medical, Personnel, Stores.

Annexure XXIX (ii)

[Para 4.9.3 (ii)]

Statement showing Department wise intake of staff and extra expenditure due to excess intake during 2002-2003

Railway	Deptts where 1 per cent intake excluding compassionate appointments is permitted viz. Civil, Commercial, Electrical, Mechanical, S&T, Transportation					Deptts where 0.5 per cent intake is permitted excluding compassionate appointments viz. Accounts, Administration, Personnel, Stores, Medical, RPF					Total extra expenditure
	Staff strength as on 1 April 2002	Permissible intake	Actual intake	Excess intake	Additional expenditure	Staff strength as on 1 April 2002	Permissible intake	Acutal intake	Excess intake	Additional expenditure	
1	2	3	4	5	6	7	8	9	10	11	12
CR	177367	1774	1194	-580		26158	131	89	-42		
ER	170395	1704	917	-787		29230	146	47	-99		
NR	113865	1139	0	-1139		19246	96		-96		
NE	77455	775	223	-552		14662	73	15	-58		
NF	60495	605	261	-344		13952	70	17	-53		
SR	108350	1084	772	-312		18558	93	22	-71		
SCR	100453	1005	1457	452	4770408	16639	83	89	6	63324	4833732
SER	164949	1649	1425	-224		27810	139	53	-86		
WR	145761	1458	711	-747		28013	140	75	-65		
TOTAL	**1119090**	**11193**	**6960**	**-4233**	**4770408**	**194268**	**971**	**407**	**-564**	**63324**	**4833732**

Annexure XXIX(iii)

[Para 4.9.3 (iv)]

Statement showing intake of Group C and D staff by Zonal Railways for the period 2000-01 to 2002-03

Railway	Operated staff strength	Intake by recruitment on compasionate grounds			Intake by recruitment through all other means	Total intake	Percentage of compassionate appointees with reference to total intake	Percentage of recruitment through all other means with reference to total intake
		Essential	Non-essential	Total				
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*
2000-01								
CR	214519	NA	NA	1008	1877	2885	34.94	65.06
ER	210475	NA	NA	825	1199	2024	40.76	59.24
NR	246130	NA	NA	1142	469	1611	70.89	29.11
NE	97292	NA	NA	366	572	938	39.02	60.98
NF	77985	NA	NA	497	105	602	82.56	17.44
SR	131370	344	399	743	1035	1778	41.79	58.21
SC	122296	NA	NA	547	722	1269	43.10	56.90
SE	201100	NA	NA	1291	1283	2574	50.16	49.84
WR	183025	NA	NA	759	1195	1954	38.84	61.16
Total	**1484192**	344	**399**	**7178**	**8457**	**15635**	**45.91**	**54.09**
2001-02								
CR	208498	260	713	973	1421	2394	40.64	59.36
ER	205695	NA	NA	890	709	1599	55.66	44.34
NR	240946	236	1174	1410	492	1902	74.13	25.87
NE	94283	NA	NA	262	200	462	56.71	43.29
NF	76063	NA	NA	684	405	1089	62.81	37.19
SR	129440	281	494	775	866	1641	47.23	52.77
SC	119956	NA	NA	984	1235	2219	44.34	55.66
SE	198305	NA	NA	968	1302	2270	42.64	57.36
WR	178468	NA	NA	986	1071	2057	47.93	52.07
Total	**1451654**	777	**2381**	**7932**	**7701**	**15633**	**50.74**	**49.26**
2002-03								
CR	203645	436	671	1107	1283	2390	46.32	53.68
ER	199625	483	95	736	806	1542	47.73	52.27
NR	235526	184	1008	1192	256	1448	82.32	17.68
NE	92116	NA	NA	509	201	710	71.69	28.31
NF	74447	479	19	498	278	776	64.18	35.82
SR	126908	825	386	1211	794	2005	60.40	39.60
SC	117092	NA	NA	843	1546	2389	35.29	64.71
SE	191912	680	347	1265	1478	2743	46.12	53.88
WR	173774	NA	NA	1027	786	1813	56.65	43.35
Total	**1415045**	3087	**2526**	**8388**	**7428**	**15816**	**53.03**	**46.97**
Grand Total	**4350891**	**4208**	**5306**	**23498**	**23586**	**47084**	**49.91**	**50.09**

* NA = Not Available

Annexure XXX
(Para 4.10.2)

Statement showing posts declared surplus by work study team, surrendered, staff redeployed and post treated as supernumerary during the period 1998-99 to 2002-03

Railway	No. of work studies conducted	Posts identified as surplus	No. of posts surrendered	No. of posts treated as supernumerary	No. of staff redeployed	Money value of posts declared supernumerary (Rs. In crore)
1	*2*	*3*	*4*	*5*	*6*	*7*
			1998-99			
CR	65	2135	1290	368	0	2.73
ER	11	516	392	162	0	1.19
NR	22	1094	570	108	56	1.07
NE	18	0	0	0	0	0
NF	10	90	47	0	0	0
SR	9	1068	364	0	0	0
SC	15	416	299	0	0	0
SE	13	296	393	0	0	0
WR	16	1091	1226	0	0	0
Total	**179**	**6706**	**4581**	**638**	**56**	**4.99**
			1999-00			
CR	60	2585	1203	562	0	4.14
ER	16	857	585	18	91	0.12
NR	31	2380	1144	312	156	3.18
NE	17	628	278	48	45	0.40
NF	10	160	109	39	946	0.49
SR	17	1041	732	0	0	0
SC	15	869	400	0	0	0
SE	14	382	232	0	173	0
WR	24	990	1315	0	151	0
Total	**204**	**9892**	**5998**	**979**	**1562**	**8.33**
			2000-01			
CR	59	3364	962	720	170	4.67
ER	21	874	280	285	20	2.00
NR	26	2307	829	34	0	0.41
NE	17	766	592	49	0	0.45
NF	18	685	540	347	373	4.39
SR	18	1442	713	20	102	0.08
SC	17	624	245	0	0	0
SE	12	317	336	0	158	0
WR	24	1061	1506	0	215	0
Total	**212**	**11440**	**6003**	**1455**	**1038**	**12.00**
			2001-02			
CR	72	2477	1426	150	304	1.10
ER	22	845	260	45	105	0.29
NR	33	2854	676	34	0	0.43
NE	16	765	515	124	171	1.00
NF	9	151	112	1037	1050	13.13
SR	31	2576	1122	17	321	0.13
SC	17	662	1210	0	16	0
SE	18	1055	193	0	146	0
WR	24	842	1636	0	89	0
Total	**242**	**12227**	**7150**	**1407**	**2202**	**16.08**
			2002-03			
CR	63	3985	1762	506	58	4.00
ER	16	2558	219	0	73	0.00
NR	28	5781	907	194	1450	2.46
NE	15	941	250	450	376	3.86
NF	14	658	107	0	0	0
SR	47	2709	1309	32	116	0.22
SC	43	3390	919	255	79	0.53
SE	15	2650	383	5	199	0.05
WR	24	1002	1607	0	91	0
Total	**265**	**23674**	**7463**	**1442**	**2442**	**11.12**
GRAND TOTAL	**1102**	**63939**	**31195**	**5921**	**7300**	**52.52**

Annexure XXXI
(Para 4.10.3)

Statement showing No.of workstudy (WS) reports test checked (out of the reports finalised), posts identified surplus, posts surrendered, posts declared supernumerary and delay in re-deployment of staff.

