

Chapter 2

DISTRIBUTION AND UTILISATION OF SAFETY ITEMS IN INDIAN RAILWAYS

Executive Summary

Indian Railways (IR) runs 21598 trains (passenger and goods) daily using 5633 electric and 4823 diesel locomotives, 66392 passenger coaches and 245267 wagons. These assets are being maintained in 87 loco sheds and 201 wagon repairing shops which are located throughout its network. The extent of its operation and maintenance activities require efficient distribution and utilisation of safety items for safe running of trains and the safety of millions of passenger. An effective inventory management system ensures timely and uninterrupted availability of essential safety items of desired quality. The present review focuses on the performance of the Stores Departments of IR in distribution and utilisation of safety items.

The review was conducted during 2014-15 by examining the records of office of the Controller of Stores, Chief Mechanical Engineer, Chief Electrical Engineer, FA&CAOs of Zonal Railways and Stores Depots attached to Workshops, Loco Sheds and Carriage and Wagons Depots of 17 Zonal Railways. In addition to selection of six production units, 130 out of 338 workshops, sheds, coaching and wagon depots were selected for detailed study. The important audit findings are detailed below:

- i. The categorisation of safety items was not uniform across Zonal Railways. Their numbers ranged between 197 and 833 as against 468 safety items categorised by Railway Board. Fire retardant materials were not categorised as safety items by all the Zonal Railways.*

Para 2.6.1

- ii. Unified Price List Number for the safety items is essential for their efficient monitoring across Zonal Railways. It was, however, observed that the assignment of unique Price List Number was not completed by the Zonal Railways and the stock position of various safety items was not effectively monitored both at the Zonal level and Railway Board level resulting in either shortage of some safety items or procurement of some other items in excess of requirement.*

Para 2.6.1

- iii. Railway Board's instruction to place purchase orders at least three months ahead of the commencement of the contract period¹⁸ to ensure*

¹⁸ *The 12 months period for which the requirement is estimated is called "Contract Period".*

supply at the beginning of the contract period was not followed by the Zonal Railways. Several instances of significant delay in preparation of estimates and issue of purchase orders resulted in shortage of safety items which not only caused idling of rolling stock but also resulted in extra expenditure due to emergency purchase to recoup the shortfall.

Para 2.6.2 and 2.6.4

- iv. *There were instances of failure of safety items even after inspection by the nominated inspecting agencies RDSO and RITES.*

Para 2.6.5

- v. *There were instances of en route detachments of coaches and wagons due to use of inferior quality of safety items which had not only affected the safe running of trains but also caused detention of rolling stock..*

Para 2.6.7

- vi. *There were no uniform guidelines of Railway Board for periodic revision of Buffer Stock Limits of safety items. Non-revision of buffer stock limits in 13 Zonal Railways resulted in accumulation of safety items valuing ₹ 381.50 crore in excess of requirement.*

Para 2.6.8

Based on the above audit observations following recommendations were made:

- i. *Uniformity in categorization of safety items as per Railway Board directives needs to be ensured in a time bound manner to facilitate better co-ordination among Zonal Railways with regard to procurement, distribution and utilization of safety items.*
- ii. *Railway Board needs to issue guidelines specifying the limits of lead time at different levels for procurement of safety items. Action needs to be initiated for revision of Buffer Stock Limit suitably in all Zonal Railways to maintain optimum level of stock.*
- iii. *Material Management Information System (MMIS) needs to be effectively utilised for ensuring prescribed level of stock of safety items across Zonal Railways.*
- iv. *Monitoring mechanism both at the Zonal and Railway Board level needs to be strengthened for efficient distribution and utilization of safety items.*

2.1 Introduction

Safety items are defined as those items of stores and spares which are directly related to safety of train operations. Failure of safety equipments accounts for 3.81 *per cent*¹⁹ of rail accidents. However, ensuring timely availability / procurement / zero failure has significant impact on safe running of trains and safety of passengers. The Stores Department of Indian Railways (IR) is primarily responsible for planning, procurement and supply of various types of stores required for its operations, maintenance and in-house production activities. The user departments such as Mechanical, Electrical, Signal and Telecommunication etc. are responsible for proper utilisation of safety items procured by the Stores Department.

Effective monitoring ensures timely and uninterrupted availability of essential safety items of desired quality by assessing the needs of stores for various user departments. Safety items are procured by the Zonal Railways except some items such as wheel and axles, roller bearings, rails, sleepers, brake blocks etc. for which tender and contracts are finalised at Railway Board level. During 2013-14, IR procured stores amounting to ₹ 19365 crore and out of which ₹ 2229 crore²⁰ was spent for procurement of safety stock items. Details of organisation structure and the function of different branches of Stores Directorate at the Railway Board and Stores Department of Zonal / Divisional level are shown in *Appendix I*.

2.2 Audit Objectives

The objectives of the Performance Review were to assess:

- I. The efficiency in distribution and timely availability of safety stores to the user departments and
- II. The effectiveness of monitoring mechanism to ensure proper utilization of safety stores.

2.3 Scope and Methodology

The study covered a period of three years from 2011-12 to 2013-14. It involved examination of records relating to distribution and utilisation of safety items²¹ in the office of the Controller of Stores, Chief Mechanical Engineer, Chief Electrical Engineer, FA&CAOs of Zonal Railways and selected Stores Depots attached to Workshops, Loco Sheds and Carriage and

¹⁹ *Indian Railway Safety Performance Report of March 2013*

²⁰ *Except CLW/ Chittaranjan*

²¹ *Excluding permanent way materials and fuel*

Wagons Depots of 17 Zonal Railways. In addition to selection of six production units, 130 out of 338 workshops, sheds, coaching and wagon depots were selected for detailed study. Total number of depots and production units selected for review is shown in **Appendix-II**. For micro study, 20 per cent of total number of Estimate Sheets and 10 per cent of total number of Purchase Orders (POs) issued by the Stores Department subject to maximum of 25 Estimate Sheets/POs per year were selected.

