Chapter 5 – Mechanical – Zonal Hqrs/Workshops/ Production units

The Mechanical Department is mainly responsible for management of –

- Train operations by ensuring Motive Power availability, Crew Management, Rolling Stock Management and Traffic restoration in case of accidents
- Workshops set up for repair, maintenance and manufacturing of rolling stock and related components
- Production Units engaged in production of Locomotives, Coaches, Wheel sets, etc

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

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

The total expenditure of the Mechanical Department during the year 2012-13 was ` 25368.76 crore. During the year, apart from regular audit of vouchers and tenders etc., 763 offices of Mechanical Department were inspected.

The chapter includes three long paragraphs viz., 'Management of Scrap in Indian Railways', 'Working of Integral Coach Factory, Perambur, Chennai' and 'Working of Rail Wheel Factory, Yelahanka, Bangalore'.

Scrap Management in Indian Railways: Audit revealed that there was no time frame fixed by the Railways for scrap identification and its disposal. Audit observed that the system of assessment, retrieval and disposal of scrap and the monitoring mechanism in place was deficient and delays at various levels enhanced the risk of deterioration of scrap, decrease in value and theft and pilferages.

Working of Integral Coach Factory, Perambur, Chennai: Integral Coach Factory is a premier coach production unit of Indian Railways. Audit revealed that there were regular delays in finalization of Annual Production Programmes both at unit and Railway Board level. This adversely affected the production of heavy build coaches and timely availability of coaching stock.

Working of Rail Wheel Factory, Yelahanka, Bangalore: Rail Wheel Factory is engaged in the production of wheels, axles and wheel sets. Audit revealed that Rail Wheel Factory focused primarily on achieving/ exceeding the annual production targets fixed by Railway Board without reference to actual requirement of types of wheels as allotted by Wheel Tyre Axle (WTA) allotment meeting. This lack of

synchronization between its WTA allotments and production resulted in stock piling of inventory of certain types of wheels.

5.1 Management of Scrap in Indian Railways

5.1.1 Introduction

Scrap can be defined as the material no longer useful to the Railways for the purpose it was originally purchased or obtained. It consists of condemned rolling stock (loco, wagon and coach), released Permanent Way materials declared unserviceable, unserviceable material generated in workshops, maintenance depots and scrap generated in Productions Units. The process of scrap disposal includes timely identification and collection of scrap from scrap originating points, lot formation in economic quantity of a particular item of scrap, its valuation and sale. Regular and expeditious sale of scrap is essential, not only to fetch the best price possible, but also to avoid unnecessary accumulation, theft and pilferage. Delay in declaring and disposal of scrap leads to its deterioration and reduction in its value**.**

In Indian Railway, there are 17 Zones (68 divisions), 42 workshops, 144 sheds (93 diesel loco sheds and 51 electric loco sheds) and 6 Production Units. In course of operation of these units, a huge quantity of scrap is generated. During the year 2012-13, Indian Railways sold scrap worth ` 3533.59 crore. Sources of generation of scrap and its disposal in IR are shown in ***Appendix I*****.**

At Railway Board level, the Stores Directorate headed by Member Mechanical is responsible for policy issues related to scrap. At Zonal/Production Units level Controller of Stores (COS) is responsible for arranging regular collection of scrap at convenient places from user departments[222] and sale of scrap. Financial Advisor & Chief Accounts Officer **(**FA&CAO**)** monitors proper accountal and disposal of scrap. At Divisional level the Divisional Railway Manager (DRM) is assisted by Divisional Officers of user departments regarding offering of scrap for sale and its disposal.

The Performance Audit No. 8 of 2008 (Railways) highlighted the results of review of Scrap Management in Indian Railways, wherein issues regarding shortfall in realization of Permanent Way scrap against estimated quantities, inadequacies in assessment of weight of scrap leading to short accountal, delays in disposal of scrap, non-clearance of debits/ credit balances from Scrap Sale Suspense Account, delays in writing back adjustment for condemned rolling stock etc were highlighted. The need to evolve an adequate procedure to assess arising of scrap for fixation of targets for collection and facilities for proper weighment at sender's point and accountal in store depot was stressed upon. In the present audit, it was seen that, most of these issues continue to persist. These are discussed in Para 5.1.2 below.

The main aim of the study was thus to see whether the released materials[223] were efficiently identified to avoid deterioration, scrap was disposed off timely with minimum delay in a transparent manner and that there was an internal control mechanism in place to monitor the same.

[222] Four departments viz. Engineering, Mechanical, Electrical, Signal & Telecommunication are the main user departments

[223] Materials released in manufacturing or maintenance activities of Railways and dead surplus store items

The provisions prescribed in various codes and manuals[224] and guidelines and instructions issued by the Railway Board were the main audit criteria. The issues reviewed in audit included identification, collection and sale of scrap relating to Permanent Way Material (mainly rails), wagons, coaches, locos (including trolleys, wheels and axles) and store items in selected workshops, divisions, construction organization and store depots for the period 2010-11 to 2012-13.

The details of sample selected and reviewed are given at ***Appendix II***.

5.1.2 Audit Findings

5.1.2.1 Planning

Scrap consist of Dead Surplus of Store Depot; Permanent Way material released during CTR/TRR/GC[225] works and other regular track maintenance works, and rolling stock condemned by Mechanical or Electrical department. Para 2402 of IRSC provides that a detailed and unified schedule of scrap items should be maintained by each Zonal Administration. In preparing the schedule the use to which the material could be put by the likely purchasers should be kept in view, so that the items may fetch a reasonable price in the auction sales. Scrap of different metals and alloys should be scheduled as far as possible under separate main headings, with suitable sub-headings describing the form in which the material is put up for sale.

Each Zone is required to intimate the quantity of expected scrap generation to Railway Board. Railway Board fixes targets (in terms of value) for sale of scrap for each Zone on the basis of expected scrap generation of respective Zones ***(Annexure II).***

Audit examination of targets of sale of scrap revealed that:

- The Railway Board revised the targets for sale of scrap of each zone after mid-term review of expected scrap generation. The targets were revised in at least 12 Zones and 2 Production Units in all the three years. Revision of targets of scrap sale was made both in the upward and downward direction after giving due consideration to the requests of Zonal Railways.
- The Zones generally achieved the final targets fixed. The achievement over and above the targets ranged up to 39.86 *per cent* in 2010-11 (ECoR), 33.25 *per cent* in 2011-12 (WCR) and 23 *per cent* in 2012-13 (MR). The main reasons for achievement over and above targets as given by railways were more scrap generation than estimated and/or increase in price of scrap. Results of audit check as discussed in Para 5.1.2.2.1 also revealed that estimation of scrap generation was not done properly, which was resulting in generation of more scrap than estimated.
- Percentage of shortfall ranged up to 27.3 *per cent* in 2010-11 (NCR) and 15.14 *per cent* in 2012-13 (WR). The only Zone with shortfall in 2011-12 was SECR (11.25 *per cent*). The reasons for such shortfall were less arising of scrap, less

[224] Indian Railway Code for Stores Department (IRSC), Indian Railway Accounts Code, Indian Railway Financial Code-Vol. I, Indian Railway Mechanical Code
[225] Complete track Renewal /Thorough Rail Renewal/Gauge Conversion

offering of scrap materials to Stores Department for disposal and rejection by auctioning authority as the quoted price was less than the Reserve Price. Results of audit check as discussed in Paras 5.1.2.2., 5.1.2.3, 5.1.2.4.3 also showed that there were delays at various stages from identification to collection and disposal of scrap.

- In Production Units, achievement over and above targets ranged from 42.46 *per cent* to 62.02 *per cent* in DLW, Varanasi during the period of review.

As the targets for sale of scrap were fixed only in terms of value and not quantity and the price of sale of scrap varied in different Zones, fixation of targets and assessing achievement vis-à-vis these targets did not provide a uniform basis of comparison. However, higher achievement over and above targets indicated that fixation of targets on the basis of expected generation was not realistic.

5.1.2.2 Identification of Scrap

Para 2401of IRSC defines scrap as material of different kinds no longer useful for the purpose for which it was originally procured. It should be distinguished from other stores and component parts which can be utilised after repair or renovation. Occasionally scrap may consist of second-hand or even new material which the Railways cannot consume themselves. These stores may be in a state of excellent repair and command a fair price in the market not associated with scrap. Therefore, proper identification of scrap available from different sources is necessary.

5.1.2.2.1 Scrap is generated during Complete Track Renewal (CTR), Thorough Rail Renewal (TRR) or Gauge Conversion (GC) works. During preparation of estimate of CTR/TRR and GC work, the projected released materials should tally with the actual release of materials after completion of the work. Para 320 (4) of Permanent Way Manual provides that identification of scrap of Permanent Way material should be done during foot survey and actual observations recorded jointly by PWI[226] and ISA[227]/Stock Verifier. Over-aged and under-aged rolling stock is condemned on age-cum-condition basis. Rolling stock is identified as scrap after it is condemned by competent authority i.e. Chief Mechanical Engineer/Chief Electrical Engineer or Railway Board as the case may be.

Audit reviewed records of 32 CTR works, 33 TRR work and 13 Gauge Conversion works completed during the period 2010-13 over all the Zones ***(Annexure III)*** to compare the estimated scrap arisings with the scarp actually generated. It was observed that

- The scrap released varied substantially against the expected generation in all the Zones.
- Only in 13 works (18 *per cent*) out of 78, the actual released material matched with the projected figures.
- In the remaining 65 works there was either an excess or shortage of actual released material as compared to estimated released material.

[226] Permanent Way Inspector presently designated as Section Engineer (P Way)
[227] Inspector of Store Accounts

- In 40 works there were shortfalls against the estimated quantities of rails.
- In 23 works there were excesses against the quantities projected.
- In two cases, the account for released material was yet to be given by the contractor.

- In CTR works, a maximum shortage of 984 MT was noticed in SER[228] and a maximum excess of 898.63 MT was noticed in SECR[229].
- In TRR works, a maximum shortage of 1977 MT was found in SWR[230] and maximum excess of 572.526 MT was found in ER[231].
- In GC works, a maximum shortage of 2304.006 MT was found in SR[232] and a maximum excess of 1742.081 MT in SECR[233].
- Incorrect estimation of the scope of work to be done and incorrect estimation of type of released material were the two main reasons which resulted in incorrect estimation of released material in 25 (32 *per cent*) of the 78 works reviewed in audit.

A few interesting cases of excess/shortfall in actual vis-à-vis estimated released material noticed are discussed below:

- In SCR, in respect of GC work of Dharmavaram-Pakala section the actual release of scrap from the work was more than the projected scrap by 1082.33 MT valuing ` 1.80 crore. Audit observed that quantity of 52 kg and 90 R rails[234] were not taken into account while estimating the scrap of the GC work.
- In SR, in case of TRR-P[235] for 6.042 KMs between 'Chennai-Arakkonam', it was estimated that 52 kg rails would be released i.e. rails for which weight of 1 meter of rail is 52 kg. Instead, 60 kg rails were released i.e. rails for which weight of 1 meter of rail is 60 kg. This indicated non-compliance of general procedure of estimation.
- In SER, when the Gauge Conversion work of Rupsa-Bangriposi (90 kms) was taken up, the train movement was suspended in 2001 in Bhanjpur-Bangriposi (34 kms) narrow gauge section. The work was started after six years (April 2007) and completed during 2009-10. It was observed that as against estimated released rails of 68000 meters, only 52786.29 meters of rails were released as seen from the records of Construction Department. Joint Inspection of railway lines between Bhanjpur-Bangriposi (34 kms) by PWI and Inspector of Stores Accounts/stock verifier revealed that another 10016.97 meter rails were stolen before the lines were dismantled by the contractor. Though theft

[228] Km 243.22-252.60(UP) Km 245.22- 254.16(DN) between Salgajhari-Adityapurand Km 260/4-[260] 18 Dn Main line in Gamharia Yard
[229] Est. No. 16/R/09(Revenue 89/R/10)
[230] Mysore Division –TRR(S) of existing 90 R for length of 24.35 Km
[231] TRR(P) on UP/CCR line between DDI-RCD
[232] GC between VM-KPD-161 KM
[233] Est. No. Pt-I- 01/G-BTC/GC/99(Rev. G-BTC/GCE-2010)
[234] 52 kgs rails mean weight of 1 m rails is 52 kgs, 90R rails mean weight of 1 m rail is 90 pounds
[235] Thorough Rail Renewal (Primary) abbreviated as TRR(P) where only new materials are used

report was lodged with RPF, Balasore in 2008, it was not accepted by RPF on the ground that the missing rails were found to be very old and it could not be ascertained as to when the rails went missing. Thus, delay in finalizing a contractor for completion of Gauge Conversion work after suspension of train movement, led to theft and non accountal of 15213.71 meter (359.65 MT) rails amounting to probable loss of ` 0.94 crore[236].

- During inspection by audit in SER (August 2013) old and unusable stock of new (2851 nos bearing plate) and second hand (1134.26 meter of 90R rail) material were lying at Section Engineer (Permanent way), Sini office in Chakradharpur Division since 2000 and 2009 respectively. These were yet to be identified for disposal.

5.1.2.2.2 Para of 2219 of the IRSC classifies store items as "Dead Surplus" only if, (i) they have not been issued for a period of 24 months and are also not likely to be utilized on any Railway within the next two years, and, (ii) have been duly inspected and declared Surplus by a Survey Committee. Such items of stores may be surveyed, reclassified and promptly disposed off. The position of non-moving items over of 36 months[237] as of 31 March 2013 over 40 Scrap Yards/ Stores Depot of Indian Railways was reviewed. It was observed that 3714 surplus store items valuing ` 37.98 crore had not moved over 36 months from the depot.

- Out of 3714 surplus items, for 3005 items valuing `27.24 crore, no Survey Committee had been formed (March 2013).
- Only in case of 709 items, the Survey Committee formed with members from user department, stores department and account department had declared only 60 items, valuing `0.48 crore as scrap. In respect of 70 items (NR-60, NER-2 and SER-8) the cases were under process with the Survey Committee. In respect of 67 items, the Survey Committee had done verification, but alternative uses of these items were being explored before declaring them as scarp. In remaining 512 items the Survey Committees were yet to take a decision.
- In Railway Coach Factory (RCF), Kapurthala (September 2013) it was seen that surplus stores valuing `23 crore were generated either due to change in design, specification or due to change in the Production Programme till date (March 2013). These stores items had not been surveyed by a Survey Committee during the last three years.

Wide variations in actual release of rails as compared to estimated projections indicated that the estimates were not prepared as per the field/track conditions and by following the laid down procedure of foot survey. Release of less scrap than that estimated indicates a high risk of theft/pilferage and resulting in the loss of revenue. Also there were delays in survey of surplus stores and non declaration of

[236] @ ` 26,000/-per MT

[237] Allowing another 12 months time for completion of survey

non moving items. These were indicative of deficiencies in the system of identification of scrap from various track works and in stores depots.