Railway	No. of WS Reports checked	No. of posts identified surplus (vacant)			No. of posts declared supernu-merary/ waiting for deployment	Delay in declaring posts supernu-merary (in months)	Period for which the posts remained supernu-merary/ waiting for deployment	No. of staff redeployed	Delay in redeployment (in months)	Avoidable expenditure in r/o col.7 (Rs. in crore)	Avoidable expenditure in r/o of col.8 (Rs. in crore)	Avoidable expenditure in r/o col. 10 (Rs. in crore)	Total avoidable expenditure (11+12+13) (Rs. in crore)
		Vacant	live	Total									
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1999-2000													
CR	22	252	1020	1272	528	3 to 9	36 to 42	17	0	0.51	3.07	0	**3.58**
ER	5	NA	NA	231	18	9 to 17.5	NA	87	6.5 to 21	0.25	0	0.93	**1.18**
NR	8	NA	530	530	198	1 to 21	NA	NA	NA	0.44	0	0	**0.44**
NE	0	0	0	0	0	0	0	0	0	0	0	0	**0**
NF	0	0	0	0	0	0	0	0	0	0	0	0	**0**
SR	5	19	114	133	15	0	43	45	8 to 14	0	0.68	0.18	**0.86**
SC	3	120	83	213	83	0	18 to 20	55	18 to 20	0	1.66	0	**1.66**
SE	12	186	173	359	78	0	35 to 44	95	5 to 25	0	3.07	1.27	**4.34**
WR	6	128	538	666	6	29	8	88	7 to 15	0.18	0.05	0.61	**0.84**
Total	**61**	**705**	**2458**	**3404**	**926**			**387**		**1.38**	**8.53**	**2.99**	**12.90**
2000-01													
CR	21	130	794	924	48	3 to 7	6 to 36	21	3 to 6	0.17	0.15	0.07	**0.39**
ER	9	NA	NA	505	285	2 to 10	NA	20	6 to 13.5	0.49	0	0.16	**0.65**
NR	9	NA	1368	1368	362	3 to 21	NA	NA	NA	1.09	0	0	**1.09**
NE	0	0	0	0	0	0	0	0	0	0	0	0	**0**
NF	0	0	0	0	0	0	0	0	0	0	0	0	**0**
SR	4	20	102	122	0	0	0	3	5	0	0	0.02	**0.02**
SC	3	152	0	152	0	0	0	0	0	0	0	0	**0**
SE	12	133	56	189	56	0	23 to 31	0	0	0	1.62	0	**1.62**
WR	6	177	150	437	0	0	0	46	9	0	0	0.44	**0.44**
Total	**64**	**612**	**2470**	**3697**	**751**			**90**		**1.75**	**1.77**	**0.69**	**4.21**
2001-02													
CR	25	262	571	833	94	3 to 13	13	36	7 to 10	1.90	0.25	0.24	**2.39**
ER	8	NA	NA	305	45	6.5	0	100	1 to 6.5	0.01	0	0.41	**0.42**
NR	6	NA	2410	2410	2336	2 to 7	0	NA	NA	0.06	0	0	**0.06**
NE	6	NA	133	133	0	0	0	0	8 to 15	0	0	1.69	**1.69**
NF	0	0	0	0	0	0	0	0	0	0	0	0	**0**
SR	4	39	53	92	6	2	13	35	2 to 8	0.01	0.08	0.15	**0.24**
SC	3	71	7	78	7	0	0	0	12	0	0.09	0	**0.09**
SE	12	110	150	260	141	0	10 to 11	9	3	0	1.64	0.03	**1.67**
WR	2	19	29	48	0	0	0	41	0	0	0	0	**0**
Total	**66**	**501**	**3353**	**4159**	**2629**			**221**		**1.98**	**2.06**	**2.52**	**6.56**
GRAND TOTAL	**191**	**1818**	**8281**	**11260**	**4306**			**698**		**5.11**	**12.36**	**6.2**	**23.67**

Annexure XXXII
(Para 4.10.4)
Statement showing No. of workstudy (WS) reports test checked (out of the reports not finalised), posts identified surplus, posts accepted/ not accepted by the department as surplus

Railway	No. of WS Reports checked	No. of posts identified surplus (vacant)			No of posts accepted as surplus by department	No of live posts not accepted as surplus by department	Period for which posts remained disputed (in months)	Avoidable expenditure (Rs. in crore)
		Vacant	live	Total				
1	2	3	4	5	6	7	8	9
1999-00								
CR	1	0	465	465	132	333	41	14.41
ER	1	0	25	25	6	19	25	0.5
NR	0	0	0	0	0	0	0	0
NE	14	0	594	594	498	96		
NF	0	0	0	0	0	0	0	0
SR	0	0	0	0	0	0	0	0
SC	1	11	32	43	16	27	26	0.74
SE	2	23	0	23	23	0	0	0
WR	0	0	0	0	0	0	0	0
Total	**19**	**34**	**1116**	**1150**	**675**	**475**		**15.65**
2000-01								
CR	2	139	907	1046	443	603	24 to 34	20.15
ER	1	0	8	8	0	8	15.5	0.13
NR	0	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0	0
NF	0	0	0	0	0	0	0	0
SR	1	14	39	53	29	24	27	0.68
SC	0	0	0	0	0	0	0	0
SE	2	26	85	111	62	43	25	1.13
WR	1	144	183	327	49	278	20	3.86
Total	**7**	**323**	**1222**	**1545**	**583**	**956**		**25.95**
2001-02								
CR	4	117	35	152	122	30	10 to 15	0.41
ER	7	0	242	242	33	209	9 to 18	2.88
NR	3	0	300	300	52	248	2 to 17	0.36
NE	0	0	0	0	0	0	0	0
NF	0	0	0	0	0	0	0	0
SR	6	243	178	421	272	149	11 to 18	1.48
SC	1	15	14	29	16	13	14	0.19
SE	6	761	37	798	235	37	5	0.2
WR	3	198	177	375	127	276	7 to 16	2.25
Total	**30**	**1334**	**983**	**2317**	**857**	**962**		**7.77**
GRAND TOTAL	**56**	**1691**	**3321**	**5012**	**2115**	**2393**		**49.37**

Annexure XXXIII
(Para 4.12.1)
Statement showing manpower requirement as per norms and actually available for carriage maintenance activity as on 31 March 2003