The Performance Review commenced with an Entry Conference (October 2014) with the Adviser (Railway Stores) and Adviser (Finance) of Railway Board. Entry Conferences were also held at the Zonal Level with the respective Controller of Stores and Financial Advisor and Chief Accounts Officers. The draft review report was issued to the Railway Board on May 01, 2015. The audit findings and recommendations were discussed with Additional Member (Finance) and officials of Stores Directorate during Exit Conference was held on 8 July 2015 at Railway Board. Similar exit conferences were also held by the Principal Directors of Audit in the Zonal Railways with the concerned authorities in the zones. The reply of the Ministry of Railways was received in July 2015 and has been incorporated in the report.

2.4 Audit Criteria

The criteria for evaluation of performance of Stores Department of IR in distribution and utilization of safety items were derived from the relevant rules and provisions contained in the Indian Railway Code for Stores Department, Indian Railway Code for Accounts Department, guidelines and orders issued by Railway Board, Zonal Railways and Production Units from time to time.

2.5 Acknowledgement

The co-operation extended by the Zonal Railways, Production Units and also by the Railway Board in conducting this review is acknowledged.

2.6 Audit Findings

Objective I: To assess the efficiency in distribution and timely availability of safety stores to the user departments.

The Stores Department of IR maintains 262²² stocking depots spread over the entire railway network serving 17 Zonal Railways and six Production Units. The efficient distribution and utilization of safety items is of paramount

²² Chapter on 'Material management' (Indian Railways Annual Report and Accounts 2012-13)

importance for the effective maintenance and operation of Railway activities. In the 67th Conference of COS held in July 2008, a decision was taken to ensure 100 *per cent* availability of safety items.

A review of mechanism to ensure efficient distribution of safety items to the user departments revealed that the safety items were either in excess of requirement or short of requirement. The timely availability of safety items to user departments was affected due to delay in submission of Estimate Sheets, delay in issue of Purchase Orders and frequent grant of extension of delivery period to the vendors. Delayed receipt of stores resulted in shortage of safety items and idling of coaches, wagons and locomotives as discussed in the succeeding paragraphs.

2.6.1 Non- standardization of safety items

IR has been using over 1.8 lakh²³ of different types of stores of varying design, description, specification etc. Unification of PL number is vital for efficient monitoring of activities like procurement, distribution and utilisation of stores. In pursuant to Dhall Committee recommendations on public procurement, Ministry of Railways had taken up the task of unification of Price List (PL)²⁴ number for stores item. Safety items being of immense importance to IR, as a first step, the updated list of safety items was issued by Railway Board in March 2012 wherein the safety items were categorised under three categories²⁵ as detailed below:

Table No. 2.1:- Number of safety items as prescribed by Railway Board

Sl. No.	Departments	Category- I	Category- II	Category- III	Others #	Total
1.	Locomotive- Diesel	23	23	6	33	85
2.	Locomotive-Electric	44	6	50	-	100
3.	Coaching Stock	5	21	8	1	35
4.	EMUs/MEMUs/Metro/ Coaching Electrical	47	-	21	1	69
5.	Freight Stock	-	7	1	6	14
6.	Signalling	-	91	-	5	96
7.	Telecom	-	15	-	2	17
8.	Track	10	8	-	7	25
9.	Traffic	-	1	-	26	27
	Total	129	172	86	81	468

#Includes items other than category I, II and III such as magnet valve, hand brake assy, pivot rubber bush, slackless draw bar, wheel and axle for freight stock etc.

²³ Chapter on Material management (Indian Railways Annual Report and Accounts 2012-13)

²⁴ Refers to unique number for identification of each item of stores uniformly over entire railway system

²⁵ For vendor assessment and approval, safety items were categorized by RDSO into three categories and the same was circulated vide Railway Board's L/No. 99/RS(G)/709/1.Pt.I dated 11.03.2005.

Scrutiny of records revealed that:

- I. None of the Zonal Railways had followed the instructions of Railway Board. Zonal Railways had categorised safety items under heads which were different from the heads prescribed by Railway Board. For example in CR, safety items were categorised under the heads such as Carriage and Wagons, Construction I, Construction III, General, Electrical etc. which were not prescribed by Railway Board. In Metro Railway/Kolkata, safety items had not been categorised.
- II. The number of safety items was not uniform across Zonal Railways. The numbers ranged between 197 and 833 as against 468 safety items categorised by Railway Board. Zonal Railways categorised different number of items under 5 to 10 different heads. As against 85 items prescribed by Railway Board under the category 'Locomotive- Diesel', Central Railway had categorised 205 items. Similar instances were also observed in ECoR, NR, NFR and NWR. Details of variation observed in the Zonal Railways as against the prescribed standard of Railway Board is shown in *Appendix III*.
- III. Difference in categorisation of safety items was observed in WR (660 items under 10 heads) and CR (791 items under 7 heads) even though both are headquartered in the same city and have identical operational activities. The heads adopted for categorization of safety items in WR were different from those adopted in CR. The only common head was 'Locomotive - Diesel'. However, the number of items categorised in WR and CR under this head were 123 and 158 respectively as against 85 safety items prescribed by Railway Board. On further analysis, it was observed that only 41 safety items with identical PL numbers were common in both the Railways. In absence of price list number in the Railway Board's list of safety items circulated (March 2012) to all Zonal Railways, the inclusion of appropriate safety items prescribed under the head 'Locomotive - Diesel' could not be verified.
- IV. Material identification through unique number (Unified PL Number) is a standard tool in supply chain management. Unified PL numbers plays vital role for effective monitoring of the stock level and initiating procurement action for various stores items across Zonal Railways. Safety items being of immense importance to IR for ensuring safety of passengers, unified PL Number for the safety items is essential for efficient distribution of safety items across Zonal Railways so that the operations of IR are not affected due to shortage of safety items. It was, however, observed that the assignment of unique PL number was not completed by the Zonal Railways and as a result, stock position of various safety items was not effectively monitored both at the Zonal level and Railway Board level as evident from the instances of

shortage and also accumulation of safety items as discussed in subparagraphs 2.6.4 and 2.6.7.