5.1.2.3 Collection of scrap by Stores Department

Store items and condemned rolling stock identified as scrap are collected from store depots and sent to scrap yards for further disposal. Permanent Way scrap is kept in convenient places i.e. rails are kept beside the railway lines and switches, fastenings kept in PWI store. Para 1601 and 1539 of IRSC stipulates that stores identified as scrap may be sent to designated Stores Depot through Advice Notes for final disposal. Care should be taken to reconcile the quantities returned through Advice Notes at the depot.

Audit examination of Advice Notes at 39 depots revealed that:

- In 18 Depots[238] 206.311 MT and 1567 Nos. of store items were received with shortages valuing ` 0.68 crore.
- In five[239] Zones, shortages occurred due to wrong weight assessment by the consignor and non-availability/in-adequate availability of weighing facilities at the consignor end. Where weighing facilities were not available, the weight was being arrived at on the basis of visual inspection and approximation. This increased the risk of pilferage/theft of the material on the way to the Store Depot.
- In SER, one Store Depot informed that due to non-availability of weighing machine at Workshop, the scrap material was being sent with a blank Advice Note, which is filled at the Depot, where weighing facility is available. In SR, at one[240] Store Depot, quantity of returned store was not filled in on the Advice Notes by the senders. Non-weighment of scarp material on way to Store Dept thus increased the risk of pilferage/theft.
- Railway Board (January 2010 and November 2012) advised Zonal Railways/Production Units to use modern technological tools such as digital cameras/ CCTV to improve efficiency in scrap disposal system and to convey message of watchful eye as a deterrent to manipulations. Review of position of such security measures in nine Zones[241] and three PUs[242] revealed that digital cameras were provided only in four Zonal Railways (SCR, SR, ER and MR) and CCTVs were provided in only in one Zonal Railway (CR) and in one production unit (ICF/ Chennai) till the time of audit (August 2013).

It was also observed that no timelines were prescribed for various stages of management of scrap of rolling stock viz. condemnation, intimation, preparation of lots and disposal. The average time taken from condemnation by the user

[238] In WR(DHD, SBI, MX,PRTN), in CR(HBHR, Manmad), in SCR(Lallaguda), in SECR(GSD/Raipur), in SR(GSD/PER), in NR(SSB,AMV), in ECR(SPJ), in ER (Belur, Jamalpur) in NER(GKP), In ECoR(MCS/BBS), in SER(Scrap Yard/KGP, R-Yard/KGP)
[239] SER, ER, SCR, SWR, and WR
[240] GSD/ PER
[241] NCR, SR, ER, SCR, CR, ECR, SWR, SECR and MR
[242] CLW, DLW and ICF

Departments[243] to intimation to Stores Department was 66 days and 96 days from the date of intimation to Stores Department to sale of lot. However, the maximum time taken was 1232 days in CR (in one case of wagons), 5891 days in SR (in one case of coaches) and 1447 days in WCR (in one case of locos).

Absence of weighment facilities at senders' locations was a weak link, which enhanced risk of theft/pilferage of stores on the way to scrap depots. There were also delays in sending intimations of condemned rolling stock by the user departments to the Stores Department. Further, non disposal of unserviceable released items not only led to blockage of revenue, but also financial loss due to deterioration and reduction in value of scrap.

5.1.2.4 Disposal of Scrap

After identification and collection of scrap, lots for similar items are formed in the Scrap Yard and reserve price fixed by the COS for all items and auction for lots are arranged. Lots of Rails are arranged on 'as is where is' basis and fastenings of Permanent Way materials are kept in Section Engineer (Way) premises where lots are formed for auction. Rolling stock is also formed into lots in Scrap Yards. After auction the reclaimable fittings of rolling stock such as wheel sets, axle boxes, springs etc. are separated by cutting of the rolling stock.

5.1.2.4.1 Sale of Lots

As per provisions of IRSC the Railway Administration should ensure that there is no variation in the quantities of lots as indicated in the Register of lots and quantity mentioned in the Auction Catalogue before conducting auction and effecting deliveries.

Review in audit revealed that out of 87520 lots across 13 Zones[244] and five Production Units[245] sold during the 2010-13, in 303 lots, scrap weighing 2849.69 MT and 690 items valuing `6.75 crore was found short at the time of delivery.

The Railway Administration attributed the shortages to visual measurement of lots (SER), deliveries found short at Scrap Depot, measurement of weight on assumption or average basis (NER, WCR), theft (SECR), measurement of weight on approximate basis due to non-availability of weighing facilities with the stock holders (WR) and mixing of different materials and inadequate source segregation at the shop level (ICF). The above replies confirm failure of Railway Administration in ensuring a robust internal control system to prevent pilferage/theft and consequent loss to Indian Railways.

5.1.2.4.2 Lots sold below Reserve Price

Para 2411 (2) of IRSC provides that Reserved Prices should be fixed by the COS or Depot Officer on the basis of bids obtained at past auctions and any other information available. The basis for fixation of Reserve Price is the rate obtained for the particular item in previous auction, prevailing market rate, physical

[243] Mechanical and Electrical departments
[244] SER, CR, NER, NWR, SECR, SWR, WCR, WR, SR, NCR, NR, ECR, Metro Rail
[245] ICF, RWF, CLW, DLW and DMW

condition of the lot, location and transportability of lot. As per Railway Board's instructions the auctioning authority has the discretion to sell the item below the Reserve Price up to 10 *per cent*. Bids lower than the Reserve Price may, however, be accepted by the Depot Officer where found expedient provided the Depot Officer records his reasons in writing.

An attempt was made to review the basis of fixation of Reserve Price by selection of 50 lots in a year randomly in Zones and Production units. However, the records of calculation of reserve price for various lots were not made available to audit. Hence, audit could not verify the basis adopted for fixation of the reserve price. The Railway Administration refused to furnish the reserve price for the sold lots quoting confidentiality of the same in 12 Zones[246] and three production units (DLW, ICF and RCF). In four Zones (CR, NFR, SER, SECR) and two Production Units (CLW and RWF), where information was furnished, it was observed that no lot was sold at more than 10 *per cent* below the reserve price. Of the lots checked, in 32 out of 150 (CR), 11 out of 150 (SECR),157 out of 157(SER), 11 out of 482(CLW) and 2 out of 50 (RWF) were sold below the reserve price.

5.1.2.4.3 Delay in disposal of Lots

Para 2410 of IRSC provides that all scrap materials accumulated for auction sale should be separated into convenient lot sizes that would suit the bidders at auctions. The position of lots remaining undisposed for more than six months as on 31 March of the last three years was as follows:

Table 5.1 - Lots remaining un-disposed for more than 6 months

As on	Scrap	Value of lots lying un-disposed (` in crore)
31 March2011	10542.331 MT scrap including 6 coaches, 9 wagons and other 2013 items	25.70
31 March 2012	8776.046 MT scrap including 4 coaches, 6 wagons, 9 vehicles and other 854 items	17.36
31 March 2013	17177.273 MT scrap including 31 wagons, 10 vehicles and other items	42.09

(Source: Lot Register of selected Scrap Yards of concerned Zonal Railway)

As can be seen there was a sharp increase in scrap pending disposal as on 31st March 2013 of about 64 *per cent* over that pending disposal in March 2011. Non receipt of bids/bids being less than the reserve price/non availability of approach roads were the main reasons for the lots remaining undisposed for over 6 months in seven Zones[247].

During test check it was further observed that:

- In SR, permanent way scrap weighing 1143.81 MT (` 3.24 crore) remained undisposed for more than six months. The main reasons attributed for non

Fig. 5.1 - Scrap of rails lying in between tracks in Perambur

[246] ER, NWR, SCR, SWR, WCR, WR, SR, ECoR, NR, ECR, NCR, NER
[247] SER, CR, WCR, WR, ECoR, NR, and ECR

disposal of rails were that the rails were placed between tracks, water logging, lack of road approach, usability of crane and lead distance.

- In NR, various type of P-way ferrous materials (450.23MT rails etc & 1406 sleepers) valuing `1.16 crore generated from renewal works and declared unserviceable during June 2010 to December 2012 remained undisposed till July 2013 for periods ranging from 8 to 38 months. Also, engineering scrap of 175.176 MT of 52kg rails[248] and 30.090 MT of wrought iron valuing `60.62 lakh that was offered for disposal in December 2012 at Lucknow Division remained undisposed till July 2013.
- In ECR at Obra Thermal Power Station (OTPS) two rakes consisting of 143 tank wagons were brought to Obra B yard for loading of ash slurry in February 2009 and August 2009. These wagons were not suitable for loading Ash Slurry. All these 143 wagons except wheel and axle were condemned on 27th December 2010. These have still not been auctioned (March 2014). The reclaimable wheels and axles of these 143 wagons were kept at '"B"' Yard of Obra since December 2010. No decision had been taken to despatch these wheels and axles for recycling.

Audit examination of records of Mechanical and Store Departments revealed that there is no time line prescribed for disposal of condemned rolling stock. There was a wide variation over individual zones in the time taken to dispose off scrap rolling stock. The maximum time taken for sale of condemned rolling stock from the date of condemnation was 1247 days in CR (in one case of wagons), 6149 days in SR (in one case of coaches), 1572 days in WCR (in one case of locos).

Delay in disposal of lots resulted in accumulation of unsold lots in Zonal Railways. Audit examination of records relating to auctions held during the period of audit revealed that the percentage of unsold lots checked in all Zones varied from 3.5 *per cent* during 2010-11 in NFR to 100 *per cent* in NR during 2011-12 and in SECR and RWF, Bengaluru during 2012-13. The percentage of unsold lots in Zonal Railways varied from 3.50 *per cent* in NFR to 97.62 *per cent* in RWF, Bengaluru during 2010-11, from 0.40 *per cent* in ECoR to 100 *per cent* in NR during 2011-12 and from 4.99 *per cent* in ECoR to 100 *per cent* in SECR and RWF, Bengaluru during 2012-13. In thirteen[249] Zones and four[250] Production Units the percentage of unsold lots was more than 40 *per cent*. However, in Metro Railway, Kolkata the percentage of unsold lots was 21 *per cent* in 2012-13. The Railway Administration attributed unsold lots to non receipt of bids and/or receipt of bids at less than reserve price.

5.1.2.4.4 Utilization of scrap by Railways

Para 2404 of IRSC provides that scrap suitable for use as raw materials for foundries in railway workshops should invariably be reserved for such use, only the excess over such requirements should be sold. In house utilization of scrap was also emphasized by Minister of Railways in his Budget Speech for 2004-05.

[248] 52 Kg Rails – type of rails, for which one metre weighs 52 Kg
[249] SCR, NWR, WR,WCR, SCER, SR, NR,SWR,NCR, ECR, SER, NER and Metro Rail
[250] CLW, DLW, RWF and DMW

The demand of scrap rails by Wheel Manufacturing Plant (WMP)/Chapra and Rail Wheel Factory (RWF)/ Bangalore and supply of rails against the same by respective Zones is given below:

Table 5.2 - Demand vis-à-vis supply of scrap rails

Year	Demand of scrap rails(MT)	Supply by respective Railways(MT)	Difference(+/-)
2010-11	65191	21874.695	**(-)**66 *per cent*
2011-12	33413	16911.747	**(-)**49 *per cent*
2012-13	52309.725	62163.969	**(+)**19 *per cent.*

(Source: Individual requisitions)

It was seen that though sufficient quantity of rail scrap was generated to fulfill the demand of WMP/Chapra and RWF/Bangalore seven Zones[251] sold the scrap locally at a rate which was 2 *per cent* (SWR) to 26 *per cent* (ER) lower than the rate offered by the above Railway Manufacturing Plants. Thus, sale to private parties and non-supply of demanded rails to WMP/Chapra and RWF/Bangalore resulted in loss of `21.11 crore.

5.1.2.4.5 Lifting of Scrap

Railway Board prescribes (May 2012) that free delivery time shall be a maximum of 50 days from the date of auction. The time limit can be extended up to 65 days by COS/CMM. However, beyond 65 days, delivery can be given only after payment of ground rent. Audit reviewed the time taken from the date of auction to the date of lifting of scrap and observed that the minimum and maximum time taken from date of auction to the date of lifting of scrap rails were 1 day in NWR and 369 days in SCR respectively. Out of 1370 lots auctioned, in 143 cases material was lifted beyond the permissible time of 65 days. However, in only 10 cases ground rent was recovered and in 133 cases ground rent was not recovered. The total unrecoverable amount was estimated as `3.52 crore.

5.1.2.5 Monitoring and Internal Control Mechanism

The existence of an effective Internal Control Mechanism system plays an important role in preventing and detecting irregularities/fraud in disposal of scrap.

5.1.2.5.1 Stock verification of scrap material at Scrap Depots

Para 3202 of IRSC Clause 4.4 provides for annual stock verification of all items that had no issue for 12 months and above, once in a year. The stores should be verified by Stock Verifiers of the Accounts Department as per scheduled programme. While reiterating these instructions (February 2010), Railway Board stated that the Central Vigilance Commission (CVC) has instructed that the Railways should ensure mandatory verification of stock held in stores annually. Review of records in 39 Store Depots ***(Annexure IV)***, where released materials/scrap are kept for auction revealed that:

[251] SER, ECR, ER, SCR, SWR, SR and NR

- In 17 Stores Depots over ten[252] Zones and two[253] Production Units stock verification was conducted every year during the review period.
- In 17 Store Depots over ten[254] Zones, no stock verification of scrap was carried out during the period of review.
- In NER (Gorakhpur Depot), CLW (CRJ) and RWF/YNK (GSD) stock verification was conducted in two of the three years under review. In NWR (BKN) and NFR (Sales Depot, NJP) stock verification was conducted only once during the review period.

The Railway Administration attributed the deficiencies in conducting stock-verification as per norms to unverifiable condition of material (mix material) (WCR), non-cooperation by the store unit (NWR, NFR, CLW) and improper information displayed in MMIS[255] (NWR,), absence of stock-verifier (SWR and CLW) and non-availability of weighing facilities (CLW).

Thus, despite CVC's recommendation for mandatory verification of stocks held in stores, the Railway Board failed to ensure that Zones were conducting stock verification of released/scrap materials as per laid down norms.