Railway	Division	No. of Coaching Yards checked	Name of the yard where staff deployed was more than requirement	No. of staff deployed	Staff required as per norms	Excess	Money value per month(Rs.)	Extra expenditure per annum (Rs.)
1		2		3	4	5	6	
Central	Bhusawal	5		566	789	0	0	
	Nagpur	4	Balharshah	104	94	10	105540	1266480
			Amla	53	42	11	116094	1393128
			Pulgaon Jn	27	11	16	168864	2026368
			Total Nagpur	**627**	**651**	**37**	**390498**	**4685976**
TOTAL		9				37	390498	4685976
Eastern	Malda town	4		643	934	0	0	0
	Asansol	3		407	0	0	0	0
TOTAL		7					0	0
Northern	Lucknow	6	Sultanpur	73	71	2	21108	253296
			Total Lucknow	**1275**	**1587**	**2**	**21108**	**253296**
	Firozpur	3		1184	1820		0	0
	Aliahabad	8	Shikohabad	31	29	2	21108	253296
			Aligarh	58	48	10	105540	1266480
			Khurja	30	21	9	94986	1139832
			Total Allahabad	**1781**	**2182**	**21**	**221634**	**2659608**
TOTAL		17				23	242742	2912904
North Eastern	Izatnagar	9	Kathgodam	121	119	2	21108	253296
			Mathura	24	16	8	84432	1013184
			Total Izatnagar	**606**	**634**	**10**	**105540**	**1266480**
	Lucknow	5	Anwarganj(Kanpur)	103	100	3	31662	379944
			Total Lucknow	**1697**	**1864**	**3**	**31662**	**379944**
TOTAL		14				13	137202	1646424
Northeast Frontier	NA	0		0	0	0	0	0
Southern	Trichchirappalli	10	Trichchipalli(BG)	195	180	15	158310	1899720
			Thanjavur	32	31	1	10554	126648
			Thiruvarur	11	9	2	21108	253296
			Tiruturaipundi	6	4	2	21108	253296
			Total Trichchirappalli	**244**	**224**	**20**	**211080**	**2532960**
	Palghat	11	Calicut	31	16	15	158310	1899720
			Podanur	42	41	1	10554	126648
			Mettur Dam	23	20	3	31662	379944
			Total Palghat	**96**	**77**	**19**	**200526**	**2406312**
TOTAL		21				39	411606	4939272
South Central	Secundrabad	4	Kazipet	155	152	3	31662	379944
			Total Secundrabad	**1335**	**1509**	**3**	**31662**	**379944**
	Vijayawada	7	Vijayawada	526	507	19	200526	2406312
			Total Vijayawada	**938**	**984**	**19**	**200526**	**2406312**
TOTAL		11				22	232188	2786256
South Eastern	Kharagpur	3	Baripada	13	12	1	10554	126648
			Total Kharagpur	**1770**	**2388**	**1**	**10554**	**126648**
	Adra	2	Adra	155	152	3	31662	379944
			Bokaro Steel City	134	129	5	52770	633240
			Total Adra	**289**	**281**	**8**	**84432**	**1013184**
	Chakradharpur	4	Chakradharpur	164	130	34	358836	4306032
			Rourkela	120	104	16	168864	2026368
			Total Chakradharpur	**691**	**804**	**50**	**527700**	**6332400**
	Bilaspur	2	Bilaspur	592	418	174	1836396	22036752
			Total Bilaspur	**696**	**586**	**174**	**1836396**	**22036752**
	Sambalpur	1		189	158	31	327174	3926088
			Total Sambalpur	**189**	**158**	**31**	**327174**	**3926088**
TOTAL		12				264	2786256	33435072
Western	Vadodara	5		813	1003		0	0
	Ratlam	3		524	645		0	0
GRAND TOTAL		190				398	4200492	50405904

Annexure XXXIV

(Para 4.12.1)

Statement showing the details of Norms for Maintenance staff in Diesel Loco Sheds

Railway/ Division	No. of Diesel locl sheds	Name of Diesel loco shed	Loco holding	Norms for Maintenance staff		Staff required as per Norms			Sanction strength (SS) as on 31.3.2003				Men on Roll				Difference between SS and staff required as per norms	Excess(+)/shortage(-) as compared with men on	
				Direct main-tenance staff	Supporting including Ministrial staff	Direct main-tenance staff	Supporting including Ministrial staff	Total	Supporting including Ministrial staff	Direct main-tenance staff	Supporting including Ministrial staff	Total	Supporting including Ministrial staff	Direct main-tenance staff	Supporting including Ministrial staff	Total		To norms	To SS
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*	*18*	*19*	*20*
CR																			
		Pune	120	8.5	1.7	1020	204	1224	826	196	37	1059	742	190	36	968	-165	-256	-91
		KYN	60	8.5	1.7	510	102	612	329	20	29	378	303	17	28	348	-234	-264	-30
	3	CLA	81	8.5	1.7	688.5	137.7	826.2	513	199	30	742	539	164	30	733	-84.2	-93.2	-9
		TOTAL	**261**			**2218.5**	**443.7**	**2662.2**	**1668**	**415**	**96**	**2179**	**1584**	**371**	**94**	**2049**	**-483.2**	**-613.2**	**-130**
ER		JMP	70			601	130	731	481	94	18	593	440	64	13	517	-138	-214	-76
		ASN	105			734	145	879	672	108	25	805	622	98	24	744	-74	-135	-61
	2	**TOTAL**	**175**			**1335**	**275**	**1610**	**1153**	**202**	**43**	**1398**	**1062**	**162**	**37**	**1261**	**-212**	**-349**	**-137**
NR		AMV	128	8.5	1.7	1088	218	1306	719	406	58	1183	610	354	48	1012	-123	-294	-171
		LDH-BG	172	8.5	1.7	1462	292	1754	916	400	56	1372	857	363	52	1272	-382	-482	-100
		PTK-NG	29	8.5	1.7	247	49	296	133	49	7	189	118	51	7	176	-107	-120	-13
	3	**TOTAL**	**329**			**2797**	**559**	**3356**	**1768**	**855**	**121**	**2744**	**1585**	**768**	**107**	**2460**	**-612**	**-896**	**-284**
NE			160	(BG)8.2	1.14	1419	197	1616	1295	140	57	1492	1192	116	51	1359	-124	-257	-133
		Gonda	13	(MG)													0	0	0
		IZN	87	(MG)8.2	1	713	87	800	608	47	39	694	583	65	37	685	-106	-115	-9
			160	**(BG)**		**2132**	**284**	**2416**	**1903**	**187**	**96**	**2186**	**1775**	**181**	**88**	**2044**	**-230**	**-372**	**-142**
	2	**TOTAL**	**100**	**(MG)**															
NF		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SR		GOC	147	6	1.22	882	180	1062	754	108	72	934	776	70	70	916	-128	-146	-18
		ERODE	136	6	1.14	790	155	945	939	47	29	1015	811	27	24	862	70	-83	-153
	2	**TOTAL**	**283**	**12**	**2.36**	**1672**	**335**	**2007**	**1693**	**155**	**101**	**1949**	**1587**	**97**	**94**	**1778**	**-58**	**-229**	**-171**
SC		KZJ	142	8.2	0	1164	0	1164	1011	183	48	1242	945	122	37	1104	78	-60	-138
		GY	133	8.2	0	1091	0	1091	869	74	45	988	796	106	37	939	-103	-152	-49
		GTL	102	8.2	0	836	0	836	696	91	47	834	593	108	40	741	-2	-95	-93
		MLY	57	8.2	0	467	0	467	230	20	24	274	289	31	21	341	-193	-126	67
		BZA	72	8.2	0	590	0	590	353	57	28	438	312	59	26	397	-152	-193	-41
	5	**TOTAL**	**506**	**41**	**0**	**4148**	**0**	**4148**	**3159**	**425**	**192**	**3776**	**2935**	**426**	**161**	**3522**	**-372**	**-626**	**-254**
SE		BKSC	59	8.21	0	484	0	484	431	13	28	472	373	8	24	405	-12	-79	-67
		BNDM	116	8.21	0	952	0	952	928	25	76	1029	768	17	56	841	77	-111	-188
		KGP	115	8.21	0	944	0	944	986	25	29	1040	798	18	30	846	96	-98	-194
		RAIPUR	85	8.21	0	698	0	698	593	15	22	630	520	9	16	545	-68	-153	-85
		VSKP	183	8.21	0	1502	0	1502	1370	35	60	1465	1240	23	53	1316	-37	-186	-149
		MIB-NG	65	8.21	0	534	0	534	560	12	28	600	501	9	26	536	66	2	-64
	6	**TOTAL**	**623**	**49.26**	**0**	**5114**	**0**	**5114**	**4868**	**125**	**243**	**5236**	**4200**	**84**	**205**	**4489**	**122**	**-625**	**-747**
WR		PRTN	22	8.2	NA	180	NA	180	128	12	10	150	110	15	10	135	-30	-45	-15
		VTA	120	8.2	NA	984	NA	984	819	89	35	943	774	77	37	888	-41	-96	-55
		SBI	159	8.2	NA	1304	NA	1304	876	139	33	1048	858	130	34	1022	-256	-282	-26
		RTM	140	8.2	NA	1148	NA	1148	964	173	38	1175	879	142	31	1052	27	-96	-123
	4	**TOTAL**	**441**	**32.8**	**NA**	**3616**	**NA**	**3616**	**2787**	**413**	**116**	**3316**	**2621**	**364**	**112**	**3097**	**-300**	**-519**	**-219**
Grand Total	**27**																		