- V. The reasons for the wide variation between the list of safety items issued by the Railway Board's as per their circular ibid and the list of items prepared by Zonal Railways/RPUs (February 2015) were sought from Zonal Railway Administration. Reply is yet to be received from Railway Administration of 08 Zonal Railways²⁶ and one RPU (RCF/RBL).

Review of the replies received from other Zonal Railways revealed that:-

- (i) The list of safety items includes those categorized as safety items locally (CR and WCR).
- (ii) The list of safety items circulated by Railway Board include assembly items as one, while the Zonal Railway administration has categorized each item of the assembly as a separate safety item resulting in a far larger number being categorized as safety items (NWR and WR).
- (iii) Safety items are categorised as per the Zonal requirements under various heads (ER/NCR/SER/SWR/SR)

The contention of the Zonal Railway Administration is not tenable as the action of the Zonal Railways for categorizing stores under different heads was not supported by any authority from Railway Board. No specific instructions have been issued by Railway Board delegating the discretionary powers to Zonal Railways for deciding the stores items as safety items other than those circulated by Railway Board (March 2012). The practice in vogue in the Zonal Railways defeated the objective of circulation of comprehensive list of safety items to all Zonal Railways for their efficient monitoring.

- VI. For 80 *per cent* reduction of fire accidents and consequent fatalities, Corporate Safety Plan (2003-13) recommended use of fire retardant material in the passenger coaches. Based on International Union of Railways (UIC), RDSO modified the specifications of coach furnishing materials (between 2005 and 2011) by including properties such as resistance to spread of flame, deterioration of visibility due to smoke, limiting oxygen index and toxicity index. ***Fire retardant materials were, however, not categorised as safety items by all the Zonal Railways.***

Railway Board stated (July 2015) that the difference between the list of safety items of the Zonal Railways differed as the safety items prescribed by the Board were of generic category whereas Zonal Railways included specific safety items in their list of safety items.

²⁶ ECR/ ECoR /NR /NER/NFR/ SCR/ SECR/ Metro Railway, Kolkata

The contention of Railway Board is not tenable as the variation in the number of safety items across Zonal Railways had adverse impact on efficient monitoring of availability of safety items. Moreover, absence of unified PL number for safety items contributed to the factors leading to inefficiency in distribution and utilisation of safety items besides ineffective monitoring of stock of safety items.

2.6.2 Delay in preparation of Estimate Sheets

The stocking depots periodically inform the inventory position to the Controller of Stores (COS) and raise indents based on the estimation of rate of consumption through Material Management Information System (MMIS). Railway Board has not prescribed any time lines for preparation of Estimate Sheets. It, however, instructed (March 2002) the Zonal Railways that POs should be placed at least three months ahead of the commencement of the contract period²⁷ to ensure supply at the beginning of the contract period. To achieve this, the process of preparation of Estimate Sheets should start at least one year in advance of the contract period for different items.

A test check of 4356 Estimate Sheets²⁸ out of total 24169 estimate sheets prepared by the Zonal Railways and RPU for procurement of safety items such as Spring for Draw gear, Brake Blocks, Axle oil, Machinery oil, distributor valves, bearings etc. revealed that while the delay in submission of Estimate Sheets was up to 32 months, the delay in issue of POs against those estimate sheets ranged between 1 and 37 months as per details given below:

Table No. 2.2:- Range of delay in submission of Estimate Sheets and issue of POs

Year	No. of Estimate Sheets test checked		Range of delay in submission of Estimate Sheets (in Months)		No. of POs issued by COS against the ESs		Range of Delay in issue of POs (in months)	
	ZR	RPU	ZR	RPU	ZR	RPU	ZR	RPU
2011-12	1361	34	1 to 32	1 to 12	1640	57	1 to 37	1 to 32
2012-13	1441	49	1 to 20	1 to 21	1681	89	1 to 28	1 to 22
2013-14	1469	33	1 to 13	1 to 25	1666	65	1 to 28	1 to 15
	4271	116			4987	211		
TOTAL	4387				5198			

Scrutiny of records further revealed the following:

- I. Delay of more than 12 months in submission of Estimate Sheets was noticed in two Zonal Railways²⁹ during 2011-12, in three Zonal

²⁷ The 12 months period for which the requirement is estimated is called "Contract Period".

²⁸ 20 per cent of total number of estimates subject to maximum 25 estimate sheets per year

²⁹ SER (32 Months) and WCR (18 Months)

Railways³⁰ during 2012-13 and in one Zonal Railway³¹ in 2013-14. Significant delay³² ranging between 18 months and 32 months was noticed on SER and WCR. Timely submission of Estimate Sheets was, however, observed in respect of depots test checked in CR, NFR, NWR, SR, SCR, SECR and SWR.

- II. In respect of RPUs, maximum delay in submission of Estimate Sheets was noticed in RCF, Kapurthala (12 months) during 2011-12, RCF/RBL (21 months) during 2012-13 and DMW/Patiala (25 months) during 2013-14.
- III. Delay of more than 18 months in issue of POs was noticed in six Zonal Railways³³ and one RPU (DMW/Patiala-32 months) during 2011-12, in six Zonal Railways³⁴ and one RPU (RCF/Kapurthala-22 months) during 2012-13 and in two Zonal Railways³⁵ during 2013-14. This implied that the POs were issued six months after commencement of the Contract Period and thus violated Railway Board instructions (March 2012) that the POs should be placed at least three months ahead of the commencement of the contract period.