5.1.2.5.2 Non clearance of debit/ credit balances from Scrap Sales Suspense Account

Transactions which cannot be booked to final heads of account for any reason or due to non-availability of detailed particulars are booked under Suspense Head temporarily, till they can be adjusted to their final head of account when the detailed particulars are available. Huge outstanding in suspense head would indicate delays in settlement of transactions and inaccurate reflection of transactions in accounts. Till the time suspense balances are cleared, the debit would not be charged to the respective expenditure head and credit would not be charged to the final revenue head. Review of Scrap Sales Suspense Account as on 31st March 2013 revealed that:

- Debit balance of `688.71 crore were pending for over three years for want of relevant credit particulars in six Zones[256] and two Production Units[257]. Debit suspense of `685.67 crore in SWR was the highest.
- Credit balance of `712.04 crore were outstanding for over three years for want of relevant sales issue notes in eight Zones[258] and two Production Units[259]

[252] NWR (JU depot), WR (MX, DHD, SBI and PRTN depot), CR (Parel depot), SCR (Lallaguda depot), SR(GSD/PER and SSD/PTJ), NR (SSB, JUDW and AMV depot), SWR (Mysore depot), NER (Izatnagar depot), NFR (Sales depot Pandu, DBRT), SER (R-Yard and Scrap Yard)
[253] DLW (Scrap Ward), ICF (Shell depot)
[254] Metro Rail(Noapara depot), WCR (WRS-Kota and CRWS-Bhopal depot), CR (Matunga, Manmad and Hajibunder),SECR (GSD/Raipur), SR (GSD and SSD/GOC), SWR (Hubli depot), NCR (JHS and CNB depot), ECR(SPJ stores depot), ER (Belur, Jamalpur and Halisahar depot) and NFR (Sales depot NBQ)
[255] Material Management Information System
[256] NWR, WR, NR,SWR, NER and SER
[257] RCF and DMW
[258] NWR, WR, SECR, SR, NR,SWR, NER and SER
[259] RCF and DMW

Credit suspense of `697 crore was the highest in SWR. In SR, a sum of ` 0.65 crore was outstanding for over three years (March 2013) due to pendency of court cases, one case was outstanding for more than 13 years.

Non-clearance of debit/credit balance under suspense head indicated inadequate follow-up by respective units and weak internal control mechanism.

5.1.2.5.3 Avoidable payment of Dividend

An asset created from Capital i.e. support from the Central Government carries a dividend payable by the railways to Central Government. The rate of such a dividend was 6 *per cent*, 5 *per cent* and 4 *per cent* during the years 2010-11, 2011-12 and 2012-13 respectively. When such an asset is disposed off after being declared as scrap, the original cost of the same is required to be written back to Capital, so that the total Capital at charge is reduced, thereby reducing the amount payable by railways towards dividend to GOI. Therefore, increase in dividend payable by railways has an impact on its profitability. In the event of condemnation of rolling stock funded from Capital, an estimate should be prepared writing down the original cost of such stock from Capital.

Examination of write back adjustments by audit revealed that:

- Write-back adjustment of 1110 coaches, 13236 wagons and 144 locos of seven Zones[260] were made in the financial years subsequent to condemnation.
- In SCR, write-back adjustments were done on quarterly review basis. In SWR, write-back adjustments were made within one month to 12 months of condemnation of rolling stock.
- In eight Zones[261] no write-back adjustment of rolling stocks were made during 2010-13 in spite of condemnation of rolling stocks were made. In WR out of four Divisions, write-back adjustment of rolling stocks were made in only two.

Due to delay in write-back adjustment/non-adjustment of condemned rolling stock viz. 122 coaches, 650 wagons and 70 locos (574 coaches, 2973 wagons and 108 locos were condemned during 2012-13 for which write back adjustment was due in 2013-14 and the dividend has not been calculated) the Railway Administration had to pay avoidable dividend of `7.80 crore.

Thus, Internal control mechanism was deficient as all Zones were not complying with codal provisions regarding physical verification. Zones also failed to follow the norms regarding write back adjustment of rolling stock procured from capital and this led to payment of avoidable dividend of ` 7.80 core.

5.1.3 Conclusion

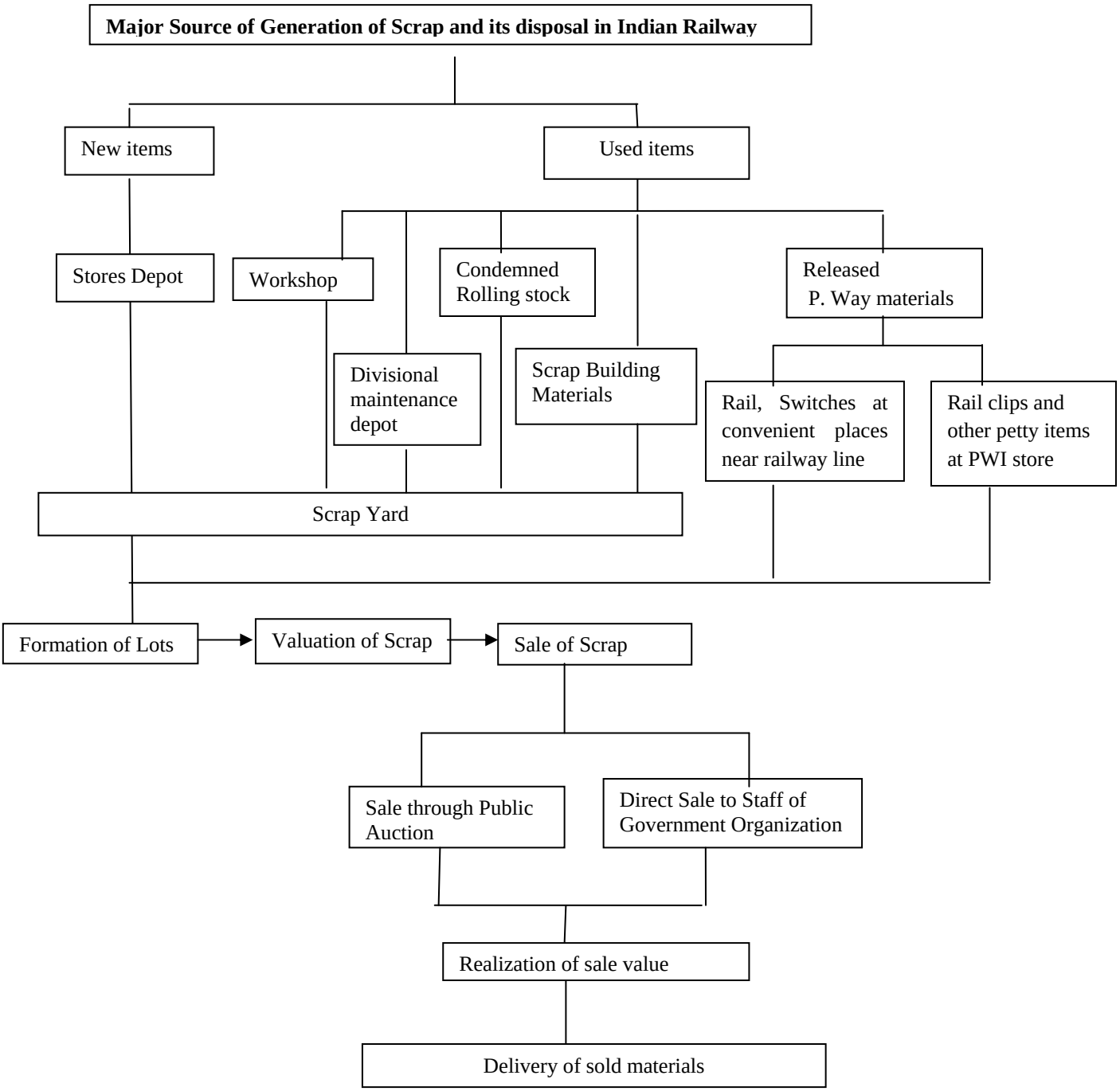
The planning and estimation of scrap generation was not realistic. Wide variations in release of rails as compared to estimated projections in selected works indicated

[260] NWR, CR, ER, NER, SCR, SWR and SER
[261] WR, WCR, SECR, SR, NR, NCR, ECoR and ECR

that the estimates were not prepared as per the field/track conditions. There were delays in identification and collection of scrap over various Zones. Absence of weighment facilities at senders' locations was another weak link which enhanced risk of theft/pilferage of stores on the way to scrap depots. Lots formed for the purpose of disposal of scrap were found short at the time of delivery. There were delays in disposal of lots and thus accumulation of unsold lots in Zonal Railways. Most of the Zonal Railways and Production Units did not furnish the reserve price of sold lots to audit. As a result of non-sharing of the basis of fixation of reserve price audit could not compare the reserve prices fixed over various zones and therefore could not assess the basis of fixation of reserve price. Stock verification was also not done as per norms in more than 50 *per cent* of the stores depots checked.

Thus, the system of assessment, retrieval and disposal of scrap and the monitoring mechanism in place was deficient and delays at various levels enhanced the risk of deterioration of scrap, decrease in value and theft and pilferages.

Appendix I
Flow Chart of Scrap



Appendix II

No. of Completed CTR/TRR/GC works in Zones selected for audit

Zone	No. of CTR	No. of TRR	No. of GC
NWR	2	2	1
WR	2	2	1
WCR	2	2	-
CR	2	2	1
SCR	2	2	1
SECR	3	1	1
SR	1	3	1
NR	2	2	-
SWR	1	3	1
NCR	2	-	1
ECR	4	-	1
ER	2	2	1
NER	1	3	1
ECOR	2	2	1
NFR	-	4	1
SER	3	1	-
CLW	1	-	-
Metro	-	2	-
Total	**32**	**33**	**13**

Appendix III

Store Depots selected in Zones for Audit

Zone	No. of Scrap Yard	Scrap Yard/Depot
CR	4	(1)Parel,(2) Matunga, (3) Manmad, (4) Hajibunder
ER	3	(1)Belur, (2) Halisahar, (3) Jamalpur
NCR	2	(1) Jhansi, (2) Kanpur
NER	2	(1)Gorakhpur, (2) Izatnagar
NFR	4	(1)New Bongaigoan, (2) Pandu, (3) Dibrugarh, (4) New-Jalpaiguri
NR	3	(1) Shakurbasti, (2) JUDW, (3) AMV
NWR	3	(1)Bikaner, (2) Jodhpur,(3) Ajmer
SCR	1	(1)Lallaguda,
SECR	1	(1)Raipur
SER	1	(1)Kharagpur
ECoR	1	(1)Mancheswar
SWR	2	(1)Hubli, (2) Mysour
WCR	2	(1)Bhupal, (2) Kota
WR	4	(1)Dahod, (2) Mahalaxmi, (3) Pratapnagar, (4) Sabarmati
ECR	1	(1)Samastipur
SR	1	(1)Perambur
Metro	1	(1)Noapara
ICF	1	(1)ICF Shell
DLW	1	(1)Scrap Ward
RWF/ Yalahanka	1	(1)Scrap Yard
CLW	1	(1)Scrap Yard
DMW/ Patiala	-	
ICF/Kapurthala	-	
Total	**40**	

5.2 Working of Integral Coach Factory, Chennai

5.2.1 Introduction

Integral Coach Factory (ICF) at Perambur, Chennai in Tamilnadu, established in 1955 is a premier coach production unit of Indian Railways. ICF's business span covers design, development and manufacture of coaches. Its annual production capacity was fixed at 1000 coaches (1990-91) that was enhanced to 1250 coaches (2010-11) and to 1500 coaches (2011-12). Around 1500 to 1600 coaches of various types consisting of conventional coaches[262], Heavy build coaches[263] and LHB[264] design light weight stainless steel coaches having ICF bogies[265] are manufactured every year in ICF. It has two separate units-viz. Shell division and Furnishing division. The Shell division manufactures bare shells and Furnishing division turns the bare shells into full-fledged coaches by providing flooring, panelling, wiring, seats, windows, fans and lights.

There are two more coach production units in India viz. Rail Coach Factory (RCF) at Kapurthala in Punjab (Established in 1986) and Rail Coach Factory (RCF) at Lalganj, Raebareli in Uttar Pradesh (Established in 2012). RCF, Kapurthala is the largest coach Production unit with coach manufacturing capacity of 1600 coaches every year. The RCF, Raebareli will manufacture modernised light weight stainless steel LHB design coaches, specifically Anubhuti coaches for Rajdhani and Shatabdi trains and its expected manufacturing capacity is 1000 coaches every year.

ICF is headed by a General Manager (GM). He reports to Member Mechanical at Railway Board who is assisted by Additional Member (Production Units), Executive Director (Production Units) and Director (Production Units) posted in Production Unit & Workshop Directorate. GM (ICF) functions with the assistance of Chief Mechanical Engineer CME), Chief Electrical Engineer (CEE), Chief Engineer -Civil Works (CE), Controller of Stores (COS), Chief Personnel Officer (CPO) and Financial Adviser & Chief Accounts Officer (FA&CAO) and their subordinate officers.

In this paragraph, Audit reviewed the records of the ICF with the objectives to assess whether

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[262] Conventional coaches are normal and routine types of non-air-conditioned and air conditioned coaches. Non-air conditioned conventional coaches include second class General sitting coaches (SG GS & SG GSCZ,), second class Sleeper coaches (SG GSCN), second class with Brake van and Luggage rock (SG SLR) and second class cum Brake van (SG SR) etc. Air conditioned coaches include AC chair car ((GS SCZ AC), AC chair car for Jan Shatabdi ((SG ACZ JS), AC first class Sleeper coach (SG FAC), AC second class two tier coaches (SG ACCW), AC first class cum second class two tier coaches (SG FACCW), Air conditioned chair car first class and second class, Double deckers etc.

[263] Heavy build coaches are either special types of coaches or coaches that are meant for specific purposes. These are Alternating Current Electric Multiple Unit coaches (AC EMU), mainline EMU coach (AC MEMU), Diesel Electric Multiple Unit coaches (DEMU), ACEMU coaches for Rail projects like Multi Modal Transport System (MMTS) and Mumbai Rail Vikas Corporation (MRVC), Special coaches for Palace on Wheels, Deccan Odessy, Self propelled Ultrasonic Rail Test (SPURT) car, Self propelled Accident Relief Tool Van Trailer (SPART) car etc.

[264] Linke Holfmann Busch Company

[265] AC second class two tier (SG ACCW LHB) coaches

- Production activities were planned and carried out economically and efficiently,
- Vendor development was effective and Inventory management was economical and efficient; and
- Human resource management was efficient and effective.

While reviewing the performance of ICF, norms and guidelines issued by the Railway Board from time to time in connection with finalization of Production programme, allowed times[266], provision of man power etc, directions/instructions in respect of designs and vendor development issued by RDSO[267] and RITES[268] etc., codal provisions[269] and content of various reports[270] were kept in consideration. The period covered in Audit was four years i.e. 2009-13. Records maintained in various units of ICF, Perambur were scrutinized.

5.2.2 Audit Findings

5.2.2.1 Production Management

5.2.2.1.1 Production planning and frequent changes in production programmes

Railway stock utilised on Railway tracks to run Passenger/ Goods services is termed as Rolling stock. It mainly includes various types of locomotives, coaches and wagons.