Annexure XXXV
(Para 4.12.2)

Statement showing the position of Gangmen required as per norms and actual deployment and the Divisions where staff was in excess of requirement as per norms

Railway	Total ETKMs	Gang Strength			Difference between gangmen required as per norms & SS [col.4 (-) col.3]	Difference between gangmen required as per norms & on roll [col.5 (-) col.3]	Division where the Operated staff strength was more than the staff required as per norms				Per annum extra expenditure (col.11xRs.10554x 12) (In rupees)
		As per norms available (CE's formula)	Sanctrioned Strength (SS) as on 31 March 2003	Operated Strength (OS) as on 31 March 2003			Division	Staff required as per norms	Operated strength	Excess [col.10 (-) col.9]	
1	2	3	4	5	6	7	8	9	10	11	12
Central	20663	24766	25647	22980	881	-1786	Mumbai	3393	3410	17	2153016
							Jabalpur	4181	4812	631	79914888
							Total	**7574**	**8222**	**648**	**82067904**
Eastern	8517	10832	13692	10817	2860	-15	Asansol	3023	3631	608	77001984
					0	0	**Total**	**3023**	**3631**	**608**	**77001984**
Northern	22066	27248	30681	27700	3433	452	Ambala	2617	2802	185	23429880
					0	0	Moradabad	3384	4879	1495	189338760
					0	0	Bikaner	3129	3323	194	24569712
					0	0	**Total**	**9130**	**11004**	**1874**	**237338352**
North Eastern	5026	7845	7515	6959	-330	-886					
Northeast Frontier	8046	16123	13543	11230	-2580	-4893					
Southern	12688	18751	17398	13855	-1353	-4896					
South Central	14793	19063	19425	16996	362	-2067					
South Eastern	22894	30958	35276	28272	4318	-2686					
Western	18349	21678	24622	22451	2944	773	Vadodara	3569	3882	313	39640824
							Ratlam	3608	3826	218	27609264
							Jaipur	2104	2332	228	28875744
							Total	**9281**	**10040**	**759**	**96125832**
							GRAND TOTAL	**29008**	**32897**	**3889**	**492534072**

Annexure XXXVI
(Para 4.12.2)
Statement showing excess deployment of gang-men in selected sub offices

Railway/ Division	No. of sub offices checked	Name of sub office where OS was in excess than norms	Total ETKMs in the juris-diction of sub office	Gang strength as per norms	95% of gang strength to be operated	Operated strength as on 1.4.02	Excess [col.7 (-) 6]	Percentage of excess deployment to actual requirement	Extra expenditure per annum
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
CR Bhusaval									
	5	Pachora	163.33	183	174	178	4	2.19	506592
		Khandwa	125.45	137	130	136	6	4.38	759888
Nagpur	5	SE Ajni	65.56	108	103	143	40	37.04	5065920
Total CR	**10**			**428**	**407**	**457**	**50**		**6332400**
ER									
Asansol	5	PWI/KPK	142.78	148	141	329	188	127.03	23809824
		PWI/STN	192.59	247	235	366	131	53.04	16590888
		PWI/BRR	90.61	120	114	247	133	110.83	16844184
		PWI/KAO	105.58	126	120	247	127	100.79	16084296
		PWI/MDP	151.66	191	181	284	103	53.93	13044744
Malda Town	5	PWI/MLDT	197.73	212	201	241	40	18.87	5065920
		PWI/BHW	156.55	172	163	172	9	5.23	1139832
		PWI/SBG	169.41	156	148	157	9	5.77	1139832
Total ER	**10**			**1372**	**1303**	**2043**	**740**		**93719520**
NR									
Allahabad	5	FZD	129.6	115	109	115	6	5.22	759888
		HRS	180.61	171	162	171	9	5.26	1139832
		ALJN	207.91	202	192	202	10	4.95	1266480
		TDL	184.36	204	194	204	10	4.90	1266480
		KRJ	243.99	221	210	221	11	4.98	1393128
Lucknow	5	LINE-LKO	144.8	126	120	126	6	4.76	759888
		UNNAO	120.77	99	94	99	5	5.05	633240
Firozpur	5	PTK/NG	95.25	128	122	127	5	3.91	633240
		FZR	122.01	187	178	195	17	9.09	2153016
Total NR	**15**			**1453**	**1381**	**1460**	**79**		**10005192**
NE									
Lucknow	5	SSE/PW/GD	137.2	172	164	168	4	2.33	506592
		SE/PW/BNZ	64.6	146	139	176	37	25.34	4685976
Izatnagar	5	SE/PWAY/PBE-II	78	118	112	118	6	5.08	759888
		SE/PW/BPR	96	124	118	122	4	3.23	506592
		SE/PW/IZN	119	145	138	152	14	9.66	1773072
Total NE	**10**			**705**	**671**	**736**	**65**		**8232120**
NF									**0**
Lumding	5								
Katihar	5	SE/P.WAY/BOE	246.75	467	444	456	12	2.57	1519776
Total NF	**5**			**467**	**444**	**456**	**12**		**1519776**
SR									
Trichchirapalli	5								0
Palghat	5								0
Total SR	**10**								
SC									
Secundrabad	5	BPA	151.61	152	144	194	50	32.89	6332400
		CR/KZJ	141.56	156	148	202	54	34.62	6838992
		MAGH	152.3	164	156	206	50	30.49	6332400
		SC	204.92	273	259	329	70	25.64	8865360
Vijayawada	5	TDD	192.01	185	176	194	18	9.73	2279664
		NZD	177.65	164	156	185	29	17.68	3672792
		KSK	144.53	139	132	154	22	15.83	2786256
		BVRM	131.01	192	182	188	6	3.13	759888
Total SC	**10**			**1425**	**1353**	**1652**	**299**		**37867752**
SE									
Chakradharpur	5	PWI-CKP	220.4	230	219	251	32	14.35	4179384
		PWI-TATA	223.623	315	299	337	38	12.06	4812624
		PWI-ADTP	224.585	326	310	331	21	6.44	2659608
		PWI-ROU	224.852	320	304	310	6	1.88	759888
		PWI-MOU	186.63	239	227	316	89	37.24	11271672
Kharagpur	5	PWI-BLS	142.699	149	142	143	1	0.67	126648
Total SE	**10**			**1579**	**1501**	**1688**	**187**		**23809824**
WR									
Vadodara	5	CPWI-BRGY	141.43	129	123	150	27	20.93	3419496
Ratlam	5	CPWI-NAD	128.77	129	123	169	46	35.66	5825808
		CPWI-N-UJN	193.93	185	176	289	113	61.08	14311224
		CPWI-MGN	173.28	152	144	197	53	34.87	6712344
		CPWI-SJP	122.2	111	105	229	124	111.71	15704352
		CPWI-PPD	159.12	136	129	164	35	25.74	4432680
Total WR	**10**			**842**	**800**	**1198**	**398**		**50405904**
GRAND TOTAL				**8271**	**7860**	**9690**	**1831**		**231892488**

Annexure XXXVII
|Para 4.12.3 (i)|
Statement showing the position of staff requirement for various activities in Electrical Department as per norms & Actual deployment