Maximum delay was noticed in SR (37 months) during 2011-12, in SCR (28 months) during 2012-13 and SR (28 months) during 2013-14. In RPUs, maximum delay in issue of PO was noticed in DMW/Patiala (32 months) during 2011-12, in RCF/Kapurthala (22 months) during 2012-13 and RCF/Kapurthala (15 months) during 2013-14.

While admitting the delay in submission of estimate sheets, Railway Board stated (July 2015) that this was due to delay in submission of demand. Railway Board further contended during exit conference that the procurement of safety items was being done on the basis of demands of the users.

The contention of the Ministry of Railways is not tenable as there were several instances of either shortage of safety items or procurement in excess of requirement as pointed out in succeeding Paragraphs 2.6.4 and 2.6.7.

2.6.3 Delay in issue of Purchase Orders and receipt of stores

As instructed by Railway Board, POs should be placed at least three months ahead of commencement of contract period to ensure supply at the beginning of contract period. Permissible maximum lead time should, therefore, be nine

³⁰ SER (20 Months), WCR (18 Months) and Metro (13 Months)

³¹ SER (13 Months)

³² SER(32 months) during 2011-12, WCR (18 months) during 2012-13

³³ SR (37 Months),SWR (33 Months), SER (28 Months), SCR (20 Months), NFR (34 months) and WR (19 Months)

³⁴ SCR (28 Months), NFR (27 Months), SR (25 Months), SWR (25 Months), WR (20 Months) and SER (19 Months)

³⁵ SR (28 Months) and SER (26 Months)

months and three months for internal lead-time³⁶ and external lead-time³⁷ respectively.

Test check of 1132 POs³⁸ relating to safety items such as Composite Brake Block, M.S. heavy duty seamless tube, Transformer oil, Gear case assembly, etc. procured in 17 Zonal Railways revealed delay³⁹ in internal lead time ranged between 01 month and 26 months in respect of 424 POs (37 per cent). Delay in external lead time ranging from 01 month to 33 months was also noticed in case of 721 POs (64 per cent).

In respect of RPUs, test check of 225 POs revealed that there was delay in internal lead time ranging between 01 month and 20 months in case of 75 POs (33 per cent). Further, in 161 POs (72 per cent), delay in external lead time ranged between 01 month and 23 months. Year-wise range of lead time is shown in Table below:

Table No 2.3: Delay in lead time for procurement of Safety Items

Year	No. of POs test checked	Zonal Railways					
		Delay in Internal lead time (in months) after allowing permissible period of 09 months			Delay in External lead time after allowing permissible period of 03 months		
		No. of POs	Min.	Max.	No. of POs	Min.	Max.
2011-12	382	121	01	26	228	01	33
2012-13	385	160	01	19	245	01	25
2013-14	365	143	01	21	248	01	18
Total	1132	424			721		
Railway Production Units							
2011-12	74	28	01	07	55	01	23
2012-13	87	33	01	20	73	02	20
2013-14	64	14	01	07	33	01	11
Total	225	75			161		
G.Total	1357	499			882		

Scrutiny of record relating to delayed cases in respect of external lead time and internal lead time across 17 Zonal Railways and six RPUs revealed that:

- (i) In 17 Zonal Railways, 417 cases out of 545 (77 per cent), longer external lead time pertained to Category I and II items⁴⁰ and 418 cases

³⁶ Time gap between the date of identification of requirements till placing of supply order

³⁷ Time taken by the supplier to supply the item from the date of placement of order.

³⁸ 10 per cent per year subject to maximum 25 per year

³⁹ Allowing permissible period of nine months

⁴⁰ For vendor assessment and approval, safety items were categorized by RDSO into three categories and the same was circulated vide Railway Board's L/No. 99/RS(G)/709/1.Pt.I dated 11.03.2005.

out of 657 (64 per cent) pertained to POs of A and B category⁴¹ of safety items.

- (ii) While in six RPUs, 92 cases out of 174 (53 per cent), longer external lead time pertained to Category I and II safety items, 103 cases out of 111 (93 per cent), pertained to POs of A and B category of safety items.
- (iii) In 265 cases out of 366 (72 per cent), delay in internal lead time was observed in respect of POs of A and B category store items.
- (iv) In respect of RPUs, delay in internal lead time in all 22 cases pertained to POs of A and B category store items.

Scrutiny of records further revealed that the delay in external lead time was due to frequent extension of delivery periods to the suppliers. It was revealed that:

- I. Extensions for more than 60 days were granted in 334 cases out of 517 (65 per cent) across Zonal Railways and in 83.33 per cent cases (85 cases out of 102) in respect of RPUs. The main reasons for grant of extensions were suppliers' request, delay in inspection by inspecting agencies etc. Table below shows the number of extensions granted and the range of period of extension.

Table No. 2.4: Number of extensions granted to the suppliers and their range

Year	No. of POs. test checked		No. of extensions granted		Number of POs. where extensions granted ranged between (in days)					
					1-30		31-60		Above 60	
					ZR	RPU	ZR	RPU	ZR	RPU
2011-12	298	73	329	59	27	4	24	3	108	31
2012-13	313	76	371	61	39	4	31	1	128	37
2013-14	274	63	235	40	38	3	24	2	98	17
Total	885	212	935	160	104	11	79	6	334	85
ZR+RPU	1097		1095		115		85		419	

Scrutiny of records further revealed that:

- I. In 17 Zonal Railways, 1011 POs pertaining to 57 depots were 'Overdue'⁴² for more than six months as on 31 March 2014 and 199 of them were cancelled. In eight Zonal Railways⁴³, the number of overdue POs which were cancelled subsequently ranged between 25 per cent (WCR) and 62 per cent (CR).