Audit reviewed the finalization of production programmes of ICF and observed the following:-

- In order to meet the requirement, Railway Board prepares and finalises every year the Rolling Stock Programme (RSP) of Production Units of Indian Railways which includes the quantum of Rolling stock to be procured /produced. Initially a Production Plan for five years is drawn at Railway Board which is followed by an annual RSP for every year. As per codal instructions[271], provisions for new rolling stock in the annual RSP is to be made at least two years in advance. It is necessary to match the requirement in each year of the plan period and also to provide lead time for the procurement of raw material by the Production Units.

[266] 'Allowed time' for a work is the time within which a worker shall complete an operation and earn bonus. This time would be normal time assessed plus other allowances like fatigue (25%), Contingency (12%), Bonus (33.33%) and Gauging (not on job)-5%.. It is expected that an average worker will complete an operation in 75% of the' allowed time' and earn 33.33% bonus.
[267] Research Design and Standard Organisation
[268] Rail India Technical and Economic Services
[269] Indian Railway Code for Mechanical Department (Workshops)
[270] High level safety review committee report/Study report of RITES
[271] Paragraph No.1503 of Indian Railway code for Mechanical department (Workshops)

The Annual Production Programmes of ICF were finalized belatedly by the Railway Board, the delay being one year for 2010-11 and around two years each for 2009-10, 2011-12 and 2012-13. The Railway Board frequently revised the production plans. In 2011-12 and 2012-13, the Railway Board revised the production plans twice and thrice respectively.

- Based on the above RSP approved by the Railway Board, the ICF Administration is required to prepare by the end of March every year their tentative internal production programme to facilitate material procurement.

  However, there was also a uniform delay of around one year in finalization of tentative internal production programmes by the ICF. Further, ICF revised the production programme on 27 occasions[272] during four years of review The main reasons stated by the ICF for frequent changes in finalized production programmes were-

  (i) Frequent changes in production programmes by the Railway Board;

  (ii) Delay in finalisation of design by the ICF in respect of new types of coaches planned for production by the Railway Board;

  (iii) Constraints in vendor development for coaches' components of latest technology;

  (iv) Requirement of more conventional GSCN[273] coaches in view of announcement of new trains in the budget.

Such delays in finalization of production plans and frequent revisions thereof at Railway Board and ICF were in contravention of codal provisions affecting adversely the production time line as commented in sub-paragraph 2.2 below.

5.2.2.1.2 Impact of frequent changes in production programmes

Audit noticed that frequent changes both by the Railway Board and ICF adversely affected the ICF functioning and production. It was observed that:

- Certain long lead items such as electric traction motors, electric equipments, wheel items, steel sheets and plates are utilised in the production of coaches. Procurement of these items require 12 to 18 months delivery period. Due to delay in finalisation of production programmes, the timely availability of such long lead items (wheel sets, electrics and traction motors) could not be ensured by ICF. Member (Electrical) observed (February 2011) that the procurement of electrics for 2010-11 and 2011-12 were placed by the ICF on M/ BHEL in May 2010 and December 2010 respectively involving delays of eight and three months. This was stated to be the main reason for shortfall in production (2010-11) of BG AC EMU rakes[274]. Moreover, the order placed for 2011-12 was also not for total requirement[275]. Audit observed that in respect of electrics for BG AC EMU rakes and in respect of traction motors for DEMU rakes the time taken in placement of purchase orders after receipt of indents was

[272] 5 times in 2009-10, 9 times in 2010-11, 4 times in 2011-12 and 9 times in 2012-13
[273] Second class sleeper coach.
[274] Eight rakes against the target of 16 rakes
[275] For 22 rakes against 40 rakes as per production programme

substantial[276]. This adversely impacted the production of heavy build coaches[277] during 2009-12; the shortage in production being 19, 09 and 15 *per cent* respectively.

- ICF was forced to resort to procurement action on more than one occasion for the same item of stores due to upward revision of requirement of stores. Audit test-checked randomly the records connected with the procurement of 80 items of stores during the period of review and noticed that in respect of 30 items of stores, procurement at higher rates on more than one occasion within a short interval had been made by the ICF involving extra expenditure of `4.64crore. (**Appendix-I**).
- The frequent changes in production programmes together with design changes resulted in heavy accumulation of inventory. At the end of March 2013, there was a movable surplus of `33.41 crore with the ICF. As many as 386 items of stores valuing `25.10 crore (119 Shell items – `8.79 crore and 267 Furnishing items – `16.31 crore) were lying for 12 to 24 months and 443 items valuing `8.31 crore (48 Shell items- value `1.51 crore and 395 Furnishing items value `6.80 crore) were lying for more than two years; thereby adding to the inventory cost. A test- check of eight non moving items out of these revealed that the inventory accumulation was due to change in production programme/ changes in designs **(Appendix II)**.

ICF stated (September 2013) that Rolling stock programme is centralized at Railway Board and only internal production programme is prepared by ICF. During discussion (February 2014) at Railway Board it was informed that revisions in RSPs were on account of variation in the actual requirement of coaches based on trains announced/ priorities to trains announced in the annual Railway Budget speech and to utilize production capacity available in ICF due to delay in production of coaches planned earlier.

It is felt in Audit that there is need for an informed synergy mechanism between Railway Board and ICF so that there is a definite plan for design, development and production for various types of coaches and the RSP is finalized timely leaving no space for any revision in proposed coaches/ change in designs. This would facilitate the initiation of activities in time for the procurement of important long lead items; thereby not hampering the production midway and accumulation of surplus inventory due to change in design etc.

5.2.2.1.3 Achievement of targets of production

It is important for a Production Unit that production targets fixed every year are achieved consistently.

[276] ranged between 47 to 262 days for electrics and from 162 to 225 days for traction motors,
[277] Alternating Current Electric Multiple Unit coach and Diesel Electric Multiple unit coach for Mumbai Rail Vikas Corporation.

As already stated, ICF manufactures different types of coaches viz conventional coaches, Heavy build coaches and specific LHB hybrid coaches[278]. Due to difference in designs, material/ equipments utilized and requirements to facilitate the passengers, the magnitude of work involved in the manufacture of different types of coaches varies. In order to bring the work contents for various coaches on a comparable platform, the work content of General Sitting (GS) Coach has been adopted as one unit i.e. basic unit or equated coach unit (ECU). The work contents for other types of coaches are measured in terms of this basic unit i.e. ECU.

Analysis by Audit of the fixation and achievement of targets revealed the following:-

Table 5.3

Year	Proposed by ICF		Accepted by Railway Board		Achievement	
	Number of Coaches	ECU	Number of Coaches	ECU	Number of Coaches	ECU
2009-10	1511	2265.25	1433	2171.37	1433	1968.00
2010-11	1600	2316.25	1500	2203.58	1503	2088.08
2011-12	1500	2029.25	1510	2098.60	1511	2014.60
2012-13	1564	2102.42	1585	2177.65	1620	2208.95

(Source- Tentative Annual Production Programme prepared by ICF, Annual Production Programme approved by Railway Board and Coach outturn sent by ICF to Railway Board)

The targets in terms of number of coaches approved by the Railway Board vis a vis actual outturn in respect of conventional coaches, heavy build coaches and specific LHB design hybrid coaches during 2009-13 were as under:-

Table 5.4

Type of coaches	2009-10		2010-11		2011-12		2012-13	
	Approved Target	Actual out turn	Approved target	Actual out turn	Approved target	Actual out turn	Approved target	Actual out turn
Conventional coaches	392	819	553	771	743	852	1051	1079
Heavy build coaches	756	608	807	732	747	633	489	521
Specific LHB Hybrid coaches	285	6	140	0	20	26	45	20
Total	1433	1433	1500	1503	1510	1511	1585	1620

(Source-Annual Production Programme approved by Railway Board and ICF's Outturn Statement)

From the above tables it may be seen that:

(I). Although the production targets in terms of number of coaches produced was achieved by the ICF, there was shortfall in achieving the approved annual production targets in terms of ECU, except for 2012-13.

[278] Linke Holfmann Busch (LHB) designed light weight stainless steel AC second class two tier coaches. These are called hybrid coaches as the bogie utilised was conventional ICF bogie instead of FIAT bogie.

Since the ECU is higher for heavy build coaches, the achievement of targets only in terms of number of coaches indicates that heavy build coaches were manufactured less than the target fixed and production of conventional coaches was more than the target fixed. Against the total target of 3289 Nos. heavy build coaches fixed by the Railway Board the actual total outturn by the ICF was 2546 coaches (77 *per cent*). On the other hand, conventional coaches were manufactured more than the target i.e. 3521 conventional coaches (129 *per cent*) against target of 2739 coaches.

The main constraints identified by the ICF for lower achievement of targeted production in terms of ECU were:

- Shortage of Wheel sets for heavy build coaches; and
- Delay in receipt of electric equipments and traction motors from BHEL and Crompton Greaves for heavy build coaches, the only two suppliers of these items.

Audit observed that the Working Group on Railway Programme for the Eleventh Five Year Plan (2007-12) emphasized the need for complete switch over from Schelierien Bogies used in conventional coaches to LHB design bogies as these were maintenance friendly and required lesser pit attention. High Level Safety Review Committee also recommended for complete switch over to LHB type coaches and stopping the production of conventional type coaches. However, due to shortage of Wheel sets and delay in receipt of electric equipments and traction motors during 2009-12 for heavy build coaches[279], ICF had to focus on the production of the conventional coaches. The relatively higher production of conventional coaches was, thus, against the objective of phasing out the conventional coaches. These constraints could have been addressed effectively, if the timely supply of long lead items of stores had been ensured through finalization of annual production programmes two years in advance as envisaged in the code[280].

(II). With an idea to overcome the problem of corrosion in conventional coaches made up of corten steel fixed on ICF bogie and to derive associate life cycle cost advantage of LHB design, Railway Board decided (November 2007) to switch over to the manufacture of Self Generating Stainless Steel shells of LHB design fitted on ICF bogie (instead of FIAT[281] bogie) i.e. Hybrid coaches. However, Railway Board decided to stop the production (August 2011) in view of their speed limitations and maintenance problems besides superiority of LHB coaches on FIAT bogie. In view of their speed limitations and safety aspects, their production has continued against the targets fixed so as to utilise the coach shells manufactured and material/ assemblies procured.

Audit observed that during 2009-12, the shortfall in production in ECU terms was 402.87 ECU. However, there was excess production to the extent of 31.30 ECU in 2012-13. The value of lesser outturn of coaches due to this net deficit in production (371.57 ECU) during 2009-13 on account of non-achievement of approved

[279] from M/s BHEL and M/s Crompton Greaves
[280] Indian Railway Code for Mechanical department (Workshops)
[281] FIAT- Fabbrica Italiana Automobili Torino

production plan in terms of ECU has been estimated at `760.71 crore. The minimum value of lesser outturn for General Sitting coach (SG GS), the cheapest coach with ECU as one, comes to `282.31 crore. The lesser outturn in ECU terms also resulted in lesser production of more demanded coaches, blocking up of investment on procured inventory, lesser utilisation of labour, increase in turnover ratio, besides distorting the budgetary process.

ICF stated (September 2013) that the changes in the approved production programmes were made with the approval of Railway Board. The fact remains that ICF was unable to meet the revised production targets fixed by Railway Board. Further, the delays in placement of orders were mainly on account of delayed finalization of production programmes. Consequently, in view of delay in completion of purchase process, ICF increased the production of conventional coaches even though such coaches are required to be phased out.

5.2.2.1.4. Comparison of cost of manufacture in ICF and RCF

Any production unit should aim at keeping manufacturing cost at the minimum. A comparison of cost of various inputs in two Organisations, like RCF/Kapurthala and ICF/ Chennai would be a useful guide to assess weaknesses in efficient production.

(i) A comparison of the unit cost of common types of Coaches manufactured by ICF and RCF during the period from 2009-13 revealed that ICF was incurring higher costs ranging from 12 to 30 *per cent* as detailed below:

Table 5.5 (`In lakh)

Year	Type of Coach	Out turn	Unit cost in ICF	Unit cost in RCF	Difference	Extra cost	Percentage of variation
2009-10	GS[282]	292	75.69	59.61	16.08	4695.36	26.98
	SCN[283]	180	80.12	66.14	13.98	2516.40	21.14
	SLR[284]	33	72.89	58.37	14.52	479.36	24.88
2010-11	GS	265	75.25	64.47	10.78	2856.70	16.72
	SCN	128	76.28	66.40	9.88	1264.64	14.88
	SLR	97	80.14	61.58	18.56	1800.32	30.14
2011-12	GS	375	78.68	69.00	9.68	3630.00	12.30
	SCN	183	84.84	71.95	12.89	2358.87	17.92
	SLR	85	83.21	67.37	15.84	1346.40	23.51
Total						**20948.05**	

(Source- ICF's Outturn Statement and Compendium of cost of coaches)

As can be seen from the above table, this resulted in extra expenditure of ` 209.48 crore over the period 2009-12.

(ii) The cost of production of a coach includes cost of labour, material, overheads and oncosts[285]. Audit analysed the extra cost of ` 209.48 crore cost

[282] General Sitting
[283] Sleeper Class
[284] Sleeper cum Luggage coach
[285] Oncosts include certain expenditure which cannot be charged direct to the cost of article manufactured or work done. Oncosts are categorised as (i) Proforma oncost i.e. all oncosts not

element-wise and observed that labour and overhead costs in ICF were much higher than in RCF as detailed below:

Table 5.6 (`In lakh)

Year	Type of coach	Labour		% higher	Material		Overheads		% higher	On costs	
		ICF	RCF		ICF	RCF	ICF	RCF		ICF	RCF
2009-10	GS	**9.86**	**3.78**	***161***	37.48	41.28	**25.49**	**11.92**	***114***	2.86	2.63
	SCN	**10.28**	**4.11**	***150***	39.22	46.15	**27.74**	**12.97**	***114***	2.88	2.91
	SLR	**10.75**	**3.82**	***181***	33.69	39.95	**25.61**	**12.03**	***113***	2.84	2.57
2010-11	GS	**10.67**	**4.05**	***163***	37.38	44.49	**24.33**	**13.56**	***79***	2.87	2.37
	SCN	**10.75**	**4.38**	***145***	39.08	45.71	**23.57**	**14.68**	***61***	2.88	1.63
	SLR	**11.26**	**4.07**	***177***	39.69	41.99	**26.29**	**13.63**	***93***	2.90	1.89
2011-12	GS	**10.19**	**5.81**	***75***	41.45	43.95	**24.90**	**17.14**	***45***	2.14	2.10
	SCN	**11.59**	**6.33**	***83***	42.60	44.76	**28.48**	**18.67**	***53***	2.17	2.19
	SLR	**11.93**	**5.84**	***104***	39.75	42.24	**29.37**	**17.24**	***70***	2.16	2.05

(Source- FA&CAO/ ICF Letter No.ACA/CR/Cost-Infn/649/616 dated 05 June 2012 to Director Finance (Railway Board) and Compendium of cost of coaches)

- The above table reveals that both labour and production overhead costs were higher for all coach types at ICF. Here, it would be important to mention that during 2011-12 both production units manufactured coaches of the same magnitude[286]. However, the total labour posted in ICF was 60 *per cent* more than that of RCF[287]. Thus, the RCF achieved the same level of coach production with about 37 *per cent* lesser staff.
- Audit noticed that the increased overheads were on account of cost of deployment of more number of EIWs[288] and maintenance of over aged assets. Out of total number of 1016 machines, 684 machines (67 *per cent*) were over-aged as they had outlived their normal codal life (15 years) as shown in the table below-

Table 5.7

Age of machine	Number of machines	Percentage (with respect to total machines)
Over 50 years	186	18.31
Between 26 and 50 years	237	23.32
Between 16 and 25 years	261	25.69
Total	684	

(Source- Data of Plant & Machinery in ICF)

included in cost of work done in Railway Workshops but which would be so included in commercial costing, (ii). General oncosts- all oncosts other than Proforma oncosts which is incurred in common with more than one shop or department within a Workshop and (iii) Shop oncost-all oncosts incurred within an accounting unit (shop, department or section).