Railway	Activity	Type of Loco	No. of locos	Norms (men per loco/other units)	Staff required as per norms	Sanctioned strength as on 31.3.03	Men on Roll as on 31.3.03	Excess/ shortage (col. 8-6)	Money value (in rupees)
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
Central	Maintenance of Electric Locos	Passenger & TAO Freight Locos	251	6.5[staff/loco]+LR	1836	1783	1684	-152	0
		Hitachi Freight &other locos	346	5.5[staff/loco]+LR	2141	2253	2102	-39	0
	Traction Distribution	AC OHE excl suburban division	6758	0.5[staff/TKM]	3801	3585	3445	-356	0
		DC OHE	1699	1.74[staff/TKM]	2956	2333	2315	-641	0
	Maintenance ofEMU/MEMUs shed	Pre equated unit of MEMU 1MC+2TC	372 MC 740TC	7.26[staff/unit]	3038	2325	2212	-826	0
	General Power supply	Divisions consuming more than 2300000 units per month	14014000	0.26[staff/1000	3650	2507	2388	-1262	0
		Divisions consuming less than 2300000 units per month	5929000	0.27[staff/1000]	1801	1294	1203	-598	0
Eastern	Maintenance of Electric Locos	Passenger & TAO Freight Locos	122	6.5[staff/loco]+	892				
		Hitachi Freight & all other locos	71	5.5[staff/loco]+	439				
		Total for Hitachi +TAO	193		1331	1105	970	-361	0
	Maintenance ofEMU/MEMUs shed	Pre equated unit of MEMU 1MC+2TC	450	7.26[staff/unit]	3267	3434	3255	-12	0
		Pre equated unit of MEMU 1MC+3TC	46	7.26[staff/unit]	334	348	307	-27	0
	General Power supply	Divisions consuming more than 2300000 units per month	3	units	1794	2622	2382	588	74469024
		Divisions consuming less than 2300000 units per month	1	0.27[staff/1000]	621	262	257	-364	0
Northern	Maintenance of Electric Locos	Passenger & TAO Freight Locos	120	6.5[staff/loco]+	877	1284	1180	-44	
		Hitachi Freight & all other locos	56	5.5[staff/loco]+	347				
		Total for Hitachi +TAO	176		1224	1284	1180	-44	0
	Traction Distribution	AC OHE excl suburban division	0	0.5[staff/TKM]	2360	2550	2356	-4	0
	Maintenance ofEMU/MEMUs shed	Pre equated unit of MEMU 1MC+2TC	70	7.26[staff/unit]	1685	903	849	-836	0
		Pre equated unit of MEMU 1MC+3TC	47						
	General Power supply	Divisions consuming more than 2300000 units per month	0	0.26[staff/1000]	5789	4136	3970	-1819	0
North Eastern									
Northeast Frontier	General Power supply	Divisions consuming more than 2300000 units per month	0	0.26staff/1000	1188	951	858	-330	0
		Divisions consuming less than 2300000 units per month	0	0.27[staff/1000]	1511	1933	1785	224	28369152
Southern	Maintenance of Electric Locos	Passenger & TAO Freight Locos	63	6.5[staff/loco]+	461	1471	1450	48	6079104
		Hitachi Freight & all other locos	152	5.5[staff/loco]+	941				
		Total for Hitachi +TAO	215		1402				
		AC-DC Locos & DC Locos							
	Traction Distribution	AC OHE excl suburban division	2694	0.5[staff/TKM]	1347	1212	1067	-280	0
		DC OHE	0	1.74[staff/TKM]	0	0	0	0	0
	Maintenance ofEMU/MEMUs shed	Pre equated unit of MEMU 1MC+2TC	134MC 319TC	7.26[staff/unit]	973	463	424	-629	0
		Pre equated unit of MEMU 1MC+3TC	11MC 33TC	7.26[staff/unit]	80				
	General Power supply	Divisions consuming more than 2300000 units per month	6302000	0.26staff/1000	769	762	726	-43	0
		Divisions consuming less than 2300000 units per month	2957000	0.27[staff/1000]	1702	1711	1579	-123	0

Railway	Activity	Type of Loco	No. of locos	Norms (men per loco/other units)	Staff required as per norms	Sanctioned strength as on 31.3.03	Men on Roll as on 31.3.03	Excess/ shortage (col. 8-6)	Money value (in rupees)
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
South Central	Maintenance of Electric Locos	Passenger & TAO Freight Locos	177	6.5[staff/loco]+	1294	0	0	0	0
		Hitachi Freight & all other locos	109	5.5[staff/loco]+	674.5	0	0	0	0
		Total for Hitachi +TAO	286		1968.5	1813	1741	-227.5	0
		AC-DC Locos & DC Locos	0	7[staff/loco]+	0	0	0	0	0
	Traction Distribution	AC OHE excl.suburban division	3863	0.5[staff/TKM]	1931	1794	1644	-287	0
	Maintenance ofEMU/MEMUs shed	Pre equated unit of MEMU 1MC+3TC	25	7.26[staff/unit]	182	116	89	-93	0
	General Power supply	Divisions consuming more than 2300000 units per month	5459	units	1420	1153	1066	-354	0
		Divisions consuming less than 2300000 units per month	5150	0.27[staff/1000]	1391	1398	1282	-109	0
South Eastern	Maintenance of Electric Locos	Passenger & TAO Freight Locos	142	6.5[staff/loco]+LR	1038		1636	0	0
		Hitachi Freight & all other locos	159	5.5[staff/loco]+LR	984	1798			
		Total for Hitachi +TAO	301		2022	1798	1636	-386	0
		AC-DC Locos & DC Locos	0	7[staff/loco]+	0	0	0	0	0
	Traction Distribution	AC OHE excl.suburban division	9728	0.5[staff/TKM]	4864	4551	4137	-727	0
		DC OHE	0	1.74[staff/TKM]	0	0	0	0	0
	Maintenance ofEMU/MEMUs shed	Pre equated unit of MEMU 1MC+2TC	99	7.26[staff/unit]	719	836	759	0	0
		Pre equated unit of MEMU 1MC+3TC	15	7.26[staff/unit]	109			-69	
	General Power supply	Divisions consuming more than 2300000 units per	0	0.26[staff/1000	5374	5639	5254	-1286	
		Divisions consuming less than 2300000 units per month	0	0.27[staff/1000]	1166				0
Western	Maintenance of Electric Locos	Passenger & TAO Freight Locos	91	6.5[staff/loco]+LR	922	930	909	-23	0
		Hitachi Freight & all other locos	43	5.5[staff/loco]+LR					
	Traction Distribution	AC OHE excl.suburban division	4285.7	0.5[staff/TKM]	2199	2298	2240	41	5192568
		DC OHE	361.24	1.74[staff/TKM]	784	886	794	10	1266480
	Maintenance ofEMU/MEMUs shed	Pre equated unit of MEMU 1MC+2TC	258	7.26[staff/unit]	1873	1688	1599	-274	0
		Pre equated unit of MEMU 1MC+3TC	35	7.26[staff/unit]	254	192	192	-62	0
	General Power supply	Divisions consuming more than 2300000 units per		0.26[staff/1000	MCT-858	789	711	-147	0
		month			BRC-933	999	949	16	2026368
		Divisions consuming less than 2300000 units per month		0.27[staff/1000]	RTM-473	381	368	-105	0
					KTT-552	613	547	-5	0
					BVP-202	251	244	42	5319216
					RJT-291	361	318	27	3419496
					JP-335	271	265	-70	0
					AII-366	276	251	-115	0

Annexure XXXVIII

(Para 4.13.2)