⁴¹ 'A' category items are high value items which constitute 70 per cent of total value of all items stocked; 'B' category items are medium items constituting 20 per cent of total value of all items; and 'C' are low value items which constitute 10 per cent of total value of all items

⁴² Para 769 to 772 of Indian Railway Code for the Stores Department

⁴³ CR (62.37 per cent), ECR (40.43 per cent), NR (36.84 per cent), NFR (29.17 per cent), SR (35.59 per cent), SER (46.30 per cent), SECR (42.86 per cent) and WCR (25.30 per cent)

- II. 11 Zonal Railways⁴⁴ and two Production Units (DMW/Patiala and ICF/Perambur) had to resort to emergency purchases due to vendor's failure to supply, faulty estimation, shortage of stock, excess drawal etc. In 132 cases out of 300, safety items were procured at higher rates as compared to purchase of similar items in the normal course during the same period with nearly the same lead time as indicated in *Annexure I*. This indicated inefficient distribution and monitoring by the Zonal Railways as well as Railway Board as the latter receives monthly report of availability of safety items from the Zonal Railways for monitoring.
- III. In RPU's, 49 POs were overdue and in 36 cases, COS of Production Units failed to initiate action against the defaulting suppliers.
- IV. In 17 Zonal Railways, 64 *per cent* of the cases (457 cases out of 706) pertained to the Category I and II items and 63 *per cent* of the cases (19 cases out of 30) pertained to Category I and II items in respect of RPU's.

In respect of extensions of delivery period in excess of 60 days with reference to category as well as value of safety items, it was observed that:

- I. 206 cases out of 288 (72 *per cent*) pertained to the category I and II safety items and 70 *per cent* of the cases (216 cases out of 307) pertained to A and B category items.
- II. In RPU's, 66 *per cent* of the cases (38 cases out of 58) pertained to the category I and II safety items and 84 *per cent* of the cases (36 cases out of 43) pertained to A and B category items.

Railway Board cited that delay in getting response from the vendors, quotation of higher rates, shortage of fund etc. were some of the factors contributing to the delay in issue of POs. Regarding grant of extension of delivery period, Railway Board stated (July 2015) that the extensions are granted to ensure availability of supply as the time required for fresh purchases is more than the extensions solicited by the firms. Railway Board further stated that the emergency purchases are resorted for reasons such as unanticipated increase in requirement, failure of vendors, delayed inspection, rejection etc.

The contention of Railway Board is not acceptable as the availability of safety items *at the right time* was not ensured which lead to shortage of stock of safety items as brought out in Para- 2.6.4 below. The reasons cited by Railway Board in respect of emergency purchase indicated that adequate priority was not assigned to ensure timely availability of safety items.

⁴⁴ CR, ECR, ECoR, NWR, SR, SCR, SER, SECR, SWR, WR and WCR

2.6.4 Impact of delay on availability of safety items

A review of the impact of delay on the availability of safety items revealed that:

- I. In 117 Stocking depots over 17 Zonal Railways, 3254 safety items were out of stock for periods upto 25 months as per details given below:

Table No. 2.5: The range of period of out of stock position of Safety items

Year	No. of safety items out of stock (Cumulative fig.)	Shortage of quantity of safety items (Cumulative fig.)	Period for which there was no stock of safety items (in months)
2011-12	936	412111	1 to 24
2012-13	1048	473592	1 to 16
2013-14	1270	354136	1 to 25

- II. Three Zonal Railways (ECR, NFR and SR) accounted for 68 per cent of the total number of out of stock safety items as detailed below:

Table No. 2.6: Maximum number of Out of Stock of Safety items

Name of Zonal Railways	No. of safety items out of stock	Shortage of quantity of safety items (in numbers)
ECR	121	192417
NFR	505	284680
SR	1219	371069
TOTAL	1845	848166

- III. In 10 Zonal Railways⁴⁵ 814 coaches, wagons and locomotives remained idle for periods upto 668 days for want of safety items resulting in loss of earning capacity of ₹ 348.37 crore as per details given below:-

Table No 2.7: Loss of earning capacity due to idling of assets

Year	No. of workshop/sheds where assets remained idle	No. of assets remained idle	Range of idling period (in days)	Loss of earning capacity (₹ in crore)
2011-12	14	222	1 to 513	38.34
2012-13	14	293	1 to 570	88.99
2013-14	15	294	1 to 668	221.04
Total	43	809		348.37

⁴⁵CR, ECR,NER, NFR,SR,SCR,SER,SECR, SWR and WCR. The idling of rolling stock due to shortage of safety items was not noticed in the remaining seven Zonal Railway.

Railway Board stated (July 2015) that out of stock of safety items caused by various factors such as drawal of stores more than the anticipated annual consumption, non-supply in time by vendors, delay in inspection etc.

The contention of Railway Board is not acceptable as the Zonal Railways failed in effective utilisation of MMIS which facilitate faster data collection and easier assessment of requirement. Since safety items are procured from established regular sources approved by RDSO and inspected by RDSO/RITES, failure of vendors to timely supply the stores and delay in inspection was indicative of improper vendor assessment and inefficiency of Zonal Railways in ensuring availability of safety items at the beginning of the contract period as instructed by Railway Board in March 2002.

Audit Objective II: To assess the effectiveness of monitoring mechanism to ensure proper utilization of safety items.

At Zonal Railway level, monitoring of utilization of safety items is being done through monthly meeting of COS with Heads of user departments and weekly meeting of depot-in-charge with user department at workshops/loco sheds/Coaching and Wagon depots etc. The information provided to the COS of Zonal Railways by the Depot officers was not effectively utilized to initiate remedial measures after discussion in the monthly meeting with the officers and HODs of the user departments.

Railway Board monitors the utilization and availability of safety items by the Zonal Railways through a monthly report. The objective of this reporting is defeated as there were several instances of stalling/detention/*en route* detachment of coaches, wagons and locomotives due to failure of safety items which are being procured from RDSO approved sources and utilized after clearance by the Inspecting agencies such RDSO and RITES.

A test check of utilisation of safety items of desired quality revealed instances of poor quality of inspection of safety items before their utilization which had adverse impact on the operation of trains and safety of passengers as discussed in the succeeding paragraphs.