[286] ICF manufactured 1511 coaches and RCF manufactured 1501 coaches

[287] Total labour in ICF-12226 and RCF-7645

[288] Essential Indirect Workers posted for doing subsidiary works

- RITES in their Study Report (May 2006) had observed that when too many types of coaches are taken up simultaneously for manufacture, advantage of mass production are lost. For optimum efficiency and ease of working, RITES recommended that at any time not more than five types of coaches should be under manufacture. However, ICF did not implement this recommendation and manufactured 6.8 to 9.6 times[289] of suggested limit of five types of coaches. As a result, there were many batch orders for small quantities requiring more set up time and consequent enhanced allowed time[290]. The productivity was adversely affected due to loss of time in changing tools, jigs, fixtures and raw materials thereby impacting the cost of manufacture.

(iii). The cost of material utilized on the production of coaches in ICF was, however, less than that of RCF. The components required for manufacture of conventional coaches were fabricated in-house by ICF after procuring raw material from the trade and cost of raw material alone was taken as cost of material. However, in RCF, coach components[291] were procured from trade as finished product that increased the cost of material.

ICF communicated (June 2012) to the Railway Board that production cost is more at ICF in comparison to RCF as the manufacturing process at ICF was different. At ICF, in-house production of components was more and handling of Machines & Plants/ Equipment was sophisticated. Further, labour cost at ICF was higher in comparison to RCF due to posting of ICF staff in Chennai where rates of payment for House Rent Allowance and Transport Allowance were higher. FA & CAO/ ICF viewed (June 2012) that detailed analysis of various inputs was required to exercise cost control.

However, Audit observed (2013) that no detailed analysis of various inputs had been done by ICF to contain the manufacturing cost. ICF agreed (September 2013) to examine the reasons for higher labour and overhead costs. There was no communication from ICF in regard to action taken by them in this regard.

5.2.2.1.5 System of Costing

ICF adopts a system of batch order costing where all cost incurred towards labour, stores and overhead in the manufacture of coaches are captured batch wise. On completion of a coach, the entire cost of manufacture is transferred to Railway Board for distribution among Zonal Railways. As per provisions[292], cost reports are to be finalised within 10 weeks after the issue of completion certificate for a Batch Order. Railway Board compiles a cost compendium each year for the purpose of comparison of cost of coaches manufactured by various production units of Indian Railway.

Examination of records by Audit revealed that Railway Board had expressed dissatisfaction on the status of cost records of ICF and pointed out cases of

[289] 45, 34, 36 and 48 types of coaches during 2009-10, 2010-11, 2011-12 and 2012-13 respectively.
[290] Time allowed to complete a work/ manufacture an article
[291] Bogie frame, Bogie bloster, End wall, Under frame, Body bolster, LS beam etc.
[292] Paragraph Nos. 1337 to 1343 of Indian Railway Code for Mechanical department (Workshops) read with ICF's Joint Procedure Order (May 2010)

understatement of cost under many batch orders in the compendium of cost for 2010-11. A test check in Audit of 45 cost reports (21 reports of Shell division and 24 reports of Furnishing division) out of 373 cost reports relating to the period 2009-12 revealed that:

- None of the cost reports were finalized within the stipulated period of 10 weeks. The average delay in preparation of cost reports was 60 weeks.
- Though cost of a batch order was compared with the cost of previous batch order for manufacturing the same type of coaches, no meaningful analysis of cost variations was carried out.

Although cost reports are very important documents that help the management in controlling costs, their preparation was delayed due to delay in adjustments of materials etc by the ICF. Consequently, an important managerial tool could not be utilized for cost control besides delayed transfer of the debits to Railway Board for further distribution of cost among concerned Zonal Railways.

5.2.2.1.6 Augmentation of infrastructure facility

With the introduction of long formation of rakes of passenger trains on Indian Railways running with moderately high speed of 110 to 120 kilometer per hour, conventional coaches of ICF designs were not desirable from safety point of view. Indian Railways decided (1993-94) to design a light weight coach capable to run on present infrastructure at operating speed of 160 kilometer per hour. The coach design was to be tried first at RCF/Kapurthala and after successful trial, at ICF/Chennai. Railway Board engaged LHB, a German Company (1995) for supplying 24 coaches[293] and for 'Transfer of Technology (ToT)' to RCF. RCF acquired technology and started production (2001) and rolled out (December 2002) first rake of Stainless Steel LHB design coaches fitted on FIAT[294] bogies.

Further, as narrated in sub-paragraph 5.2.5.1.3 (II) production of LHB design Hybrid coaches at ICF as per Railway Board's decision (November 2007) had to be stopped (August 2011) due to their speed limitations and problems faced in their maintenance. The High level Safety Review Committee recommended (February 2012) for stopping the production of ICF designed conventional coaches and for immediate complete switch over to manufacture of LHB design coaches. In view of this, Railway Board directed (March 2012)[295] ICF to undertake necessary planning in this regard.

Audit observed that although technology for manufacturing LHB design coaches had been transferred to RCF/Kapurthala and they had rolled out first rake of such coaches in December 2002, there was no momentum at ICF in regard to trial of design for production of such coaches. However, a project had been sanctioned (2010-11) at a cost of `252.04 crore (2010-11) to enhance ICF's capacity to produce 1700 coaches per annum including 300 LHB coaches. The project scheduled to be completed by 2014-15 was progressing slowly; only 53 *per cent* of

[293] LHB design, Stainless steel shell fitted on FIAT bogie
[294] Fabbrica Italiana Automobili Torino, an Italian Company.
[295] Railway Board letter No. 2008/M(PU)/1/27 dated 12.03.2012

sanctioned cost (`133.65 crore) had been spent (June 2014). It was seen that with a view to switching over to 100 *per cent* LHB design coaches without affecting the current production of conventional coaches, ICF had requested (September 2012) M/s RITES to identify the various factors for which technical expertise might not be available with ICF. M/s RITES had submitted (June 2013) their final report on road map for a complete switchover. The report was being scrutinized for planning the work (July 2014).

ICF stated (September 2013) that the complete switch over would take four years. The fact remains that although the technology had already been transferred by the German firm to RCF, Kapurthala in 2000 and RCF had rolled out their first rake in 2002, ICF has not been able to get the technical expertise for a complete switch over to manufacture the LHB coaches even after a long period of twelve years.

5.2.2.1.7 Vendor development

5.2.2.1.7.1 Inadequate vendor development for safety/vital items

The Production Units develop vendors for the manufacture and supply of items or components for utilization on manufacturing Railway asset. There are many items which are either vital for production or are of importance for safety. The purchase of such items is to be made from RDSO approved sources only. If vendor for an item is developed, it should conform to the drawings and specifications approved by RDSO[296]. It is obligatory for Production Unit Administration to follow all the guidelines /directions of the RDSO in regards to drawings, specifications and standards.

Axle box housing and buffer casings are safety items used in manufacture of coaches. These two items are procured from RDSO approved suppliers. In order to improve the quality of cast steel axle box housing and buffer casings, RDSO insisted (July and October 2009) that these items should be cast in class 'A' foundries. Based on this instruction, ICF reviewed their approved vendors list and delisted unqualified firms (March 2010). Consequently, only three approved firms were available for the supply. However, due to inability of approved vendors to meet the requirement as per production plan of ICF, they placed five purchase orders[297]on de-listed firms[298] for the supply of safety/ vital items[299] valuing ` 7.58 crore. The fact that firms were delisted was not brought to the notice of the Tender Committee.

The procurement of safety/vital items from the delisted firms indicated that the vendor development was not adequate and system to prevent placement of orders

[296] Research Design and Standard Organisation

[297] Two orders for supply of Axle box housing and one order for Side buffer arrangement (valuing ` 6.59 crore on M/s.Jagdamba Liquified Steels, Hathras, one order for supply of Axle box housing and another order for Side buffer arrangement (valuing ` 0.99 crore) were placed on M/s. Affine Steels Pvt. Ltd.Haridwar

[298] M/s Jagdamba Liquified Steels, Hathras and M/s Affine Steels Private Ltd.

[299] Axle Box housing and side buffer arrangement

on delisted firms was not in place compromising safety of coaches and lives of travelling passengers.

5.2.2.1.7.2 Performance of approved vendors

As per the terms and conditions of purchase orders placed on approved vendors for the supply of items, the firm should complete the supplies within the due date of delivery mentioned in the Purchase order (PO). The performance of the vendors can be judged from their efficiency in this regard.

Audit assessed the performance of approved vendors through a test-check of 544 POs selected in respect of 180 items of stores and observed that:

- In 62 POs, the firms failed to supply the contracted quantity and orders were cancelled. The failures indicated that while placing orders, the firms' capacity was not assessed correctly leading to cancellation of orders and consequent procurement at higher rates from suppliers involving avoidable extra expenditure of ` 4.65 crore.
- Of the remaining 482 purchase orders, while the firms adhered to the original delivery period in 258 orders (53.53 *per cent*), there was delay of up to 50 days in 119 cases (24.69 *per cent*) and beyond 50 days in 105 cases (21.78 *per cent*).

As the failure of the firms to supply the ordered quantity within the prescribed delivery periods upsets the production schedule, appropriate action needs to be taken in this regard.

5.2.2.1.7.3 Rejection of Material

In order to ensure quality of materials, stores are pre-inspected by RITES/RDSO and after ensuring the quality, the store material is supplied. As such, their quality certification have great importance and are also the base for advance payments. There should, therefore, be no rejection of material supplied by the firms after the issue of inspection certificates by these agencies.

Audit scrutiny revealed that stores pre-inspected by RITES/RDSO were rejected by ICF on 338 occasions during 2009-13. Out of these, in 270 cases the rejected materials were accepted by ICF after rectification of defects by the suppliers. As on 31 March 2013, the remaining 68 rejection cases had not been settled, the oldest rejection pertaining to year 2009.

It was noticed that Inspecting agencies were not performing very well as there were rejections even after certification by inspecting agencies. This is not a good practice as most of the materials procured by ICF are categorized as safety or vital equipment.

5.2.2.1.7.4 Inventory Management

Turnover ratio[300] (TOR) measures the efficiency of inventory management. Excessive percentage of turnover ratio denotes lesser issues and/or more receipts (in comparison to anticipated figures) during the year thereby increasing the value of closing balance of inventory at the end of year. Since the closing balance of inventory is linked with blocking up of capital, the level of TOR should be kept to the minimum possible. ICF had fixed a desired level of target of turnover ratio as 12 *per cent*.

It may be seen from the table below that every year the TOR was higher than the targeted/ desired level of 12 *per cent (11.68 per cent for 2012-13).*

Table 5.8

Year	Turn Over Ratio (*Percentage)*
2009-10	17.50
2010-11	17.48
2011-12	16.52
2012-13	19.38

(Source-Derivation from Store Transaction Statements of ICF)

Audit further noticed that value of stock held at the end of March 2010, 2011, 2012 and 2013 was substantial being `222.41 crore, `227.70 crore, `247.72 crore and `282.01 crore respectively. This is indicative of the fact that no efforts had been made by the ICF Administration to reduce TOR to the targeted level of 12 *per cent*.

For the manufacture of coaches many mechanical items are required to be stocked in Stores depot for issues to Shops for consumption on works. Generally the stock items are procured from trade/ vendors. The receipt of stock items has been more than their issues every year resulting in accumulation of inventory. This indicates that ICF was not able to assess accurately the material required for implementing its annual production plan leading to excess inventory.

Two cases exhibiting deficiencies in inventory management are discussed below:

- Air springs provided in coaches are a safety item. Railway Board decided (November 2007) to provide Air springs in secondary suspension of ICF coaches (conventional and LHB hybrid coaches) subject to clearance through oscillation trials. They directed RDSO to work out a scheme for arranging these trials and to ICF, to procure the minimum number of Air springs required for these trials (August 2009).
- ICF floated an open tender (February 2009) for procurement of Air springs sets for 612 coaches. Instead of procuring the minimum sets required for conducting oscillation trials, ICF ordered (September/ October 2009) Air spring sets for 326 coaches at a cost of `12.99 crore. ICF manufactured one AC coach and one non AC coach for conducting oscillation trials and

[300] ratio of year end balance of stores held in stock to total issues made during the year.

despatched them to RDSO during September 2009 and March 2010 respectively. However, Railway Board directed (February 2011 and January 2012) ICF that Air spring on ICF design bogie should be stabilized and till then the use of conventional coil springs should be continued on LHB Hybrid coaches. The trials have still not been completed (December 2013).

Examination of records by Audit revealed that ICF had utilized Air spring sets for 139 coaches (three sets for conducting oscillation trials and 136 sets for fitment in IRCTC coaches and LHB Hybrid coaches) in 2011-12 i.e. prior to the completion of oscillation trials and obligatory approval of the RDSO. This utilization was not in order as it would compromise passenger safety as RDSO's obligatory approval was awaited. Further, ICF Administration's decision to procure more than minimum requirement of Air spring sets resulted in excess procurement and idling of inventory (Air spring sets -187 Nos) worth `7.46 crore for three years. Despite Railway Board instructions and non-completion of oscillation trials by RDSO for their obligatory approval, ICF issued (2011-12) 136 coach sets of Air springs for fitting in IRCTC[301] coaches and LHB Hybrid coaches that was a serious compromise with passenger safety. Balance 187 coach sets of Air springs valuing ` 7.46 crore were lying as surplus for the previous three years.

