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Indian Railways: Prioritising Safety on the Tracks

A. Madhukumar Reddy

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Photo Caption: A train driver waves a green flag signalling train movement ahead, at the Charbagh railway station, Lucknow, in January, 2024. Photo: Sandeep Saxena/The Hindu Archives

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ABSTRACT

Of late, Indian Railways (IR) has been in the news for a spurt in accidents. Catastrophes that claimed lives turn the public spotlight on the safety of IR as a transport provider. Between April and November 2024, a total of 29 consequential accidents (those that result in loss of lives or damage to railway property or cause disruptions and delays) resulted in the deaths of 17 people and injured 81. Although the public mind considers train accidents as results of human or/and technical failures, skewed policy-making and financial allocations also have a direct bearing on rail safety. The forthcoming Union Budget session provides parliamentarians and the Government of India an opportunity to address these chronic issues and chart out a roadmap to enhance rail safety.

In this Policy Watch, **A. Madhukumar Reddy, an Indian Railway Traffic Service (IRTS) officer, who retired as a Principal Executive Director, Railway Board**, in charge of Coaching, the railways' terminology for passenger operations, analyses the linkages that have deleterious consequences for rail safety. One underlying cause, he points out, is the changing priorities of IR, reflected by a move towards high-visibility projects and those that do not add much to its basic functions, at the cost of investments in safety. Others include issues relating to finances, upkeep of infrastructure, and workforce planning and training.

Among the ways forward, Mr. Reddy suggests de-bottlenecking and removing capacity constraints; avoiding high-cost, low-return projects such as the Vande Bharat services and re-channelising such investments into asset maintenance and safety funds; and filling up the large number of "safety category vacancies on a war-footing". In addition to these "immediate requirements", at a broader level, he calls for greater transparency and accountability; and flags the importance of presenting to Parliament an annual "Indian Railways Report" by the Minister of Railways (along the lines of the annual Economic Survey), a suggestion made by a former member of the Railway Board, to enable wider parliamentary and public discussion in the absence of a separate Railway Budget.

I. INTRODUCTION

Two distinct features characterise Indian Railways (IR). The first is that its vast rail network, spanning close to 69,000 route kilometres[1], is predominantly marked by high density and high usage. The second is that of mixed usage of its track infrastructure: Its system operates nearly the entire spectrum of trains on common tracks. All these trains, ranging from premium-superfast express coaches transporting passengers to freight wagons carrying bulk goods, use the same network of one lakh-plus track kilometres.[2,3] The railway system, which carries over 17 million passengers and moves four million tonnes of freight daily[4] across the world's seventh largest country by area, is a national asset run by the Government of India. Therefore, reflecting India's constitutional values of equity and inclusion, it caters to the needs of a billion-plus-and-growing population.

Although IR is a commercial department involved in logistics, as it is owned by the government it has to carry out certain social service obligations (SSOs) irrespective of financial considerations. These SSOs, broadly categorised, are:

- Operating uneconomic lines,
- Operating lines that are of strategic importance,
- Carrying essential commodities of mass consumption at rates below the cost of operation, and
- Providing affordable transport to the lower economic segments.

A recent estimate placed the cost of these obligations at approximately Rs.41,000 crores.[5]

The main challenge for IR is financial. It must generate revenues to meet not only its maintenance costs and future investments but most importantly, should invest in safety and accident prevention. Snapshots of IR's tracks and traffic and rolling stock from 1950-51 to 2022-23 (Tables 1.1 and 1.2) outline the extent to which the state-run railway has expanded and how its assets are stretched.

[1] Route kilometres is the distance by rail between two points on the railway network.
[2] Track kilometres includes the sum total of all running lines and sidings, yard trackage, etc., between two points.
[3] Narrow and Medium Gauge constitute 2.3 per cent of the network and the Eastern Dedicated Freight Corridor makes for less than two percent of the network.
[4] **Indian Railways, 2021**. *Reforms in Passenger Train Operations*, Ministry of Railways, Government of India, January, p.1. [https://indianrailways.gov.in/railwayboard/uploads/directorate/secretary_branches/IR_Reforms/Reforms%20in%20Passenger%20Train%20Operations.pdf].
[5] Social Service Obligations accounted for Rs. 40,190 crores in 2022-23. See: **Lok Sabha. 2024.** *Debt burden of the Indian Railways*, Ministry of Railways, Government of India. [https://sansad.in/getFile/loksabhaquestions/annex/182/AU415_XXK7sU.pdf?source=pqals].
For a critical analysis of the social sector obligations, see **Jha, S.C. 2013.** *Social Costs of Indian Railways,* Satyam Publishing House, New Delhi.

Table 1.1 also points out, in clear terms, the extent to which earnings from freight far outstrip those from passengers.

TABLE 1.1: Indian Railways – Tracks and Traffic *(March 31)*				
	1950-51	**1990-91**	**2013-14**	**2022-23**
Tracks				
Total Route Kms	**53,596**	**62,367**	**65,426**	**68,584**
of which Elec. (%)	388 (0.63)	9,968 (15.98)	21,614 (33.03)	58,074 (84.67)
Total Track Kms Of which Elec. (%)	59,315 937 (1.58)	78,607 18,954 (24.11)	89,919 39,661 (44.11)	1,06,493 92,358 (86.73)
Total Stations	5,976	7,100	7,112	7,364
Passenger Traffic				
No. of Passengers originating *(millions)*	1,284	3,858	8,397	6,396
Passenger Kms *(in millions)*	66,517	2,95,644	11,40,412	9,58,919
Freight				
Tonnes originating *(in millions)*				
Total	93.00	341.40	1,058.81	1,510.76
Of which Revenue earning *(% of total)*	73.2 (78.71)	318.40 *(93.26)*	1,051.64 *(99.61)*	1,509.10 *(99.89)*
Nett Tonne Kms *(in millions)*				
Total	44,117	2,42,699	6,66,728	9,59,888
Of which Revenue earning *(% of total)*	37,565 (78.35)	2,35,785 (97.15)	6,65,810 (99.86)	9,59,566 (99.97)
Revenue from Passenger and Freight *(in paise)*				
Average rate per Passenger Km	1.48	10.64	32.00	66.13
Average rate per Tonne Km	3.16	35.00	137.53	167.00
Source: Compiled from **Indian Railways. [Online]** *Statistical Summary Sheet 2022-23* [https://indianrailways.gov.in/railwayboard/uploads/directorate/stat_econ/2024/Statistical%20Summary%20Sheet-2022-23%20ENGLISH.pdf].				

How, then, does such a gigantic organisation align its daily operations to constitutional ideals that are not necessarily economically viable and function as a safe, effective, and credible transport provider (both passenger and freight) for the millions? Against the backdrop of frequent reports of train accidents that lead to loss of valuable lives, and faulty or ill-maintained assets which erode public confidence, its organisational approach needs to be revisited. Recent policy priorities should also be examined for their impact on operational safety and IR's basic mandate as a public sector enterprise.

Three non-negotiable policy directions are essential to retain and further raise the credibility of IR as a safe, secure, and reliable transport organisation. One, to ensure safe travel for its users by according the foremost priority to passenger safety. Two, it has to offer *all* its users, both passenger and freight, high-quality service with assured transit time over its entire network. Three, it should maintain a steadfast focus on increasing throughput in order to enhance its revenues. This is particularly so in freight, reflected in net tonne kilometres[6] (NTKMs), and to a lesser extent, passenger kilometres[7] (PKMs).

The two distinct characteristics referred to at the start of this chapter (high density network and common tracks for mixed traffic operations), coupled with severe resource constraints, mount a serious challenge to sustaining safety in train operations. This Policy Watch analyses the factors that impact safety in the operations of IR and identifies policy alternatives to mitigate them.