2.6.5 Rejection after clearance by the Inspecting Agency

Whenever a consignee finds that the material inspected by RITES/ RDSO/ DQA does not meet the requirement of the PO, Rejection Advice is sent to the inspecting authority. Thereafter, joint inspection is carried out by the representative of inspecting authority, supplier and consignee.

Scrutiny of records relating to rejection of safety items, after inspection by the nominated agency in selected depots of Zonal Railways revealed that:

- I. In 16 Zonal Railways (except in NCR) and four RPU's (except in ICF/Perambur and RCF/ Raibareli), 319 rejection cases (31 items under Category – A, 75 items under Category – B, 137 items under Category – C and 76 items under 'Other' Category) worth ₹ 8.55 crore were noticed as the supplies did not conform to the required specification;
- II. Out of 61 cases where joint inspections were conducted, no inspection certificates were submitted by the nominated Inspecting agencies in respect of 25 rejected cases (2 items under category A, 1 item under category B, 9 items under category C and 3 items under other category) of six Zonal Railways⁴⁶ and in one RPU (DLW/Varanasi-10: 1 item under category A, 4 items under category B and 5 items under category C)
- III. Out of 319 rejected cases, in 258 cases of 11 Zonal Railways⁴⁷ and three RPU's⁴⁸, no joint inspections were carried out to settle the rejection cases. In 10 Zonal Railways⁴⁹ and two RPU's⁵⁰, 120 rejection cases pertained to receipt of stores from Category I items.

2.6.6 Rejection by the Consignee

During inspection by the consignee, substantial numbers of consignments get rejected due to breakage, damage and supply of defective materials. It was observed that there were 1395 rejection cases in 27 Stores Depots during 2011-14. Out of 1395 cases, 921 were settled and the balance 474 cases involving money value of ₹ 4.02 crore were outstanding (March 2014) in 11 Zonal Railways⁵¹ and four RPU's⁵². Of these outstanding cases, 163 cases involving money value of ₹1.79 crore were more than two years old in eight Zonal Railways⁵³ and in DLW/Varanasi as indicated in *Annexure II*.

2.6.7 Failure of safety items during warranty period

The vendors are liable to replace such stores which fail prematurely within the warranty period. It was observed that:

⁴⁶ ER (3), ECR (3), NFR (2), NWR (1), SER (3) and WCR (2).

⁴⁷ CR (6), ER (3), ECR (39), ECoR (2), NFR (5), NWR (1), SCR (6), SER (19), SECR (15), WCR (3) and Metro Railway/ Kolkata (6)

⁴⁸ DLW (140), CLW (10) and DMW (3)

⁴⁹ ECoR (2), NR (2), NFR (1), NWR (1), SR (1), SCR (1), SER (12), SECR (7), SWR (3) and WCR (1)

⁵⁰ DLW/ Varanasi (80) and CLW/Chittaranjan (9)

⁵¹ CR, ER, ECR, NER, NFR, NWR, SCR, SER, SWR, WR and WCR

⁵² DLW/Varanasi, CLW/Chittaranjan, RCF/Raibareli and DMW/Patiala

⁵³ ER, ECR, NER, NWR, SER, SWR, WR and WCR

- I. In the Zonal Railways and RPU, 36327 safety items⁵⁴ worth ₹ 8.41 crore failed during the warranty period and the same were not replaced by the firms for different periods upto 34 months from the date of their failures. The delay in replacement was more than 12 months in six Zonal Railways⁵⁵ and two RPU⁵⁶. Safety items worth ₹ 5.03 crore (62 per cent) pertained to four Zonal Railways⁵⁷.
- II. In six RPU, 3821 safety items⁵⁸ valuing ₹ 1.60 crore failed during the warranty period and the same were not replaced (March 2014) by the vendors. Out of these, safety items worth ₹74.50 Lakhs (46 per cent) pertained to ICF/Perambur alone.
- III. On examining the outstanding warranty claim cases as on 31 March 2014 with reference to category as well as value of safety items, it was observed that:
 - (i) In the Zonal Railways 235 cases out of 298 (79 per cent) pertained to Category I and II items and 79 per cent of the cases (372 cases out of 470) pertained to A and B category items; and
 - (ii) In RPU, 94 per cent of the cases (137 cases out of 145) pertained to the category I and II items. 50 cases out of 147 (34 per cent) pertained to A and B category items.
 - (iii) The proposals for black listing of 19 firms were sent to RDSO/Railway Board by three Zonal Railways⁵⁹ (NR – 6, NER – 10 and SER – 3). Out of these, 15 firms (NR – 2, NER – 10 and SER – 3) were banned for business for three to five years. These firms had submitted forged authorisation letters/inspection certificates, supplied substandard equipments/machines etc. Response of RDSO/Railway Board is awaited in the remaining four cases pertaining to NR.

While no responsibility was fixed for deficient inspection by the inspecting agencies, the use of inferior quality of safety items resulted in stalling of trains, on-line detentions to locomotives, detachment of coaches/ wagons from running trains etc. It was observed that:

- I. Test check in 44 Coaching and Wagon Depots revealed that 210 Passenger trains and 670 Goods trains including attached locos were

⁵⁴ Such as Silent Blocks for Anchor Link, Distributor valves, Buffer Casings, draft gear, brake head, safety hook assembly, hand brake wheel, knuckles, air hoses etc.

⁵⁵ CR- 34 months, ECoR-16 months, NFR-29 months, NWR-16 months, WR 34 months and WCR - 29 months

⁵⁶ DLW/ Varanasi- 34 months and CLW/Chittaranjan – 14 months

⁵⁷ SWR - ₹.15 crore; SCR- ₹1.81 crore; ECoR- ₹63 lakh and NFR- ₹44 lakh

⁵⁸ Such as master controller, elastic rings, pinion etc.

⁵⁹ No case of black listing of firms citing rejection of safety items was noticed in other Zonal Railways and RPU.

stalled/ detained *en route* for detachment of sick Coaches/ Wagons due to failure of safety items⁶⁰ as detailed below:

Table No. 2.8: Hours of detention of passenger and goods trains

Year	No. of Passenger Trains stalled/ detained		No. of Goods Trains stalled/ detained		Total Detention Hours (Hours-Minutes)		
	No. of Depots	No. of trains	No. of Depots	No. of trains	Passenger	Goods	Locos
2011-12	24	65	20	261	48-00	1658-34	266-12
2012-13	24	66	20	188	37-56	717-01	274-08
2013-14	24	79	20	221	87-48	840-38	435-57
Total		210		670	173-44	3216-13	976-17

Similarly, 1902 locomotives had suffered on line detentions due to failure of safety items in all the Zonal Railways which also resulted in detention of the connected passenger and goods trains as indicated in the table below:

Table No. 2.9: Hours of detention of Locomotives

Year	Detentions to Locos		Total No. of Locos detained	Total Detention (Hours-Minutes)		
	Diesel	Electrical		Locos	Passenger	Goods
2011-12	377	107	484	384-28	537-01	1968-12
2012-13	602	127	729	713-54	1222-56	647-23
2013-14	560	129	689	613-43	762-30	1117-34
Grand Total	1539	363	1902	1712-05	2522-27	3733-09

II. It was observed that there were instances of *en route* detachments of coaches and wagons due to use of inferior quality of safety items⁶¹. A total of 12245 coaches⁶² and 39551 wagons⁶³ suffered *en route* detachments in 14 Zonal Railways. Some of the coaches and wagons were detached within 100 days of their Periodical Overhauling (POH). The detachment of coaches and wagons from running trains due to failure of various materials/ equipments affected the safe running of trains besides loss of earning capacity of the rolling stock. Year-wise Position of *en route* detachments of wagons/coaches is indicated in the table below:

⁶⁰ Such as Wheel linear, Bolster, Spring gear, Cartridge bearing, CBC Rod, Distribution Valve, LB Spring, Brake gear, Brake cylinder, Shock absorber, Brake binding, Compressor, Roller bearing, Anchor link etc.

⁶¹ Such as CBC Draft gear, CBC Shank, CBC yoke, Knuckle, Anchor link, Distributor valve, Equalizing stay, Side buffer plunger, Coil Spring, Pivot, Secondary spring, Roller bearing, Brake beam, Centre Pivot etc.

⁶² CR, ER, ECoR, NR, NER, NCR, NFR, NWR, SR, SCR, SER, SECR, SWR and WCR. In the remaining three Zonal Railways, cases of *enroute* detachment was not noticed.

⁶³ CR, ER, ECoR, NR, NCR, NER, NFR, NWR, SCR, SER, SECR, SWR, WR and WCR. In two Zonal Railways ECR and MR/Kolkata, no cases of *enroute* detachment noticed.

Table No. 2.10: En route detachment of coaches and wagons

Year	Detachment of Coaches/ Wagons after POH					
	Coaches within 100 days	Coaches after 100 days	Total Coaches	Wagons within 100 days	Wagons after 100 days	Total Wagons
2011-12	236	3272	3508	5569	8126	13695
2012-13	244	3576	3820	1383	11808	13191
2013-14	185	4732	4917	1188	11477	12665
Total	665	11580	12245	8140	31411	39551

- III. In nine Zonal Railways⁶⁴, the safety items which failed on the running trains were under the category of ‘must change’ items during POH/ ROH/ IOH which was indicative of use of inferior quality of safety items ignoring the safety concern.
- IV. In five Zonal Railways⁶⁵, the requirements of safety items were made good by using old serviceable stores or by reclamation of old stores with added risk of failure during operation. Out of total 507 cases of accidents across the Zonal Railways during the period from 2011-12 to 2013-14, 16 accidents were due to failure of safety stores in respect of seven Zonal Railways⁶⁶ resulting in loss of life in two cases (ER and NFR) and a loss of property to the extent of ₹ 25.01 crore.

Railway Board stated (July 2015) that all the safety items are normally inspected by nominated inspecting agencies for ensuring quality and compliance to the ordered specification. The reasons for failure of safety items were, however, not elaborated in the reply of Railway Board. The practice of use of old serviceable stores or by reclamation of old stores were not supported by any provisions in their codes and manuals particularly for safety items.

2.6.8 Buffer Stock Limit

Buffer Stock refers to inventory which is held in addition to regular inventory to guard against uncertainty in demand or lead time. Railway Board communicated (March 2002) to all Zonal Railway that the Buffer Stock Limits for stock items other than indigenous Wheel Tyre and Axles (WTA) items may be decided by the COS in consultation with Associated Finance.

In November 1997, IR introduced Material Management Information System (MMIS) to enable faster assessment of requirement of users and minimise the time taken for procurement and distribution of safety items by initiating procurement action through Indian Railway E-Procurement System (IREPS).

⁶⁴ CR, ER, ECoR, NR, NCR, NER, NWR, SER and SECR

⁶⁵ WR, SR, SCR, SER and SWR

⁶⁶ ER (2), NR (2), NCR (1), NFR (5), SR (1), WR (3) and Metro Railways (2)

Buffer Stock Limits followed traditionally should also, therefore, undergo periodical revision to match the changing need of the users so that the level of stock does not fall short of requirement or in excess of the requirement.

Audit observed that both the Zonal Railways and the Railway Board failed in monitoring the trend of consumption of stores by user departments and time required for their replenishment. While in two Zonal Railways (WR and SWR) Buffer Stock limits were revised, in two other Zonal Railways (SR and Metro Railway/ Kolkata), buffer stock limits had not been prescribed at all. The existing Buffer Stock limits were not periodically reviewed and revised in 13 Zonal Railways⁶⁷. Non-revision of buffer stock limits resulted in avoidable accumulation of safety stock worth ₹65.46 crore during 2011-14 as shown in the table below:

Table No. 2.11: Accumulation of stock due to non revision of Buffer Stock Limits.
(₹ in crore)

Year	No. of Pos. test checked	Buffer Stock Value (Before Revision)	Buffer Stock Value* (After Revision)	Excess Buffer Stock Value (Col.No.3-4)
1	2	3	4	5
2011-12	300	38.99	17.74	21.26
2012-13	309	43.42	20.02	23.40
2013-14	289	38.76	17.96	20.80
TOTAL	898	121.17	55.72	65.46

* Financial implication worked out by audit with reference to the revised Buffer Stock Limit adopted by WR. This amount includes ₹53.30 lakhs on account of upward revision of Buffer Stock by SWR for 'C' category items during the year 2012-13 and 2013-14. Specific reasons for upward revision of Buffer Stock Limit for C category items were not available on record.

Scrutiny of records relating to status of stock of safety items during 2011-14 revealed that:

- i. In 15 Zonal Railways⁶⁸ and two RPU's⁶⁹, 'Overstock'⁷⁰ of 18853 items⁷¹ valued at ₹159.79 crore (March 2014) were kept idle. In nine Zonal Railways⁷² and DMW/ Patiala, the percentage increase in the number of over stock items ranged between 3 per cent and 223 per cent.
- ii. In 13 Zonal Railways⁷³ and three RPU's⁷⁴, 'Surplus'⁷⁵ stock of 10613 items valued at ₹65.60 crore (March 2014) was held. In two Zonal

⁶⁷ CR, ECR, ECoR, NR, NCR, NER, NFR, NWR, SCR, SER, SECR, SWR and WCR.

⁶⁸ except WCR, where the records were not made available and SECR which had not furnished data for the years -12 and 2012-13

⁶⁹ DLW/Varanasi and DMW/Patiala except ICF, RCF/ Kapurthala and RCF/ RBL where there was no over stock and CLW where the records were not made available

⁷⁰ Overstocks' refer to the quantities in excess of 50 per cent of total of issues made in the previous year of a particular item.

⁷¹ Some important high value over stock items were L-type Composite Brake Block, Head Light Assembly, Axle Rough Gear, Spring Coil, Gear Draft, Rod Assembly Car Body etc.

⁷² ER, ECoR, NR, NER, SR, SCR, SECR, SWR and WR

⁷³ except SER, MR/Kolkata and WR; relevant records of WCR were not made available

Railways (ECR and NER) and in two RPU's (ICF/Perambur and DMW/Patiala), Surplus Stock items ranged between 6 per cent and 68 per cent.

- iii. All the Zonal Railways (except WCR⁷⁶), and three RPU's⁷⁷, held 'Non-moving'⁷⁸ stock of 10872 items valued at ₹156.12 crore. In seven Zonal Railways⁷⁹ and two RPU's (CLW/Chittaranjan and DMW/Patiala), number of Non Moving Stores items had increased from 6 per cent in the year 2011-12 to 171 per cent in 2013-14.

Railway Board stated (July 2015) that buffer stock is meant take care of uncertainties in procurement process and variation in consumption. They further asserted that the implementation of MMIS does not affect the uncertainty in demand and supply.

The contention of Railway Board is not acceptable as the non-revision of buffer stock limit led to holding of stock in excess of requirement of user departments. Further, MMIS should have been used as an aid to the management for judicious assessment of requirement of users and optimal holding of stock by way of proper distribution of safety items among the Zonal Railways. The accumulation of stock in excess of requirement as mentioned in *Annexure III* indicated that the distribution of safety items was not in conformity with the utilisation of user departments. Possibility of overstock items getting corroded / deteriorated due to passage of time and the safety hazards due to use of such items cannot be ruled out besides avoidable unproductive blocking of funds.

2.7 Conclusion

Safety items play a vital role in safe running of trains. Efficient monitoring of distribution and utilisation of safety items of desired quality is therefore essential for the safety of the passengers. Railway Board's instruction for standardisation of safety items and unification of Price List Number for uniform monitoring across Zonal Railways were not adhered to. The delay in receipt of safety items due to delay in preparation of estimate sheets, issue of POs, frequent extensions of delivery period of contract and rejection of defective safety items had adverse impact on the availability of safety items which caused idling of rolling stock, detention of trains and safe running of trains due to *en route* detachment of coaches. Non-revision of Buffer Stock Limit resulted in either shortage of safety items or holding of stock in excess

⁷⁴ CLW/Chittaranjan, ICF/Perambur and DMW/ Patiala

⁷⁵ The stores items which have not been issued for a period of two years but likely to be utilized in the near future are termed as 'Surplus Stock'

⁷⁶ Where the records were not made available to audit.

⁷⁷ CLW/Chittaranjan, DMW/ Patiala and ICF/Perambur

⁷⁸ Non-moving' Stores comprise stores which have not been issued for the past 24 months and are not likely to be utilized within the next two years

⁷⁹ ECR, NR, NER, NWR, SER, WR and Metro Railway/ Kolkata

of requirement. Inefficient monitoring of availability and consumption of user departments led to overstock/surplus stock of safety items.

2.8 Recommendations

Following recommendations are suggested for ensuring implementation by Railway Board:

- I. *Uniformity in categorization of safety items as per Railway Board directives needs to be ensured in a time bound manner to facilitate better co-ordination among Zonal Railways with regard to procurement, distribution and utilization of safety items.*
- II. *Guidelines specifying the limits of lead time at different levels for procurement of safety items need to be issued. Action needs to be initiated for revision of Buffer Stock Limit suitably in all Zonal Railways to maintain optimum level of stock.*
- III. *MMIS needs to be effectively utilised for ensuring prescribed level of stock of safety items across Zonal Railways.*
- IV. *Monitoring mechanism both at the Zonal and Railway Board level needs to be strengthened for efficient distribution and utilization of safety items.*



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Dated: 29 July 2015

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