- ICF completed manufacturing of EMU rakes for Mumbai Rail Vikas Corporation (MRVC) Project in 2011-12 except five EMU rakes. These five rakes were planned for production with high speed SIEMENS bogies involving new technology. As such, RDSO's approval to the prototype coach was mandatory. Since the prototype could not be cleared by the RDSO, five EMU rakes were not manufactured. ICF, however had procured (June/August 2010) electric traction motors valuing `69.96 crore for these EMU rakes. The procurement of inventory prior to approval of prototype was not regular resulting in idling of inventory worth `69.96 crore for more than three years.

5.2.2.1.8 Human Resource Management

5.2.2.1.8.1 Estimation of man-hours required for production

The 'allowed time' required for the completion of a job is determined on the basis of work and motion study. Thus 'allowed time' is the basis for the payment of incentive and estimation for the requirement of outsourcing. ICF made projections every year of man hours required duly considering the available manhours with reference to the production programme. The requirement of man hours over and above the available man hours was proposed to be outsourced.

Table 5.9

S. No.	Details	2009-10	2010-11	2011-12	2012-13
1	Initial target for production of coaches	1511	1600	1578	1600

[301] Indian Railway Catering & Touring Corporation

2	Actual production of coaches	1433	1503	1511	1620
3	Man hour projected for targeted production adopting 'allowed time'	27295545	28168080	24991345	25782743
4	Man hours required for actual production adopting 'allowed time'	25255634	25150045	23832844	25312444
5	Man hours provided by ICF staff	13564619	12839089	12084746	11886612
6	Man hours outsourced	5552723	5258613	5131390	6429544
7	Total man hours utilized in ICF and outsourced.(5 + 6)	19117342	18097702	17216136	18316156
8	Percentage of variation between actual requirement and time utilized {(4-7)/4} X100	24.30	28.04	27.76	27.64

(Source- Annual Production Programmers approved by Railway Board, Monthly Outturn Statements, Annual proposals of man hours to be outsourced and Details of actual outsourced man hours utilized)

From the above it is seen that man hours required for actual production based on 'allowed time' was 24 to 28 *per cent* higher than the total manhours actually utilized for production. Further, the manhours made available by the ICF staff decreased from 1.36 crore hours in 2009-10 to 1.19 crore hours in 2012-13, shortfall being 12.50 *per cent*. The man hours outsourced increased substantially (0.13 crore hours) in 2012-13 i.e. 25 *per cent* in comparison to 2011-12. The main reasons identified in Audit for such variations was that ICF standardized the man hours for carrying out various jobs during 1960's which formed the basis for the 'allowed time'. The 'allowed time' had not been revised with modernization and up-gradation of infrastructure[302] and worker's skill. No real time study/in-motion study/work measurement was conducted to assess the actual time required to carry out a specified work.

5.2.2.1.8.2 Overtime booking

The workers posted in Shops in which incentive scheme is applicable are termed as Incentive workers. As per codal provisions[303], no worker covered by the incentive scheme is to be allowed overtime during the same period.

Audit noticed (2013) that ICF Administration was booking for overtime the staff posted in Shops under incentive scheme and payment of overtime allowance was being made to them as detailed below:

Table 5.10 (in ` crore)

Year	Incentive paid to staff of Incentive Shops	Total Over Time paid in ICF	Over Time paid to staff of Incentive Shops	Percentage of Over Time paid to staff of Incentive Shop
2009-10	27.61	22.26	20.30	91.19
2010-11	37.68	10.55	8.65	81.99
2011-12	37.18	8.35	6.28	75.21
2012-13	37.81	14.19	12.24	86.26
Total	139.28	55.35	47.47	

[302] Installation of new machines under various machine & Plant Programmes, Mumbai Rail Vikas Corporation Project, Paint Shed Project etc.
[303] Paragraph No.426 of Indian Railway Code for Mechanical Department (Workshops)

(Source- Details of monthly payments of incentives and overtime in ICF)

From above it is observed that an amount of `47.47 crore had been paid as overtime allowance during the period under review to the workers who were governed by the incentive scheme. The payment was resorted to as a regular measure and not on special consideration. This activity was against the codal provisions and instructions issued by Railway Board (January 2013).

5.2.2.1.8.3 Ratio of Direct Workers to Essential Indirect Workers

As per codal provisions[304], the strength of unskilled staff engaged as indirect workers including Essential Indirect Workers (EIW[305]) should range from 10 to 25 *per cent* of the total strength (including Direct workers[306]).

Audit observed (2013) that in ICF, out of 28 Shops under incentive scheme the strength of EIWs to direct workers ranged from 27 to 144 *per cent* in 14 Shops.

The operation of EIWs in excess of prescribed percentage increases the cost of production of coaches at ICF due to increased overheads.

5.2.3 Conclusion

Railway Board delayed the finalization of annual Production Programmes of ICF, the delays ranged between one and two years. Besides, the ICF also finalized their tentative Production Programmes with uniform delay of around one year. As a result, the timely availability of long lead stock items could not be ensured. This adversely impacted the production of heavy build coaches. Consequently, heavy build coaches were manufactured less than target and to utilize the available production capacity, ICF had to manufacture more conventional coaches. This action of the ICF was against the objective of phasing out of conventional coaches. Also the frequent changes in Production Programmes together with changes in designs resulted in heavy accumulation of inventory. Procurement of same item of stores on more than one occasion also resulted in extra expenditure. Moreover, ICF failed to achieve the approved annual production targets in terms of ECU, except for 2012-13, resulting in shortfall in production valuing `760.71crore.

The labour and overhead costs were higher in ICF due to which the unit cost of manufacture of common types of coaches was higher in comparison to RCF, Kapurthala. For identical level of production, the man power utilized in ICF was 60 *per cent* more than RCF, Kapurthala. There were many batch orders for small quantities of coaches that required more set up time and consequent enhanced 'allowed time' enhancing the overheads. ICF had been making no analysis of various inputs to contain the manufacturing cost. The overheads ranged between 124 and 160 *per cent* of direct cost for Factory/ Administrative overheads. The operation of Essential Indirect Workers in excess of prescribed percentage was also contributing to high overheads.

[304] Paragraph No.431 of Indian Railway code for the Mechanical Department
[305] Like lifting of material and tools to production booths and operation of fork treucks etc
[306] Directly involved in process of manufacture

ICF Administration had no effective control over inventory as the turn over ratio was more than prescribed target of 12 *per cent* every year. The value of stock held at the end of financial years (2009 -10 to 2012-13) ranged between `222.41 crore and `282.01 crore showing that the material required for implementing its annual Production Plan had not been assessed accurately.

Appendix-I

List of 30 stock items whose procurement was made at higher rate at short interval

SI. No	Description of the material	Excess Payment (in lakh of `)
1.	Draw Gear General Arrangement	6.98
2.	End Construction for GS coach	132.67
3.	SS Sheet 0.8x1250x1900mm	1.61
4.	Brake Head	12.36
5.	Driver's Cabin Door	0.53
6.	Doorway Pillar Frame	4.51
7.	Handle EMU	0.68
8.	Lever Inner & Outer	9.57
9.	Body Bolster DMC/TC	13.36
10.	Side Buffer Arrangement	74.28
11.	Partition Frame, Lavatory & Water Tank	3.30
12.	Ventilator Grill	0.28
13.	Collar for DI MOU Roller Bearing	12.32
14.	Fully Machined Axle box rear cover	4.99
15.	Steel Flats 40x10mm	2.73
16.	One cross section of end part	19.43
17.	Equallsing Stay	3.28
18.	Electrode Wire	1.61
19.	Vertical Damper	15.19
20.	Hanger	5.26
21.	Axie Box Housing	8.83
22.	Corro. Res. SS coil 5x125xRoll	45.49
23.	Axle Box Housing	48.62
24.	Block Hanger	2.33
25.	Spring Steel Rounds 36x4230mm	4.40
26.	Steel Rounds 40mm dia	1.09
27.	SS Sheet, 1.7x1180x3135mm	4.90
28.	Lateral Damper	17.14
29.	CRF Light Rail for 6 door Shells	2.74
30.	MS Square Tube 20x20x1.6mm	3.24
	Total	**`463.72 say `4.64 crore**

Appendix-II

Details of eight non-moving stock items test-checked where inventory was held up due to changes in design/change in production programme

S. No.	Items	Remarks
1.	FRP BODY SIDE WINDOW ASSY (30305428810101)	This item was procured for MEMU & DMU coaches but rendered surplus due to change in design. Decision has been taken to modify the surplus for in conventional coaches.
2.	ALU.CHEQ SHEET 2.03X1084X2830 (30309461160101)	This item was procured for LHB Hybrid coaches but rendered surplus due to change in production program, Decision has been taken to use the surplus in conventional coaches.
3.	FRP ROOF PANEL (30309462560101)	As against item 2 above.
4.	FRP SIDE, END WALL PART. & MOULDING (30314201630301	This item was procured for MRVC coaches. No MRVC coaches were turned out in 2012-13. During, 2013-14, four sets will be used and balance five sets will be used if manufacture of AC EMU coaches is planned.
5.	PANELS & MOULDING FOR ROOF (30314402530301)	This item was procured for MRVC coaches. No MRVC coaches were turned out in 2012-13. The surplus item will be utilized if MRVC coaches are taken up for production.
6.	PANELS & MOULDING FOR ROOF (30314402770301)	This item became surplus due change in design. The use of this surplus item in AC EMU coaches will be explored after consultation with design section..
7.	PANELS & MOULDING FOR ROOF (30304361990101)	As against item 6 above.
8.	ALUMINIUM INNER FRAME 4 FEET (30305488100101)	This item was procured for KSTDC coaches. The surplus stock cannot be used in other coaches as the size of the item is unconventional.

5.3 Working of Rail Wheel Factory, Yelahanka, Bangalore

5.3.1 Introduction

Rail Wheel Factory (RWF), Yelahanka commissioned in 1984 is a Production unit under the Indian Railways (IR) and is engaged in the production of wheels, axles and wheel sets of railroad wagons, coaches and locomotives for the use of IR. After meeting the internal demand of Railways, RWF was also exporting the same to the select overseas customers such as USA, Malaysia, Sudan, Angola, Mozambique, Senegal and Mali upto 2009-10. However, due to growing internal demand of Indian Railways export has been stopped subsequently. The Plant is certified as compliants to ISO-9001 in 1994 and ISO-14001 in 1999 standards by M/s. Bureau Veritas Quality International (BVQI) France. It was also certified in 1995 to conform to the Quality Assurance Program of Association of American Railroad (AAR) in respect of manufacture of new wheels and axles.

RWF comprises three shops namely Wheel shop, Axle Shop, Wheel set assembly shop which has an annual capacity of producing 2,00,000 wheels, 48,000 axles and 64,000 wheel sets (2011-12) respectively. Railway Board fixes the annual targets for production based on the capacity of the plant, man-power available and requirements received from Production Units and Zonal Railways. Based on the yearly targets fixed, a monthly production programme is drawn by RWF.

RWF is under the administrative control of Member Mechanical at the Railway Board level. At Zonal level, it is headed by a General Manager who is assisted by Financial Advisor & Chief Accounts Officer, Chief Mechanical Engineer, Controller of Stores, Chief Engineer (Civil Engineering Department), Chief Electrical Engineer, Chief Personnel Officer and Security Commissioner.

The audit of RWF was conducted from May 2013 to September 2013 in order to see whether efficient management was in place for optimum utilization of resources (raw materials, plant and machinery), Rules, regulations and instructions issued from time to time relating to planning, procurement and production were complied with and justification as envisaged in the Augmentation Scheme - Phase II had been achieved.

Audit reviewed the records for the period from 2010-11 to 2012-13 maintained at RWF. Discussions were held with the Officers and supervisors of RWF wherever required. Entry conference was held with the General Manager/ RWF in May 2013 and Exit conference in September 2013. In the Entry Conference the audit entity was briefed about the audit objectives and scope and in the Exit Conference, all the observations were discussed. The replies of the GM have been suitably incorporated in the respective paras.

The Provisional Paragraph was issued (April 2014) to Railway Board and the reply from Ministry of Railways (Railway Board) was received on 30 July 2014 and has been incorporated suitably.

5.3.2 Audit Findings

5.3.2.1 Planning

Planning is vital for the efficient functioning of any organization. Mechanical Department of the Railway Board is responsible for the planning process for the production of wheels, axles and wheel sets. It fixes the production target of RWF every year based on the demand sent to Railway Board (Stores Directorate) by 31st July of the previous year for wheels, axles and wheel sets by the Zonal Railways and production units such as Rail Coach Factory, Kapurthala and Integral Coach Factory, Perambur. Modifications made by Railway Board from time to time also need to be taken into account by RWF in the process of planning.

Wheel Tyre Axle (WTA) allotment meetings are held, every quarter by Additional Member/Production Unit (Railway Board) with the representatives of Rail Wheel Factory. The requirements of scrap by RWF along with the constraints faced by RWF in the production process are highlighted during the meeting.

On the basis of above meeting quarterly allotments[307] are communicated to RWF by Railway Board to enable them to draw the monthly production programme. RWF issues Work Orders on its various shops (Wheel Shops, Axle shops and Assembly Shops) every month for production based on these decisions.

5.3.2.2 Excess/ Irregular production of Wheels

The Production target of Wheels/Axles/Wheel sets by RWF is guided by the annual target fixed by Railway Board and quarterly Wheel Tyre Axle (WTA) allotments. While the annual target fixed by Railway Board covers all types of Wheels, the quarterly WTA allotments and monthly production programme are type specific Viz, BOXN wheels 840 dia wheels, Electric Multiple Unit wheels, Metre Gauge wheels, Broad Gauge Loco wheels, etc. and the consignee is specified in the WTA allotments.

Audit analyzed the targets for production and the achievements as given below:-

Table 5.11 - Targets and production achieved

Year	Description	Target	Production	Difference	% of variation
2007-08	Wheels	130047	147007	+16960	13.04
	Axles	52492	52870	+378	0.72
	Wheel sets	37584	40509	+2925	7.78
2008-09	Wheels	180000	196261	+16261	9.03
	Axles	65826	84428	+18602	28.26
	Wheel sets	57500	64673	+7173	12.47
2009-10	Wheels	186000	187450	+1450	0.78

[307] Quarterly Wheel Tyre Axle (WTA) Allotments: meeting are held every quarter in which the total requirement for zonal railways and production units are discussed and planned, the position regarding the quantities allotted vis-à-vis actual supplies and the requirement of scrap by RWF is also discussed in the WTA meetings.