TABLE 1.2: Indian Railways –Rolling Stock *(March 31)*

	1950-51	**1990-91**	**2013-14**	**2022-23**
Locomotives (% of total locomotives)				
Steam	8,120 (98.92)	2,915 (34.63)	43 (0.41)	39 (0.27)
Diesel	17 (0.21)	3,759 (44.66)	5,633 (53.65)	4,769 (33.18)
Electric	72 (0.88)	1,743 (20.71)	4,823 (45.94)	9,565 (66.55)
Locomotives	**8,209**	**8,417**	**10,499**	**14,373**
(% of Rolling Stock)	**(3.52)**	**(2.14)**	**(3.18)**	**(3.43)**
Coaching Stock (% of total coaching stock)				
Passengers	13,022 (66.34)	28,677 (74.46)	50,194 (75.60)	66,106 (74.34)
EMU/DMU/DHMU*	460 (2.34)	3,142 (8.16)	9,371 (14.11)	11,664 (13.12)
Rail Cars	87 (0.44)	24 (0.06)	35 (0.05)	12 (0.01)
Other Coaching Vehicles	6,059 (30.87)	6,668 (17.31)	6,792 (10.23)	11,139 (12.53)
Coaching Stock	**19,628**	**38,511**	**66,392**	**88,921**
(% of Rolling Stock)	**(8.41)**	**(9.80)**	**(20.14)**	**(21.22)**
Wagons	**2,05,596**	**3,46,102**	**2,52,833**	**3,15,791**
(% of Rolling Stock)	**(88.07)**	**(88.06)**	**(76.68)**	**(75.35)**
Total Rolling Stock	**2,33,433**	**3,93,030**	**3,29,724**	**4,19,085**

Source: Compiled from **Indian Railways. [Online]** *Statistical Summary Sheet 2022-23* [https://indianrailways.gov.in/railwayboard/uploads/directorate/stat_econ/2024/Statistical%20Summary%20Sheet-2022-23%20ENGLISH.pdf].

EMU: Electric Multiple Unit; **DMU:** Diesel Multiple Unit; **DHMU**: Diesel-Hydraulic Multiple Unit

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[6] The movement of one tonne of goods over one Km.
[7] One PKM is when one passenger is carried for one Km.

II. SAFETY: THE SORE SPOT

Indian Railways holds a globally dominant position in movement of passengers (second largest) and freight (fourth largest). After the U.S., China, and Russia, it has the fourth longest network of lines. With a daily movement of 22,928 trains, carrying about 17.25 million passengers and hauling 4.14 million tonnes (2022-23 figures),[8] adhering to punctuality and safety is a complex and demanding process. This involves following detailed standard operating procedures, with responsibilities resting on a multiplicity of personnel who rely on a vast array of equipment. Yet, accidents have continued to occur although at a declining rate over the decades.

In terms of safety, IR lags behind the Japanese and the European railway systems on the following metrics: i) Fatalities per billion passenger kilometres; ii) Number of train derailments each year; and iii) Accidents at unmanned level crossings (Table 2.1).

Table 2.1: Comparison of Select Safety Indicators

Measure	India	Japan	Europe (EU)
Fatalities per billion passenger km	0.09* *(5-year average)	~0.00 (Shinkansen)	0.051
Train derailments annually	~40–50 (recent average	~0–2	<10 in most countries
Unmanned level crossing (LC) accidents	~5	Near-zero	Near-zero

Sources: Compiled from Indian Railways Annual Statements 2022-23; *Indian Railways Year Book 2022-23*; *Report on Railway Safety and Interoperability in the EU 2024* by European Union Agency for Railways; *Euro Stats* -- Rail_accidents_and_fatalities_2023; and Japan Transport Safety Board (https://jtsb.mlit.go.jp/english.html)

This is not to say that there has been no progress in the realm of safety in IR. There has been a drastic reduction in unmanned level crossings (UMLCs), with all UMLCs on Broad Gauge eliminated by either providing Road Over Bridges (ROBs) or Road Under Bridges (RUBs) or manning them based on operational and safety parameters.[9] Further, owing to technological improvements such as the introduction of roller bearing eight-wheeler wagons, German-engineered Linke-Hofmann-Busch (LHB) coaching stock, and panel interlocking with track circuiting along with improved maintenance

[8] **Government of India. n.d.** *Indian Railways Year Book 2022-23,* Railway Board, Ministry of Railways, pp.5-6. [https://indianrailways.gov.in/railwayboard/uploads/directorate/stat_econ/2024/Year%20Book%202022-23%20English.pdf].

[9] **Agrawal, B.M. 2024.** Safety Scenario over Indian Railways, *Indian Railways,* Vol. 68, No. 2-3, May-June. p.31.

practises,[10] there has been a perceptible reduction in the consequential train accidents on IR in the last 10 years (Figure 3.1).

Each year, train accidents on IR cause serious loss to life and immense damage to property. In 2022-23 (provisional figures), the approximate cost of damage to rolling stock (which includes locomotives and all coaches and wagons), was Rs. 55.70 crores and the estimated cost of damage to permanent way (railway tracks), Rs. 3.85 crores. Movement of traffic was disrupted for approximately 728 hours and a sum of Rs. 1.27 crores was paid as compensation for loss of life and injury to passengers caused by train accidents.[11]

Classification of accidents

The Indian Railways Accident Manual defines accidents as occurrences affecting the working of a railway, including those affecting the safety of its passengers, employees or causing damage or loss to its equipment or property. Accidents are classified under five heads:[12]

i. Train Accidents,
ii. Yard Accidents,
iii. Indicative Accidents,
iv. Equipment Failures, and
v. Unusual Incidents.

Safety cannot be viewed merely from the number of accidents but must also be assessed based on their gravity (loss of lives and grievous injuries caused to passengers) and the devastating consequences for survivors and victims. In terms of severity, IR tabulates accidents under two categories – "consequential" and "other". Among consequential accidents, "serious" accidents are those involving a train carrying passengers which is attended with loss of life or with grievous hurt to a passenger or passengers on the train, or with serious damage to railway property exceeding Rs. two crores and any other accident which in the opinion of the Chief Commissioner of Railway Safety (CCRS) or Commissioner of Railway Safety (CRS) requires the holding of an inquiry by the CRS.

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[10] For the various measures taken to enhance rail safety, see: **Lok Sabha. 2024.** Number of people died and *inured in train accidents in the country*, Lok Sabha Unstarred Question No. 1596 to be answered on 04.12.2024, Ministry of Railways, Government of India. [https://sansad.in/getFile/loksabhaquestions/annex/183/AU1596_ob1iTn.pdf?source=pqals].

[11] **Government of India. n.d.** *Indian Railways Year Book 2022-23*, Railway Board, Ministry of Railways. pp. 50-51. [https://indianrailways.gov.in/railwayboard/uploads/directorate/stat_econ/2024/Year%20Book%202022-23%20English.pdf].

[12] **Comptroller and Auditor General of India.** *Derailment in Indian Railways*, Union Government (Railways) Performance Audit Report 22 of 2022, Page 28. [https://cag.gov.in/webroot/uploads/download_audit_report/2022/Report-No.-22-of-2022_Railway_English_DSC-063a2dda55f3ce6.38649271.pdf].

Spurt in serious accidents

A spate of serious accidents in the recent past has drawn the attention and concern of users and the public at large. Their continuous recurrence is today among the biggest pain points of IR. A few are briefly recounted below:

1. **June 2, 2023:** The Coromandel Express (Train No. 12841) collided with a freight train loaded with iron ore in Balasore district in Odisha. The accident happened at Bahanaga Bazar railway station when the train was on its way to MGR Chennai Central from Shalimar railway station near Kolkata. More than 20 coaches derailed. Almost simultaneously, the SMVT Bengaluru-Howrah Superfast Express towards Howrah (Train No. 12864) was traversing on the opposite line. The derailed coaches of the Coromandel Express smashed into the last few coaches of the SMVT Bengaluru-Howrah SF Express before the latter could completely pass through that section.

   A total of 295 people were killed in this accident, involving three trains (two passenger and a freight). According to the CRS's Inquiry Report, the rear-collision was due to lapses in the signalling-circuit alteration carried out during the replacement of Electric Lifting Barrier for a level crossing gate at the station. These lapses caused wrong signalling which resulted in the Coromandel Express traversing on the loop line and the eventual rear-collision with a stationary goods train which was on its assigned track.

2. **June 25, 2023:** Just about 20 days later, a goods train collided with the rear of another goods train at Ondagram station of Bankura district in West Bengal. The Loco Pilot and Assistant Loco Pilot were charged with passing signal at danger.

3. **On the night of October 11, 2023:** Six coaches of Anand Vihar Terminal-Kamakhya Junction North East Express (Train number 12506) derailed near Raghunathpur railway station in Bihar, killing four and injuring more than 70. Reportedly, this accident was due to shortcomings in track maintenance.

4. **October 29, 2023**: The Visakhapatnam-Rayagada Passenger (Train No. 08504) derailed after colliding with the Visakhapatnam-Palasa Passenger (Train No. 08532) near Kottavalasa Junction railway station in Vizianagaram district, Andhra Pradesh, killing 14 and injuring 50. The CRS primarily held the deceased Loco Pilot and Assistant Loco Pilot of the Visakhapatnam-Rayagada Passenger guilty of ignoring the caution signal.

5. **June 17, 2024:** An over-speeding freight train hit the rear of the Kanchanjunga Express (Train No. 13174) near Rangapani railway station in Darjeeling district, approximately 10 km (6.2 mi) away from New Jalpaiguri railway station in West Bengal. Ten people were reported dead and at least 60 were injured. Equipment failure compounded by human failures were reported as the cause of this accident.

6. **July 18, 2024:** Twelve coaches of the Dibrugarh–Chandigarh Express (Train No. 15904) derailed near Jhilahi in Gonda district in Uttar Pradesh. At least four people were dead and 32 injured. The likely cause of this accident is inadequate maintenance of assets.

7. **July 30, 2024:** Within a couple of weeks, 18 coaches of Howrah–Mumbai (via Nagpur) CSMT Mail (Train No. 12810) derailed near Jamshedpur in Jharkhand, resulting in injuries to at least 20 people and causing two deaths. This occurred immediately following a goods train derailment on the other line obstructing the line on which the Mumbai Mail was speeding.

8. **August 17, 2024:** Nearly 22 coaches of the Sabarmati Express derailed near Kanpur in Uttar Pradesh when the train hit a boulder.

9. **October 11, 2024:** At least 19 people were injured after 13 coaches of the Bagmati Express derailed and caught fire after the train rammed the rear of a goods train stationed on a loop line at Kavarapettai near Chennai in Tamil Nadu.

These and other accidents point to multiple causes, foremost of which are shortcomings in maintenance and replacement of assets and human failures which, in turn, call for upgradation and automation of systems. In addition, there have been incidents that although did not result in loss of lives, eroded public confidence in the operations of IR. These include parting (decoupling) of trains, breakdown of fittings on coaches, and equipment failures such as signal failures, locomotive failures, rail fractures, etc., which cause delay and temporary disruption to traffic.

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III. RECENT REPORTS ON SAFETY

Clear and updated standard operating procedures are required for an organisation as vast and diverse as the IR. One of its lesser-known features is the extensive documentation it contains on all operational aspects. For instance, every Station Master maintains documents with valuable data about station-level activities, not just operations – details of traffic handled (both passenger and freight) and the revenue collected – but also about personnel deployed, the equipment failures, inspections, and corrective action taken on the deficiencies noted during such inspections. In the context of railway accidents too, there is detailed documentation that point to the magnitude, the lapses, the correctives required, and recommendations to enhance safety of the railways.

The Indian Railways Accident Protocol, published in April 2021,[13] and the Accident Manuals published by each Zonal Railway lay down detailed guidelines on reporting accidents and the protocol for handling them. The Protocol lists clear and categorical assignment of roles and responsibilities for reporting and handling of different classes of accidents. Moreover, "in the event of a disaster, unlike in other countries where the role of Railways is restricted to clearing and restoring the traffic, in India, the Railways handles the rescue and relief operations as well".[14]

To get to the root of an accident and to take remedial action, all accidents are enquired into in a time-bound manner. All serious accidents are enquired into by the CRS, whose organisation is a part of the Ministry of Civil Aviation (MoCA) to ensure operational independence. This is done by absorbing the safety commissioners, who are drawn from IR, into the MoCA and not reverting them to the Railway cadre.

For other accidents, IR conducts departmental enquiries. The accident manual specifies that the enquiry committee be constituted within 24 hours of the occurrence of an accident. The General Manager of each Railway decides the composition of the departmental enquiry committee in accordance with the nature of the accident. The accident enquiry reports outline the causes and recommend measures to prevent recurrence of similar unsafe events.

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[13] **Ministry of Railways, 2021.** *Indian Railway Accident Protocol,* Railway Board, Ministry of Railways, Government of India, May 21. [https://digitalscr.in/bzadiv/circulars/misc_circulars/uploads/IR_Accident_Protocol.pdf].

[14] **Lok Sabha. 2010.** *Disaster Management and Land Management in Indian Railways, Public Accounts Committee (2009-10), Sixteenth Report*, Lok Sabha Secretariat, Page 4. [https://eparlib.nic.in/bitstream/123456789/64531/1/15_Public_Accounts_16.pdf].

In addition to these documents, reports by parliamentary committees, parliamentary answers by the Railway Minister, reports by the Comptroller and Auditor General of India (CAG), the annual Economic Surveys, the Plan documents of the past, and several other official documents in the public domain provide vivid accounts of the state of IR. In the immediate context, two recent reports relating to safety on IR are extremely significant:

1) The CAG's Report, *Derailment in Indian Railways*, Union Government (Railways), Performance Audit Report No. 22 of 2022[15], and
2) The Annual Report for 2022-23 by the CCRS. [16]

Derailment in Indian Railways notes that out of 217 consequential accidents between 2017-18 and 2020-21 (Table 3.1), the maximum (163) was due to derailments, which constituted around 75 per cent of the total consequential accidents, followed by fire (around nine per cent).

Table 3.1: Consequential Accidents between 2017-18 and 2020-21

Type of Accident	**Total**
Collisions	**11**
Derailments	**163**
At Manned Level Crossing	**8**
At Unmanned Level Crossing	**13**
Fire in Train	**20**
Miscellaneous	**2**
Total	**217**

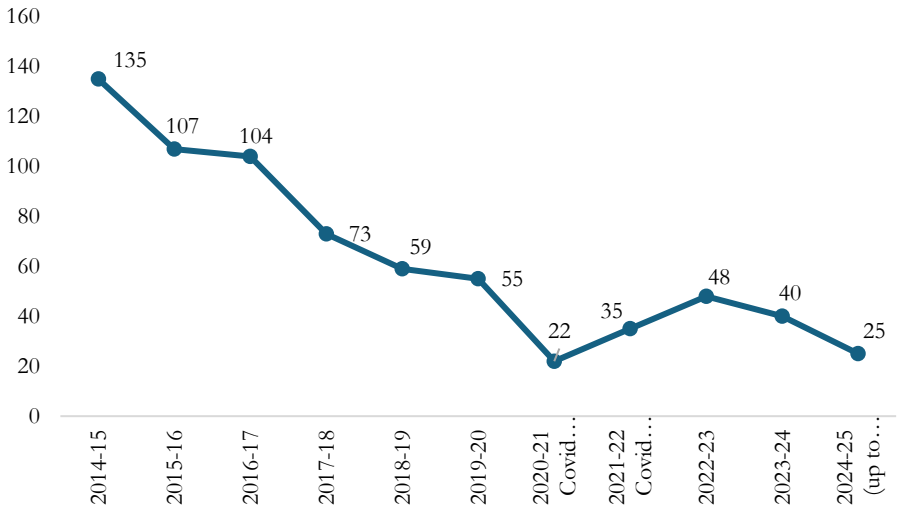
Source: Comptroller and Auditor General of India. *Derailment in Indian Railways*, Union Government (Railways) Performance Audit Report 22 of 2022. From Table 3.1.2, Page 29. [https://cag.gov.in/webroot/uploads/download_audit_report/2022/Report-No.-22-of-2022_Railway_English_DSC-063a2dda55f3ce6.38649271.pdf].

The CAG's Report noted that there are multiple factors causing each accident and recommends that IR ought to develop a strong monitoring mechanism to ensure timely implementation of maintenance activities by adopting fully mechanised methods of track maintenance and improved technologies. It laid special emphasis on the need for adherence to the schedule of inspections and follow-up action thereon. It also highlighted issues relating to allocation and utilisation of safety funds which will be discussed later in this Policy Watch.

[15] Fn. 11.
[16] **Commission of Railway Safety. 2023.** *Annual Report for 2022-23 by Chief Commissioner of Railway Safety,* Department of Civil Aviation, Government of India. [https://netraindia.in/crs/wp-content/uploads/2024/11/Annual-Report-2022-23_11zon.pdf].

The second report is an annual account of the CCRS for 2022-23. The CRS investigates serious accidents as mandated under Sec. 114 of the Indian Railways Act. (To recall, these accidents are those that involve passenger carrying trains, resulting in loss of human life or grievous hurt to passengers or serious damage to railway property.) For the decade 2012-13 to 2022-33, a total of 897 accidents were recorded, of which the CRS investigated 87 serious ones.

Figure 3.1: No. of Consequential Train Accidents



Source: **Lok Sabha. 2024.** Unstarred Question No. 1596, to be answered on 04.12.2024, Ministry of Railways, Government of India. [https://sansad.in/getFile/loksabhaquestions/annex/183/AU1596_ob1iTn.pdf?source=pqals].

Table 3.2: Break up of Passenger and Goods Train Accidents		
	2021-22	**2022-23**
Train Accidents	35	48
Passenger Train Accidents	21	33
Goods Train Accidents	14	15
Source: ***Annual Report for 2022-23***, Office of the Chief Commissioner of Railway Safety, Lucknow [https://crs.gov.in/wp-content/uploads/2024/11/Annual-Report-2022-23_11zon.pdf].		

Analysing the trend of accidents, the Report by the CCRS expressed concern over the rising graph of passenger carrying train rail derailments and called for urgent attention to improve the health of railway

safety. The recommendations include replacing overaged assets, eliminating manned level crossings, and adopting strategies to upgrade and maintain tracks, rolling stock, and signalling and interlocking systems. In addition, this Report emphasised the need to train officials and conduct inspections at regular intervals to ensure the observance of safe practices.[17] Although the reports of the CRS and the CCRS are only recommendatory in nature, IR takes them very seriously and accepts and implements all feasible recommendations. However, the implementation of these recommendations sometimes may involve development of new and additional infrastructure or modification of equipment which may lead to a time lag.

Transparency will renew trust among the people in the national carrier. The Safety Information Management System (SIMS) (https://www.safety.indianrail.gov.in/) maintained by IR has not been updated for the past few years. With a view to fostering transparency, this information system should be kept updated and the access to view the safety management of IR should be given to the travelling public. The details of the accidents – at least all the consequential accidents – the recommendations made by the inquiry committees, and the preventive actions taken based on their recommendations should be placed in the public domain.

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[17] **Commission of Railway Safety. 2023.** Op. Cit.

IV. HIGH LEVELS OF CAPACITY UTILISATION AND ASSET MAINTENANCE

The manner in which physical assets are utilised, maintained, and upgraded have a direct bearing on operational performance, especially safety. Table 1.1 (Chapter I) provides information on tracks and rolling stock that are IR's important assets. In addition to these, signalling and telecommunications systems and an enormous workforce (IR is the world's largest commercial employer) are required to keep more than 12,541 passenger trains and 10,388 freight trains[18] safely on tracks every day. Most of these trains are operated on highly congested routes. IR has classified these into seven High-Density Network (HDN) [Table 4.1] and 11 Highly Utilised Network (HUN) routes.

Table 4.1: High Density Network Routes

HDN No.	Route	Km
1	Delhi-Howrah	1,463
2	Howrah-Mumbai	1,889
3	Delhi-Mumbai	1,387
4	Delhi-Guwahati	1,845
5	Delhi-Chennai	2,048
6	Kolkata-Vijayawada	1,113
7	Chennai-Mumbai	1,224
	Total	**10,969**

Source: *National Rail Plan 2030* (Draft Final Report, Vol 1.) p. xxiv. [https://static.investindia.gov.in/s3fs-public/2024-08/national_rail_plan_2030.pdf].

The HDN, which comprises 16 per cent (10,969 Km) of the entire network, transports 41 per cent of total traffic. All the trunk routes are operated at levels of super-saturation.

[18] **Ministry of Railways. [Online]** *Year Book, 2022-23*, Op. Cit. page 5.

Table 4.2: Existing Capacity Utilisation of HDN		
Capacity Utilisation	**Network KM**	**Share (%)**
<70%	189	2
70%-100%	2,003	18
100%-150%	6,326	58
>150%	2,450	22
Total	**10,969**	**100**
Source: *National Rail Plan 2030* (Draft Final Report, Vol 1., page xxiv, Table 0-20). [https://static.investindia.gov.in/s3fs-public/2024-08/national_rail_plan_2030.pdf].		

The HUN comprises 35 per cent of the network and transports 40 per cent of the total traffic. In all, the combined HDN + HUN account for 50 per cent of the total network and carry 77 per cent of the total traffic, in terms of train kilometres.[19]

Table 4.3: Existing Utilisation of HUN		
Capacity Utilisation	**Network KM**	**Share (in %)**
0%-70%	5,896	24
70 – 100%	6,887	28
100 – 150%	8,361	35
>150%	3,122	13
Total	**24,266**	**100**
Source: *National Rail Plan 2030* (Draft Final Report, Vol 1., page 383, Table 12-2). [https://static.investindia.gov.in/s3fs-public/2024-08/national_rail_plan_2030.pdf].		

Two priorities are evident. One, there is an urgent need to increase capacity and remove all bottlenecks on the HDN and the HUN routes by doubling or quadrupling of tracks and easing junction constraints on these routes. An equally important priority is to maintain a sustained focus on the upkeep of infrastructure. As "the rail track, signal, and rolling stock (train engine, coaches, and goods wagons) are the primary factors of safe operation in rail transport",[20] the need for constant maintenance and timely replacement of assets gains importance for HDN and HUN lines. High density usage is prone

[19] **Ministry of Railways** – *National Rail Plan 2030*; Chapter 6 – Rail Network Corridor Demand P. 279 (Table 6-3). [https://static.investindia.gov.in/s3fs-public/2024-08/national_rail_plan_2030.pdf].
[20] **Biswas, P.P. 2023.** Indian Railways – Policymakers Overshoot Red Signals at the Crossing, *Economic & Political Weekly*, Vol. LVIII No. 49, December 9, pp.25-28.

to wear and tear of tracks, rolling stock, overhead equipment, and signalling systems. Replacement of worn-out assets and periodic maintenance is, therefore, vital to ensure that safety standards are not compromised. Track renewals (based on codal life)[21] and condemnation of coaches and wagons (on age–cum–condition basis) is done every year and additional rolling stock is inducted on replacement account. Similarly, signalling equipment maintenance is done periodically. In the context of the recent spate of serious accidents, there is an urgency to review and reinforce the protocol prescribed for maintenance of assets.

Indian Railways has an exhaustive compilation of asset-failures with reasons. It would help to use this data to develop a prediction model for asset/equipment failures which will be valuable to bolster maintenance practises. What is important is the formulation and strict adherence to a maintenance plan that includes identifying issues before failures happen, laying out the processes and assigning clear roles and responsibilities to avoid asset malfunction. This should be a non-negotiable process backed by optimal allocation of resources.

To pre-empt shortcuts and tampering with equipment (specially, signalling) during train operations, IR has a clearly laid down manual protocol. Yet, the field-staff under pressure to sustain a high-level throughput on high density and highly congested routes resort to shortcuts, especially when signalling systems are under maintenance – either routine or caused by equipment failure. These shortcuts lead to negating the failsafe feature of interlocking systems. A suggestion which came up in the wake of the Balasore tragedy relates to the electronic locking of all the relay rooms and junction boxes which are to be opened for maintenance. The electronic locking should ensure that the signalling system at the station will remain suspended during the period of routine or emergency maintenance.[22]

Along with remediating all the structural shortcomings in maintenance and operations, one underlying characteristic cannot be lost sight of – IR is essentially an operational and a service sector organisation. All maintenance and operational functions and service delivery are done on the spot. Therefore, the role of inspections in service management is very crucial. IR has an elaborate system of inspections to ensure safe maintenance of assets, safety and efficiency in operations, maintenance, and service delivery to a wide spectrum of customers. Adhering to the rigour of these inspections is as crucial and as significant for safety as are technological upgradation, and replacement/upkeep of its assets.

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[21] The normal life of machines/equipment as per working shift.

[22] **Narayan, R. B. 2023.** Odisha train collision: Solutions that don't take Railways back to business-as-usual, *The Indian Express*, June 10. [https://indianexpress.com/article/opinion/columns/odisha-train-accident-indian-railways-kavach-cag-report-8655049/].

V. FUNDING UPKEEP OF INFRASTRUCTURE MAINTENANCE

Proper allocation of resources is a prerequisite to keep safety and efficiency of IR on a strong footing. Budgetary support from the general exchequer, internal generation of funds, and external borrowings, including private investments, are the three methods through which IR finances its capital expenditure. Over the years, IR has created three special funds to finance replacement of assets, periodic maintenance, and upgradation of assets. These are the Rashtriya Rail Sanraksha Kosh (RRSK), the Railway Safety Fund (RSF), and the Depreciation Reserve Fund (DRF).

The RRSK was created in 2017-18 with a corpus of Rs. 1 lakh crore over a period of 5 years to execute assessed safety works. This has been extended for another five years. The projects taken up under this fund relate to track renewal, bridges, signalling, rolling stock, etc. RRSK works are to be funded from Gross Budgetary Support (GBS) and railways revenues/resources, including mobilisation of resources through Extra Budgetary Resources (EBR), as per Ministry of Finance guidelines on RRSK.

The RSF was created in 2001-02 initially to fund works relating to Level Crossings, ROBs, and RUBs. Its scope has subsequently been expanded to meet capital expenditure on other safety works also. This is mostly funded from the central exchequer.

The DRF, the oldest of these three funds, was created on April 1, 1924, to provide for the cost of renewals and replacements of assets. Provisions to the DRF are made from the IR's internal resources.

Funds for safety are drawn from IR's internal resources and are listed in Table 5.1 which provides time-series data for all allocations (external and internal) to finance IR's safety operations. However, the allocations from internal resources have been watered down in recent years. The allocation to DRF was Rs. 8,000 crores in 2013–14. It dropped to Rs. 426 crores in 2017-18 and the expenditure has been under Rs. 700 crores ever since. Although the allocation is Rs. 1,000 crores for the current year, it is still at one-eighth of the 2014 level. Likewise, inadequate allocations from internal resources for RRSK in the recent past will have serious implications for ensuring safety standards.

Table 5.1: Allocations for Safety Funds (in Rs. Crores)											
Source of Funds	**2014-15**	**2015-16**	**2016-17**	**2017-18**	**2018-19**	**2019-2020**	**2020-21**	**2021-22**	**2022-23**	**2023-24**	**BE 2024-25**
External Sources of Funds for Safety											
RSF -- General Exchequer	2,206	2,601	10,732	11,375	13,006	16,886	--	11,105	30,001	45,000	45,000
RRSK -- General Exchequer	..			5,000	5,000	5,000		24,732	10,000	10,000	10,000
Sub Total (External)	*2,206*	2,601	10,732	*16,375*	*18,006*	*21,886*		*35,837*	*40,001*	*55,000*	*55,000*
Internal Sources of Funds for Safety											
RRSK	..			1,091	3,015	24	314	..	1,797	1,322	1,000
Capital Fund	5,449	6,325	3,000	..	..	..	..	..	..		..
DRF	7,287	7,588	6,627	426	534	524	672	661	617	668	1,000
Development Fund	2,611	2,932	2,498	1,381	1,108	1,137	1,076	1,033	985	953	1,000
RSF	..			173	6	..	..	..	..		..
Sub Total (internal)	*15,347*	*16,845*	*12,125*	*3,071*	*4,663*	*1,685*	*2,062*	*1,694*	*3,399*	*2,943*	*3,000*
Total	**17,553**	**19,446**	**22,857**	**19,446**	**22,669**	**23,571**	**2,062**	**37,531**	**43,400**	**57,943**	**58,000**
Source: Budget Documents -- Detailed Demands for Grants, Ministry of Railway											

The unhealthy practice of making inadequate allocations to safety from IR's internal revenues to spruce up operating ratios has been highlighted over the years by policy analysts. Despite such notes of caution and regardless of the purpose of creation of new funds, this chronic malaise of adjusting the numbers to show a better overall financial health for IR persists in some form or the other.

In this context, the Performance Audit Report No. 22 of 2022 by the CAG noted that the overall expenditure on Priority-I works [civil works, including track renewals] from the RRSK showed a declining trend from 81.55 per cent in 2017-18 to 73.76 per cent in 2019-20, and that the allotment of funds for Track Renewal works declined as well. This requires serious consideration by policy makers and vigorous public attention given that 26 per cent of derailments were linked to deficiencies in track renewals and constituted the single largest category of accidents.

The CAG's report recommended that,

1. Railways should develop a strong monitoring mechanism to ensure timely implementation of maintenance activities by adopting fully mechanised methods of track maintenance and improved technologies,
2. Railway Administration must follow the 'guiding principles for deployment of RRSK funds' to avoid fund constraints in the area of Priority-I works, and

3. IR may prepare a 'Detailed Outcome Framework' for each item of safety work as per the indicative outcomes to gauge whether the benefits derived out of the RRSK funds are in conformity with the objectives behind the creation of the Fund.

These recommendations of the CAG are valid and absolutely vital for asset maintenance. Practices such as mechanised maintenance of tracks and use of improved technologies are already in vogue. What is likely to be useful in this regard is an inviolable integrated maintenance corridor where all the equipment – Track, Overhead Equipment (OHE) for electric traction, and Signalling – will be maintained according to an annual plan. Also, a renewed focus and managerial commitment to allocate the funds imperative for asset maintenance and replacement and to expend them according to safety priorities will ensure that the aforementioned recommendations are fulfilled in true letter and spirit.

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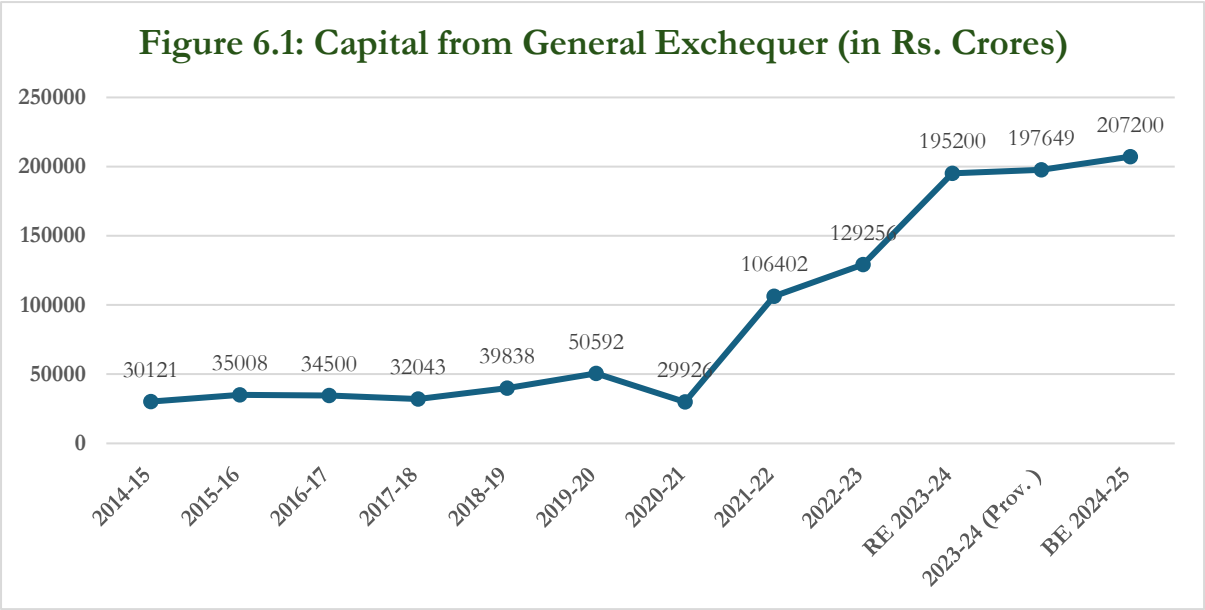
VI. RAILWAY FINANCES AND THE PUBLIC EXCHEQUER

India's railway finances have a distinct history. Since 1924, railway finances were made independent of the general finances of the Government of India. Ever since, a separate Railway Budget was an annual feature in keeping with the objective that the railways be responsible for running and expending their own income and generating net revenue to meet the requirements of servicing and asset improvement. This practice continued up to 2016 when, based on a recommendation by the Bibek Debroy committee, the separate Railway Budget was done away with on the grounds that it led to political populism and infructuous investment. The Railway's finances were merged with the general budget.

One central casualty of this merger is the visibility and the thread-bare discussion that usually followed the presentation of the Railway Budget in Parliament. Now, even though the finances of the railways are embedded in it, the Union Budget does not allow for the same expansive parliamentary and public space for discussing the health of IR, which plays a central role in India's economy and society. Another fallout of doing away with a separate Railway Budget is the loss of readily available data under various heads, thereby creating opacity in the finances of the IR. The Railway Budget generated a good deal of parliamentary, media, and public debate and discussion. Its absence has minimised parliamentary and public scrutiny of the health of IR and the direction it has taken.

This was evident in this year's budget speech of the Union Finance Minister. The word 'railways' was missing from her entire speech! In the wake of the recent accidents and the downslide in major allocations to Safety funds, there have been calls for bringing back the separate Railway Budget with a view to restoring the discussion on Railways, both in Parliament and outside. It has been argued that such discussion and scrutiny would make IR more accountable.

Although it is true that the scope for serious scrutiny has drastically reduced, there have been two major advantages to the finances of IR that accrued from the merger. Firstly, the general exchequer's contribution to railways capital expenditure has witnessed a steady and manifold increase (Figure 6.1).



Source: Budget Documents -- Detailed Demands for Grants, Ministry of Railways.

Secondly, earlier IR used to pay a dividend to the general revenues on the capital-at-charge, i.e. on the support from the Union Budget. With the merger of the Railway Budget with the Union Budget, the capital-at-charge has been written off. Consequently, the system of payment of dividend to general revenues has been put to an end. In terms of sheer finances, the merger did bring some good to the railways. Then again, the issues of visibility and scrutiny loom large.

In this context, the suggestion mooted by a former Member, Staff, of the Railway Board, K. Balakesari, merits consideration. In an article published in *The Hindu*, he had proposed that a detailed annual report called "'Indian Railways Report' on the lines of the annual Economic Survey"[23] outlining the performance, the challenges, the plans and the support required be tabled in Parliament for a full-fledged discussion. This would make the annual plan of IR more transparent and more engaging than at present, and would serve to meet the commitment on accountability. For the purpose of the present discussion, this is a suggestion that has gained more importance now as such a mechanism would ensure that allocations to safety are under parliamentary and public scrutiny, thereby assigning to it the priority it warrants to preserve IR's safety standards.

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[23] **Balakesari, K. 2021.** Railways and a question of transparency, *The Hindu,* March 08. [https://www.thehindu.com/opinion/op-ed/railways-and-a-question-of-transparency/article34013948.ece].

VII. MANPOWER AND SAFETY

Indian Railways is both a labour-intensive and a capital-intensive organisation. It is the world's largest commercial employer, with a strength of nearly 1.2 million. Of these, it has been estimated that nearly one million positions are those directly involved in operating and maintaining trains, tracks, rolling stock, overhead equipment, and signals and telecoms – all of which have a direct bearing on safe operations.

A large number of functions in operations and maintenance are carried out by skilled workforce with technological support of varying degrees. The skill levels, safety consciousness, and alertness of these employees forms the mainstay of safety in train operations. According to data obtained by the press from the Ministry of Railways under the Right to Information Act, out of the one million positions that are directly engaged in operations and maintenance, there are more than 1.5 lakh vacancies.[24] This means, nearly 15 per cent of the 'Safety' category posts are vacant. In a scenario where train operations are carried out under super saturated line capacity conditions, there is immense pressure on the staff to ensure safety and efficiency in order to deliver the requisite throughput. This 15 per cent shortage of employees performing safety roles points to an inconsiderate approach of the organisation to safety.

In reply to a Parliamentary question on the vacant posts in Safety category, the Minister of Railways told the Lok Sabha that in the past five years till December 31, 2023, a little over three lakh vacancies have been filled up. It has been stated that of these, 90 per cent of the vacancies are in the safety and operational categories. Evidently, there is a long gestation period for filling up vacancies in the Safety categories. To fill up another 1.50 lakh existing vacancies, and those arising now, will require action on a war footing.

It is common knowledge that posts at the top management level are filled up in advance of the arising of the vacancy. Considering that those performing safety roles in the field are as crucial, IR should take similar advance action to fill up vacancies and train them before the vacancies arise, so that trained workforce is ready and available to take over as soon as a vacancy arises in a safety category.

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[24] **Press Trust of India. 2024.** 1.52 lakh safety category posts vacant, says Railways in RTI reply, *Business Standard,* June 19. [https://www.business-standard.com/india-news/1-52-lakh-safety-category-posts-vacant-says-railways-in-rti-reply-124061800884_1.html].

VIII. DISTORTION IN PRIORITIES FOR PASSENGER OPERATIONS

Historically, a constant feature of class-wise passenger analysis has been the preponderance of the second class traveller. Even today, a whopping 90 per cent of the non-suburban users travel by either the second class or the sleeper class. The upper-class users, including those travelling by all air-conditioned classes, constitute a mere 10 per cent.

Table 8.1: Number of Passengers Originating – Non-Suburban

(in millions)

Year	Upper Class	Second Class	Total	Lower Class Percentage
1950-51	25	847	872	97
1960-61	15	899	914	98
1970-71	16	1,196	1,212	99
1980-81	11	1,602	1,613	99
1990-91	19	1,580	1,599	99
2000-01	40	1,932	1,972	98
2010-11	100	3,490	3,590	97
2020-21	49	284	333	85
2021-22	152	1,198	1,350	89
2022-23	268	2,336	2,604	90

*Second Class includes Sleeper Class

Source: Indian Railways Year Book 2022-23, Page 21. [https://indianrailways.gov.in/railwayboard/uploads/directorate/stat_econ/2024/Year%20Book%202022-23%20English.pdf].

Yet, gradually over the years, the upper-class air-conditioned travel has been accorded priority. This is evident in the growth of passenger coaches. In the last 10 years, the capacity to carry air-conditioned class passengers increased by 190 per cent, while the second-class passenger carrying capacity increased by a meagre 15 per cent. This slower rate of growth in lower class capacity is often taken as a proxy for reduction in demand for such travel.

Table 8.2: Class wise Capacity in Berth/Seats holding (in 1000s)

Class	2012-13	2022-23	Increase	Percentage
Air-conditioned Sleeper (2A + 3A)	411.7	1,194.09	782.39	190
Air-conditioned Chair Car	72.8	108.51	35.71	49
2nd Class	2,961.9	3,417.24	455.34	15

Source: Indian Railways Annual Statistical Statement 2022-23, Ministry of Railways.

The consistently lower priority given to boosting the capacity of the second class and the sleeper class and a corresponding increase of the share of upper-class airconditioned coaches does not take into account that low-cost airlines have been providing an accessible alternative mode of travel to the upper class passenger on most of the sectors. Travellers who can afford only lower class travel do not have an alternative mode, especially for long-distance movement. This constraint on the mobility of the lower class travellers is likely to have an adverse impact on livelihoods.

Skewed coaching priorities

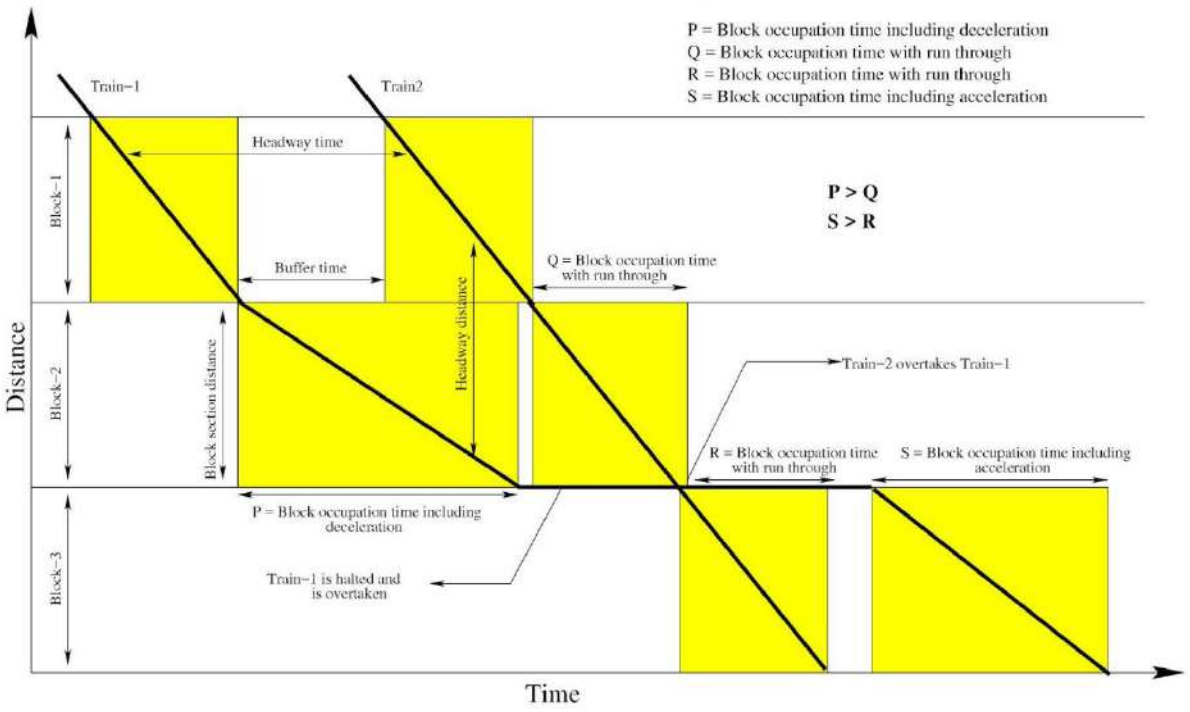
In recent years, starting from 2019, some 68 pairs of Vande Bharat services have been introduced. These services, advertised as IR's modern face, are operated with 16-car train-sets with distributed power systems akin to Metro/EMU train-sets and are capable of running at 160 kmph. The binding constraint for operation of trains is the track speed which is only 130 kmph and 110 kmph on large parts of the IR network. Vande Bharat services, which can potentially run at a speed of 160 kmph, are constrained to run only at the speeds permissible by the tracks. These services are operated at faster average speeds only because of fewer stoppages and faster acceleration.

All the Vande Bharat Services are new and additional services (not replacement of existing services) introduced on HDN and HUN sectors. In a scenario where the HDN and HUN sectors are being utilised to operate a heterogeneity of services with substantial speed differentials, these services do not make for good policy for three reasons.

First, they serve only the air-conditioned class of travellers while the 90 per cent non-suburban users of IR travel by second class/sleeper class, non-airconditioned services.

The second, more relevant, reason is that the services are introduced in sectors operating with super saturated capacity leading to an adverse impact on the existing services. It is common knowledge that efficient scheduling principles avoid overtakes for each overtake leads to inefficient use of line capacity (Figure 8.1).

Figure 8.1: Distance-time chart showing headway distance, headway time, and overtake of Train 1 by Train 2



Source: Rangaraj, N. and Belur, M. 2018. *A concept note for railway timetabling to rationalize and improve capacity utilization*, Indian Institute of Technology, Bombay, Page 4. [https://www.ee.iitb.ac.in/~belur/railways/niti/Rangaraj-Belur-NITI-Aayog-concept-noteJan2018.pdf].

This is the precise point highlighted by the CAG Report No. 22 of 2021:

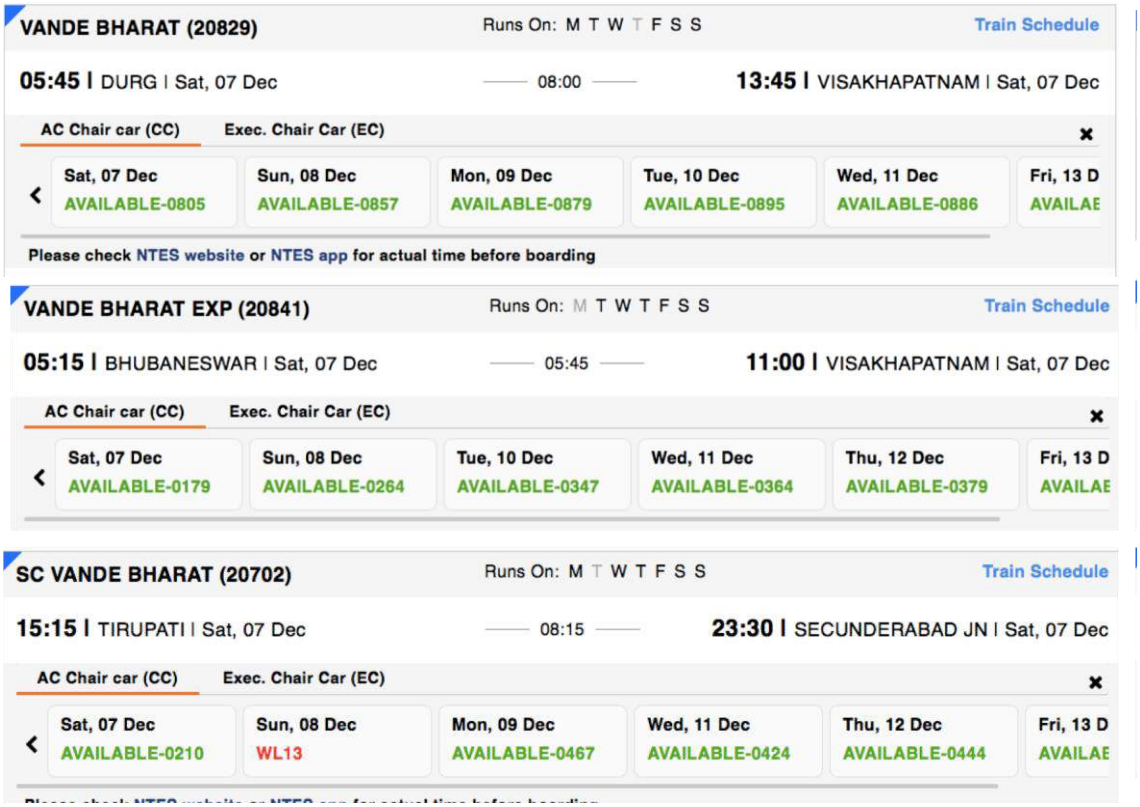
> "there are 14 different average speed groups of trains in NDLS - HWH route. The present practice of the faster train overtaking the slower one is consuming the line capacity. Each precedence results in a loss of about 15 minutes running time along with commensurate loss in sectional capacity."[25]

The third reason is that the payload of a standard 16-car train set is substantially (30 per cent) lower than conventional services which operate with 22 coaches. To make the bad situation worse, about 65 per cent of Vande Bharat services are operated with 8-car sets.

A more bizarre picture could emerge if one factors in the actual occupancy of these services. Sample data of availability of seats obtained one day before departure is given below. While some trains are popular, several of the Vande Bharat services are running with sub-optimal occupancy.

[25] **Comptroller and Auditor General of India. 2021. Op. Cit.** page 47

Chart 8.1: Availability of seats in select Vande Bharat trains a day before scheduled departure



Source: Compiled from https://www.irctc.co.in/nget/train-search

While such super-segment trains leave from their originating stations with empty seats, hundreds of 'regular' – express and other passenger trains run with overcrowded unreserved coaches and with reserved classes booked to capacity. IR should be conscious of the adverse impact of such sub-optimal choices in operation of services that have poor patronage even up to the time of departure. Operation of new and additional services with woefully sub-optimal trailing loads and sub-optimal occupancy on congested routes is likely to affect either maintenance or freight services or both.

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IX. AVOIDANCE OF TRAIN COLLISIONS

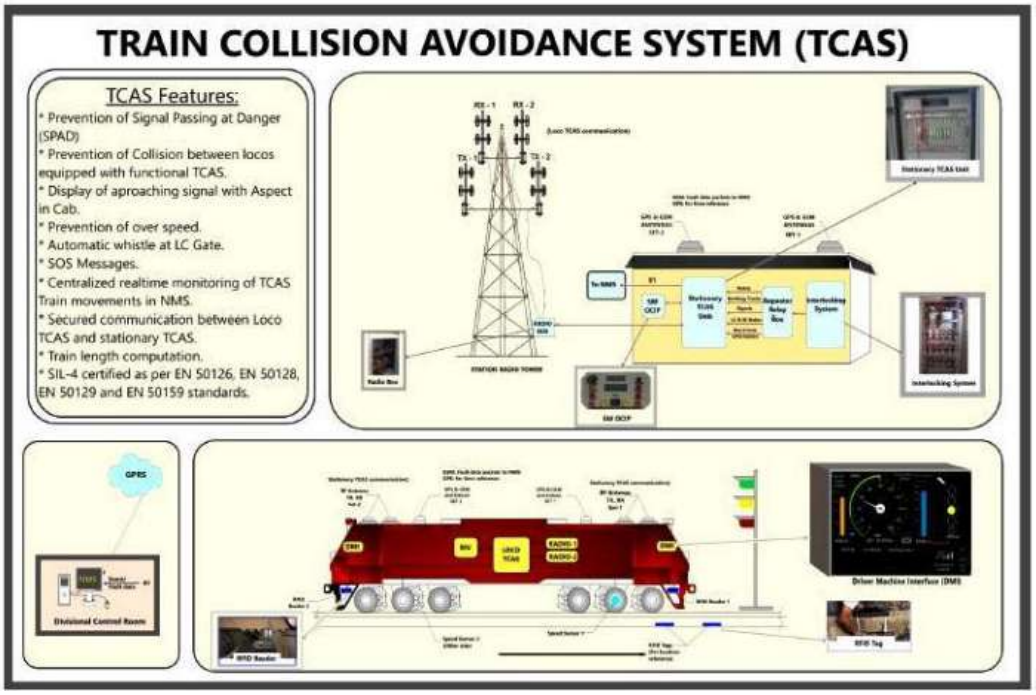
Collisions cause maximum loss of human life and human injury. Of the nine recent accident cases examined earlier, five involved collisions (Chapter II, pages 8-10). Efforts to develop technology to avoid train collisions date back to at least the 1970s. The late Madhu Dandavate, who was Railway Minister between 1977 and 1979, and was instrumental in, among other things, abolishing the third class and introducing foam seating in second class coaches,[26] notes:

> "My effort during my tenure was also to make Indian Railways safer. I found out that collisions at railway stations were very common. When one train was stationary at a platform and a second train was approaching, the driver would be negligent and ignore the red signal. I also found out that there were maximum collisions on the routes from Howrah to Burdwan and Mughalsarai to Gaya. The Research, Design and Standards Organization (RDSO) of the Railways devised a very good system called Automatic Warning System to avoid collisions. … When this Automatic Warning System was introduced on the Howrah to Burdwan and Mughalsarai to Gaya stretches, the accidents on these routes were almost reduced to zero." [27]

Collision prevention measures have come a long way in IR from the 1970s. It has now taken a policy decision to introduce Train Collision Avoidance Systems called 'Kavach' over 34,000 km of spanning its HDN and HUN sectors. The system (Kavach) is designed to prevent trains from passing signals at danger, prevent over-speeding and enable auto whistling while approaching level crossing gates. Most importantly, the system is designed to prevent collisions between two locomotives equipped with functional Kavach.

[26] **Wangchuk, R.N. 2024.** A Freedom Fighter's Idea Revolutionised India's Rail Travel Making it Comfortable for Millions, *thebetterindia*, January 19. [https://thebetterindia.com/338686/freedom-fighter-gandhian-india-best-railway-minister-madhu-dandavate-rail-travel/#google_vignette].
[27] **Dandavate, M. 2005.** *Dialogue with Life*, Allied Publishers, New Delhi, page 105.

Figure 9.1: Train Collision Avoidance System (TCAS)



Source: Rahul A Hande -- Implementation strategy for Train Collision Avoidance System (TCAS) On Mumbai Central- Ahmedabad section of Western Railway https://iriset.railnet.gov.in/content/gyandeep/2021/Article2.pdf

It has been estimated that the cost of this system is roughly Rs. 50 lakhs per kilometre and Rs. 70 lakhs per locomotive. In all, the outlay for covering the 34,000 km and 15,000 locomotives would be approximately Rs. 27,500 crores. In addition to costs, the installation and implementation of the system on an operational system is beset with its own set of challenges requiring careful planning and careful monitoring to avoid lapses during the transition. That said, as no amount of money or effort is too high to prevent loss of human life and injury, IR should have a systematic plan to implement train collision avoidance system in a time-bound manner.

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X. SUMMING UP

The size and complexity of IR render safety an intractable issue. This issue must, therefore, continue to be accorded the highest priority by IR as a public transporter that caters to the needs of millions every day, every hour of the day. In this context, IR should accord non-negotiable primacy to the following fundamentals which could be considered basic building blocks to ensure safety on the tracks of IR:

1. To begin with, the bottlenecks and capacity constraints on the HDN and HUN sectors should be removed for easing the pressure on the system. The line capacity enhancement programme should have clear milestones for executing the works in a time-bound manner.
2. In the meanwhile, usage of line capacity should be done in an optimal manner by avoiding high-cost, low-return options such as the needless proliferation of Vande-Bharat services as new and additional services.
3. Asset maintenance, replacement and upgradation should be in accordance with annual maintenance plan with guaranteed funding through proper allocation to the DRF and RRSK. Improvised technology should be ushered in with fail-safe systems to eliminate short-cuts and tampering.
4. Filling up of safety category vacancies should be taken up on a war-footing and training of operational workforce should be made more rigorous.
5. Along with the aforesaid, IR should maintain transparency and accountability. For instance, its Safety Information Management System (SIMS) has not been updated since 2022. Details about the accidents that occur and the preventive action taken based on the CRS and CAG reports must be shared with the Indian public.
6. Finally, to ensure transparency and to enable an informed debate on its finances, the Ministry of Railways should place in Parliament an annual status report, along the lines of the Economic Survey, called the "Indian Railways Report" for detailed discussions and scrutiny – a suggestion already made by a former Railway Board Member.

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He is a Teach for India Fellow, engaged with middle-school children teaching them English and Social Sciences, and a founder of Anekdhara, a public policy portal. He holds an M.Phil. in International Studies from the Jawaharlal Nehru University.

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