Statement showing workload in terms of ETKMs and Permanent staff deployed

Railway	Work load in terms of ETKM		Total Staff deployed		Staff per ETKM		Staff requirement as per SE Railway's figures of 1.68 men per	Staff requirement as per all India average of 2002-03 (1.58 men per ETKM)	Excess in staff deployment		Extra expendirue @ Rs.10554 per employee	
	1991-92	2002-03	1991-92	2002-03	1991-92	2002-03			Col.5 (-) 8	Col.5 (-) 9	in respect of col.10	in respect of col.11
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*
CR	18714	20663	43826	37507	2.34	1.82	34714	32648	2793	4859	29477322	51281886
ER	17249	16341	29381	20558	1.70	1.26	27453	25819				
NR	19390	21066	47590	45248	2.45	2.15	35391	33284	9857	11964	104030778	126268056
NE	7123	7589	14830	11814	2.08	1.56	12750	11991				
NF	7150	8046	13152	11230	1.84	1.40	13517	12713				
SR	11815	12737	25559	21482	2.16	1.69	21398	20124	84	1358	886536	14332332
SC	15065	14793	30478	16996	2.02	1.15	24852	23373				
SE	22093	22894	37201	28272	1.68	1.23	38462	36173				
WR	17854	18936	48040	32622	2.69	1.72	31812	29919	810	2703	8548740	28527462
Total	**136453**	**143065**	**290057**	**225729**	**2.13**	**1.58**	**240349**	**226043**	**13544**	**20884**	**142943376**	**220409736**

Annexure XXXIX

(Para 4.14.1)

Statement showing delay in reduction of manpower in workshops

Railway	Workshop	Activity modernised/closed	Date	Reduction in Manpower identified		Actual reduction in manpower		Delay in reduction / non- reduction in manpower		Money Value Col.9x10x10554
				No. of Post	Date	No. of posts	Date	No. of posts	Delay in months	
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*
				2001						
CR	W&S/PR	Closing of Brass Foundry	1.1.2001	6	12.11.2001	6	13.11.2001	0	0	0
								Total CR	0	0
ER	Liluah Workshop	[Coach] Augmentation of outturn from 400 FWU to 410 FWU	1.1.2001	595	1.1.2001	101	Jan.'01 to Dec.01	101	6	6395724
								494	12	62564112
		(Wagons)Reduction of outturn from 1135 FWU to 900 FWU	1.1.2001	682	1.1.2001	201		201	6	12728124
								481	12	60917688
	Kanchrapara Workshop	Modernisation of W/shop	6.12.2000	1233	6.12.2000	110	00-01	110	1	1160940
		Total (2001)						1123	3	35556426
				2516		**418**		**2098**		
								Total ER		**179323014**
NR,NE,NF,SR,SC,SE &WR	No modernisation during the year 2000-01									0
								Total 2001		**179323014**
				2002						
CR	W&S/MTN	POH/NPOH of tank wagon	1.4.2002	128	1.4.2002	128	1.4.2002	0	0	0
ER	Liluah Workshop	[Coach] Augmentation of outturn from 400 FWU to 410 FWU		494		0		494	12	62564112
		(Wagons)Reduction of outturn from 1135 FWU to 900 FWU		481		0		481	12	60917688
										0
	Kanchrapara Workshop	Modernisation of W/shop	6.12.2000	1233	6.12.2000	110	00-01	110	1	1160940
								853	15	135038430
								Total ER		**259681170**
NE	Izatnagar	Foundry shop/IZN	1.4.2001	75	1.1.2002	75	1.1.2002	0	0	0
SR	**GOC**	Repair activity of LB spring in GOC[closed	30.11.2001	21	30.11.2001	0	0	21	18	3989412
NR,NF,SC,SE &WR	No modernisation during the year 2001-02							**Total 2002**		**263670582**
				2432		**313**		**2119**		
				2003						
ER	Liluah Workshop	[Coach] Augmentation of outturn from 400 FWU to 410 FWU	1.1.2003	-530	1.1.2003	-356	Jan.03 to July 03	0	0	0
								320	3	10131840
		(Wagons)Reduction of outturn from 1135 FWU to 900 FWU	1.1.2003	782	1.1.2003	693	Jan.03 to July 03	693	3	21941766
								570	3	18047340
	Kanchrapara Workshop	Modernisation of W/shop				233	2002-03	233	21	51640722
								620	27	176673960
								Total ER		**278435628**
NE	Gorakhpur	Iron Fdt[GKP]	Jul-02	142	Jul-02	142	Sept.02 to April 2003	142	3.5	**5245338**
SR		Closure of Carriage repair Shop at C&W/Permbur	1-Mar	190	1-Mar	0	0	190	2	**4010520**
SC	W&S/UBL	Brake Block manfacturing	Apr-02	215	Apr-02					0
SE	Nagpur/WS	Production ofFerrous [Cast Iron] Foundry closed down	1.3.2003	70	1.3.2003	70	1.3.2003	0	0	0
CR,NR,NF& WR	No modernisation during the year 2002-03									0
				869		**782**		**Total 2003**		**287691486**
GRAND TOTAL										**730685082**

Annexure XL(i)
(Para 4.14.2)
Statement showing target and actual output of workshops (2001-02)

Railway (No. of w/shops checked)	Workshop (No of shops checked)	Name of shop	Activity	Target	Staff		Actual output	Shortfall (%)	Proportionate manpower for actual work done	Excess staff	Per annum extra expenditure (in Rs.)
					Required to achieve target	Actual operated					Rs.10554xCol.11 x 12
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*
				2001-2002							
Central (3)	Loco Workshop Parel (3)	Iron/ foundry shop	Mfg.of Brake blocks	621400	5096	4854	530151	14.68	4348	506	64083888
Total					**5096**	**4854**			**4348**	**506**	**64083888**
Eastern (3)	Liluah	B,J,L	POH of wagon	900 FWU	1645	1405	653.83	246.17 Nos 27.35%	1195	210	26596080
	Jamalpur	Paint shop	Painting	4527 FWU	226	258	4527	0	226	32	4052736
		Brake Block	Casting	732000	4612	6044	510116	221884 Nos. 30.31%	3214	2830	358413840
		Foundry shop									
		Welding shop	Welding	4527 FWU	3059	3443	4527	0	3059	384	48632832
Total					**9542**	**11150**			**7694**	**3456**	**437695488**
Northern(3)	CB/LKO	ELS shop	POH	24 loco	300	300	16	8 [33%]	200	100	12664800
Total					**300**	**300**			**200**	**100**	**12664800**
North Eastern(2)											0
Northeast Frintier (2)	Dibrugargh	Carriage body shop (CBS)	Body patching furnishing incl.carpentry, trimming, plumbing etc.	818	322	322	692	15%	272	50	6332400
		Painting shop [PTG]	Painting of coaches	818	126	116	692	15%	107	9	1139832
	New Bongaigaon (C&W)	Carriage body repair	POH of MG coaches	914 FWU	2233	1949	632	92=30.85%	1554	202	25582896
		[MG]			279				193		0
		Carriage body repair	POH of BG	720 FWU	2088	2554	694	26=3.61%	2013	289	36601272
		[BG]	coaches		261				252		0
		Wagon	POH of MG wagon	840 FWU	1330	1246	657	83=21.78%	1040	94	11904912
					166	18			130		0
Total					**6805**	**6205**			**5561**	**644**	**81561312**
											0
Southern (2)	Loco Works/PER	Diesel Loco shop	Diesel Loco POH	11	142	117	6	5-45%	77	40	5065920
		AC Loco shop	AC Loco POH	50	539	636	31	19-38%	334	302	38247696
	Central Workshop Golden Rock	CRS	MG Con.& Reh.	6 coach/ year	5	3	1.5	4.5 -75%	2	1	126648
		CBS	EMU Cor.	1.5 coach/ month	26	4	0.16	1.34 - 89.33%	3	1	126648
Total					**712**	**760**			**416**	**344**	**43566912**
South Central (4)	CRS/LGD	Smithy	POH ITEMS	176220	78	87	169812	6408 [3.6%]	75	12	1519776
		Machine	POH ITEMS	272340	116	132	223812	48528 [17.8%]	96	36	4559328
	W&S/UBL	TLW	POH	1080	295	288	1048	32 [2.96]	286	2	253296
		Prod B	ICF Bogie Frame	960	2124	1344	572	388[40.42 %]	1266	78	9878544
Total					**2613**	**1851**			**1723**	**128**	**16210944**
South Eastern (3)	NG Workshop Nagpur	Foundry	Brake Blocks	BG-120000	91	81	BG -58756	49967 - 38%	56	25	**3166200**
				NG-12000			NG-23277				**0**
											0
Western (4)	Partapnagar	BGOT	POH	840	37	37	567	33	25	12	**1519776**
Total					**128**	**118**			**81**	**37**	**1519776**
GRAND TOTAL					**25196**	**25238**			**20023**	**5215**	**660469320**

Annexure XL(ii)
(Para 4.14.2)
Statement showing target and actual output of workshops (2002-03)

Railway (No. of w/shops checked)	Workshop (No of shops checked)	Name of shop	Activity	Target	Staff		Actual output	Shortfall (%)	Proportionate manpower for actual work done	Excess staff	Per annum extra expenditure (in Rs.)
					Required to achieve target	Actual operated					Rs.10554xCol.11x12
1	2	3	4	5	6	7	8	9	10	11	12
2002-03											
Central (3)	Loco Workshop Parel (3)	Iron/ foundry shop	Mfg.of Brake blocks	353800	3634	3625	322535	8.83	3313	312	39514176
	NG Loco Workshop Kurduwadi		BG conversion /Repair	30	103	105	26	13.33	89	16	2026368
Total					**3737**	**3730**			**3402**	**328**	**41540544**
Eastern	LLH	Shop - M,MR,N,T	POH Coach	440 FWU	3863	3583	396	44 Nos.=10%	3477	106	13424688
		Paint shop	Painting	6000 FWU	299	430	6029.5	0	300	130	16464240
	JMP	Brake Block Foundry shop	Casting	729936 Nos.	4599	4835	419455	310481 Nos.=42.53 %	2643	2192	277612416
					8761	**8848**			**6420**	**2428**	**307501344**
Northern	CB/LKO	ELS shop	POH	24 Locos	300	300	18	6[25%]	225	75	9498600
Total					**300**	**300**			**225**	**75**	**9498600**
North Eastern (2)											0
											0
Northeast Frontier (2)	Wagon POH Depot Lumding	No separate shop	POH	744	226	205	656	12%	199	6	759888
	Dibrugargh workshop	Carriage body shop	Body patching furnishing incl.carpentry, trimming, plumbing etc.	864 FWU	309	349	806	7%	288	61	7725528
		Painting shop[PTG]	Painting of coaches	864 FWU	120	133	806	7%	112	21	2659608
	New Bongaigaon (C&W)	Carriage body repair	POH of MG	792 FWU	1935	1512	546	246=31.06 %	1334	11	1393128
		[MG]	coaches		243				167		
		Carriage body repair	POH of BG	816 FWU	2366	2531	766	50=6.13%	2221	32	4052736
		[BG}	coaches		296				278		
Total					**5495**	**4730**			**4599**	**131**	**16590888**
Southern (2)	Loco Works/PER	Diesel Loco shop	Diesel Loco POH	6	123	118	3	3 -50%	62	56	7092288
		AC Loco shop	AC Loco POH	50	564	571	36	14 -28%	406	165	20896920
	Central Workshop Goldenrock	CRS	MG Con.& Reh.	6	5	4	2	0	2	2	253296
		CBS	MG Hy.Cor.&POH	10	98	82	7.42	2.58 - 25.80%	72	10	1266480
Total					**790**	**775**			**542**	**233**	**29508984**
South Central (4)	CRS/LGD	Smithy	POH ITEMS	176220	78	82	166152	10068 [5.7%]	74	8	1013184
		Machine	POH ITEMS	272340	116	124	209292	63048 [23.2%]	89	35	4432680
		Foundry	Brake Blocks	170311	115	124	170311	0	115	9	1139832
	W&S/Hubli (UBL)	Prod B	ICF Bogie Frame	450	1056	1116	389	61[13.55%]	913	203	25709544
Total					**1365**	**1446**			**1191**	**255**	**32295240**
											0
South Eastern (3)	NG Workshop Nagpur	Foundry	Brake Blocks	BG-50000	50	75	BG -34365		67	8	1013184
				NG-10000			NG-46270	0			0
		Carriage shop No. 24,35,40, 47	Carriage POH & special repair	POH -330 Rehabilita-tion-24	127	125	POH -316 Reh.-24	8 Nos. 2.42%	124	1	126648
Total					**177**	**200**			**191**	**9**	**1139832**
Western (4)											
Total											
GRAND TOTAL					**20625**	**20029**			**16570**	**3459**	**438075432**

Annexure XLI (i)

(Para 4.15.1)

Statement showing creation and operation of Gazetted posts in Construction Organisation (Civil)

		2000-01						2001-02							2002-03						
Railway	Name of the Post	Total Outlay	Yardstick for calculation of posts	Posts operated	Posts required	Posts operated in Excess	Extra expenditure	Total Outlay	Yardstick for calculation of posts	Posts operated	Posts required as per norms	Posts should be after 10% cut	Posts operated in Excess	Extra expenditure	Total Outlay	Yard stick for calculation of posts	Posts operated	Posts required	Post should be after 10% cut	Posts operated in Excess	Extra expenditure
										CIVIL ENGINEERING											
CR	SAG	205.81	47.03			0							0		311.93	49.38	6	6	5	1	126648
	JAG		14.03			0							0			15.02	19	21	19	0	0
	SS		3.96	26	21	5	633240	245.17	4.2	26	23	21	5	633240		4.41	36	28	25	11	1393128
	JS		3.03	21	42	0	0		3.2	21	46	41	0	0		3.36	36	56	50	0	0
														0							0
ER	SAG		47.03			0	0						0	0	493.96	49.38	5	10	9	0	0
	JAG		14.03			0	0						0	0		15.02	15	33	30	0	0
	SS		3.96	25	24	1	126648	274.91	4.2	25	26	23	2	253296		4.41	21	33	30	0	0
	JS	243.25	3.03	34	48	0	0		3.2	34	52	47	0	0		3.36	32	66	59	0	0
							0							0							0
NR	SAG		47.03			0	0						0	0	511.25	49.38	9	10	9	0	0
	JAG		14.03			0	0						0	0		15.02	31	34	31	0	0
	SS		3.96	38	38	0	0	411.9	4.2	35	39	35	0	0		4.41	41	46	41	0	0
	JS	385.4	3.03	48	76	0	0		3.2	48	78	70	0	0		3.36	58	92	83	0	0
							0							0							0
NE	SAG		47.03			0	0						0	0	0	49.38	1	1	1	0	0
	JAG		14.03	9	8	1	126648	0	14.03	9	8	7	1	126648		15.02	11	11	10	1	126648
	SS		3.96			0	0		4.2	12	12	11	1	126648		4.41	14	13	12	2	253296
	JS		3.03	23	22	1	126648		3.2	23	22	20	3	379944		3.36	26	22	20	6	759888
							0							0							0
NF	SAG		47.03			0	0						0	0	320.05	49.38	6	6	6	0	0
	JAG		14.03			0	0	284.44	14.03	18	20	18	0	0		15.02	21	21	19	2	253296
	SS	301.46	3.96	30	30	0	0		4.2	25	27	24	1	126648		4.41	28	29	26	2	253296
	JS		3.03	59	60	0	0		3.2	54	54	49	5	633240		3.36	57	58	52	5	633240
							0							0							0
SR	SAG		47.03	10		0	0	448	47.03	10	10	9	1	126648	474.13	49.38	10	10	9	1	126648
	JAG		14.03	32		0	0		14.03	32	32	29	3	379944		15.02	31	32	29	2	253296
	SS		3.96	69	49	20	2532960		4.2	63	42	38	25	3166200		4.41	53	43	39	14	1773072
	JS	489.74	3.03	40	98	0	0		3.2	33	84	76	0	0		3.36	47	86	77	0	0
							0							0							0
SC	SAG	220.87	47.03	6	5	1	126648	255.1	47.03	5	5	5	0	0	356.37	49.38	6	7	14	0	0
	JAG	206.72	14.03	20	21	0	0	170.6	14.03	17	12	11	6	759888		15.02	20	24	46	0	0
	SS		3.96	30	21	9	1139832	160.6	4.2	23	15	13	10	1266480		4.41	30	32	62	0	0
	JS		3.03	50	42	8	1013184		3.2	37	30	27	10	1266480		3.36	40	64	124	0	0
							0							0							0
SE	SAG		47.03			0	0	373.82	47.03	7	8	7	0	0	392.08	49.38	7	8	7	0	0
	JAG	421.13	14.03	33	30	3	379944		14.03	27	30	27	0	0		15.02	23	26	23	0	0
	SS	421.13	3.96	43	42	1	126648		4.2	30	35	31	0	0		4.41	32	35	31	1	126648
	JS		3.03	85	84	1	126648		3.2	61	70	63	0	0		3.36	63	70	63	0	0
							0							0							0
WR	SAG		47.03			0	0	286.61	47.03	5	6	5	0	0	613.01	49.38	7	12	11	0	0
	JAG		14.03			0	0		14.03	20	20	18	2	253296		15.02	27	41	37	0	0
	SS	286.61	3.96	29	29	0	0		4.2	29	27	24	5	633240		4.41	36	55	49	0	0
	JS		3.03	57	58	0	0		3.2	57	54	49	8	1013184		3.36	72	110	99	0	0
	SAG					**1**	**126648**						**2**	**253296**						**2**	**253296**
	JAG					**4**	**506592**						**18**	**2279664**						**5**	**633240**
	SS					**36**	**4559328**						**56**	**7092288**						**30**	**3799440**
Total	**JS**					**10**	**1266480**						**39**	**4939272**						**11**	**1393128**
GRAND TOTAL						**51**	**6459048**						**115**	**14564520**						**48**	**6079104**

Annexure XLI (ii)

(Para 4.15.1)

Statement showing creation and operation of Gazetted posts in Construction Organisation (Electrical)

Railway	Name of the Post	2000-01						2001-02							2002-03						
		Total Outlay	Yardstick for calculation of posts	Posts operated	Posts required	Posts operated in Excess	Extra expenditure	Total Outlay	Yardstick for calculation of posts	Posts operated	Posts required as per norms	Posts should be after 10% cut	Posts operated in Excess	Extra expenditure	Total Outlay	Yard stick for calculation of posts	Posts operated	Posts required	Post should be after 10% cut	Posts operated in Excess	Extra expenditure
ELECTRICAL DEPARTMENT																					
CR	SAG	70.92	34.16	2	2	0		65.33	34.16	2	2	0	0		82.79	35.87	2	2	2	0	
	JAG		9.46	4	4	0			9.46	5	5	0	0			9.93	5	5	5	0	
	SS	36.92	2.92	9	6	3	379944	36.92	3.1	14	6	5	9	1139832	55.87	3.26	12	8	7	5	633240
	JS		1.76	7	12	0	0		1.8	7	12	11	0	0		1.89	6	16	14	0	0
							0							0							0
ER	SAG	49.2	34.16	1	1	0	0	36	34.16	1	1	1	0	0	43.72	35.87	1	1	1	0	0
	JAG		9.46	5	5	0	0		9.46	4	4	4	0	0		9.93	3	4	4	0	0
	SS		2.92	8	7	1	126648		3.1	6	5	5	1	126648		3.26	4	6	5	0	0
	JS		1.76	19	14	5	633240		1.8	5	10	9	0	0		1.89	7	12	11	0	0
							0							0							0
NR	SAG	44.27	34.16	1	1	0	0	42.06	34.16	1	1	1	0	0	47.39	35.87	1	1	1	0	0
	JAG		9.46	5	5	0	0		9.46	5	4	4	1	126648		9.93	5	5	5	0	0
	SS		2.92	8	7	1	126648		3.1	6	6	5	1	126648		3.26	7	7	6	1	126648
	JS		1.76	11	14	0	0		1.8	11	12	11	0	0		1.89	13	14	11	3	379944
							0							0							0
NE	SAG		34.16	0	0	0	0		34.16	0	0		0	0		35.87	0	0		0	0
	JAG		9.46	1	1	0	0		9.46	1	1	1	0	0		9.93	1	1		0	0
	SS		2.92	1	1	0	0		3.1	1	1	1	0	0		3.26	1	1		0	0
	JS		1.76	0	0	0	0		1.8	0	0	0	0	0		1.89	0	0		0	0
							0							0							0
NF	SAG	20.25	34.16	0	0	0	0	18.74	34.16	0	0	0	0	0	14.9	35.87	0	0	0	0	0
	JAG		9.46	2	2	0	0		9.46	1	2	1	1	126648		9.93	1	2	2	0	0
	SS		2.92	5	3	2	253296		3.1	4	3	3	1	126648		3.26	4	2	2	2	253296
	JS		1.76	5	6	0	0		1.8	4	6	5	0	0		1.89	4	4	4	0	0
							0							0							0
SR	SAG	28.2	34.16	0	1	0	0	35.54	34.16	1	1	1	0	0	33.71	35.87	1	1	1	0	0
	JAG		9.46	4	2	2	253296		9.46	4	3	3	1	126648		9.93	5	3	3	2	253296
	SS		2.92	7	4	3	379944		3.1	6	5	4	2	253296		3.26	6	5	5	1	126648
	JS		1.76	5	8	0	0		1.8	5	10	9	0	0		1.89	4	10	9	0	0
							0							0							0
SC	SAG	14.54	34.16	0	0	0	0	15.37	34.16	0	0	0	0	0	31.17	35.87	0	0	0	0	0
	JAG		9.46	3	2	1	126648		9.46	3	2	2	1	126648		9.93	3	3	3	0	0
	SS		2.92	7	2	5	633240		3.1	4	2	2	2	253296		3.26	4	4	4	0	0
	JS		1.76	8	4	4	506592		1.8	7	4	4	3	379944		1.89	8	8	7	1	126648
							0							0							0
SE	SAG	57.7	34.16	2	2	0	0	37.78	34.16	1	1	1	0	0	42.74	35.87	1	1	1	0	0
	JAG		9.46	7	6	1	126648		9.46	7	4	4	3	379944		9.93	4	4	4	0	0
	SS		2.92	10	9	1	126648		3.1	8	6	5	3	379944		3.26	6	6	5	1	126648
	JS		1.76	21	18	3	379944		1.8	16	12	11	5	633240		1.89	12	12	11	1	126648
							0							0							0
WR	SAG	45.5	34.16	1	1	0	0	49.09	34.16	1	1	1	0	0	51.02	35.87	1	1	1	1	126648
	JAG		9.46	4	5	0	0		9.46	4	5	5	0	0		9.93	4	5	5	0	0
	SS		2.92	10	7	3	379944		3.1	10	7	6	4	506592		3.26	10	7	6	4	506592
	JS		1.76	4	14	0	0		1.8	3	14	13	0	0		1.89	4	14	11	0	0
	SAG					**0**	**0**						**0**	**0**						**1**	**126648**
	JAG					**4**	**506592**						**7**	**886536**						**2**	**253296**
	SS					**19**	**2406312**						**23**	**2912904**						**14**	**1773072**
	JS					**12**	**1519776**						**8**	**1013184**						**5**	**633240**
GRAND TOTAL						**35**	**4432680**						**38**	**4812624**						**22**	**2786256**