	Axles	70320	65302	-5018	-7.17
	Wheel sets	60500	55940	-4560	-7.14
2010-11	Wheels	180000	180810	+810	0.45
	Axles	85720	88481	+2761	3.22
	Wheel sets	61000	61281	+281	0.46
2011-12	Wheels	200000	201135	+1135	0.56
	Axles	98800	100504	+1704	1.72
	Wheel sets	68158	70315	+2157	3.2
2012-13	Wheels	200000	191501	-8499	-4.24
	Axles	105600	100001	- 5599	-5.30
	Wheel sets	73000	60100	- 12900	-17.67

(Source: Annual Outturn statements of RWF)

Analysis by audit of quantities produced by RWF revealed the following:

- The production of Wheels exceeded the target fixed by Railway Board, ranging from 0.45 *per cent* to 13.04 *per cent* during the period from 2007-08 to 2011-12. However, the production was less than the target by 4.24 *per cent* in 2012-13. Similarly the target for Axles also exceeded ranging from 0.72 *per cent* to 28.26 *per cent* from 2007-08 to 2011-12, except in 2009-10 where the production was less by 7.17 *per cent*. The production of axles was also less than the target by 5.30 *per cent* during 2012-13. In the case of wheel sets the production exceeded the targets ranging from 0.46 *per cent* to 12.47 *per cent* during 2007-08 to 2011-12. However, the production of Wheel sets was less by 7.17 *per cent* and 17.67 *per cent* during 2009-10 and 2012-13. On examination of records it was found that

  (a) During 2012-13 the production of wheels was less than the target and the shortfall was due to shut down of the plant for three weeks for annual maintenance.

  (b) Axle production was less during 2009-10, due to breakdown of Long Forging Machine from January 2010 to May 2010 and during 2012-13 the shortfall was on account of non-availability of outsourced[308] axles.

  (c) Shortage of wheel sets during 2009-10 was due to the less production of axles as the Long Forging Machine was under major breakdown from January 2010 to May 2010 and during 2012-13 shortage was attributed to unrealistic fixation of target by Railway Board as per the noting on the file by Chief Mechanical Engineer/RWF.

- The production in excess of targets fixed, resulted in stock piling, at RWF, every year averaging to the extent of 22255 wheels and axles during 2010-13. This also led to blocking of capital to the extent of `75.71crore on an average and resulted in avoidable dividend liability[309] of `11.34 crore to the Government of India by Indian Railways (2010-13). The lopsided production

[308] As plant capacity is 48,000 axles per annum, forged axles are procured from M/s. Visvesvaraya Iron and Steel Limited, Bhadravathi (M/s.VISL) and M/s. Metal Steel Factory, Ishapur(M/s.MSF).
[309] The Dividend on the capital outlay on the railways which is payable to the General Revenues.

pattern and ad-hoc supplies to Zonal Railways have resulted in stock piling of inventory at RWF. ***(Annexure V)***

- RWF supplied wheels to Zonal Railways/ Production Units in excess of allotments decided during the quarterly WTA meetings. This resulted in excess supply of 20066[310] wheels and resulted in stock piling by Zonal Railways/Production Units.

Audit analysed the achievement of production targets of various wheel types against the quantities planned. This is given in the table below:

Table 5.12 - WTA allotments of wheels, production and supplies during 2010-13.

	2010-11			2011-12			2012-13		
WHEEL TYPE	TOTAL WTA PLANNED	ACTUAL PRODUCTION	QTY SUPPLIED	TOTAL WTA PLANNED	ACTUAL PRODUCTION	QTY SUPPLIED	TOTAL WTA PLANNED	ACTUAL PRODUCTION	QTY SUPPLIED
BOXN	145370	114163	137416	155400	156948	153811	109215	123418	101907
BG COACHING	65454	56122	54775	46284	39504	41686	58099	50775	47731
WHEELS FOR BVZI	500	0	0	0	0	0	0	0	0
840 DIA	1673	6059	1436	2030	3083	2220	3090	9952	2762
BG LOCO	7238	0	1666	0	0	0	10778	659	7438
BG EMU	4500	1757	1362	0	209	0	8520	5563	5562
LHB	0	53	0	0	76	0	0	0	0
DSL LOCO	0	1648	0	0	0	0	0	0	0
MG Coaching	4440	1008	816	1717	1315	934	750	1134	674
TOTAL	229175	180810	197471	205431	201135	198651	190452	191501	166074

(Source: Figures under col.3 and 4 extracted from outturn statements of RWF for the year 2010-13 and Minutes of WTA Quarterly meetings)

Audit analysis of the allotment, production and supply for the period from 2010-13 revealed that

A. 2010-11

(a) As against the WTA allotment of 145370 BOXN wheels RWF produced 114163 wheels. RWF had dispatched 137416 wheels during the year.

(b) The production in respect of 840 dia Wheels (6059 Nos) was more than the requirement (1673 Nos,). Despite the excess production, quantity supplied to the various units was less than the allotment of wheels. Reasons for this decision are not available on record.

[310] 2010-11: 8372 wheels,2011-12: 6731 wheels, 2012-13: 4963 wheels

c) In respect of BG Coaching, EMU and MG Coaching wheels, it was seen that the supplies were far below the planned allotments. It was also noticed in audit that the supplies made were less than the quantity produced resulting in huge shortfall in supply vis-à-vis production.

(c) Audit noticed that 1666 BG loco wheels have been supplied against allotment of 7238 nos., though there was no production of the same during 2010-11, implying that the wheels produced previously were dispatched during 2010-11.

B. 2011-12

(a) A total number of 155400 BOXN wheels were planned, against which only 153811 were dispatched by RWF, though the production was 156948 nos. The justification in depriving the allottees of the allotment as per WTA plan was not available on records

(b) BG Coaching Wheels of 41686 were supplied as against the WTA plan allotment of 46284 wheels but the production for the year was only 39504 indicating that production was not made with reference to WTA allotment

(c) Under 840 dia, audit noticed that the supply (2220 Nos) was more than the allotment (2030 Nos.); also the production (3083 Nos.) during the year was more than the requirement. Since 840 dia wheels are manufactured on demand by CONCOR and other PSUs, there should not have been excess production without reference to demands.

(d) The total WTA requirement was 205431 for all types of wheels against which only 198651 were supplied. The production during the year was 201135 wheels. Though the production was higher during the year the supplies made were less for which the reasons were not placed on record.

C. 2012-13

(a) 840 dia wheels: As the production of previous years exceeded the requirements, the production of 840 dia wheels again during 2012-13 resulted in further increase of inventory balance as the WTA allotments could be met with the wheels which were produced in excess during 2010-11 and 2011-12. During 2013-14, RWF decided (May 2013) not to supply any wheels to PSUs in view of the Central Excise Duty Notification[311]. This will result in permanent excess inventory of 1424 wheels at RWF amounting to ` 4.41 crore. Hence RWF needs to take immediate decision for utilization of these wheels, as these wheels were produced for PSUs. In view of non-utilization of this inventory RWF is liable to pay dividend to Government of India until the inventory is cleared.

[311] As per latest Central excise notification, Production Unit in Railways are exempted from payment of Excise Duty on scrap as long as the entire activity is for purpose of meeting captive requirement of Indian Railways. If any non Railway orders are executed, this exemption gets withdrawn, irrespective of the size and volume of non Railway order and ED is attracted on the entire scrap generated.

(b) The total BOXN WTA allotment during the year was 109215 wheels against which 123418 have been produced. The supply was only 101907 resulted in stock piling of 14203 wheels.

The excess production of wheels has also resulted in incentive payments and also Overtime allowance to the staff as commented in Para 5.3.2.6.3 and Para 5.3.2.6.4 respectively.

General Manager in the exit conference stated that there are lot of constraints leading to short supply to zones and excess production of certain type of wheels and instructed the mechanical department of RWF to give detailed reply to this aspect.

RWF could not implement the production plan drawn up by Railway Board in consultation with RWF itself. While the overall targets (2010-13) fixed by Railway Board were exceeded for individual types of wheels, RWF could not adhere to the production plans. This led to increased inventory for some types of wheels like 840 dia and shortages in BOXN, BG coaching, BG Loco, EMU and MG coaching wheels. This in turn is likely to have an adverse impact on the production and maintenance of coaches and wagons. Thus planning of production activities by RWF was very poor. Above analysis has revealed that production on many occasions was not done with reference to the WTA allotments. The lopsided production pattern and ad-hoc supplies to Zonal Railways have resulted in stock piling of inventory at RWF and the Zones as mentioned earlier in para.

Railway Board also could not monitor implementation of its plan by RWF.

5.3.2.3 Augmentation Phase II

a) Railway Board sanctioned the Augmentation (Phase II) of RWF at a cost of `47.71 crore during July 1999 for enhancing production from 1 lakh to 1.15 lakh wheels. Railway Board advised RWF to further augment the capacity from 1.15 lakh to 2 lakh during April 2007 through Material Modification.

During the proposal stage for Material modification (May 2007), FA & CAO/RWF had stated that in view of general buoyancy in the economy, it was necessary that the viability of the investment with the latest available data be reviewed at Railway Board's level duly considering the anticipated production from Chappra[312] Wheel Plant.

Audit observed that this aspect was not taken into account while seeking approval for the Material Modification on the ground that the modification was to de-bottleneck the critical areas in wheel production at RWF. The Augmentation Phase II including Material Modification was sanctioned by Railway Board during July 2007 for enhancing the production of Wheels from 1.15 lakh to 2 lakh by 2009 for a total amount of `99.44 crore (including the original cost of Augmentation Phase II)

[312] Chappra Wheel Plant is another Production Unit under Indian Railways for producing wheels only. The construction of the Factory started during July 2008 and aimed for producing 1 lakh wheels per annum.

Further, review of the records reveals that the financial progress under the Augmentation was ` 68.81 crore (69 *per cent*) and the physical progress was 75 *per cent* approximately as on March 2013.

In order to complete the Augmentation Phase II (Material Modification) works in a meaningful way and to sustain the capacity of 2 lakh wheels, RWF proposed (May 2013) to enhance the sanction from `99.44 crore to `117.11 crore.

Audit noticed that during 2011-12 and 2012-13, total casting of wheels exceeded the target of 2 lakh , by 8412 and 6356 of wheels respectively, with the machines sanctioned in the original scope. However, as brought out in Para 5.3.2.2 the production was lopsided in many instances resulting in short supply/excess supply with reference to WTA allotments.

Since this objective of the Phase II has already been achieved even before completion of the Augmentation Phase II and the development of the Chhapra Wheel Plant, the need for further extension to the Material Modification is not justified.

b) Further audit scrutiny revealed that RWF had requested (May 2011) for dropping 10 machines proposed to be purchased costing `13.35 crore from the scope of Material modification, citing that no progress has been achieved (May 2011) for procurement of these machines. This indicates that Planning and proposal initially made were not in tune with the long term requirement.

It is also seen that one of the machines costing `3.48 crore (Special purpose machine-online) was proposed to be dropped justifying that RWF had already adequate offline machining capacity in house. However, RWF had outsourced a lot of machining works citing insufficient in-house capacity for machining and to meet the annual target. Review of outsourcing of machining of wheels and axles during 2010-11 to 2012-13 was made and it was seen that 11 contracts valuing `2.01 crore had been awarded for machining works during these years. Since the procurement of the Special Purpose online machine was dropped citing availability of adequate machining capacity in-house, the incurring of expenditure on outsourced machining is not justified.

5.3.2.4 Unfruitful expenditure of Capital Equipment

In order to avoid enormous manual work, reduce chances of errors in measurement, and effectively reduce the man-power in the Inspection Cell of wheel shop at RWF. Two Automatic Wheel Dimension Measurement equipments were procured from M/s. Prodigy Labs Pvt. Ltd., Bangalore (March 2009) at a cost of ` 0.46 crore.

The equipments were commissioned in October 2010 after conducting Performance Guarantee Test and acceptance by user department. After working barely for three months, the equipments went out of order in January 2011. The supplier could not attend to the warranty complaints as the equipments had been dismantled by RWF. The firm requested restoration of the machine to enable them

to attend to the issues raised. Physical verification by audit confirmed that the equipments had been dismantled.

Despite repeated requests from the supplier to restore the equipments for attending to the issues, RWF was yet to comply with the same (July 2014). The dismantling of the equipments by RWF, during warranty period, deprived them benefits of warranty. Secondly since the equipments were not working for more than 4 years, the entire investment was rendered unfruitful and also resulted in non-accrual of ancillary benefits viz., reduction in manpower, error free measurements, avoiding of tools and handling activities.

Ministry of Railways (Railway Board) in their reply (July 2014) stated that the machine worked for about six months only after commissioning and after that did not work. Despite best effort by RWF to get it rectified, the machine could not be attended to since there was no response from the firm. The firm has subsequently closed and despite efforts to chase the personnel who were working with the firm, there has been no progress. The reply is not acceptable as the firm had stated (February 2011) that their engineers had noticed removal of the lights and frames from its place resulting in its non-functioning. The firm requested restoration of the machine to enable them to attend to the issues raised. RWF is yet to restore the machine and get it functional.

Fig. 5.2 - Photos showing dismantled wheel dimension equipments

5.3.2.5 Transportation of Scrap by Road

(a) Steel scrap is the main raw material required for the production of wheels and the requirement of steel scrap (condemned wheel disc, rails, axles etc.,) is met by scrap generated by Zonal Railways/ Production Units. Zonal Railways/production units transported steel scrap to RWF through rail transport in piecemeal wagons[313] as well as dispatch through road. Railway Board had permitted the Zonal Railways for transporting scrap through road/rail transport (March 2009) due to the shortages of wagons.

Analysis of records on transportation contracts at RWF revealed the following:

Transportation by road had increased considerably over the period (2008-13). The main reason attributed by RWF for switching over to road transport was scarcity of wagons. Analysis by audit revealed that RWF incurred `146.15 crore (approx.) on

[313] Piece meal wagon means a rake lesser than the stipulated composition of 59 wagons.

road transportation during 2010-13 citing difficulties in getting wagons in time and to ensure timely despatch of railway materials.

Review by audit of the wagon holding position of South Western Railway (SWR) for the months from April 2012 to December 2012 revealed a daily average holding position[314] of 73 wagons. Further, wagons were placed by South Western Railway as and when required/demanded by RWF except on 2 to 3 occasions. As such, opting for road transportation citing non–availability of wagons was not justified, especially as transportation by rail was 1.6 times cheaper than by road and RWF being an integral part of Indian Railways, should have given priority to rail transport for transporting scrap/wheel sets etc., railway materials.

As seen from the records relating to Augmentation of infrastructure facilities for enabling smoother movement of steel scrap and WTA items by road (Extension of new scrap pre- conditioning bay and parking lots B and C) was taken up from September 2011 at an estimated cost of `7.58 crore by RWF. The work was taken up through two contracts and `6.16 crore had so far been incurred on the work. The augmentation work was exclusively for facilitation of road transport of scrap to RWF and carrying Wheels, Axles and Wheel sets from RWF.

General Manager in the exit conference stated that (September 2013) the system of transportation has been streamlined and they were now targeting 70 *per cent* movement of railway materials by rail transport. He added that road transportation is not being resorted to in a routine manner as done earlier.

Audit, however noticed that for the period April - August 2013 only 41 *per cent* of scrap and 59 *per cent* of wheel sets were transported by rail**,** whereas wheels and axles were completely transported by road. This indicates the overdependence of a railway production unit on road transport, despite availability of infrastructure for transportation through rail.

Ministry of Railways (Railway Board) in their reply (July2014) accepted the fact of dependence on road transport and stated that due to restriction of piecemeal loading and wherever formation of rake load is not possible, dependence of road transport cannot be avoided. It was also stated that RWF is making concerted efforts for transportation of goods in rake loads, which is evident from the fact that 58 *per cent* of dispatches of wheel sets were by rail during 2013-14.

5.3.2.6 Financial Management

5.3.2.6.1 Short receipt of scrap

Scrap for wheel casting in RWF is generated internally with Indian Railway. While dispatching the scrap the Zonal Railways/Production Units prepared sale issue vouchers and forward to RWF duly indicating the quantity and value of the materials dispatch for acceptance of debits[315] of the value of the material.

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[314] Daily average holding means census taken for daily availability of wagons for loading purpose

[315] Transaction between Zonal Railways/Production Units are made through Book Adjustment.

RWF (Accounts Wing) prepares the Transfer Certificates (TCs) every month, after checking the details, quantity, rate, description etc mentioned in the Sale issue vouchers sent by each Zonal Railways/Production Units and forwards the TCs to Stores Depot at RWF to check and certify the actually quantity of scrap received and accounted. The Sr.Materials Manager/General Stores Depot returns the TCs to FA & CAO/RWF after verifying the quantities, duly recording the difference, if any. In case of shortage, RWF has to re-debit the Zonal Railway/Production Unit concerned for the quantity short received.

Audit observed that receipts of scrap amounting to `1313.64 crore were accepted during 2010-13. A test check[316] by audit revealed short receipt of scrap valued at `10.34 crore indicating possibility of pilferage. The actual extent of short receipt is likely to be much higher. Though the short receipts of scrap had been intimated by the Sr.Materials Manager/General Stores Depot to FA&CAO/RWF, no action was taken to reconcile the difference or to investigate the reasons for such short receipts.

Though Audit has highlighted the issue of non-reconciliation earlier no action has been taken by RWF for reconciliation of the short receipt of scrap. Audit recommends that full scale review of all such cases needs to be undertaken to assess the total quantity of short receipt of scrap. Since the Transfer Certificates for the original value of scrap as mentioned by Zonal Railways were accepted and no action had been taken with the concerned railways for the quantity short received, the expenditure on scrap to that extent would be irregular. Non-reconciliation of short receipt of scraps has resulted in increasing the cost of wheels as the value of the short received quantity was absorbed by the wheels produced. The laxity clearly indicates lack of internal controls at all levels.

Financial Advisor and Chief Accounts Officer (FA&CAO) stated in the exit conference that this will be looked into and action will be initiated at the earliest

Ministry of Railways (Railway Board) in their reply (July2014) accepted the fact of dependence on road transport and stated that due to restriction of piecemeal loading and wherever formation of rake load is not possible, dependence of road transport cannot be avoided. It was also stated that RWF is making concerted efforts for transportation of goods in rake loads, which is evident from the fact that 58 *per cent* of dispatches of wheel sets were by rail during 2013-14.

5.3.2.6.2 Procurement of Mould Blanks –Faulty planning

(a) Graphite Mould Blanks (GMB) are an imported item. GMBs of various sizes, viz., 43.5"[317], 48.5"[318] are used for manufacturing of wheels. Wheels are cast in graphite moulds which are pre-heated and sprayed. After allowing for a pre-determined setting time the mould is split and the wheel taken out of the mould.

The average consumption norm for 43.5" Graphite Mould Blanks (GMB) is 3.60

[316] where the difference in the quantity received at RWF was more than 10 metric tonnes was selected for review
[317] 43.5" GMB is used for casting 840 dia wheels and BGC wheels
[318] 48.5" GMB is used for casting BOXN wheels

nos. per 1000 wheels of type 840 dia/ BG Coaching. The procurement of 43.5"mould blanks was not commensurate with the requirement. Due to non availability of 43.5" GMBs, RWF resorted to convert 71 numbers of 48.5" GMBs to 43.5" moulds for casting wheels leading to loss of `0.98 crore, as detailed below:

Table 5.13

Year	No. of 48.5"Moulds converted to 43.5" moulds	Book Average Rate[319] of 48.5" moulds (Rs.)	Book Average rate of 43.5" moulds (Rs.)	Difference in Book Average Rates Col(3)-Col.(4)	Loss due to conversion
1	**2**	**3**	**4**	**5**	**6**
2010-11	13	403988.88	338371.21	65617.67	853029
2011-12	0	0	0	0	0
2012-13	58	584885.59	430643.58	154242	8946036
TOTAL	**71**		**97,99,065**		

(Source: Mould repair room records and stores office records)

This loss could have been avoided, had procurement of 43.5" GMB been better planned. During the exit conference the Railway Administration stated that the options were either to lose production or to consume excess number of GMB. Hence, they opted for conversion to continue the production process. Audit scrutiny revealed that the Railway Board production target for BG Loco (which requires usage of 43.5" GMB) during 2012-13 was 7500 wheels which was later enhanced to 10778 wheels on WTA allotment. In respect of BG Coaching the Railway Board target during 2012-13 was 33500 whereas WTA allotment was 58099. There were no reasons on record for increase in allotments by WTA. Due to sudden increase in targets, conversion of GMBs was resorted to. As GMBs are long lead [320]imported item, RWF should have intimated Railway Board about the shortage of 43.5" mould blanks and resulting loss due to conversion.

Audit noticed that the production of BOXN wheels during 2011-12 and 2012-13 were in excess of the WTA allotments, implying that the procurement of 48.5" GMBs were in excess of requirement. GMBs being costly imported item, RWF did not plan the procurement properly thus leading to conversion of 48.5" mould blanks for casting wheels for 840 dia /BG Coaching. While it is a fact that the need for GMBs increased due to sudden extra demand placed on RWF by Railway Board, however the fact remains that 48.5" GMBs were lying in stock at RWF in excess of requirement of production in RWF. This is despite the fact that BOXN wheels were produced in excess during 2011-12 and 2012-13.

(b) Excess consumption of Graphite mould blanks

The accepted consumption norm for 48.5" Graphite Mould Blanks (GMB) in RWF is 1.88 nos. per 1000 wheels of type BOXN. It was observed that average

[319] Book Average Rate is the rate arrived at by dividing the value balance shown in the Priced Ledger by the quantity balance.
[320] Long lead items means – the items for which the procurement period is long.

consumption of GMB per 1000 wheels was much higher during the period 2010-13 ranging from 2.1 to 4.63 per1000 wheels. It was noticed that GMBs were stored in open condition and were continuously exposed to moisture, rain, sun, etc., which was one of the reason for the reduction in their life and consequential excess consumption.

Audit analysis revealed that value of the excess GMBs consumed during the last three years was to the order of `1.27 crore. Mould Blanks, being an imported costly item, proper storing facilities should have been made available to avoid reduction of their life span.

5.3.2.6.3 Payment of Incentive Bonus

To sustain production levels, generally an Incentive Bonus is given to the staff. The Incentive Bonus paid to the staff of RWF is linked to the Standard Plant Capacity (SPC) fixed for it.

The SPC of a plant depends on both the capital equipment available and availability of manpower. Any increase in plant capacity adversely impacts the incentive bonus paid to the staff. At the request of the Railway Board the National Productivity Council[321] conducted a detailed study in 1999 and fixed norms for the manpower required to operate the available machinery in a scientific manner. Thus, the SPC of the plant was fixed at 8300 wheels and 4200 axles per month. The SPC was subsequently revised to 8475 wheels and 4230 axles in 2003 due to augmentation of plant capacity.

Railway Board decided to raise the rate of Incentive Bonus paid to the staff with effect from June 2009 with the condition that there should be an improvement in productivity of 5 *per cent*. Accordingly a Committee was nominated by the GM/RWF in November 2009 to refix the SPC after taking into account augmentation in the Plant Capacity. The Committee examined the issue keeping in view the report of the National Productivity Council in 1999. The Committee recommended upward revision of the SPC to 9860 wheels and 4800 axles per month with effect from December 2009. RWF, however, did not accept the recommendations of the Committee and instead based on the negotiations with the Staff Council, fixed (March 2010) the SPC as 8899 wheels and 4442 axles per month.

A comparison of the annual production with the SPC fixed is given below:

Table 5.14 (In Units)

Year	Description	Annual Production	Standard Plant Capacity (annual) Monthly plant Capacityx12	Difference with reference to SPC
2006-07	Wheels	126126	101700	+24426
	Axles	58259	50760	+7499

[321] "NPC is a national level organization under the Ministry of Commerce and Industry, Government of India, providing training, consultancy and undertaking research in the area of productivity.

2007-08	Wheels	147007	101700	+45307
	Axles	52870	50760	+2110

(Source: Out turn statements)

Audit observed the following:

As can be seen from the above table, the SPC fixed in March 2010 based on negotiations with Staff Council was much below the annual production capacity of the plant.

Non fixing of the SPC of the plant on a scientific basis and at a level less than the average monthly production of the plant resulted in fixation of SPC of RWF plant on the lower side. This resulted in payment of extra incentive bonus to the tune of `3.35 crore (Approx) during the period 2010-13.

Ministry of Railways (Railway Board) in their reply (July 2014) stated that it was communicated to RWF to increase productivity by 5 *per cent* and introduction of revised bonus factor doubling the existing one. Thus, Standard Plant Capacity increased by 5 *per cent* without any increase in standard man-hours and incentive rates were revised.

The reply is not tenable. Contrary to Railway Board's instruction to review incentive scheme on yearly basis considering all functions and innovations introduced in the process of manufacture, resulting in augmentation of production, RWF simply computed SPC by adding 5 *per cent* to their existing capacity. As a result SPC was determined even below the actual production and avoidable payment of incentive bonus made as brought out in the para above.

5.3.2.6.4 Overtime

Instructions of Railway Board stipulate that in RWF overtime[322] booking in sections covered under Incentive Scheme should be eliminated completely (December 1999).

Wheel Production, Wheel maintenance, Axle Forge Production, Axle Forge Maintenance, Axle Machine Shop Production, Axle Machine Shop Maintenance, General Maintenance are the units in RWF covered under the 'Incentive Scheme'. Examination of records by audit revealed that overtime booking continued in the sections covered under the Incentive Scheme and `5.47 crore was paid towards overtime allowance during the years 2010-13.

It was stated in the exit conference that 'overtime' was booked only for maintenance staff. However, on scrutiny of records it was noticed that overtime had been paid to both production and maintenance staff.

[322] Particulars of all extra hours of work done by a Railway employee beyond prescribed roistered hours.

Railway Board in their reply (July2014) stated that RWF is having Group Incentive Scheme and not Chittaranjan Locomotive Works (CLW) pattern of Incentive Scheme. In 1999, primarily only CLW type of incentive Scheme was predominant and therefore, instructions mainly relate to that type of incentive scheme. The over time is paid only for urgent situation and to achieve the out turn fixed for RWF. Over time is regulated with utmost consciousness,

The reply of Railway Board is not tenable as payment of overtime is in total contravention to Railway Board's order. Board's instructions dated 17 December 1999 addressed to GM/RWF for complete elimination of overtime booking in sections covered under incentive scheme has also been reiterated by the Review committee. These instructions have not been implemented

5.3.2.6.5 Loss due to non-segregation of water supply connection

RWF gets water supply through one 300 mm dia water supply connection from Bangalore Water Supply and Sewerage Board (BWSSB) for the requirement of factory and housing colonies. The Bangalore Water Supply Regulations 1965, (Rule 35) provides that when water supplied is used partly for domestic and partly for non-domestic purpose and connections are not segregated, the water supply engineer, after necessary investigation has to determine the percentage of water used for domestic/ non-domestic purpose and preferred the bills accordingly.

Review of the water bills paid to BWSSB during 2010-13 revealed that even as 70 *per cent* of the water received from BWSSB was being used for domestic purposes over the years, no action was taken to segregate domestic/nondomestic connections or to get the billing done as per BWSSB Regulations. This resulted in excess payment of water charges to the extent of `1.91crore for 2010-13. Till remedial action is taken this recurring loss will continue.

It was stated by Chief Engineer during exit conference that though BWSSB was approached in February 2011 and May 2011 for segregation, they were reluctant to segregate billing for domestic and non-domestic purpose as this would lead to loss for BWSSB. As the BWSSB act provides for segregation or to get the billing done based on approximate assessment by BWSSB engineer, RWF needs to pursue its case with BWSSB to get the benefit of reduced rates for domestic consumption.

Ministry of Railways (Railway Board) in their reply stated (July 2014) that the issue of installation of separate water meter for domestic and non-domestic connection for plant and colonies is being chased regularly with the officials of BWSSB but efforts have not yielded any result. The fact remains that there is recurring loss due to non-availing of the benefit of reduced rates for domestic consumption of water.

5.3.3 Conclusion

- RWF focused primarily on achieving/ exceeding the annual production targets fixed by Railway Board without reference to actual requirement of types of wheels as allotted by WTA. Planning for production and distribution was not as per WTA allotment. Accordingly, it was unable to meet production targets for BG loco wheels, MG Loco wheels and exceeded production of BOXN wheels

and 840 dia wheels etc. This has also resulted in avoidable payment of dividend to Government of India because of stock piling. This lack of synchronization between its WTA allotments and production resulted in stock piling of inventory of certain types of wheels. These issues occurred, despite the participation of RWF in the planning process at the Railway Board level.

- The proposal for Extended Material Modification for Augmentation Phase II was not a well considered decision in view of the fact that part of the demand for wheels by the Zonal Railways would be met by the upcoming Chhapra Wheel Plant.
- Improper planning of procurement of Graphite Mould Blanks (GMB) resulted in conversion of 48.5"GMB to 43.5"GMB.
- Intrinsic weaknesses in Financial Management were noticed viz.,

a) Non-reconciliation of quantities of scrap as mentioned in the Transfer Certificate with reference to the actual quantities received in stores and expenditure booked on scrap, which consequently resulted in increasing the cost of wheels, clearly indicating lack of internal control.

b) Non-revision of the Standard Plant Capacity based on the annual production capacity of the Plant in a scientific manner, considering the greater mechanization that had taken place under the augmentation scheme.

(Suman Saxena)

New Delhi **Deputy Comptroller and Auditor General**

Dated:

Countersigned

(Shashi Kant Sharma)

New Delhi **Comptroller and Auditor General of India**

Dated: