



# STRATEGIES TO INCREASE RAILWAY'S SHARE IN FREIGHT TRANSPORT IN INDIA

## Freight Marketing Policies

Volume 2



THE ENERGY AND  
RESOURCES INSTITUTE

*Creating Innovative Solutions for a Sustainable Future*

# STRATEGIES TO INCREASE RAILWAY'S SHARE IN FREIGHT TRANSPORT IN INDIA

Volume II: Freight Marketing Policies

**Prepared by:**

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The Energy and Resources Institute (TERI)



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Volume I: Terminal operations and  
development

**STRATEGIES TO INCREASE  
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# Abbreviations

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BS-VI	Bharat Stage VI
DFCs	Dedicated Freight Corridors
FFS	Freight Forwarder Scheme
FMCG	Fast-moving Consumer Goods
FY	Financial Year
INR	Indian Rupee
IR	Indian Railways
IRFC	Indian Railway Finance Corporation
km	Kilometre
MT	Million Tonne
MoR	Ministry of Railways
NDC	Nationally Determined Contributions
NTDPC	National Transport Development Policy Committee
NTKM	Net Tonne Kilometres
O-D	Origin-Destination
RC	Rate Circular
RDSO	Research Designs and Standards Organization
SLR	Seating-cum-luggage Rake
Tkm	Tonne Kilometres



# Marketing Policies of Indian Railways

## 8.1 Need of the Study

The share of rail in national freight transport market has been exhibiting a constant decline. Various studies conducted in the past have given the reasons for this decline as inability of the Indian Railways (IR) to meet the transport demand mainly due to capacity constraint, higher freight rates, convenience in door-to-door service by road etc. Railways are best suited for movement of bulk commodities, however its share in cement and steel has also registered a downward trend.

Regaining its primary place in freight transport market and increasing its share to a reasonable level in line with other major railway systems in the world has been a major strategy of IR. The 12<sup>th</sup> Five-year plan (2012-17) in the view of aiming at faster, inclusive and sustainable growth shared certain strategies for improving the freight movement that includes introducing new technologies aimed at improving axle load of wagons, expansion of long haul, use of GPS and radio-frequency identification (RFID) technology for tracking purposes and technological innovations to improve efficiency of operations. Other suggestions were prioritizing investments in areas, viz. dedicated freight corridors, last-mile rail linkages, high capacity rolling stock, and port connectivity. Development of logistic parks to improve terminal handling capacity, and facilitate integration of rail with other modes of transportation.

A major investment in capacity enhancement is recommended by NTDPC (2014) for railways to play a primary role in freight transport. Furthermore, it also mentioned about the low fare freight ratio (indicating cross-subsidization of the passenger segment by charging higher freight tariff rates) for IR in comparison with foreign rail systems like China and France.<sup>1</sup>

India has committed to increase railways' share of total land-based freight transportation from 36% in 2012-2013 to 45% by 2030 as part of its Nationally Determined Contributions (NDCs), ratified by the country in December 2015. This implies that IR has a big task before it to first restricting the diversion of the rail traffic to road and then to substantially increase its transport volumes vis-à-vis the road sector by 2030. IR have launched various marketing schemes and policies to attract the different commodities that can comfortably be transported by them, like automobiles and non-bulk commodities that can be aggregated in to train loads. The purpose of this study is to look in to these marketing policies in detail, analyse their impact on the market and suggest changes as required. The study will also identify commodities that could shift to rail and suggest measures required to enable that shift. The potential depends upon several factors such as transit time, available capacity on the railway network, particularly in case of large volume shipping, proximity of goods terminals to origin/destination (OD) points, ease of handling the commodities etc.

The study involves consultations with rail users, both current and potential, industry and trade to understand what would entice a shift towards railways. The aim is to recommend strategies under various marketing policies which have been formulated by IR.

<sup>1</sup> Details available at: <[http://planningcommission.nic.in/sectors/NTDPC/volume3\\_p1/railways\\_v3\\_p1.pdf](http://planningcommission.nic.in/sectors/NTDPC/volume3_p1/railways_v3_p1.pdf)>

The study also analyses the role of the marketing in enhancing the rail freight share. The need for increasing marketing efforts by IR, which was perhaps, not required in near monopoly situation in the past, has also been highlighted. Further, these efforts have been categorized into different freight segments and strategies, enabling us to conduct a SWOC (Strength, Weakness, Opportunities, Challenges) analysis based on the existing scenario of IR.

The chapters of this report focus on the review and analysis of the marketing policies introduced by railways in the past two decades. It highlights the salient features of the policies, target commodities, subsequent revisions and modifications made due to evolving issues and introducing improvements in the policies. This helped in understanding the current status of the relevant policies, also and determining whether a particular policy has been a success, or further modifications are needed or it needs to be abandoned.

For analyzing the impact of the policies on the freight movement of IR, a few key marketing policies have been shortlisted for a detailed study. This involves the quantitative analysis through available data, qualitative analysis, site visits, and stakeholder consultations. The suggestions have been given to suitably address the issues and gaps in the marketing policies.

## 8.2 Objectives

- » Analyze the freight performance of IR and their efforts to attract freight business particularly from road
- » Examine current freight marketing policies and their impacts on increasing rail share in the targeted freight transport market

Figure 1 presents the step-wise methodology of the analysis.

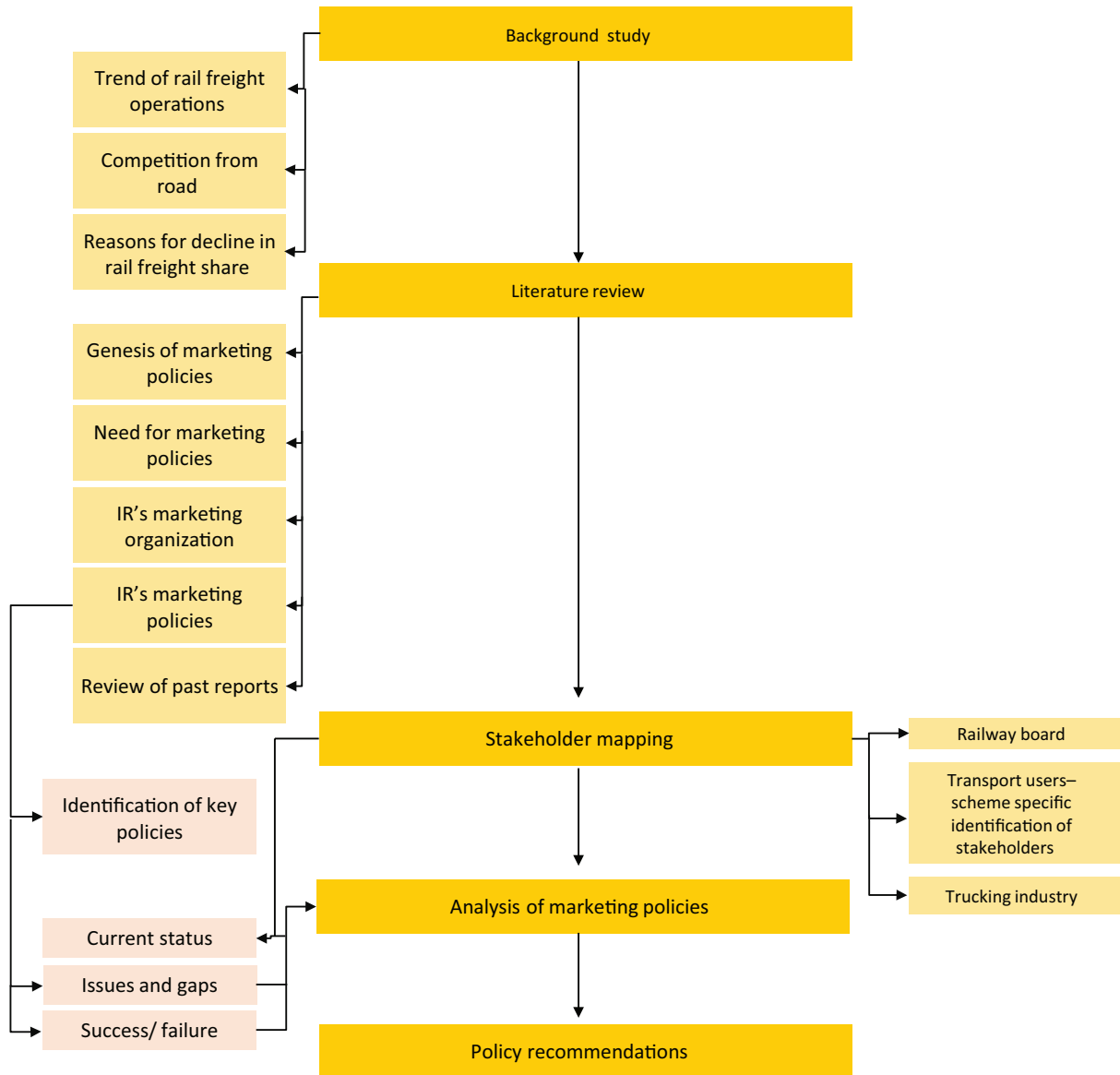
## 8.3 Overview of Freight Operations in India

IR today, is a commercial enterprise of the Government of India where the decision-making powers rest with the Railway Board that also doubles up as Ministry of Railways (MoR). The executive, regulatory, and policymaking powers relating to railways rest with the Railway Board. Though Railways is a commercial entity, it is also an instrument of social and economic development, particularly in remote and difficult-to-reach regions. The objective of IR is to provide adequate, efficient, and cheap transport system for passenger and goods in the country, which would help in boosting the economy of the country while ensuring financial stability, productivity, and customer satisfaction (Gol, 2020).

### 8.3.1 Genesis of Freight Movement – Decline in the Rail Freight Share

Initially IR carried freight traffic in both wagon loads and less than wagon load units. With the industrial development the dependence on IR has increased enormously notably in the seventies. Movement of bulk commodities, like coal, iron ore, cement, fertilizers, food grains petroleum products, amongst others has gone up manifold causing operational congestion and transit delays. Although, the government made heavy investments in capacity addition particularly in the Eastern region where coal mines and steel plants were located. Despite modernizing the railway system with higher capacity wagons, and introduction of diesel and electric locomotives in place of steam locomotives, IR was unable to meet the traffic demand and was fast becoming impediment in economic development by the late seventies.

In view of increased demand Railways took steps to improve the operational efficiency by encouraging the bulk users like, coal companies, steel plants, cement plants, etc. to offer traffic only in train loads. Railways also focused on forming block rakes of eight-wheeler open wagons known as and box wagons to carry coal, iron ore and steel etc. For carrying food grains, cement and fertilizers rake of covered wagons known as Jumbo



**Figure 1:** Methodology

rakes were formed. With the change of unit of movement from wagon load to train load operation efficiency improved substantially (Gol, 1981).

The movement in the form of rakes of wagon with enhanced capacity helped in reducing the turnaround time of wagons and in attaining higher speeds. Closed circuits were increasingly used for movement of coal, iron ore and other minerals in open box wagons and food grains, fertilizers, and cement in covered jumbo rakes. However, with the changed operational policy which helped the large users capable of offering traffic in full train loads, many rail users who could not offer traffic in full train loads and were dependent on piece-meal wagon movement suffered badly and forced to look for the alternative mode that is road.

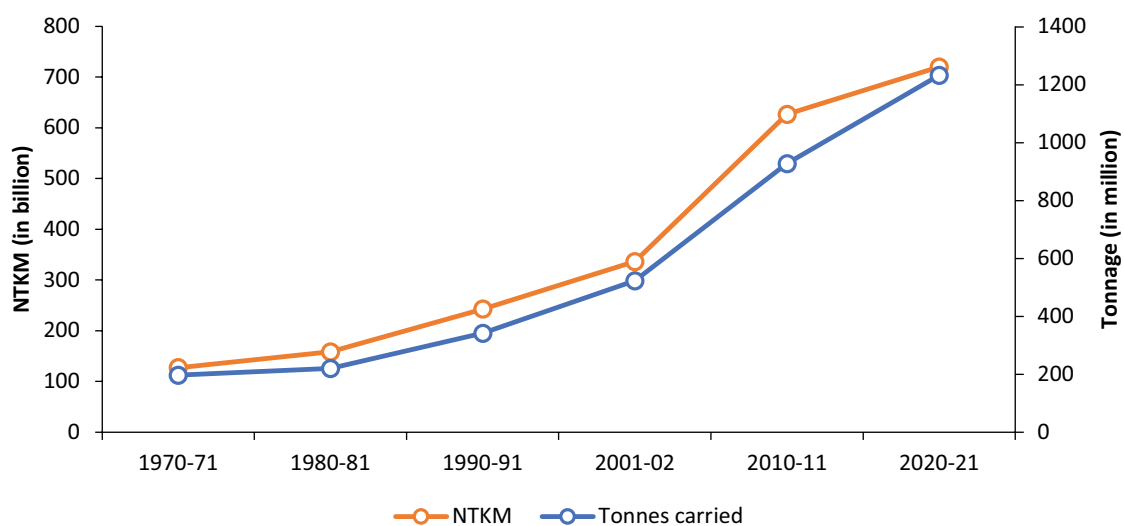
IR was then equipped with infrastructure like marshalling yards, repacking sheds and rolling stock, compatible with the type and volume of traffic being offered either in wagon load or less than a wagon load. At that time, road transport was still in a nascent stage while railways had near monopoly in land transportation of goods. In



the early eighties when the rake movement became a preferred one almost 40% loading comprised piecemeal traffic of wagon load or less than a wagon load. It reduced gradually and in next 20 years it became less than 5%.

Ironically, National Transport Policy Committee (NTPC) recommended that over 72% of transport should move by rail because of being energy efficient in 1980. However, Railway's changed policy for operational reasons was mainly attributed for the diversion of freight transport from rail to road. Railways made sustained efforts to meet the demands of the core sectors of the industry for transportation of bulk commodities ensuring uninterrupted flow of coal to thermal power plants, and other core industry viz. cement and fertilizers but, in the process, catered only bulk commodities market which is a minor part of freight transport market. Consequently, the infrastructure that was necessary for wagon load movement was gradually dismantled, marshalling yards were closed, remodelled to facilitate through train movement. The rolling stock was modernized to carry higher payload with longer trains. Rail users unable to offer a full train load have no choice but to migrate to road.

Within the first three five-year plans, the investments in the transport sector w.r.t to the total plan outlay grew rapidly. It showed a decadal growth of 63.7% in the originating traffic (1950-51 to 1960-61). However, there was a significant stagnation and eventual decline from the 1969-80 due to which the transport sector was not able to keep up with the demand, particularly during the seventies. There was a decline in growth of originating traffic from 40.2% during 1960-61 to 1970-71 to 16.7% from 1970-71 to 1980-81, which resulted in a gap between the demand and supply for the transport sector and impacting the industrial production. In the decade 2000-01 to 2009-10 both NTKM and tonnage registered a rapid growth rate much better than the earlier decades but in the last decade 2010-11 to 2019-20 the growth rate particularly in NTKM slowed down considerably (Figure 2). During last 25 years there has been phenomenal investments in the expansion and construction of roads enabling convenient movement of heavy trucks across the country. Development in infrastructure and availability of trucks helped the road sector to quickly win over the freight transport which railways were not able to carry majorly due to lack of capacity on important rail routes.



**Figure 2:** Decadal growth in tonnage and NTKM by IR

Source: Key statistical statements, Indian Railways

The near monopoly which railways had enjoyed for several years progressively reduced for the all the distance segments, short, medium, and long. Railways made efforts to garner piecemeal traffic by introducing domestic containers but met with little success.

Railways also discouraged the aggregation of piecemeal traffic by giving up facilities for collection of wagons from road-side stations by a sectional train for a yard, where they were grouped into trains. It took more time for the railways to collect individual consignment and combine them into trainload at marshalling yards and dispatch to the destinations. Hence, this was not only operationally inconvenient for railways but also increased transit time abnormally high; as a result, piecemeal traffic has almost completely gone away from rail to road.

Freight charges were increased in a subtle manner over a period and commodities such as middle-value commodities like: jaggery, sugar, tyres, engineering goods, etc. which were capable of only moving in small volumes in wagon loads have to pay 20-25% more freight charges as compared to charges for train load and therefore these goods shifted away from the rail to road.

There also has been shift in the functioning of the industry. Earlier, railways used to move low and medium-rated commodities in both, large and small volumes. Owing to insistence of moving only trainloads from manufacturing centres, the industries, for instance, cement have located final production units in consumption areas. This helped them in cutting down transport cost. The obligation of the railways to carry traffic at a fixed uniform rate throughout the country rate gave an added advantage to the road operators to pick and choose commodities, routes, customers and thereby adjust their rates accordingly to fulfil customer's needs. Also, railways insisted on constructing private sidings with increased operational facilities, which gets added to the capital cost of a private siding, ultimately discouraging the private players from investing in the sidings and transporting their products by rail.

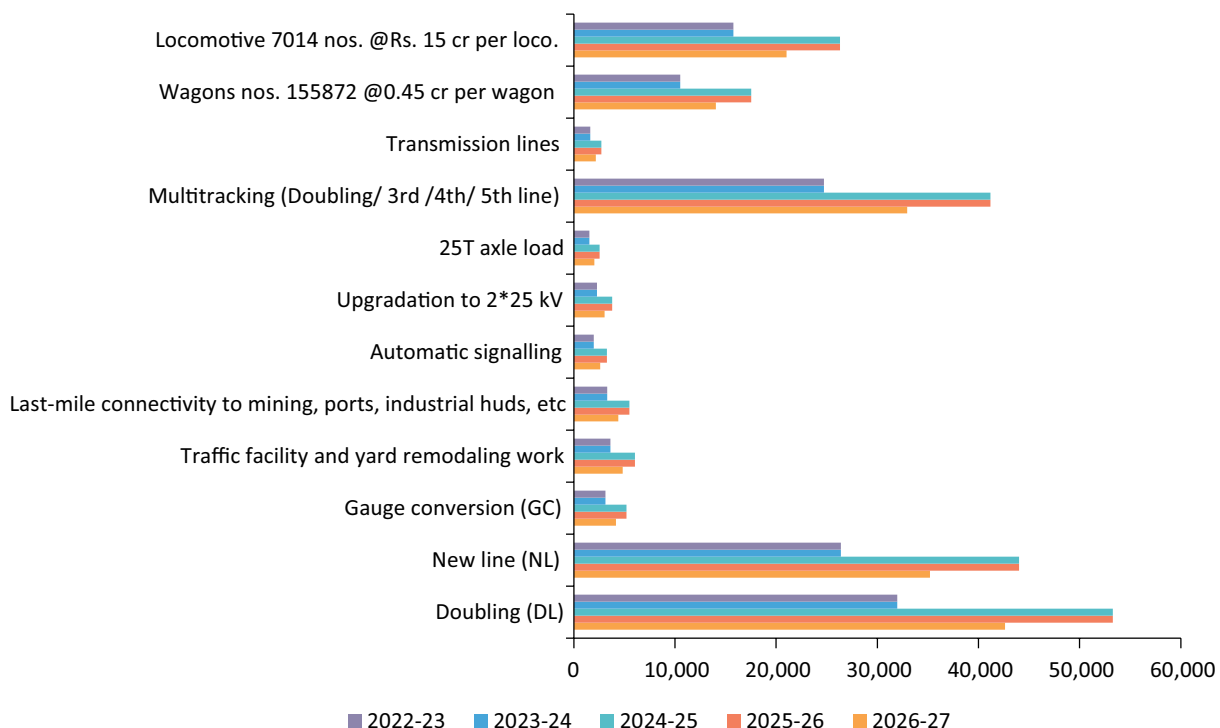
### 8.3.2 Competition from Road

IR has been facing a decline in their freight share due to non-competitive tariff structure also. Although the passenger fares have been nearly stagnant over the years the freight rates have increased substantially making them unattractive to those customers who have a choice for selecting road as a mode of transportation of their goods. This is largely true for cement, fertilizers and food grains on private account. Several initiatives taken by IR to retain their traffic, for instance, tariff rationalisation that was mainly reduction in rates, delegation of power to zonal railways to fix station to station rates, etc., have made only marginal impacts.

Railways currently are unsuitable for movement of medium and high-value goods due to uncertainty in transit time. Railways' general wagon design is also not suitable for some commodities like fly-ash, HR coils, bulk cement, etc. which require specially designed wagons. Railways have floated a scheme for encouraging the users to own special type of wagons for movement but with little success. The total length of the road network has increased 3.5-fold (2014) as compared to 5% increase in the rail track length. Moreover, 60% of the rail network capacity is utilized for passenger movement which merely accounts for 33% of the total traffic revenue (GoI, 2020).

As per the World Bank Group, if both the modes – road and rail, excel in their respective domains i.e., medium/long distances and high volume for rail and short distances with low volume for road, the share of rail and road would be 52% and 48%, respectively. Though the investments in the overall infrastructure have increased, the investments in railways have not been as significant as road and power. The overall railway investments have been about 8% from 2013 to 2017, with a compounded annual growth rate (CAGR) of 23%.

The lack of investments in the rail sector, gradual wear-and-tear of tracks, decline in the train speed, gap in the investment for capacity expansion have led to high-operating ratio and delay of freight train operations. As per the Working Report on Railways, a total investment of ₹51,55,650 crores will have to be made by 2032, of which the major proportion is to be allocated for capacity augmentation and rolling stock (National Transport Development Policy Committee, 2012). The Mission 3000 MT by 2027 envisages a total capex of ₹8.45 lakh crore over the next five years (2022-27). Figure 3 presents projected capex under important works.



**Figure 3:** Year-wise projected capex for the mission  
 Source: Mission 3000 MT, Indian Railways<sup>2</sup>

**Increasing importance of marketing efforts for Indian Railways**

Due to the expansion of road network and immense growth of the trucking industry, consignors began preferring road over rail, even for long distances. Ease in toll collection, GST, end-to-end accessibility, among other factors made road transport more ideal.

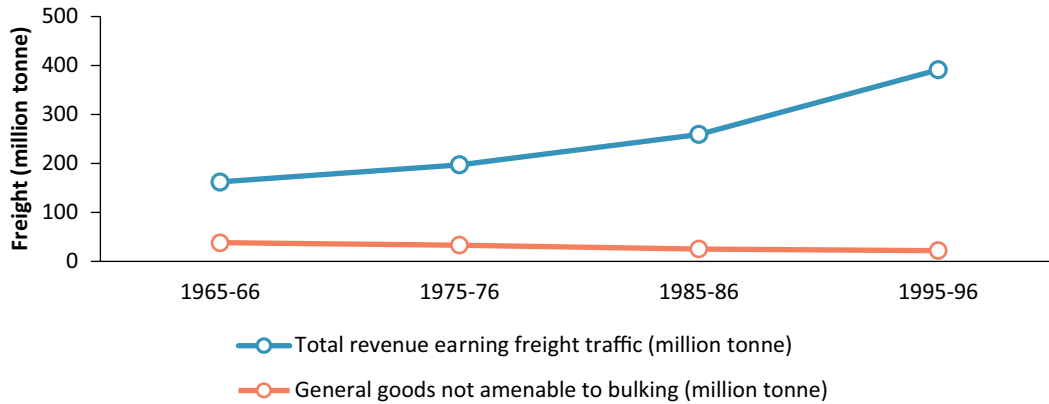
Coal is the highest revenue-generating commodity of the railways, followed by iron ore, POL, etc. However due to capacity constraints, rigid tariff and policy structure, and lack of direct consultation with the stakeholders, IR has experienced a decline in their freight share.

Also, the demand and share of commodities such as coal and crude oil are likely to decline w.r.t carbon emissions. With this limited scope and changing dynamics of the industry, the initiatives taken by the Indian Railways would play a crucial role in determining its future in transportation of goods. Hence, for railways to sustain further in the freight business, they need to change their strategy.

<sup>2</sup> Details available at: <[https://indianrailways.gov.in/railwayboard/uploads/directorate/mec\\_engg/2022/MT3000.pdf](https://indianrailways.gov.in/railwayboard/uploads/directorate/mec_engg/2022/MT3000.pdf)>

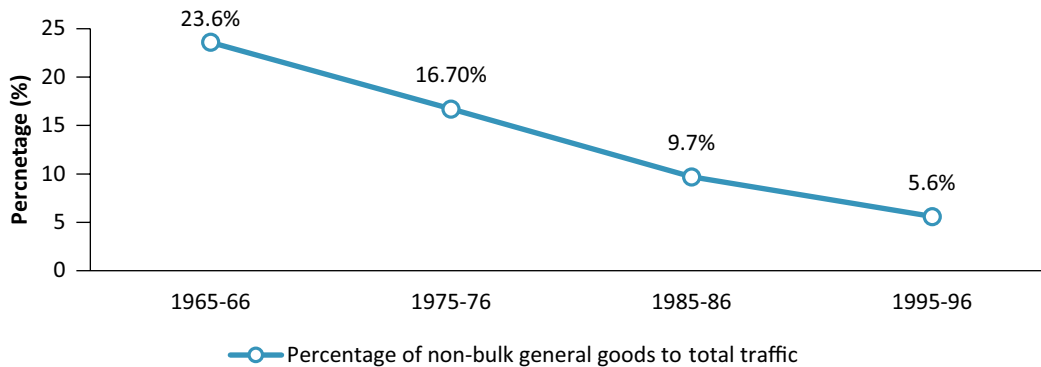
## 8.4 Marketing as a Part of the Commercial Organization of the Indian Railways

The Development Wing of the IR was functioning under Deputy Chief Commercial Superintendent (Development) with the aim to integrate rail and road traffic. This was the time when the road industry had started expanding, due of which freight movement started shifting to road.



**Figure 4:** Share of non-bulk traffic in IR

Source: *Commercialization of Railways: Development of Railway Marketing Practices, 1996*



**Figure 5:** Percentage of non-bulk general goods to total traffic

Source: *Commercialization of Railways: Development of Railway Marketing Practices, 1996*

To retain IR's high-value traffic, the Marketing and Sales Organization was set up in 1967 by IR at Railway Board and Zonal Railways level. It was a replacement of the Research and Development Wing of the Commercial Department of the Railways. The reorientation in the organization caused changes in the activities and a strategy of capturing high-rated traffic moving via road was adopted.

Further, the corporate planning strategy of the Railways emphasized upon bulk movement and container traffic. The major shift in 1981, from wagon carrying 22 to 24 tonnes of traffic to a train carrying 2200 to 3300 tonnes, discouraged small users, and favoured bulk commodities such as coal, iron ore, cement, food grains and fertilizers.

The change in corporate strategy was mainly due to the inability of railways to meet demands of the core sectors such as power, coal, steel, fertilizers, petroleum, and cement in the late seventies.

Railways took a conscious decision of vacating the short distance piecemeal traffic to road and establishing focus on bulk commodities as per stated strategy in the VI Five-year Plan (1980-85). It stated that as a long-term goal, efforts would be made by the Railways to develop the capacity to clear all train load traffic for long, medium, and short distances. Railways would also endeavor to carry piecemeal traffic for long distance segments. All non-train load traffic (that is, piecemeal traffic) for short and medium distances might be carried by road. Clearly this strategy was at variance with National Transport Policy Committee (1980) recommendation of carrying over 70% goods traffic by rail as it was more fuel efficient.

Although, all the short distance non-bulk traffic was left for road transport one of the main marketing objectives remained to attract high value general goods, mostly value-added manufactured products which helped in increasing the overall earnings since they were high-rated as compared to the bulk commodities.

Since the marketing organization looked at the areas left out of the domain of the Operating Department, Chief Marketing Manager was placed under Chief Operations Manager in 1993. The basic idea was to make Marketing and Sales Organization (MSO) a part of the traffic department and operate under the overall objective of customer satisfaction.

The Corporate Plan, 1985 showed that Railways should match the needs of the customers through market research and analysis, however, the market research and analysis was largely missing.

Most of the schemes launched by MSO such as High Profit Yielding (HPY) Commodities, Freight Forwarder Scheme (FFS), Parcel Courier Service, Mobile Booking Scheme, Quick Transit Service (QTS), Speed Link Express Trains Service, Leasing of SLR Scheme, etc., have not succeeded as they were launched without proper concept, environmental consideration, and strategy.

## 8.5 Marketing Policies of the Indian Railways

When the marketing organization was set up, it focused on the commercial performance of IR, development of goods sheds, parcel sheds etc. The officials had local interactions with individual stakeholders and were able to build up conditions to retain the traffic. Their primary role was aggregation of smalls traffic and increasing container movement in the overall traffic.

However, over the last three decades, the role of marketing organization has drastically changed. Development of Container Corporation of India has led to handing over of container bookings and handling. Further, due to capacity constraints, there was a decline in the traffic loading under Freight Forwarder Scheme. It is evident that there was a substantial growth initially, however due to IR's policy to carry a single commodity in train loads, there has been a decline in the rail freight share.

IRs has introduced several policies in the last 20 years to retain the share of traditional commodities, in addition trying expand their freight basket to new commodities. These are majorly focused on increasing the freight loading and the overall revenue from the freight traffic. Before diving into the marketing policies, let us look at the recommendations given by various committees to help in improving the marketing strategy of railways.

### 8.5.1 Past Reports and Recommendations

#### **Railway Fare and Freight Committee Report (1993)**

The committee suggested that instead of increasing the freight rates, the focus should be on bringing down the unproductive expenditure and making optimum use of the assets. Rationalisation of the freight structure would help in achieving customer satisfaction and retaining the lost traffic. The telescopic tapper should be sharper for the train load as compared to wagon load traffic. Though 'wagon' is considered as the basis of

charging, the charges are based on the weight of the commodity and 'vary' through commodity type.

Earlier, due to lack of wagon availability and preference to move train loads, IR deliberately discouraged the movement of 'smalls' traffic, which led to disappearance of this traffic from the freight basket of the railways. Eventually, the unenthusiastic move of retaining smalls in the Goods Tariff did not connect at all with the change in rates and the change in service.

Further, the commercial role of railways should be to ensure financial viability, customer satisfaction, and improvement in productivity and quality of service. IR should retain the general goods market by aggregating the smalls, parcel and piecemeal wagon loads into train loads. They should focus upon providing door-to-door service and increasing capacity on the congested networks. The costing should be such that the profit centres are identified for commercial activities to enable better management and recognize more opportunities. Loading and unloading of heavy goods by cranes should be privatized. Parcel traffic should be privatized in three phases; leasing of parcel trains, space in SLRs and VPs<sup>3</sup>, leasing of terminals to the private players for entire handling and handing over of the parcel business to a third agency with IR's role as a transporter only.

"Freight customers are not homogenous and differ in requirements and expectations from different transport modes. Customer-specific issues related to the engagement depend on the type of user."

#### **Public Accounts Committee Report – Marketing by Indian Railways (1994-95)**

The committee emphasized on the need of evaluating and streamlining the functioning of the Marketing and Sales Organization. One of the main objectives of the Marketing and Sales Organization was to maximize revenue by increasing loading of HPY commodities. However, as per the committee's analysis, the Organization failed to increase the loading despite functioning for 27 years. The audit also revealed that the Railways has not assessed their capacity utilization w.r.t line, wagon locomotive, coaches, etc. to find out whether the capacity was being fully utilized or otherwise. Even after the recommendations of the committee in their 70<sup>th</sup> report, the Marketing and Sales Organization have not laid down their targets and goals w.r.t the services being offered.

The committee suggested to look deeper into the decline in revenue from the Freight Forwarder Scheme to take necessary corrective action. IR was also not aware of the type of commodities being loaded under the Scheme. The committee believed that there was a strong possibility that the High Yield Commodity traffic got diverted to the Scheme.

The committee quoted that the main reason behind the poor performance of various scheme is the inadequate supply of wagons and restrictions on booking of traffic due to operational difficulties. They also suggested that there was a need of synchronization between the commercial and the operating department of the IR.

#### **Public Accounts Committee Report – Freight and Wagon Management on Indian Railways (2009-10)**

The overall share of railways has decreased from 53% (4<sup>th</sup> Five-year Plan) to 37% (9<sup>th</sup> Five-year Plan). This was due to lack of compliance with the wagon loading conditions for protecting track and rolling stock, illegal overloading despite granting permission for increase in wagon loading, increase in rail fractures, and defects in wagons and locomotives. No technical feasibility and assessment were conducted for increasing the wagon loading capacity on coal and iron ore routes. It was simply based on field experience and number of years of running the business. Since the customers got their concession even without compliance, IR had been running in operational losses.

<sup>3</sup> Luggage coaches and parcel vans

### **Transforming the Railway's logistics infrastructure – McKinsey (2010)**

It estimated the cost of waste and loss due to poor logistic infrastructure at 4.3% of India's GDP. It also suggested due to the lopsided modal distribution, the rail freight share would decline to 25% by 2020 and reduce further by 2030.

### **Report No. 8 – Comptroller and Auditor General of India (2010)**

Certain issues were identified under the report. Firstly, there was a delay in capacity and infrastructure augmentation projects, connectivity, and upgradation projects. Also, a delay in project implementation of Roll on – Roll off (Ro-Ro) and multi-modal park schemes even after four years of introduction. Terminals that handled more than 30 rakes per month lacked basic facilities which led to increase in detention time. Modernization of freight terminals was not fully implemented. Schemes targeting increase in piece meal traffic were operating sporadically. Scheme specific data was not maintained and performance levels were not evaluated. Customer consultations revealed that mechanism of supply of rakes was inefficient.

Recommendations suggested under the report highlighted a need for prioritizing an increase of rolling stock for on-time availability. It suggested that terminals handling more than 30 rakes per month should at least have three lines for goods operations. It needed to enhance quality of locomotive maintenance. They should address operational and infrastructural constraints to examine wagon maintenance depots. An evaluation of incremental loading from the incentive schemes should be conducted to make subsequent changes. Initiatives aimed at retaining the road freight share should be accelerated. IR needed to monitor and restrict delays in contracts and projects.

### **Working Group on Railways, National Transport Development Policy Committee (2012)**

It analyzed that since the decision making is centralized at the railway board, strategic thinking was limited. The commercial and social role of railways should be separated. Secondly, the organization lacked in customer-centric approach which were further fuelled by political issues in setting the tariff and investment planning. The role of the organization should be divided into three categories. The policies should be with the government, tariff regulations should be with the regulatory authority and operations should be under corporate entities.

### **Comptroller and Auditor General of India (2018)**

The Indian Railways did not disclose their accounting policies and the procedure of preparation of the financial statements. The policies resulted in inadequate maintenance of assets. They recommended that the IR needed to revisit tariff rates of passenger and other coaching to recover the operation cost and reduce losses. The cost fixation should be based on a method that brings in rationality and flexibility in pricing.

## **8.6 SWOC Analysis of the Indian Railways**

From the literature review and recommendations made by various expert groups and committees, the SWOC analysis of IR has been presented in Table 1.

**Table 1: SWOC analysis**

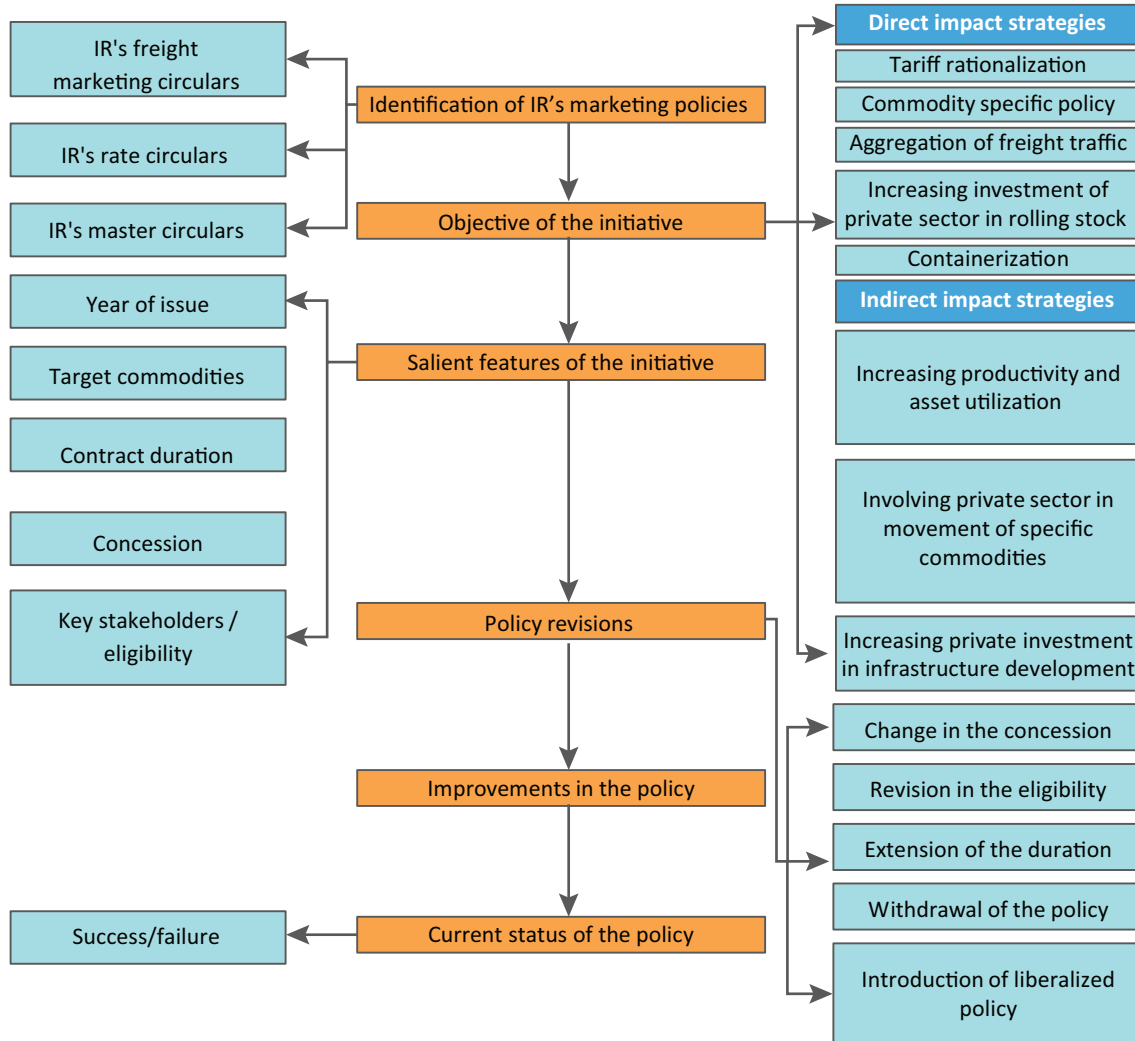
Strengths	<ul style="list-style-type: none"> <li>» Most economical and environmentally friendly mode of transport</li> <li>» Better main haul connectivity – Pan-India presence</li> <li>» More carrying capacity</li> <li>» Least damage to goods during transit</li> <li>» Digital tracking of freight trains</li> <li>» Higher tonnage carried per trip</li> <li>» 80% emission savings than road<sup>4</sup></li> </ul>
Weaknesses	<ul style="list-style-type: none"> <li>» Priority is given to passenger trains on the same track which causes delays in freight train movement.</li> <li>» Lack of flexibility</li> <li>» Lack of supply of wagons for on-demand movement</li> <li>» Reduced customer satisfaction</li> <li>» Complex and uniform pricing policy led to uncompetitive rates</li> <li>» Lack of first and last-mile connectivity - missing links</li> <li>» No assured safe delivery of consignments</li> <li>» Poor handling of goods at loading/unloading points</li> <li>» Inadequate commodity-specific terminal facilities</li> <li>» Lengthy process of settlement of claims</li> <li>» Time-taking procedure of land acquisition for terminal development</li> <li>» Bureaucratic procedures causing delays in dealing with the users</li> <li>» Customer-centric approach is largely deficient</li> </ul>
Opportunities	<ul style="list-style-type: none"> <li>» Aggregation of non-bulk traffic for a train load</li> <li>» Can carry more bulk traffic than trucks, planes</li> <li>» Increase in electrification of tracks, minimal carbon emission in transport sector</li> <li>» Increase in revenue through improvements in the rail sector</li> <li>» Digital tracking of consignments</li> <li>» Tracking of consignment</li> </ul>
Challenges	<ul style="list-style-type: none"> <li>» Competition from double road trailers</li> <li>» Advantage of door-to-door services by road transport</li> <li>» Improvement and expansion of road network</li> <li>» Capacity constraints resulting in increased transit time and inability to meet the entire demand</li> <li>» Passenger traffic prioritization</li> <li>» Lower and competitive freight rates offered by road</li> <li>» Easier handling mechanism of the trucking sector</li> <li>» Higher terminal detention with practically no mechanization commodity-specific wagon designs</li> </ul>

<sup>4</sup> Details available at: <[https://www.uncrd.or.jp/content/documents/4952Background%20Paper%20\(2\)-EST%20Plenary%20Session%2011.pdf](https://www.uncrd.or.jp/content/documents/4952Background%20Paper%20(2)-EST%20Plenary%20Session%2011.pdf)>



## 8.7 Defining the Rail Freight Marketing Strategies

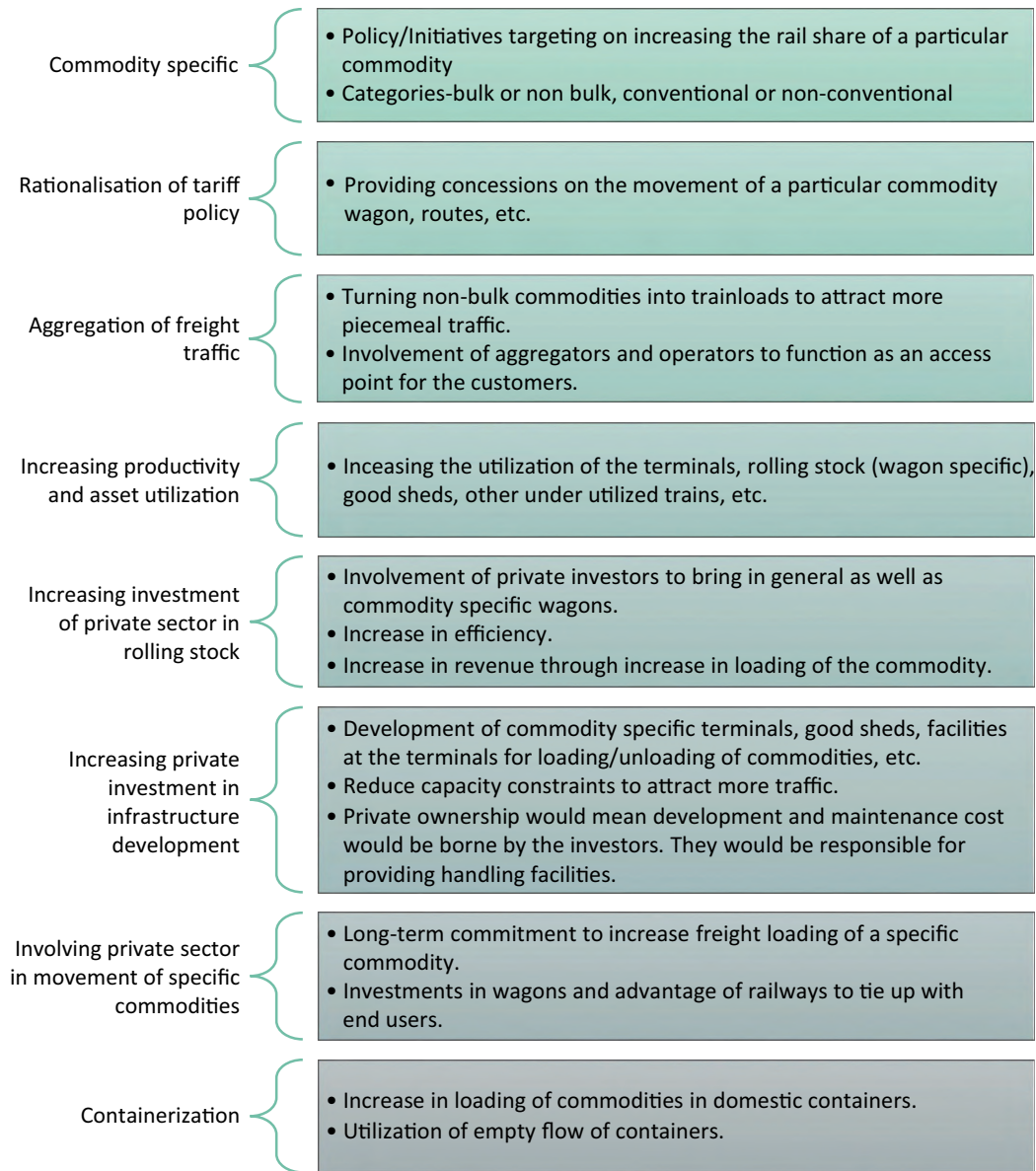
IR has introduced several policies and initiatives to increase the overall loading and earnings from the rail freight traffic. The marketing initiatives taken by the IR were analyzed based on different parameters. A total of 54 marketing policies issued between 2001 to 2021 were identified and analyzed. Figure 6 depicts the step-wise methodology for analyzing the freight policies.



**Figure 6:** Methodology for policy analysis

The main gap in IR's marketing strategies is that it does not address the problem of route capacity and lacks in organizing stakeholder consultations to understand the needs of the customer. Few years back, realizing this as a drawback Railway Board introduced 'Sanvad' dialogues with the major consumers but this initiative did not last long. IR prioritizes passenger traffic resulting in delays of the freight trains. The policies thereby focus upon establishing price and service incentives on the backhaul traffic. Furthermore, not all incentives have been successful since they take time to roll out and process.

To categorize the policies w.r.t their objective, it is essential to outline the need of the policy. Therefore, the policy objectives have been categorized as follows.



Source: TERI

This study emphasizes on identifying major policies, the subsequent changes made and their status. Further, gaps and issues have been presented to recommend the changes that would help in increasing the rail freight share. The next chapters focus on the key policies that have already made an impact or have a potential to increase the rail freight share.

# 9 Freight Forwarder Scheme

## 9.1 Objective

The Freight Forwarder Scheme (FFS) aims at increasing the aggregation and facilitating the cargo aggregators to expand the commodity basket of Indian Railways.

## 9.2 Genesis of the Initiative

Definition of Freight Forwarder as per Indian Railways - Report and Accounts (1973-74):

“The freight forwarder collects ‘smalls’ consignments from the premises of individual traders, consolidates and offers them as wagonload/container load/parcel van load consignments for booking by rail and arranges delivery of the consignments at the premises of the individual consignees.”

Revised definition as per Indian Railways - Report and Accounts (1994-95):

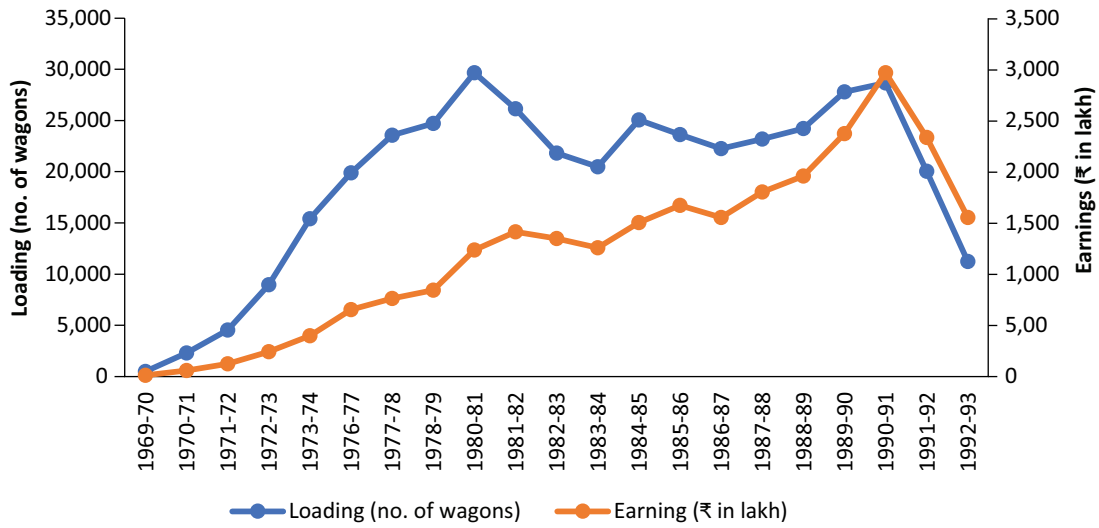
“The freight forwarder collects “smalls” as well as piecemeal wagon-load consignments from the premises of individual traders, consolidates and offers them as wagon-load/train-load traffic for carriage by rail.”

The Freight Forwarder Scheme (FFS) of the IR dates to the late 1960s, when IR started with the freight forwarder services on a few major routes to cater to the ‘smalls’ traffic bulked into wagonloads which have a potential to move away from railways to other competitive modes. The scheme offered a freight forwarder to aggregate smalls traffic and transport them by rail between pre-defined terminals in wagonloads<sup>5</sup> at concessional, lump sum rate to the freight forwarders. Initially, the service was operational for conventional four-wheeler covered wagons between Mumbai–Howrah and Howrah–Chennai. Later, it became operational on a total of 15 routes and increased to 31 routes in 1972–73.

Within a span of 3 years, number of routes increased to 73 as it further gained popularity during 1975–76. However, in 1977–78, of the 99 operational routes, 9 routes were discontinued due to inadequate supply of traffic. From 1969 to 1979, there was a steady increase in the loading of wagons under the scheme (Figure 7). In 1980–81, there was an all-time high loading of 29,675 wagons corresponding to INR 12.36 crore in earnings. However, Railways saw a sharp decline in the loading thereafter. Main reason was the change in the policy of Railways of giving preference to train-loads carrying bulk commodities. Other reasons include closure of several Jute mills and other industries in West Bengal in 1986–87 due to labour problems, which offered considerable smalls traffic. The timeline has been presented in Figure 9.

One of the main concerns in the Scheme was frequent changes in the procedures. The policy was altered very frequently keeping operational convenience in view that led to lack of stability. For instance, the Scheme was

<sup>5</sup> Details available at: <[https://eparlib.nic.in/bitstream/123456789/4353/1/pac\\_10\\_99\\_1995.pdf](https://eparlib.nic.in/bitstream/123456789/4353/1/pac_10_99_1995.pdf)>



**Figure 7:** No. of wagons loaded and earnings of IR under FFS (1969-93)

Source: Commercial Directorate, Railway Board, Railway Convention Committee (1973) – Social Burdens on Indian Railways, Indian Railways Year Books (1969-93)

discontinued for soda ash on Western Railways though its share under the Scheme was significantly high. Other concerns were unreliable schedules, irregular wagon supply, commodity-specific freight structure and lack of customer-oriented service. The main emphasis of the Railways was on expanding train-load traffic for bulk commodities, wagonload, and small traffic were hardly a priority.

IR saw a significant decline in the earning from INR 29.57 crore in 1990–91 to INR 15.52 crore in 1992–93 in the scheme, primarily on account of low priority accorded to the scheme. However, some zonal railways were able to attract high-value commodities, for instance, from 1987–88 to 1991–92, the earnings of Northern Railways increased from INR 189 lakh to INR 607 lakh under the Scheme.

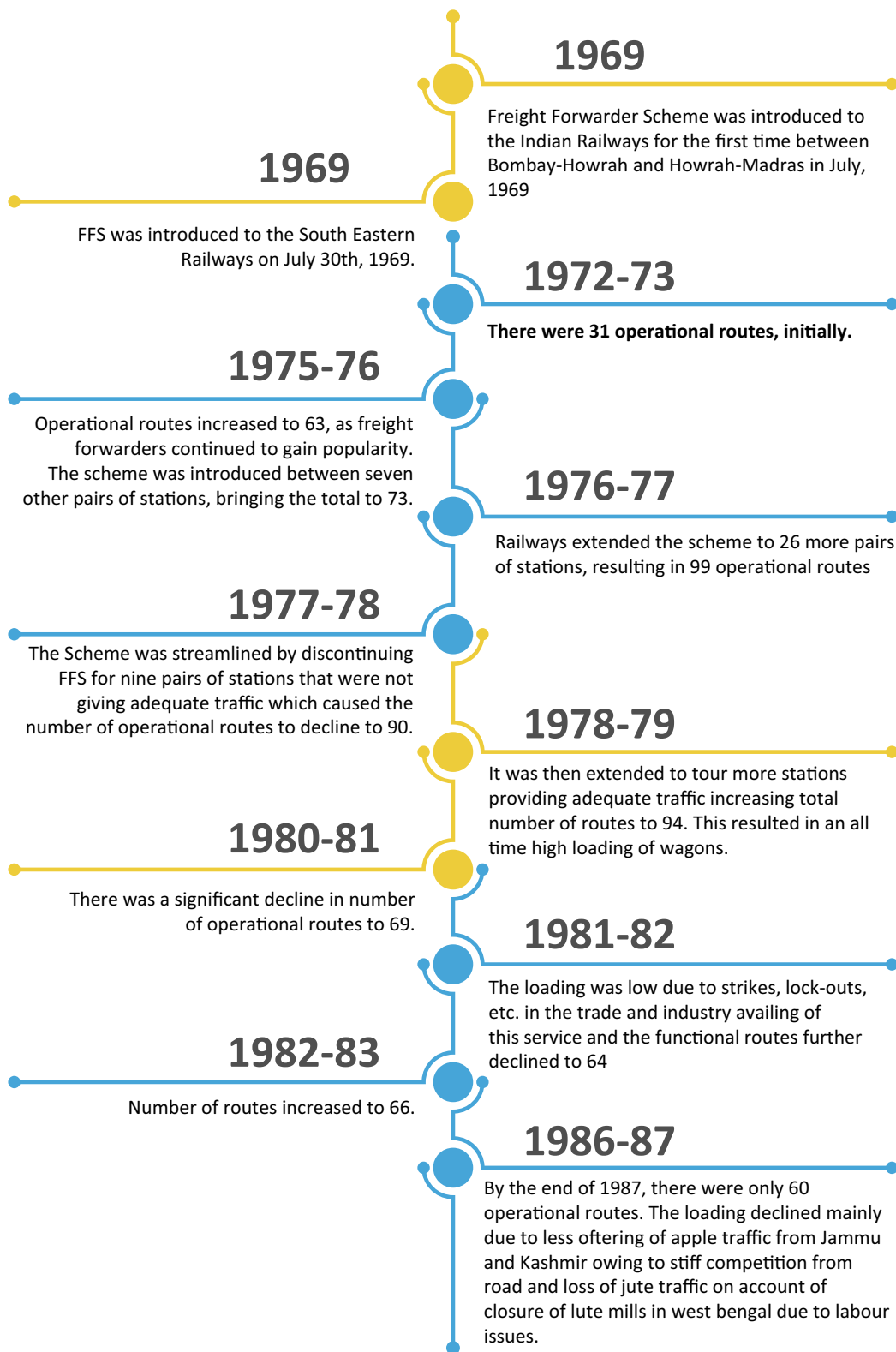


**Figure 8:** Wagon loaded under Freight Forwarder Scheme at Shalimar station

Source: Indian Railways’ Report and Accounts (1973-74)

A revised FFS was introduced in 1994–95, which offered some value additions in service such as guaranteed supply of wagons, identifiable path, direction-wise loading on nominated days, fixed transit time and incentive in freight rate for more loading volume. It was again significantly revised from 2006 to 2021.

The stated objective of FFS as per Rate Circular No. 25 of 2006 was on increasing aggregation of goods by providing point-to-point connectivity between specific pair of terminals. The Scheme was applicable at all rail-side warehouses and goods sheds which were notified by the zonal railways for cargo aggregation and distribution. The Scheme was available throughout the year for both, origin and destination goods sheds having full rake terminals. While both, covered and open wagons were permitted in lean season, April to October, only covered wagons were allowed in busy season, from October to March. The Scheme was not available for lead less than 700 km.



**Figure 9:** Growth of FFS

Source: Indian Railways' Report and Accounts (1972-87), Compiled by TERI

Other conditions under the Scheme were loading of single commodity or multiple commodities up to maximum of 10 wagons each, placement of indents was only for block rakes though all commodities were made eligible under the Scheme with no exclusions. For the lean and busy seasons, composite freight rate was at chargeable class 100 and 130, respectively. The freight forwarders were given stacking time at originating terminal up to 48 hours while removal time at destination station was 24 hours.

Responsibilities of the cargo aggregator included loading at forwarding goods sheds and unloading at destination goods sheds, identifying goods sheds between which they intended to operate, nominating days for operation, and ensuring not loading of contraband and dangerous goods; violations attracted punitive action. Railways' responsibility was notifying rail-side warehouses and goods sheds for aggregation and distribution based on feasibility of operation at the terminals proposed by the aggregators. Railways also took responsibility for supply of wagons as assured to the cargo operators on nominated days as mutually agreed upon.

The current freight forwarder policy was revised in 2021 (Rates Master Circular/FIS/2015/0) with a similar objective, aiming at facilitating cargo aggregation and thereby expanding the commodity basket on Railways. The Scheme is applicable on notified goods sheds and private freight terminals and was available throughout the year. In addition to covered wagons, bogie open high sided with air brakes (BOXN), open wagons and flat wagons have also been included as the eligible wagons under the Scheme. The distance restriction of 700 km has not been eased.

There has been relaxation in number of wagons to be loaded by single commodity, two commodities, and more than two commodities. For single commodity, any number of wagons can be loaded with train-load rate applicable for each wagon. For two commodities, any number of wagons can be loaded but train-load rate for each wagon is the higher-class rate of two commodities loaded. For more than two commodities, a maximum of 10 wagons can be loaded with composite class rate of 120. The floor rate, that is, minimum chargeable rate should not be less than Normal Tariff Rate of Class LR-1 after availing all the concessions.

While in the earlier policy, no commodity was excluded from FFS, in the current policy, the following commodities that are generally carried by railways in trainloads have been excluded from the scheme:

1. Coal and all its variants including washed coal and imported coal
2. Coke and all its varieties including metallurgical, petroleum, and imported coke
3. Iron ore
4. Petroleum, oil, lubricants
5. Traffic moving in privately-owned wagons (including Own Your Wagon Scheme and Wagon Investment Scheme/Liberalized Wagon Investment Scheme) such as cement in bulk in loose, food grain in bulk in loose, caustic soda, liquefied petroleum gas (LPG), ammonia, phosphoric acid, etc. availing freight concession under any other scheme
6. Traffic loaded in ports
7. Container traffic
8. Military traffic
9. Railway material consignment (RMC)
10. Marine gypsum

In case, wagons are loaded with more than two commodities, the following commodities are not permitted:

1. All types of ores and minerals
2. Cement
3. Food grain
4. Chemical manures
5. Iron and steel

As per the current scheme, the customers pay all other applicable surcharges, for instance, busy season surcharge, terminal charges, development charges, etc., over and above the composite rates.

While the responsibilities of the core aggregator remain largely the same, like loading and unloading, identifying originating and destination goods sheds, proposing nomination of days of operation, ensuring not loading of contraband and dangerous goods, additional conditions have been provided:

- » In case of incorrect declaration, only those multi-commodity wagons will be charged at a class rate of 200, which are found mis-declared.
- » Modified forwarding note to be submitted by the freight forwarder at the time of loading, showing the final status. However, up to 20% modification of the wagons for each commodity will be allowed.
- » Supply of wagons, however, will be done by railways, subject to availability.

### 9.3 Role of Freight Forwarder in the Indian Railways

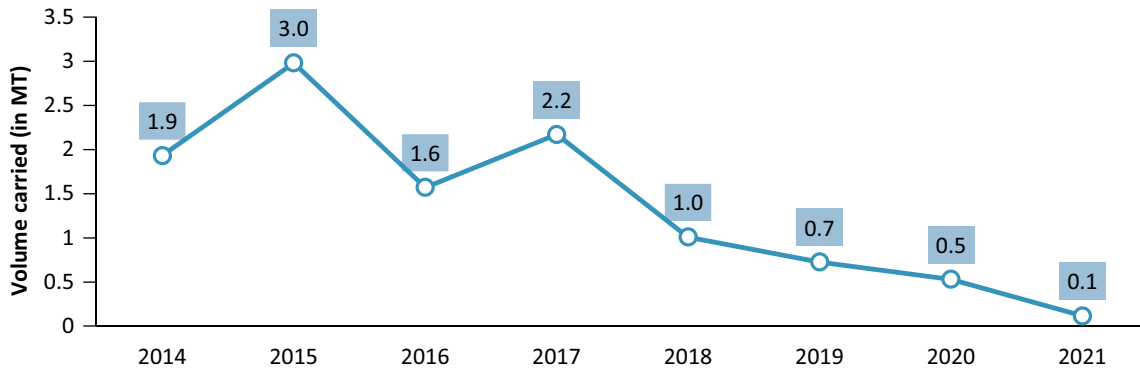
The freight forwarder in the IR acts as consignor who aggregates and ultimately, offers traffic to the railways. Railways has both individuals and companies that operate as forwarders under this scheme. Generally, these freight forwarders have long-term contracts with the consignors that provides stability and confidence. The freight forwarders under the IR work as nodal entities for aggregating and transporting less than wagon load volume to specific destinations. They have a pre-defined volume that is promised to railways annually and are responsible for informing the IR about the type and volume of commodities being carried w.r.t, origin and destination points. This saves railways the trouble of transporting less than train load volume while increasing the freight basket of the railways and shippers can transport small volumes at lower rates.

#### 9.3.1 Current Scenario of Freight Forwarder Scheme on Indian Railways

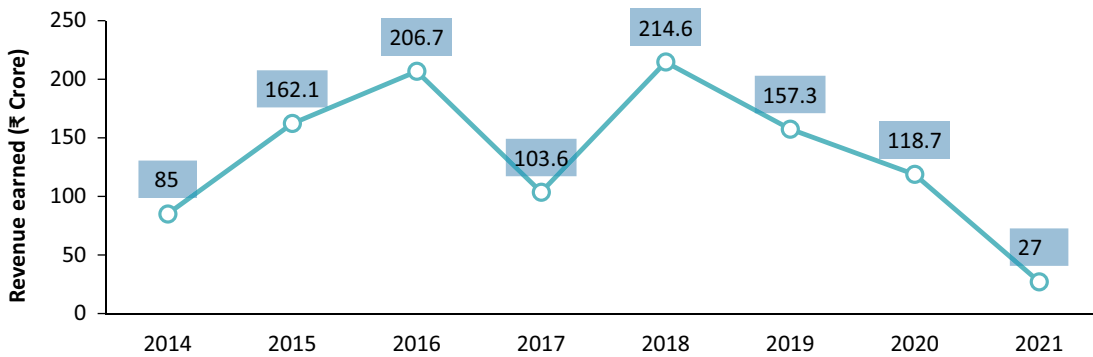
There are presently 21 origin points and 28 destination points which form a total 72 operational routes on the IR. Maximum destination points are in the Northeast Frontier Railway zone.

The overall loading under FFS has varied significantly through the years. It peaked in 2015, where IR carried 2.8 million tonnes under FFS. However, there has been a decline in the loading ever since. The scheme was significantly modified in 2009, wherein majority of the bulk commodities were restricted to attract other than bulk load under this scheme.

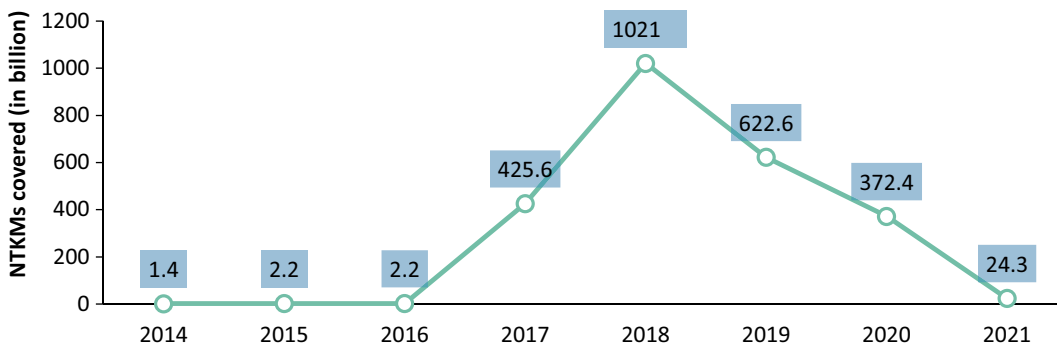
Due to the composite class rate of 120 while loading more than two commodities, the commodities carried under FFS are mainly in the range of Class LR3B to Class 180.



**Figure 10:** Overall volume carried under FFS  
Source: Indian Railways and TERI Analysis



**Figure 11:** Revenue earned under FFS  
Source: Indian Railways and TERI Analysis

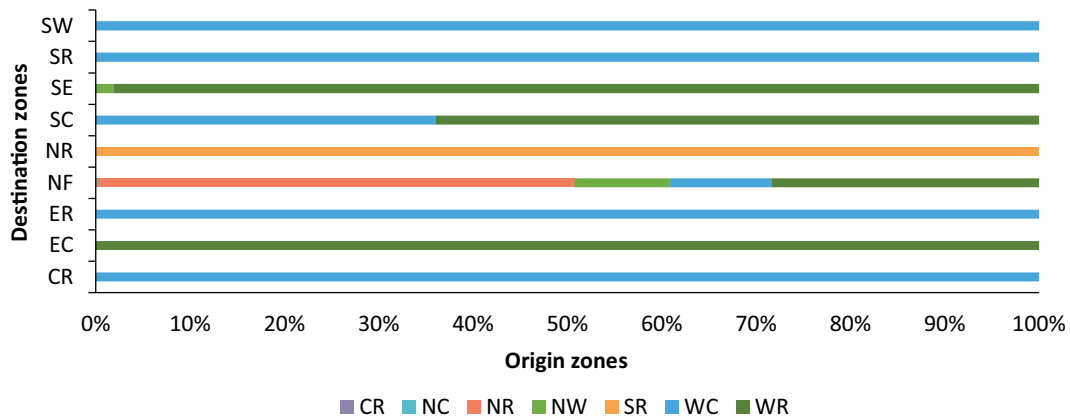


**Figure 12:** NTKMs covered under FFS  
Source: Indian Railways and TERI Analysis

Figure 13 highlights that West Central Railways is the most active origin zone, transporting freight under FFS to South Western railways, Southern Railways, South Central Railways, Eastern Railways and Central Railways zones. However, the overall share of volume carried is less as compared to Northern Railways.

A case study on Kishanganj, New Delhi is attached in Annexure A of the report.





**Figure 13:** Zone-wise share of traffic movement  
 Source: Indian Railways and TERI Analysis

## 9.4 International Best Practices

### 9.4.1 Deutsche Bahn Rail, Germany

#### Why is single wagonload essential?

Owing to changes in the production processes and customization of industrial products, there has been a shift towards smaller volume goods. Prior to COVID, freight forwarders chose road over rail due to frequent incidences of late trains. The situation was improved by DB Cargo by offering additional trains services and increasing staff. They offered transportation of low-cargo volumes via rail in Germany and across Europe. They are equipping all the freight wagons with global positioning system (GPS) and sensors. Single wagonload service is essential to achieve the climate targets and reduce the traffic from road and is essential for small and medium freight forwarders. DB Cargo provides door-to-door service to companies with no private siding of their own. They offer complete service, from arranging the pre-carriage, onward carriage by road to provision of equipment.

#### Key achievements

- » Transportation of approximately 15,000 wagons per day
- » Reach stackers are used at private sidings for loading/ unloading wagons
- » 100 rail ports, 4,200 railway sidings including inland ports in Europe
- » Flexibility in terms of time, freight volume and routes, services up to five times a day
- » Safe loading of goods in 45-foot containers
- » Nearly two-thirds of carbon emissions savings as compared to road

#### Type of commodities transported

- » Containers and bulk goods
- » Palletized goods
- » Steel and metal products
- » Chemical products
- » Paper rolls

#### Advantage of single wagonload

Reduced carbon dioxide emissions, particulate matter (PM), and other costs since customers don't have to book the entire train. This makes rail a greener alternative as compared to road.

**Potential issues of single wagonload**

- » It requires high-performance infrastructure and more access points along the network
- » Requirement of equipment at warehouses for loading and unloading of wagons
- » Introduction of new technologies such as digital automatic couplers.

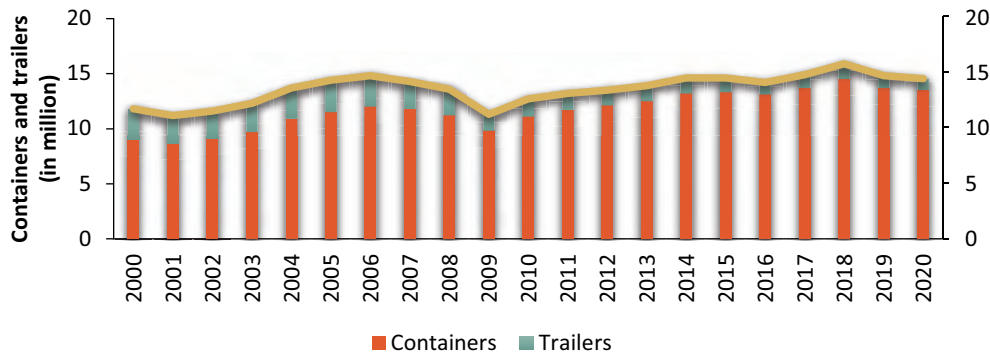
**9.4.2 United States**

**Comparison between railroads and trucks**

In the USA, trucks are mostly used to transport goods on shorter routes or to transport expensive cargo. Trucking industry accounts for 86% as compared to 14% of railroad of the total tonnage carried. They have been fuelled by an annual average of \$25 billion for the past five years.

**Rail intermodal**

- » Flexible service provided to the customers for long-haul movement at a competitive rate such that rail customers are paying the same price which was offered more than 40 years ago.
- » It is combined with truck or waterways at both origin and destination points.
- » Helps customers in tracking their shipment in real-time.
- » Domestic share of intermodal traffic has increased as shippers wanted to take advantage of moving larger volumes of freight.
- » Double-stacked containers increase the productivity and ensure traffic density to compete with truck movement. They can also be easily transferred from ships and trucks.
- » One intermodal train can carry nearly 100 containers, thus reducing congestion on road and eliminating emissions, road costs, time, and fuel.



Source: US Railways

**Warehousing**

Most warehouses in the US are equipped with warehouse management systems (WMSs) along with technologies such as Radio-Frequency Identification (RFID), barcode, scanners, etc., this allows the company to have real-time information on inventory movement.

**Key achievements**

- » It carries 61 tonnes of freight per American per year. In 2020, intermodal was nearly 25% of the major US railroads revenue; accounting for 13.5 million containers and trailers in 2020 as compared to 9 million in 2000.
- » They have been able to provide new or expand existing inland terminals to facilitate transfer of containers and trailers between rail and road, increase track capacity to allow faster movement of trains, introducing new intermodal car and modernizing locomotive fleet.

- » Intermodal terminals have upgraded the lift equipment that reduces emissions such as electric cranes.
- » Provides information to the truck drivers about their gate entry before the time of arrival to check if the container is ready to pick up beforehand, which helps in reducing delays.

### 9.4.3 Canada

#### Integrated Services

Canadian Pacific Rail offers integrated services to its customers including railways, intermodal, trucking, freight forwarding, warehousing, and distribution.

It provides one-stop shopping for door-to-door transportation and has the ability to manage and plan logistics services using long-haul capabilities of railways and local abilities of trucking industry.

#### Intermodal Service

They are responsible for first and last-mile connectivity of the shipment. They use standard containers and chassis for loading/unloading.

#### Key achievements

- » They offer direct routes with 12 intermodal terminals strategically located at high-density areas.
- » Extensive network of 100 transload facilities which allow containerization of goods.
- » One of the largest fleets of refrigerated and heated containers.
- » They have implemented portal live-lift for intermodal traffic moving between borders, which can lift single containers off of the trains for inspection by the authorities rather than the entire intermodal railcars – increasing the speed of shipping.

#### Type of commodities transported

- » Forest products
- » Merchandise
- » Steel
- » Plastics
- » Pulp and paper
- » Liquids (regulated and non-regulated)
- » Grain product

## 9.5 Issues and Challenges

In a real sense, the FFS never took off despite many attempts in the past. The main reason has been IR's inability to meet the full demand of carriage of bulk commodities, particularly in the busy season because of capacity constraints. There are occasions, particularly in the lean season every year, when Railways is able to carry additional traffic since the traffic of bulk commodities declines.

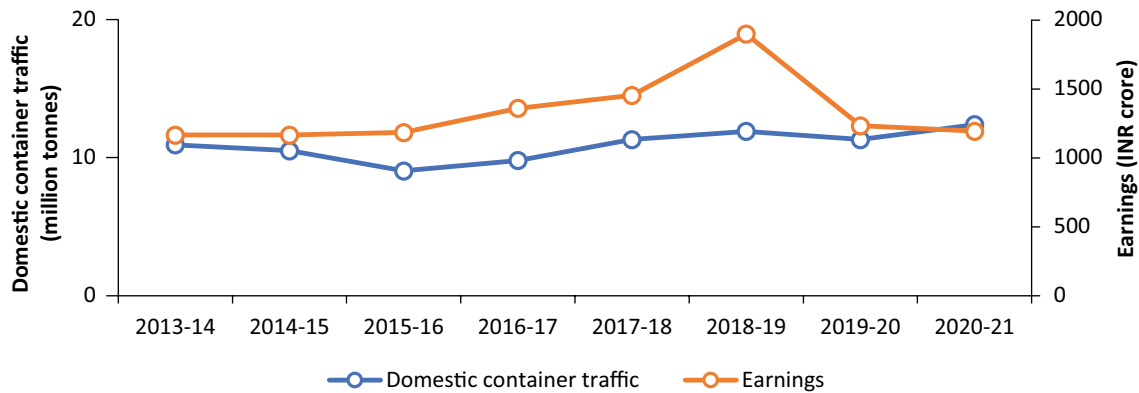
However, as soon as the busy season approaches, uncertainties of availability of wagons and congestion on important routes occur again. Railways' incapability to ensure availability of wagons throughout the year and their inability to assure the customer about likely transit time on account of route congestion do not provide much confidence to the shippers. Also, complicated rules and procedures deter the customers from patronizing railway as a mode of transport and only option available to them is road, irrespective of occasional inferior service and higher freight rates.

- » **Domestic container operators:** As a strategy to attract non-bulk commodities in the late 1990s, Railways permitted Container Corporation of India to introduce domestic container service. Later in 2006, private

“The policy was altered very frequently which led to lack of stability.”

container operators were allowed to provide similar domestic container services as well. It is one of the nine bulk commodities of the IR and currently accounts for about 4.7% of the overall freight traffic, increasing at a compound annual growth rate (CAGR) of 6% from 2013 to 2018, and about 5% of the total freight earnings of IR. Domestic container operators, like the private freight forwarders, reported limited success and have similar issues and challenges to increase their presence due to stiff competition by road transport. Their inability to provide a reliable service on account of uncertainties in transit time which is invariably higher than road, abnormal terminal detentions, operational constraints, etc. has been the key reasons for limited success in the growth of business.

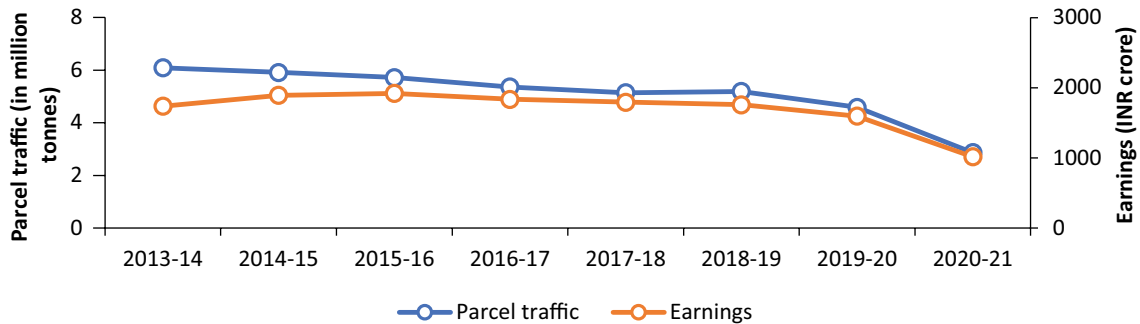
- » **Parcels:** One of the key approaches to enhance the role of freight forwarders is to address the concern of parcel segment in IR. Currently, the overall share of parcels in IR traffic is merely 0.23% (Indian Railways, 2021). Hard parcels and perishables including fruits, vegetables, etc., account for maximum share under parcel traffic, which demand faster transit and therefore are coupled with passenger trains for on-time delivery.



**Figure 14:** Domestic container traffic and earnings on IR

Source: Indian Railways, TERI Analysis

The Vision 2020 document suggested the need of a separate organization to handle the marketing and sales aspects of the parcel services with guaranteed transit time and timetables and schedules. However, concrete decision on hiving off parcel related activities is yet to be taken.



**Figure 15:** Parcel traffic and earnings on IR

Source: Indian Railways, TERI Analysis

Though the domestic container traffic has remained stagnant, the parcel traffic has rather declined. The inability of railways to address the capacity constraint has been the reason why parcel service is still coupled with the passenger business. An integrated approach through investments in rolling stock and handling facilities is

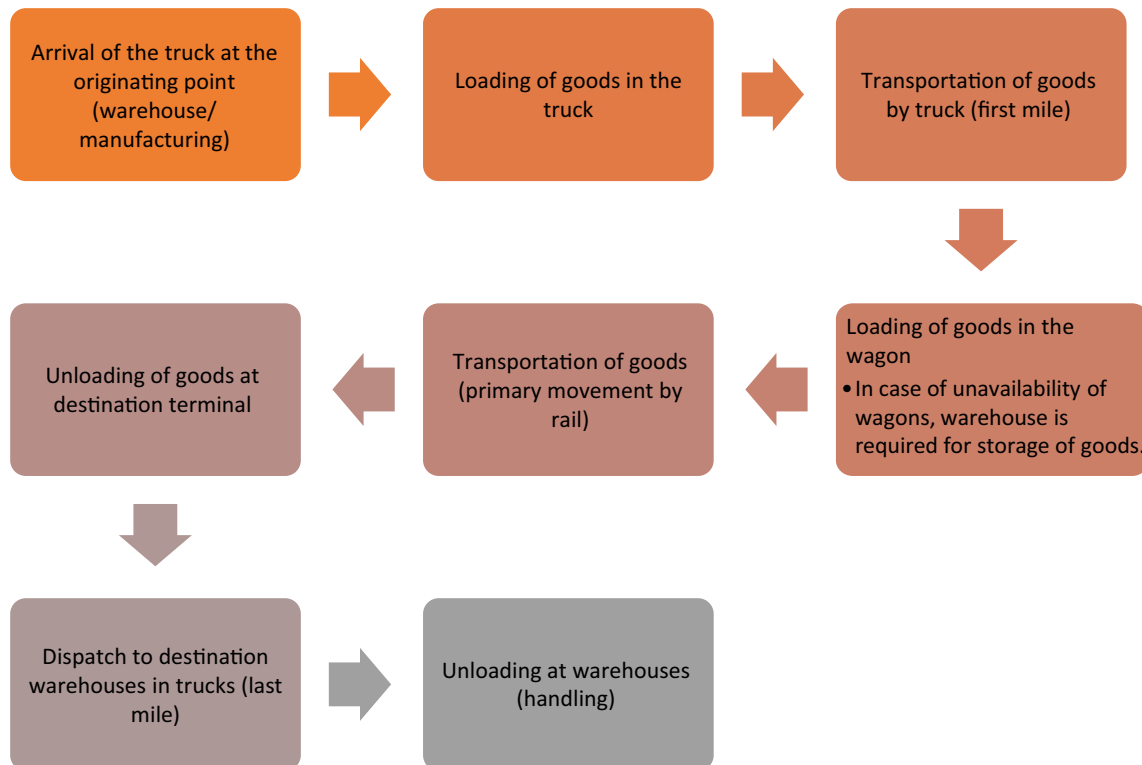
the need of the hour, along with inclusion of freight forwarders for transportation of parcels. This is the only approach by which IR would be able to provide total logistic solutions to their customers and compete with the road sector as well.

Different heads and operations related to domestic containers, parcels traffic and freight forwarders should be merged under one institutional unit with a focus on moving piecemeal traffic while providing time-bound and safe delivery of the parcel traffic, by transporting it in containers. Essential goods, including newspaper, livestock, etc. could continue to be transported through seating-cum-luggage rakes (SLRs). The remaining businesses should be segregated from the passenger business altogether.

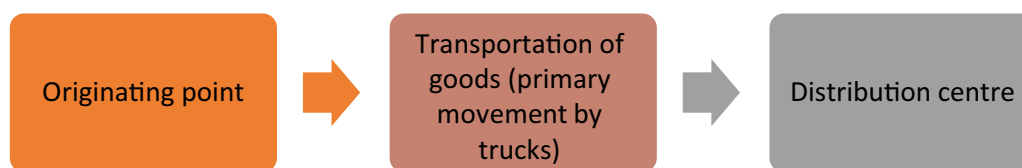
**Comparison of overall cost of freight movement by rail and road**

In absence of any competition from railways in non-bulk commodities, the road sector has been working as a monopoly; the only competition is between the service providers. Contrary to popular belief that railways have higher freight rates and they need to rationalize their freight structure, on most of the routes the road freight rates are higher as compared to railway rates. However, generally, the first preference of shipper of a non-bulk commodity is road over rail for a simple reason of complexities involved, multitude of conditions, lack of awareness of procedures, and even advantages of shipping by road.

The overall cost of freight is divided into three categories—first and last-mile cost, handling cost at the loading and unloading terminals, and the haulage charges. Figure 16 and Figure 17 illustrate a general scheme of freight movement by rail and road, respectively.



**Figure 16:** Process of transportation of freight by railways



**Figure 17:** Process of transportation of freight by road

### First and last-mile secondary movement and handling cost

The total transport cost by rail involves two secondary movements by road to connect railheads at either end and multiple handling at the origination and destination points and the railheads. This gives inherent advantage to road over rail in both transit time and total transport cost borne by the shipper. The cost of transportation at either end by road and multiple handlings are reduced if the originating and destination points are located at railheads itself. IR offers a scheme under which the terminal operators can be provided with warehouses at the railheads to eliminate secondary movements with good results.

Analysis of base freight rates without cost of handling and secondary movements by rail and road on selected routes are given in Table 2. The table indicates that the haulage road freight rates are 41%–67% higher than rail freight rates. However, if the cost of multiple handlings and first-mile and last-mile movements are included to rail transportation, the total transportation cost by road will be comparable to rail in many cases.

In addition to total transportation cost, other factors that influence the shipper's mode choice are availability, reliability, transit time, and quality of service including safety and security of goods and access of information about transit of goods and procedures adopted at either end. The road has distinct advantage over rail in terms of availability, reliability, and access of information, though safety, security of goods, and frequently quality of service are suspects.

To attract non-bulk traffic, railways has to improve the quality of service, mainly in the form of guaranteed transit time, assured availability of wagons as per demand and provide access to information about transit. The freight forwarders can play a very important role by collaborating with railways and taking over value-added services at origin and destination points with specific objective of reducing the cost associated with multiple handling and detentions at loading and unloading terminals, inherent in a rail movement.

Secondly, the uniform rail freight rates throughout the IR network have not been able to compete with the dynamic freight rates adopted by the road sector. If not for the entire rail freight traffic, IR can establish a competitive freight rate structure, specifically for traffic handled by freight forwarders on a particular route. The simplification of rules and procedures at terminals would enhance the role of freight forwarders on railways and they can eventually increase the commodity basket by introducing new commodities that have little presence on railways.

### Transit time

One of the most important factors determining the user's modal choice is the transit time. Table 3 presents a comparison of transit time on various origin–destination points between road and rail. It illustrates that despite an inherent advantage of higher speeds, the transit time of railways is comparatively higher to the road sector on many routes. It becomes a major discouraging factor, particularly when terminal delays are also added at loading and unloading points.

This would mean that the loading and unloading of goods would have to be swift with reduced turnaround time of the wagons. It would ultimately help in increasing the number of customers and the amount of volume being carried by the railways.

**Table 2:** Comparison of freight rate: road versus rail

Origin	Destination	Road		Rail		Difference in freight rates (in %)
		Distance	Freight rate (in INR/Tkm)	Distance	Freight rate (in INR/Tkm)	
Delhi	Ahmedabad	950	3.0	871	1.3	58
Delhi	Mumbai	1,400	2.7	1,368	1.2	54
Delhi	Chennai	2,000	2.1	2,173	1.1	48
Delhi	Bengaluru	2,200	1.9	2,227	1.1	44
Delhi	Guwahati	2,200	2.3	1,831	1.2	49
Delhi	Kolkata	1,600	2.1	1,451	1.2	41
Delhi	Amritsar	460	3.1	453	1.3	57
Ahmedabad	Guwahati	2,500	3.1	2,508	1.0	67
Ahmedabad	Mumbai	540	3.0	497	1.3	57

Source: Indian Railways, Indian Foundation of Transport Research and Training, TERI Analysis

**Table 3:** Comparison of freight transit time: road versus rail

Origin	Destination	Average transit time by rail (in hours)		Average transit time by road (In hours)
		To	Return	
Delhi	Ahmedabad	33	32	48
Delhi	Mumbai	62	59	72
Delhi	Chennai	109	114	96
Delhi	Bengaluru	153	102	96
Delhi	Guwahati	127	114	168
Delhi	Kolkata	81	78	96
Delhi	Amritsar	34	25	10
Ahmedabad	Guwahati	211	305	216
Ahmedabad	Mumbai	43	39	48

Source: FOIS, Indian Railways

### Lack of adequate facilities at rail terminals

Majority of railway goods sheds lack basic infrastructure facilities such as good road connectivity; as most of terminals are located in congested and dense city areas where the movement of heavy trucks is restricted during daytime. The quality of approach roads is generally far from satisfactory due to poor maintenance either by civic or railway authorities due to lack of adequate funds. Basic amenities like drinking water, wash rooms, electricity and security are also inadequate.



Maintenance of goods terminals has not been a priority area for railways. The handling facilities are generally non-mechanized as the consignor or consignee is responsible for loading and unloading at railway goods sheds. Mechanization of handling facilities and provision of specialized material handling equipment that help in rapid loading and unloading and speedy clearance of goods from terminals, is generally absent. Although, new policies focusing on the provision of warehouses by private sector are in place, not much progress has been made in this regard. There is a lack of an integrated data set which would define the type and volume of commodities being handled at each freight forwarding terminal. Such an approach would directly help in understanding the type of mechanization required (if any) at that terminal and warehouse.

Provision of railway land and plots on lease to the regular customers has also become cumbersome during last few years, possibly due to incidences of misuse of facilities and concessions putting genuine customers in difficulty. They must look for private land nearby the railway terminals for setting up warehouses and other storage facilities which increases the overall cost of service.

## 9.6 Recommendations

There is general recognition now that the freight forwarders or aggregators can play an important role in bringing back a large chunk of low volume non-bulk goods particularly low and medium goods. The Total Transport Study Report (2006) estimated a large movement of heavy trucks on routes linking metropolitan cities and other important cities. Railways can exploit its advantage of being able to provide lower transit time and freight rates as compared to road sector's heavy trucks by laying down enabling policies in collaboration with freight forwarders, aggregators, and logistic operators. This will not only help its penetration in non-bulk goods transport market, where its presence is almost non-existent, but will also increase the freight basket of IR. Introduction of policies time and again will not help in achieving the goal of 45% share of railways in the freight traffic. Therefore, the entire realm of rail freight aggregation needs to be looked from a different perspective, by a different body.

Currently, the domestic container operators and freight forwarders are engaged in similar activities with same objective of attracting non-bulk traffic to railways. Although, historically the parcel traffic was a component of coaching services, a parcel is defined as a good carried by passenger train or separate parcel train due to its nature and need for faster and assured delivery. However, now all goods traffic except low-value goods requires assured delivery.

There is a general feeling among railways that parcel traffic is a loss-making business and it has been sometimes argued to give up this business. Stacking of parcels for loading and unloading on the passenger platforms is also an irritant to the passengers and many a time a cause of avoidable detention to passenger trains, particularly road-side stations. Essentially the freight forwarders, domestic container operators and parcel operators perform similar functions. It is an appropriate time to classify parcels as a goods service and no longer a part of coaching services. Parcels should be dealt at goods terminals except small components like newspapers, books and magazines, courier services, etc. that required to be carried by passenger trains.

The domestic containers, parcels and other non-bulk traffic that is carried by freight forwarders should be brought under one policy framework bringing synergy in their operations. As of now, all of them are operating under different policies since they were introduced at different times.

A freight forwarder should be viewed as a strategic partner who would assist railways in the following ways:

- » Collect low and medium volume bulk traffic which is not amenable to forming of a train-load by the shipper. The freight forwarder would combine such shipments to train-loads and offer it for carriage by railways.



- » Collect non-bulk traffic of any shipment size, both high-value and low-value goods and offer to railways as train-loads for carriage.
- » Arrange for delivery of goods at destination points.
- » Take responsibility for compliance of packing conditions, following all the commercial formalities and for settlement of claims in case of any damage or pilferage during transit.

### **Guaranteed delivery of service**

The modal choice decision of the customers is undoubtedly based on how fast can a transport mode deliver their goods in the least amount of time, in a safe and secure manner, and at low-transport cost. Railways' inability to provide a guaranteed delivery service is the biggest handicap in attracting customers. Wherever the railways have laid down time schedules for specialized services, it was not able to adhere to its own schedules. With the expansion and augmentation of capacity on many routes, it may be possible for railways to provide guaranteed delivery time with better monitoring and supervision. Guaranteed delivery service will improve the credibility of railways and instill confidence in transport users.

### **Terminal facilities**

Provision of terminal facilities will help in cutting down terminal detentions and the overall time at either ends as it may become comparable to road sector, which has inherent advantage of providing door-to-door service. For this, railways will have to adopt a proactive approach, giving up their traditional practice of passing on all responsibilities of loading, unloading, storage, and removal of goods to the consignor and consignee.

Secondly, IR should make railway land available at nominal lease rent and permit them to provide warehouses/ storage spaces for a reasonable time of 10–15 years. They should also be encouraged to provide mechanization for handling operations either by themselves or third-party operators.

At many goods sheds that are in city areas where not only space is limited for expansion of facilities but even movement of heavy trucks is restricted during day-time, a suitable location at any other railhead may be developed in consultation with stakeholders.

### **Access facilities**

Adequate all-weather roads should be constructed as per city's masterplan, depending on the road hierarchy. Street lighting, road signages, and markings would act as supplementary infrastructure while accessing the terminals. Planning and designing of access roads should be viewed as a primary aspect of terminal facilities. If resources are a constraint, a terminal operator should be roped-in for providing facilities and should be levied a user charge on mutually agreed terms. The user charges should be collected by railways from the shippers and paid to the terminal operator responsible for construction, maintenance, and operation of facilities.

### **Facilities for handling**

The railways would have to incur additional cost for warehousing, which should be incorporated in the budget. In case of lack of space at the freight-forwarding terminal itself, railway land (if available) should be provided near the freight-forwarding terminal at a cheaper rate. The freight-forwarding policies should emphasize on the need of setting up aggregation facilities by the railways either themselves or through investments from private players, without which the role of an aggregator would remain limited. Since the flow of trucks within a developed-compact city may hinder the overall traffic flow of the city, proactive policies should establish guidelines for the location, size and design of freight-forwarding terminals.

### Standardization of warehousing facility

For freight forwarders to prosper and increase their impact on the IR, it is essential to provide them with a warehousing facility. Warehouses or storage facilities at railheads are an important element in transportation of non-bulk commodities. The following facilities are needed for setting up a warehouse at railway goods sheds:

- » Design
  - Area
- » Safety
  - Secured gated facility
- » Types of facilities
  - Shared warehousing
  - Single-product storage facilities
  - Equipment sharing
- » Amenities of warehouses
  - Type of equipment
  - Type of technology
- » Supporting infrastructure
  - Labour shed
  - Truck maintenance yard
  - Weigh bridge

### Mechanization in warehouses

For speeding up the process of loading/unloading of goods from trucks to warehouses and warehouses to wagons could be addressed through introduction of pallet jacks, forklifts, hand trucks, stackers (for heavy goods). Liftgates can be used to load and unload goods from and into the trucks. It would save transit time and the damage to the goods caused by manual movement.

Palletization would facilitate optimum utilization of the warehouses, create a systematic and efficient method of loading of consignments, making it easier for the mechanized-handling equipment to transport goods. It prevents workers from moving goods manually, which increases the safety of goods and workers. The stock can be strictly monitored since the aggregators would have an idea of each stock level.

### Need of increased investments in warehouses

Railways may strengthen their existing policy of permitting private players to invest in the warehouses and facilitate at railway goods sheds. It may help them to attract more traffic and will provide a substantial support to the freight forwarders for collection, storage, stuffing, and destuffing at the warehouses.

Investment in rolling stock, storage facilities, handling facilities at loading and unloading points, would increase the efficiency of the aggregators and ultimately help to offer more traffic to IR.

### Design of wagons

IR should invest in designing a service which is commodity specific. This could be segregated into three categories: bagged commodities (covered wagons), liquid commodities (tank wagons), and unbagged commodities (open wagons) and special wagons that are suitable to a particular commodity.

Railways' policy of providing special wagons through private investors and wagon-leasing companies has a limited success for variety of reasons, mainly delays in development of a wagon which involves railways' approval at several stages causing avoidable delays. Instead, IR should take responsibility of developing and offering it to the users for carriage.

Further, the wagons should be designed in a manner that the space is optimally utilized for transportation of smalls, parcels, FMCG traffic. It could be further segregated into low-value and high-value traffic as low-value commodities can bear longer transit time as compared to high-value traffic which requires faster movement and quick delivery.

The size of a wagon should be standardized with respect to the height, size, capacity and should be equipped with latest technologies. Railways could encourage investments from private players to accelerate the process of manufacturing and leasing of wagons once a special wagon is put in service.

### **Addressing need of on-demand wagons**

One of the main aspects of guaranteed delivery is the on-time supply of wagons, which is a major shortcoming of IR, that the trucking industry has been able to capture. If the IR can offer guaranteed time through freight aggregators, it would increase the reliability of goods on railways along with customer loyalty. Technology-based solutions to determine the availability on wagons on routes would be key in addressing the concept of on-demand wagons.

The railways should ensure that unnecessary delays in running of freight train should be eliminated so that assured delivery schedules could be adhered to. Since railways face stiff competition from road in freight traffic, improved transit time of freight trains would be able to increase the operational efficiency. Customers may be willing to pay more, if they are guaranteed assured delivery time which is an essential requirement of today's logistic operators. Additionally, terminal detentions should be kept to minimal for ensuring the safety and security of goods. Building credibility of railways among the shippers is a necessary element for enhancing the share of railways in highly competitive non-bulk freight traffic market.

### **Defining the roles**

In a system where railways work as transporter, a terminal operator looks after the terminal operation and freight forwarders perform marketing function, bringing the freight traffic to the railheads and clearing it from destination terminals, their roles should be clearly defined.

#### » **Role of Railways**

IR should take responsibility for all commercial functions including acceptance and delivery of goods and collection of freight and other charges from the freight forwarders and other consignors. No cost of commercial staff may be passed on to either the terminal operator or the freight forwarder. The user charges for terminal operator should be also collected by Railways and later reimbursed to them.

Railways should also share the infrastructure improvement costs if proposed user charges are not adequate to take care of cost incurred by the terminal operator to minimize the terminal detentions as in long run it is going to be beneficial for attracting more traffic. Identification of railway terminals or private freight terminals which are suitable for freight forwarding operations should carried out by Railways.

» **Role of freight aggregator**

The aggregator is responsible for bringing the goods and offer it to railways after observing packing conditions and other rules, ensure taking delivery by paying all dues to railways on account of freight charges and other applicable charges such as monthly terminal charges, first- and last-mile cost, cost of packing and repacking, loading/unloading charges, labour charges to the railways and the terminal operator.

Aggregators would be responsible for ensuring the safety of the goods loaded at origin point and unloading at the destination point. They should be given the liberty of bringing in both bulk and non-bulk commodities that are being transported in smaller volume. They should not be constrained in terms of capacity, which being the basis of FFS, should be completely removed.

» **Role of terminal operator**

The terminal manager would be responsible for terminal operation including any activity that is mutually agreed with railways and the freight forwarder. They should ensure proper stacking of goods at the warehouses and loading from the warehouse to the wagons.

# 10 Roll on-Roll off Policy

## 10.1 Introduction

Roll on-Roll off (Ro-Ro) concept deals with carrying trucks loaded with different commodities on open flat wagons of the Railways from origin to destination terminal. It is an advantageous service for the customers as it offers best features of road and rail while providing door-to-door facility, with minimum handling at the railway terminal.

Ro-Ro was introduced on Konkan Railways (KR) in 1999 and further on East Central Railway (ECR) and Northeast Frontier Railway (NFR) in 2016, wherein the power of quoting the lump sum/station-to-station rate was vested with the Railway Administration for carrying any commodity as per Section 32 of the Railways Act, 1989. However, these rates had to be in Railway's interest of increasing earnings.<sup>6</sup>

## 10.2 Benefits of Roll on-Roll off Service

- » It can help reduce congestion on the roads, mitigate air pollution and also provide safety.
- » Reduce dependency on crude oil
- » Reduce carbon footprint
- » Reduce driving time of the truck drivers
- » Reduce operational cost of trucks such as maintenance, toll, fuel, etc.
- » Reduction in queues at every entry points.
- » Time savings and adequate rest to the truck drivers.

## 10.3 Need of the Initiative

Ro-Ro services can have tremendous impact while reducing the overall carbon emissions. These services can help address the need of multi-modalism in the country.

“Ro-Ro can help in reducing GHG emissions caused by the HDV sector.”

## 10.4 Background

Ro-Ro was introduced to KR in 1999 and further to the IR, to East Central Railway and Northeast Frontier Railway in 2016, wherein the power of quoting the lump sum/station-to-station rate was vested with the Railway Administration for carrying any commodity as per Section 32 of the Railways Act, 1989.<sup>7</sup> However, these rates had to be in Railways' interest of increasing earnings (Rate Circular No. 15 of 2016).<sup>8</sup>

<sup>6</sup> Details available at: <[https://indianrailways.gov.in/railwayboard/uploads/directorate/traffic\\_comm/Freight\\_Rate\\_2016/RC\\_15\\_16.pdf](https://indianrailways.gov.in/railwayboard/uploads/directorate/traffic_comm/Freight_Rate_2016/RC_15_16.pdf)>

<sup>7</sup> Section 32 in The Railways Act, 1989 gives power to the railway administration to charge certain rates on a commodity under specific conditions.

<sup>8</sup> Details available at: <[https://indianrailways.gov.in/railwayboard/uploads/directorate/traffic\\_comm/Freight\\_Rate\\_2016/RC\\_15\\_16.pdf](https://indianrailways.gov.in/railwayboard/uploads/directorate/traffic_comm/Freight_Rate_2016/RC_15_16.pdf)>

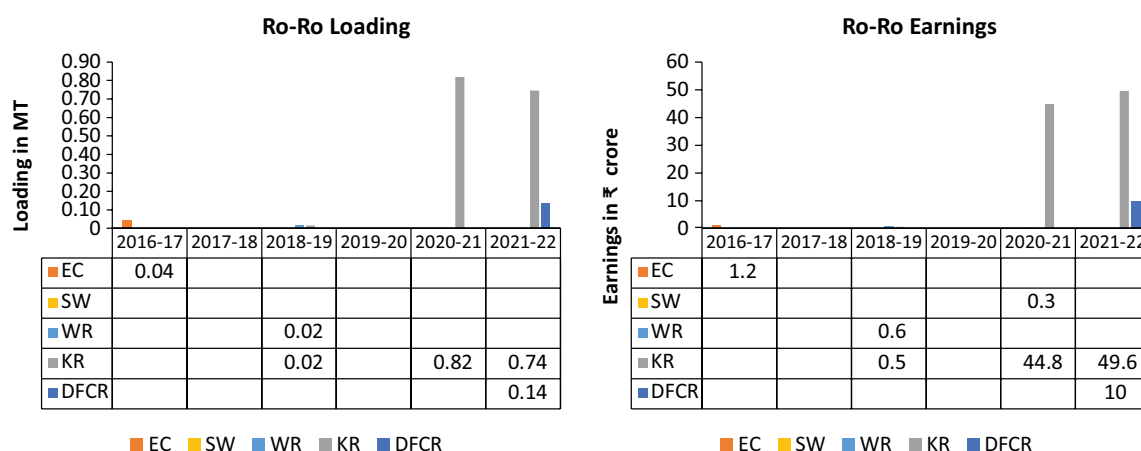
## 10.5 Objective of the Policy

It is a special service that provides facility to the consumers to directly load their trucks on to the wagons for transportation from the origin to the destination points through rail.

## 10.6 Salient Features

Ro-Ro has been defined as a commodity under IRCA Goods Tariff No. 48, Pt. I Vol. II. The gross weight of the truck shouldn't exceed permissible carrying capacity (PCC) of the wagons. Flat BRN wagons are eligible under this policy with PCC of 66 tonnes per wagon. A maximum of 42 trucks can be loaded per trip with a minimum payload of 30 tonnes per truck. Maximum height of the truck shouldn't exceed 3300 mm. Terminal charges and taxes will be levied, however busy season charge and development charge shall not be levied. The free time for loading and unloading has been allocated as 3 hours each.

## 10.7 Existing Scenario of Roll on-Roll off Service on Indian Railways

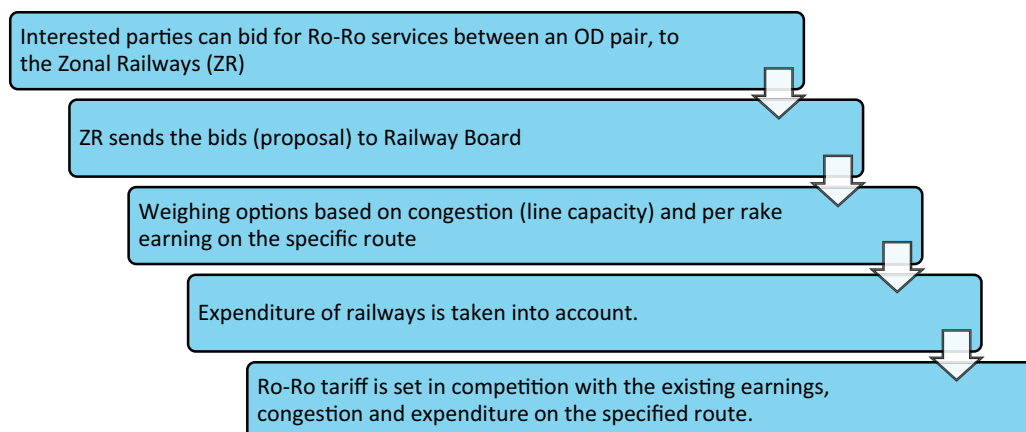


**Figure 18:** Ro-Ro loading and earnings on IR, KR and DFC

Source: TERI Analysis

## 10.8 Charging Principle: determination of haulage charges

Prior to the revision in the policy in 2022 (discussed in Section 10.11), the haulage charges for all functional Ro-Ro routes were different due to a crude process being followed while fixing these charges.



**Figure 19:** Process for determining tariff for Ro-Ro services

The main objective of railways is to have a competitive tariff in order to reduce the losses. The line capacity is a major constraint and therefore the tariff was set a little higher than Railways' break-even since the tonnage carried on a Ro-Ro rake is significantly lower than other traditional bulk commodities. The congestion and the per rake earning on a particular route are the primary factors that are considered while determining route-specific haulage charges.

### 10.9 Roll on-Roll off Service on Southern Railways

Ro-Ro operations were flagged off on South Western Railways on the 30<sup>th</sup> of August, 2020 between Nelamangala in Bengaluru Rural and Bale in Solapur district, Maharashtra. However, the service was unsuccessful as it returned after completing only 13 km out of 682 km due to lack of financial viability of the service.

The trip was repeated on 1<sup>st</sup> of September 2020, which was safely completed with 26 trucks and 28 onboard drivers. The return journey began on 6<sup>th</sup> of September 2020 from Bale with 15 trucks and reached Nelamangala the next day. However, this was the last round trip on South Western Railways.

The Bengaluru division had leased rakes from KR and the contractor was responsible for developing the terminal facilities including ramps for loading and unloading of trucks and approach roads to provide seamless access of the trucks into the terminals.

However, the policy was rather flawed and failed to pick up. Issues related to the policy have been detailed out in the subsequent section.

### 10.10 Roll on-Roll off attempts on Indian Railways

1. In the 2016-17 Railway Budget, IR had announced an action plan for development and implementation of Ro-Ro service to provide multimodal transport mix. In the pilot project across National Capital Region (NCR), IR was able to identify 127 entry and exit points, of which 9 major points crisscrossing the region account for 75% of light and heavy-duty vehicles.<sup>9</sup> The pilot was flagged from Patel Nagar in March 2017. The Ro-Ro rates were to be decided by the zonal railways as per the local conditions and Railways interest. However, the project was not implemented due to lack of operational feasibility and financial losses to the Railways.
2. January 2017: Kolad and Boisar in Maharashtra<sup>10</sup>  
Ro-Ro services were not feasible for the transporters due to lack of fixed time schedules. Owing to the huge amount of traffic demand in Mumbai, they had to wait for longer hours to get a slot as Ro-Ro trains only ran once in every 24 hours.<sup>11</sup>
3. March 2017: Garhi Harsuru (Gurugram) – Muradnagar (Uttar Pradesh)<sup>12</sup>  
The initiative failed mainly due to the low-heighted overhead electrification (OHE) wires in Delhi which restrict the movement of bigger trucks. Secondly, the presence of foot-over bridges at a low height made it difficult to load heavy trucks. The transporters did not show much interest which led to decline in the bookings and therefore, the services were stopped.<sup>13</sup>
4. September 2018: Surathkal goods shed (Karnataka) to Karambeli (Gujarat)<sup>14</sup>

<sup>9</sup> Details available at: <[https://indianrailways.gov.in/railwayboard/uploads/directorate/prd/PR/Key\\_freight\\_Sector.pdf](https://indianrailways.gov.in/railwayboard/uploads/directorate/prd/PR/Key_freight_Sector.pdf)>

<sup>10</sup> Details available at: <<https://www.railjournal.com/freight/indian-railways-trials-piggyback-trains-in-maharashtra/>>

<sup>11</sup> Details available at: <<https://www.asianage.com/metros/mumbai/170117/ro-ro-trains-not-feasible-say-transport-associations.html>>

<sup>12</sup> Details available at: <<https://timesofindia.indiatimes.com/city/delhi/to-unclug-delhi-roads-railways-offers-piggyback-ride-to-trucks/articleshow/57430091.cms>>

<sup>13</sup> Details available at: <<https://www.sundayguardianlive.com/news/9894-ro-ro-services-come-temporary-halt>>

<sup>14</sup> Details available at: <<https://mumbaiirror.indiatimes.com/mumbai/other/in-a-first-indian-railways-commence-ro-ro-service-on-central-and-western-railways/articleshow/65911521.cms>>

5. August 2020: Tokur – Shoranur<sup>15</sup>

## 10.11 Policy Revisions

The Ro-Ro policy was revised in July 2022,<sup>16</sup> wherein certain gaps in the previous policy were rectified. Most importantly, the freight rates for Ro-Ro services have been introduced on a distance basis (telescopic rate). They have been defined under five categories: (i) rigid body trucks, (ii) semi-articulated trucks, (iii) flats carrying trucks up to 12.75 m length, (iv) more than 12.75 m and (v) empty wagons.

Traditional commodities of railways such as coal, iron ore and military traffic have been excluded for loading under this policy.

### 10.11.1 Role of the Customer

1. The customer is responsible for informing the dimensions of the trucks, commodity type and weight, etc.
2. They would be bearing the cost for modification of rakes.
3. 5% penalty is to be leviable on the customers in case they fail to load the specified number of trips in a month. The customers would have to bear the cost of reinstatement of the modified rake in case they are unable to offer traffic.
4. Customer is responsible for security of the commodity inside or on the wagon.

### 10.11.2 Role of Railways

1. Zonal railways are responsible for deciding the minimum number of trips per month based on the opportunity cost of BRN wagons as well as the allocation of rakes.
2. It should be 'to & fro service'

Ro-Ro services would be introduced on routes where the capacity utilization is up to 70% (other than DFCCIL), whereas for routes more 70% capacity, it would be approved on a case-to-case basis depending on the feasibility.

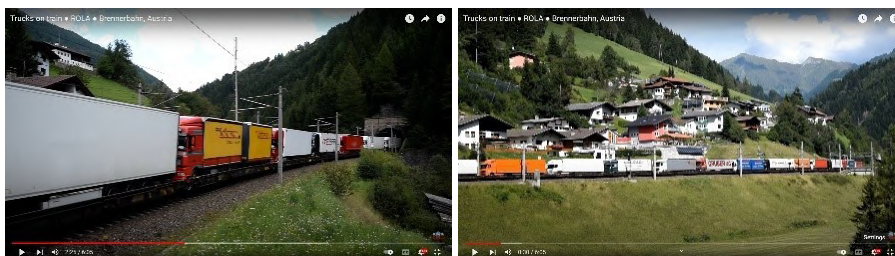
Case studies on Konkan Railways for Ro-Ro and Ro-Ro Service on Dedicated Freight Corridor are given in Annexure B-I and Annexure B-II of the report, respectively.

## 10.12 International Best Practice

### 10.12.1 Case Study of Rail Cargo Operator, Austria

The truck on train service in Austria is called ROLA which means piggy back or rolling roads. It is currently operational on six routes:

1. Brenner–Wörgl
2. Wörgl–Brenner
3. Trento–Wörgl
4. Wörgl–Trento
5. Wels–Maribor
6. Maribor–Wels



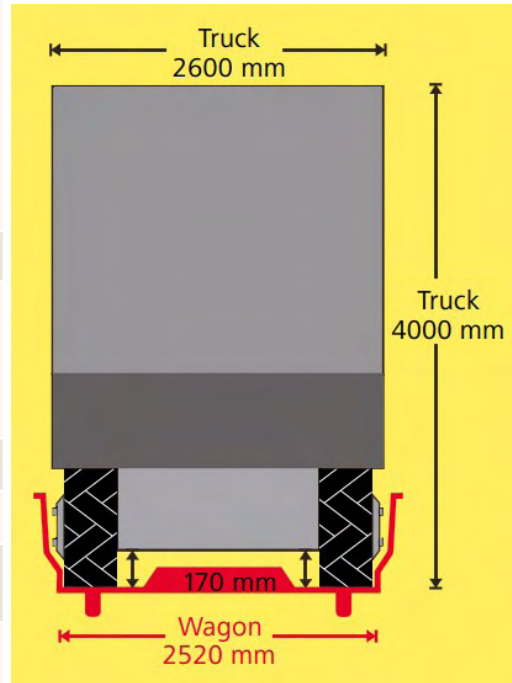
<sup>15</sup> Details available at: <<https://www.financialexpress.com/infrastructure/railways/indian-railways-conducts-trials-of-ro-ro-service-on-tokur-shoranur-section-details-here/2060338/>>

<sup>16</sup> Details available at: <[https://indianrailways.gov.in/railwayboard/uploads/directorate/traffic\\_comm/Freight\\_Rate\\_2022/RC-17.pdf](https://indianrailways.gov.in/railwayboard/uploads/directorate/traffic_comm/Freight_Rate_2022/RC-17.pdf)>



**Table 4:** Characteristics of ROLA

<b>Eligibility</b>	Bookings to be done 4 days in advance  Plate numbers of the trucks to be submitted to the operator prior to the trip to avoid automatic cancellation penalty of €50 per truck
<b>Wagon dimensions</b>	Width: 2.52 m, standard gauge
<b>Truck dimensions</b>	Length: 18.8 m Width: 2.6 m Height: 4 m
<b>GVW per truck</b>	40 tonnes
<b>Handling charges</b>	€50 per truck
<b>Change in booking</b>	One change is free, €25 for every change or cancellation of change
<b>Ticket</b>	One way ticket including maximum 2 drivers



Source: Rail Cargo Group<sup>17</sup>

The haulage charges are based on two factors: route and truck weight as presented in Table 5.

**Table 5:** Rate of transportation

Route	Truck weight				
	<= 20 kg	<=30 kg	< 40.6 kg	<= 42 kg	<= 44 kg
Brenner–Wörgl	€94	€104	€132	€201	€235
Wörgl–Brenner	€118	€131	€164	€224	€264
Wörgl–Trento	€219	€270	€332	€390	€438

Source: Timetables and Prices – Rail Cargo Group<sup>18</sup>

Additionally, Rail Cargo Group offers discounts after the 8<sup>th</sup> roundtrip for every calendar month as presented in Table 6.

**Table 6:** Roundtrip discounts

No. of roundtrips	Discount per roundtrip
8-20	€12
21-30	€14
31-40	€16
More than 41	€18

Source: Roundtrip Discount<sup>19</sup>

<sup>17</sup> Details available at: <<https://rola.railcargo.com/dam/jcr:ffff705b-b522-4085-92cb-83b9053d0ef3/2022-frachtpreisheft.pdf>>

<sup>18</sup> Details available at: <<https://rola.railcargo.com/en/timetables-and-prices>>

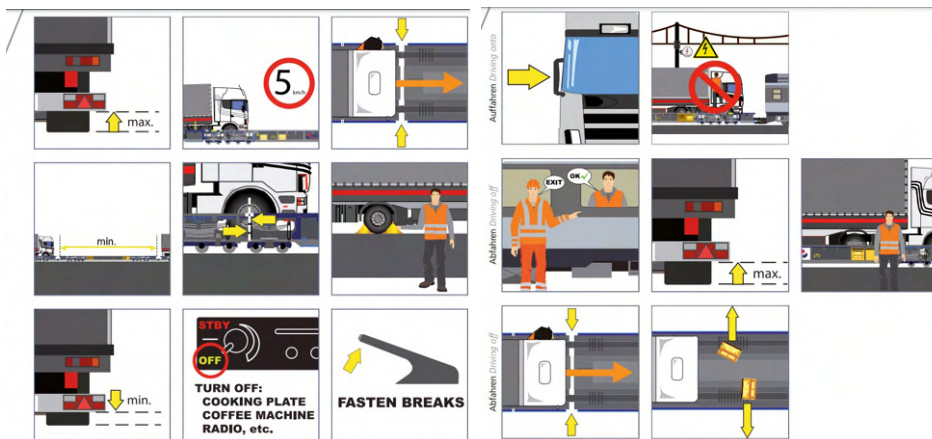
<sup>19</sup> Details available at: <<https://rola.railcargo.com/en/dam/jcr:a185db29-716f-42fb-8e8b-82d038995b66/info-rundlaufabatt-2022-en.pdf>>

Carbon emissions per trip are calculated by ROLA for both rail and road. Table 7 shows a vast difference in emissions when trucks are transported directly by rail.

**Table 7:** CO<sub>2</sub> savings by ROLA per trip

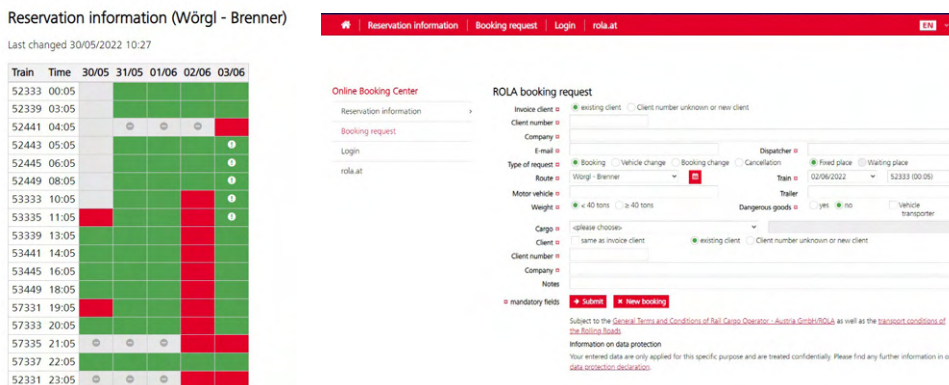
Route	CO <sub>2</sub> emissions per trip (in kg)		CO <sub>2</sub> savings per trip (In kg)
	Road	ROLA	
Wörgl–Brenner	141.68	4.03	137.6
Brenner–Wörgl	71.28	4.03	67.2
Wörgl–Trento v.v.	239.63	31	208.6
Wels–Maribor v.v.	289.68	17.55	272.1

Source: Based on calculations by Rail Cargo Operator, 2021<sup>20</sup>



**Figure 20:** Driving on and off the wagon  
Source: Safety Regulations - Driving onto & off<sup>21</sup>

The online platform for booking ROLA services shows the slot availability on account of time-tabled trains and further the customer and send in a booking request specifying the company details and the commodity details.



**Figure 21:** ROLA online booking platform  
Source: ROLA Rail Cargo Group<sup>22</sup>

<sup>20</sup> Details available at: <<https://rola.railcargo.com/en/dam/jcr:6617b4b8-47d6-4668-a31b-6ee84c3bac9a/co2-ersparnis-en.pdf>>  
<sup>21</sup> Details available at: <<https://rola.railcargo.com/en/dam/jcr:4d7c4650-7815-47bf-a5ae-621d0e7ee02a/auf-und-abfahren.pdf>>  
<sup>22</sup> Details available at: <<https://rola.railcargo.com/en/enquiries-and-bookings>>

### 10.13 Restrictions on Roll on-Roll off Service on Indian Railways

#### Maximum moving dimensions

The height of the truck under Ro-Ro service on KR is 3.425 m which has speed a of 75 kmph. This operates under class 'A' over dimensional consignment (ODC). However, a truck with a height of 3.425 m plying on BG flat wagons on the IR would operate under class 'B' ODC, which would restrict its movement. Military specials move with a speed of 40 kmph under this class which would not be efficient for the goods traffic on the IR especially when compared to quick road services.

#### Funding

IR has high-operating ratio, therefore there is lack of surplus for funding new projects. When Roll on-Roll off project was taken up on KR, it was decided that instead of relying on IR's funds, KR would raise its own funds. This led to quick completion of the project; however, they were also in debt and had to recover this cost from the operations.

Secondly, since NH 17 was in an inadequate condition to facilitate truck movement, KR offered cheaper and faster options to the drivers. Thirdly, due to the terrain of the region, the transit time taken by trucks was higher and hence the service accelerated on the KR.

Whereas, since the IR is cross subsidizing the losses incurred from the passenger operations, and the funds are being distributed from the railway board to the zonal railways, the zones in IR themselves don't have very high incentives as compared to KR.

### 10.14 Issues with the Roll on-Roll off Policy of the Indian Railways

#### Pricing principle

After the policy revision in 2022, the IR is offering a distance based telescopic rate for Ro-Ro services. However, to capture the short- or long-lead traffic, it is necessary to analyse the demand type. This would help in providing concessions or reducing prices for certain distance slabs to be competitive with roadways. Truck operators do not see an advantage in terms of costs while moving their freight by rail and hence the demand is very low.

#### Cost of transportation

The revenue, tonnage, and net tonne kilometres (NTKM) carried by Ro-Ro services is much lower as compared to a train carrying any other traditional commodity. Since line capacity on most routes is saturated, introduction of Ro-Ro service could cause loss in earnings and opportunity for the railways. Therefore, they fixed the freight rate of Ro-Ro services at a higher class to make it competitive with the traditional commodities that are being otherwise carried. This ends up being costlier to the shippers, as compared to movement of trucks by road. On an average, IR charges INR 2.5 per tonne per km as compared to the road rate of INR 1.28 per tonne per km. The rates are not competitive and therefore, shippers preferred road over rail.

#### Volume carried

Customers are charged on a full-truck basis by the railways. Therefore, if a customer carries less than 30 tonnes of freight, he/she pays the full amount (30 tonnes) and not the actual volume being carried.

#### Approach roads

Ro-Ro service was initiated on DFC on 12<sup>th</sup> August 2021 and was successful till December 2021. Initially, Rewari terminal was connected to the national highway, facilitating seamless movement of trucks in and out the terminal. However, the road was eventually shut down on account of construction works such as underpass,

road-over bridges, etc. Due to this, the trucks had to choose alternate routes. However, all other approach roads were inadequate to cater to the heavy truck movement they witnessed. The trucks had to travel nearly 15 to 20 km more through residential areas, where they faced various issues including narrow/encroached roads, potholes, hanging electrical wires, etc. This led to a substantive increase in the maintenance cost of the trucks and an increase in transit time. It was also discouraging for the operator to use rail due to the legal matters caused by entry of trucks in the residential areas, and ultimately the operator was unable to gather the demand for movement of trucks by rail.

### **Wagon design**

BRN wagons are being used for Ro-Ro operations, wherein one wagon can accommodate a single truck. The width of a BRN wagon is 8.7 feet whereas width of a truck is nearly 8.3 feet. This minor difference between the two leads to major problems in association with human error caused by the truck drivers. BRN wagons have sharp vertical borders and therefore sometimes when the trucks are overloaded, it leads to tearing of tyres due to the pressure.

Secondly, BRN wagons were primarily built for carrying steel products. Though minor modifications were made in the wagon design such as placement of stronger base sheets and fall plates to connect two wagons for smooth movement of trucks from wagon to another, the truck drivers still faced issues while loading and unloading of trucks. This has become a cumbersome process which also leads to increase in the turnaround time at the terminal.

### **Unfit wagons**

Since BRN wagons were not built for Ro-Ro operations, i.e., loading and unloading of trucks, the load-bearing capacity of the wagon remains an issue. Therefore, before each trip, the contractor checks the wagons that are eligible for operations. It was observed that though the rate circular states a wagon supply of 45 BRN wagons in a rake, merely 21 wagons on an average, were found fit on DFC and were therefore loaded for operations daily. This causes major loss in tonnage, NTKMs and revenue per trip. Secondly, shortage of BRN wagons on IR make Ro-Ro operations further challenging.

### **Examination of wagons and waiting time**

After every round-trip movement (Rewari → Palanpur → Rewari), rakes are sent for a safe to run examination by TXR, followed by revalidation of original Brake Power Certificate (BPC). Brake power, hanging parts and other defects, which are visually noticeable are analyzed. However, this examination takes approximately four hours, due to which the truck drivers wait for additional hours, therefore increasing the waiting time and the total transit time by rail.

### **Restriction on truck movement**

Due to increase in the number of trucks in Rewari district (DFC) which was causing congestion and delay, a restriction was imposed banning the entry of trucks during the day. Now, the trucks are allowed to enter at night time only and there is no guarantee as to when the rake would be placed at the terminal. Therefore, it further increases transit time and uncertainty.

### **Validity**

The Ro-Ro rakes are valid for 6000 km or 30 days. However, the validity of SLR wagons attached to the rake for accommodation of truck drivers has been defined as 2 days. The TXR examination validity of the wagon and the validity of SLR wagons are asynchronous. This leads to mismatch in the maintenance of the wagons.

### **Terminal facilities and cost associated with wellbeing of truck drivers**

There is a lack of basic provision of ramps at the terminal required for loading and unloading of trucks onto the wagons. Basic amenities such as drinking water, toilets, fan, etc., are present for the drivers. However, there is a lack of food facilities, especially when the journeys are 13 to 15 hours long.

## 10.15 Recommendations

### **Spare capacity**

Ro-Ro services should be introduced on routes where spare capacity is available with the railways. This would not only decrease congestion on the roads and reduce the emissions but also generate revenues for railways where there is no or low earning.

### **Demand analysis of truck movement**

Demand analysis should be considered while introducing Ro-Ro services on any route. Movement of trucks between a particular origin-destination pair should be one of the main factors to determine Ro-Ro routes. Secondly, the availability of wagon should not be a constraint on that route. Depending on the demand, the wagons should be readily available for Ro-Ro movement. This would help in increasing the number of services and would encourage customers to choose rail over road.

### **Transit time**

The overall time for transporting trucks from point A to B including the first and last mile-connectivity is higher in the railways due to the end-to-end connectivity offered by the road sector. Therefore, to reduce the transit time, the average speed of the train should be higher during the main haul movement. It would further be feasible as Ro-Ro services would be introduced on routes with spare capacity.

### **Terminal infrastructure**

The Ro-Ro operator shouldn't be kept responsible for providing terminal facilities, instead IR should develop the approach roads and terminal infrastructure at all identified terminals as it is a key component for operations. Inadequate infrastructure will increase the overall turnaround time and therefore increase the transit time. This would encourage the customer to use road due to quick transit.

All weather roads should be developed to allow heavy truck movement. Terminals should have specified entry and exit points, ramps, lighting, etc. Secondly, Ro-Ro can also be introduced on existing goods and passenger terminals which have spare capacity and adequate approach roads.

Additionally, parking and circulating area for the trucks within the premises, verification of trucks on arrival, waiting area for the drivers and the customers while the rake arrives at the terminal and basic amenities such as drinking water, food and toilets should be provided.

**Wagon design:** BRN wagons were primarily developed to carry steel products. They are inadequate for Ro-Ro operations as it increases the wear and tear of trucks, ultimately increasing the price borne by the customer.

The wagons should be enforced, flat wagons with no sharp edges, strong base and rigid protective cones near the truck tyres to keep the truck from moving or falling off. They should be designed in a manner where at least two trucks can be loaded on one wagon allowing the per unit cost to reduce. Truck dimensions and maximum moving dimensions should be considered while designing the wagons to facilitate secure truck parking over the wagon.

### **Investment from private players**

Presently, the cost of obtaining a rake is high. Policies should focus on bringing in investments from the private bodies where new wagon designs could be explored. It should focus on smooth and seamless loading/unloading of trucks, eliminating both unfit wagons and wearing and tearing of trucks.

### **Fixation of rates**

Though the tariff should be competitive, it should be competitive with an alternate mode and not an alternate commodity. Comparing Ro-Ro with other traditional bulk commodities will discourage the new customers who could be transporting their freight by rail. The tariff should be set in competition to the road sector where the recovery of railway's operational costs is possible. It should be a fixed rate for all routes based on distance and should be applicable for 2-3 years to provide a sense of stability to the customers. Railways could also follow a similar haulage charge approach as they have followed for containers and automobiles.

### **Wagon-contracting approach**

The new Ro-Ro off wagons which would be owned by the, railways should be leased to the customer for a long-term period to offer guaranteed supply of wagons. This would further encourage them to shift their trucks from road to rail.

### **Time-tabled trains**

One of the key parameters that attracts customers is the certainty of delivery of goods on time for further distribution. The main haul mode plays a crucial role as it is the primary determinant of this factor. Time-table trains highlighting the departure and arrival day and time, would give a sense of certainty to the customer and confidence to move their freight by rail.

### **Role of the marketing organization**

Lastly, the railways should analyse if an operator or a middleman is needed for performing the tasks. Digital platforms such as FOIS could be used for all type of documentation and payments to create transparency. On-ground tasks should be performed by the marketing organization of the IR. They should also be responsible for identifying the sections where Ro-Ro movements is feasible, creating contacts in the market and bringing in traffic to railways.

# Automobile Freight Train

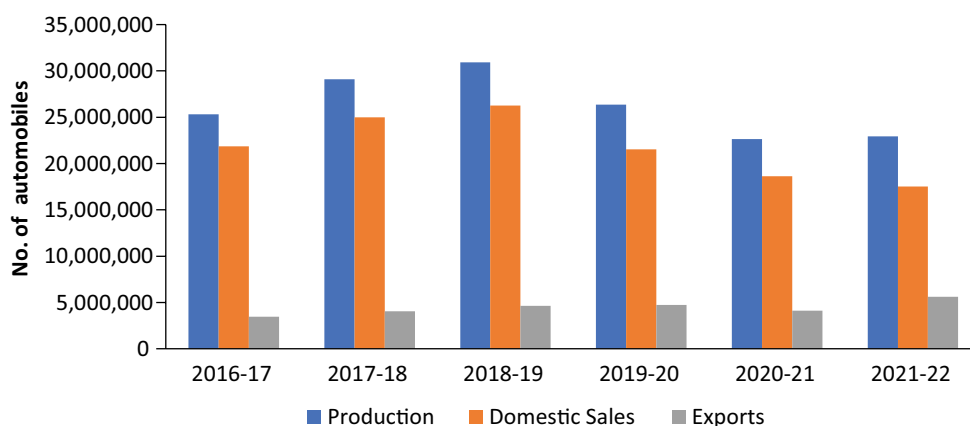
## 11 Operator Policy

### 11.1 Objective

As per Automobile Freight Train Operator (AFTO) Policy circular (2013), the scheme aims at increasing the automobile freight share and provide an opportunity to the logistic service providers and road players to invest in railway wagons of suitable design and higher throughput to facilitate bulk transportation of automobiles from the origin or production points to the consumption areas.

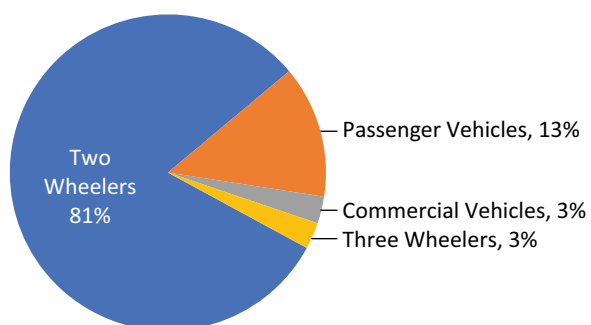
### 11.2 Background

Though, the overall production of automobiles in India has increased by 1.22% between 2016 and 2021, domestic sales have decreased with an increase in exports. Figure 22 and Figure 23 show the automobile trends in India.



**Figure 22:** Automobile trends in India  
Source: SIAM

While the export of commercial vehicles has decreased, there is significant increase in the export of three-wheelers and two-wheelers. Further, the export of passenger vehicles has been on a constant increase.



**Figure 23:** Segment-wise production of automobiles in India (2020-21)  
Source: SIAM<sup>23</sup>

<sup>23</sup> Details available at: <<https://www.siam.in/statistics.aspx?mpgid=8&pgidtrail=14>>

## 11.3 Salient Features

The AFTO Policy was issued in 2013 with the aim of increasing the automobile share of the IR. The Policy facilitates procurement of wagons for carrying automobile traffic. These wagons must conform to applicable Indian Railway Standard (IRS) design and specifications and are inducted only after inspection by Research Designs and Standards Organization (RDSO). Other than RDSO-approved designs, wagons can also be procured subject to its prior approval by the MoR and after technical clearance by RDSO.

The target commodities under the policy include passenger cars, two/three-wheeler, mini trucks, tractors, etc. On loading of each rake, a 15% freight rebate is granted on the base freight rate for a period of 20 years or till the cost of investment is recovered. For this, the company should be registered under India's Companies Act 1956; along with having a minimum net worth of INR 20 crore or an annual turnover of minimum INR 30 crore in the last financial year. As per the 2013 policy, the registration fee is INR 5 crore with a minimum procurement of 3 rakes by the operator. An entire rake would be charged even if only one wagon is loaded.

## 11.4 Responsibilities of the Automobile Freight Train Operator

- » Payment of all charges and surcharges, fees, cess, duties, taxes, etc. as per notification.
- » Tying up with end-users for marketing and arranging traffic; they would be free to charge tariff from the end user.
- » AFTO would be the consignor and consignee for the consignment.
- » They can operate trains between private terminals with adequate terminal handling facilities for which AFTO must have links with these private terminals or sidings-subject to payment of terminal access charges as per IR.
- » No demurrage or detention charges would be levied on privately owned wagons in private terminals.
- » IR would operate train on the 'first come first served principle' basis without any undue preference to other operators.
- » AFTO would be responsible for procuring full rake composition with 4% additional wagons as maintenance spare and a brake van per rake.
- » AFTO can lease wagons from the wagon leasing company subject to approval by MOR.

## 11.5 Overall Changes in the Policy

The policy was subsequently relaxed in several ways to make it more attractive for the customers. Registration fee was reduced from INR 5 crore to INR 3 crore initially, and finally to nil. The clause of net worth of INR 20 crore for a company to be eligible under AFTO was removed. The number of rakes to be procured under the policy was reduced from 3 to 1. Cost of designing, constructing, operating, and maintaining a private freight terminal (PFT) will now be borne by the AFTO. Declaration of weight prior to the departure of the train, as well as submission of a forwarding note to the IR for booking a wagon would be AFTO's responsibility.

In April 2018, IR revised the AFTO Policy by lifting the restrictions on transportation of automobiles in one direction only. During the FY 2017-18, there was major shift focusing upon enhancing marketing policies to attract automobiles to the railways, encouraging private investments in special wagons, and procuring high-capacity (BCACBM), and NMG wagons. Automobile handling has been allowed at all container terminals along with loading of automobiles and auto parts in the private wagons in different directions to optimize stock utilization.

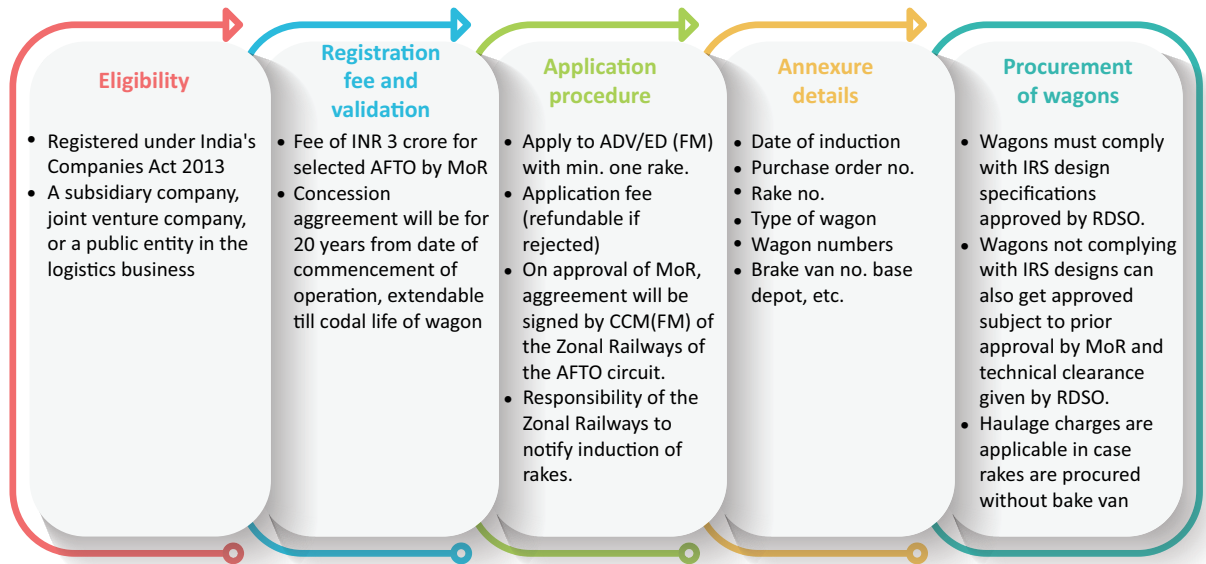
These changes led to increase in the number of licences under the policy; hence, there was a significant increase in loading of automobile traffic. Target commodities were increased to automobile traffic, including:



passenger cars, two/three-wheeler, mini trucks, tractors, chassis, shells of cars, automobiles moving in completely knocked down condition, and automobile verticals, i.e., auto ancillaries and auto spare parts.

To further understand the impact of the policy, it is necessary to investigate the factors that affect the modal decisions of the operators.

### 11.6 Registration process of Automobile Freight Train Operator

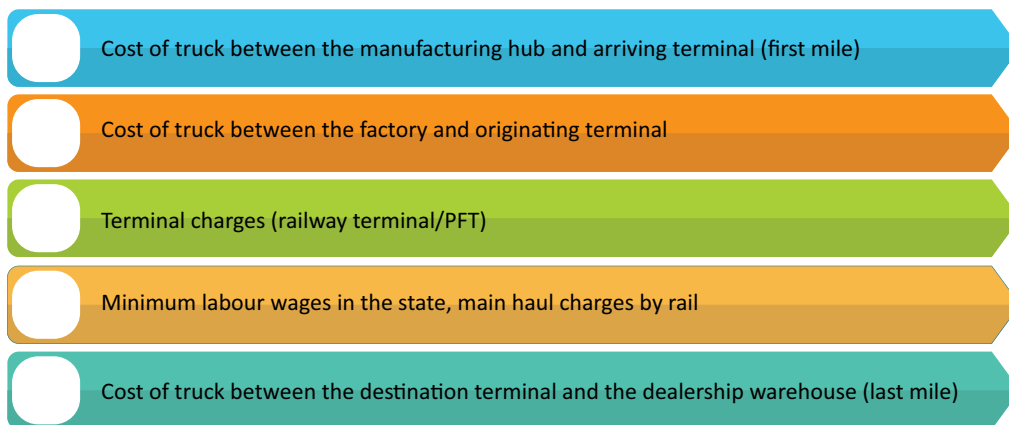


### 11.7 Mode Choice of Automobile Manufacturers

The mode choice of automobile manufacturers is influenced by various factors that are as follows:

- » End-to-end cost of transportation
- » Number of automobiles transported
- » Transit time from factory to dealership warehouse
- » Safety of cars - damage and deficit-free delivery
- » Security in transit

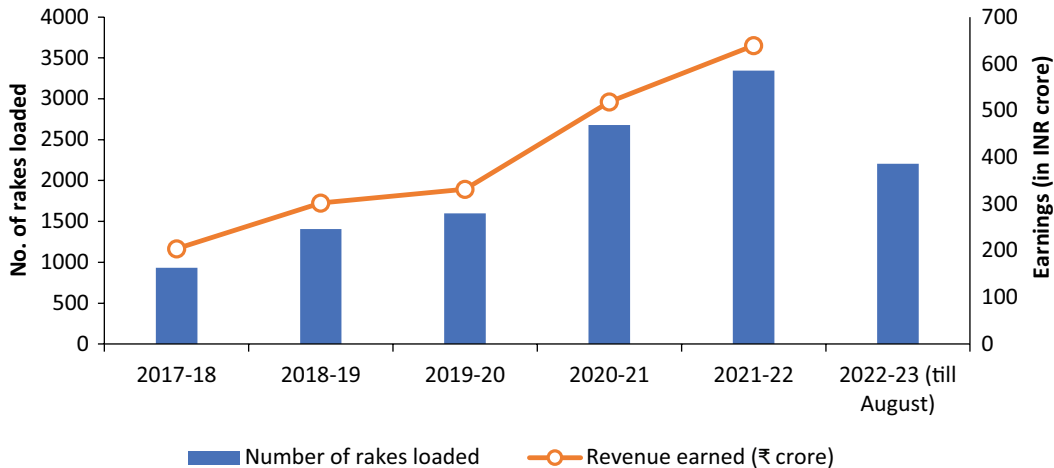
### 11.8 Factors Determining the Transportation Cost



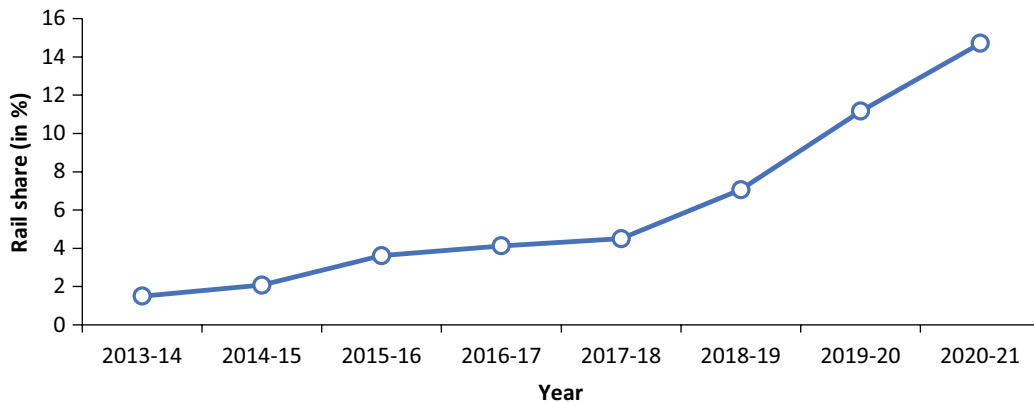
## 11.9 Impact of the Policy

### 11.9.1 Freight Movement

AFTO Policy was issued in 2010 and revised in 2013. As the policy became more liberal in 2016, wherein the conditions to participate in the AFTO policy were relaxed, the loading increased significantly. The overall automobile traffic carried and revenue earned between 2014 and 2021 has been presented in Figure 24.



**Figure 24:** Automobile volume carried and revenue earned by IR (2014-21)  
Source: Indian Railways<sup>24</sup>



**Figure 25:** Mode share of rail transport in passenger vehicles (cars)

Source: Indian Railways

The reduction in registration fee—from INR 5 crore to INR 3 crore initially and finally to nil and the reduction in procurement of rakes from 3 to 1 were two key changes. Furthermore, the railway freight rates under this policy have not increased since 2013; thus, it has been able to invite and attract a lot of players. However, with multiple players coming in, the demand for NMG and BCACBM rakes has also increased. Since railways has a limited rolling stock, availability of wagons remains an issue.

Secondly, limited passenger trains were operational during the COVID-19 pandemic, small road transporters were out of business and there was a shortage of trucks in India, due to which freight trains became the

<sup>24</sup> Details available at: <<https://pib.gov.in/PressReleasePage.aspx?PRID=1858765>>

main source of generating revenue. The idle capacity or rail network was utilized by running time tabled and frequent trains leading to guaranteed and timely delivery of freight.

**Table 8:** Percentage increase in the volume carried and revenue earned

Year	Increase in tonnage carried (%)	Revenue increase (%)
2015	56%	94%
2016	-63%	-56%
2017	226%	108%
2018	-56%	131%
2019	23%	30%
2020	-14%	7%
2021	94%	74%

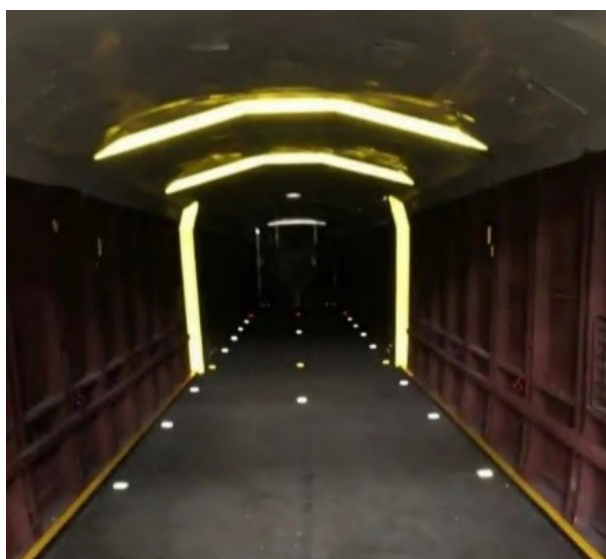
Source: Indian Railways

Also, with the introduction of BS-VI trailers, which were earlier used to carry automobile traffic on road became expensive along with an increase in the diesel prices. This increased the overall cost of road transportation and somewhat enabled a shift from road to rail.

Railway is solely used for transporting four-wheeler passenger vehicles. However, all other vehicle segments are transported mostly by road. This is mainly due to the loading and unloading facilities, as well as the type of wagons (upper and lower deck) which do not allow smooth handling and movement of these vehicles for transportation via railways.

### 11.9.2 Wagons Used for Transportation of Automobiles

The railways have developed several wagons over the years for transportation of automobile. In 2001, BCCNR wagons were used initially. These were single deck wagons with a standard rake size of 30. Eventually, in 2008, BCACM double deck wagons (1 rake) were introduced with a rake size of 45. The railways have only developed two such rakes due to flaws in the design that damage automobiles during transit. Eventually, with advancement in technology and better understanding of the customer needs, BCACBMA Design A was introduced in 2014 with a rake size of 27, 20% higher capacity, and with a maximum speed of 95 km/hour as compared to 65 km/hour in the wagons hitherto utilized. It was optimized to carry compact/sedan cars such as Alto, Swift and Wagon-R. This design had certain shortcomings as it did not allow loading of SUVs and was quickly replaced with BCACBMA Design B. It was



**Figure 26:** NMG wagons for automobile transportation

was a more robust design with corrugated roof and upper deck, stronger side pillars, wheel chocks for securing automobiles, spring assisted deck lifting mechanism, and reduced pitch of raising upper deck. A total of 44 rakes are available for both designs which result into a carrying capacity of 400,00 vehicles per annum.

**Table 9:** Characteristics of automobile wagons

Rake type	Tare	Carrying capacity	Std. rake size	Loading preference	Stock available (rakes)
NMG	25	9 – 10 tonnes	25	61.32%	93
BCACBM (Design A)	34.9	14 -15 tonnes	27	7.88%	10
BCACM (Design B)	34.7	6 -7 tonnes	45	27.49%	34
BCCNR	27.3	13 – 14 tonnes	30	0.03%	1

Source: FOIS

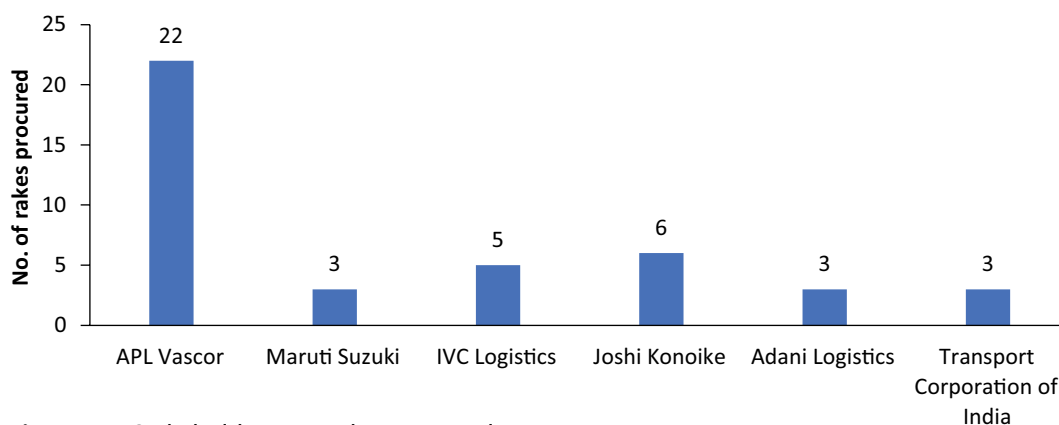
NMG rakes are mostly used for automobile transportation. They are altered passenger wagons whose seats have been removed and, windows and side doors have been welded with an entry at the rear end to create an empty capsule for loading of vehicles. The floor design, fall plates and guiding lights for loading and unloading are bound to increase convenience. BCACM and BCACBM rakes have been specially engineered by RDSO for automobile transportation. They have a 20% higher capacity than NMG rakes.<sup>25</sup> The speed of NMG rakes is 75 km/hour whereas NMGH rake offers a speed of 100 km/hour. Moreover, the upcoming NMGHS rake offers a speed of 110 km/hour with side doors to allow easy loading and unloading of two-wheelers.

## 11.10 Procurement of Wagons

Under the AFTO Policy, the operator procures the wagons approved by RDSO directly from the manufacturers after obtaining permission from the MoR. The cost of the wagons is mutually agreed upon depending on the cost of steel and other components such as wheel set etc.

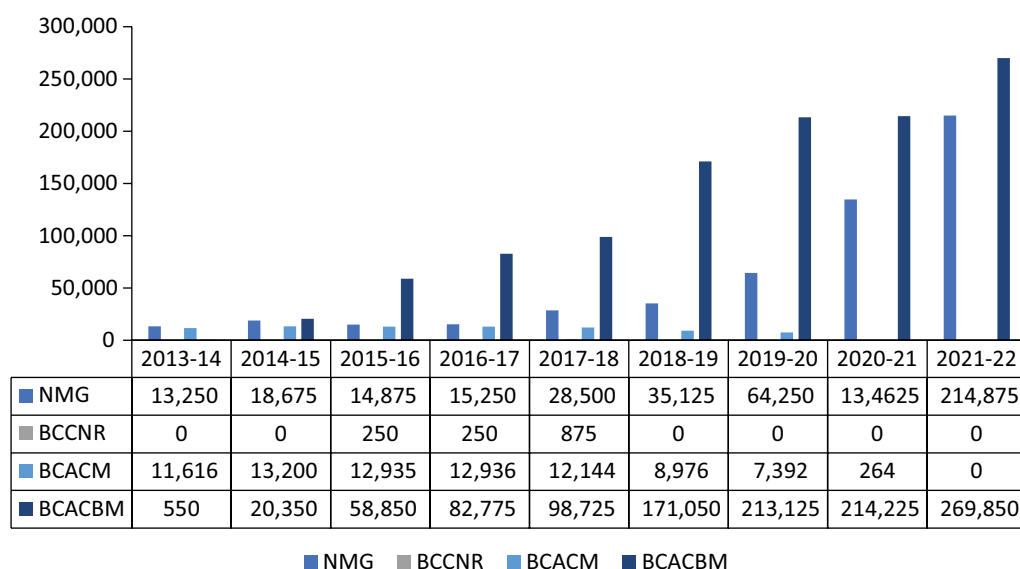
Both BCACBM Design A and Design B are privately owned by the operator whereas NMG rakes are operated by the IR. Railways has been continuously working on increasing the fleet of the NMG rakes and currently has over 90 rakes; a substantial increase was witnessed in the last two years.

Figure 27 presents the number of BCACBM rakes procured by major stakeholders under the AFTO Policy.



**Figure 27:** Stakeholder-wise rakes procured  
Source: Indian Railways

<sup>25</sup> Details available at: <<https://www.autocarpro.in/news-national/indian-railways-targets-30-automobile-freight-traffic-by-fy2024-77546>>



**Figure 28:** Rake-wise count of automobiles  
Source: Indian Railways

## 11.11 Stakeholders Involved

Multiple stakeholders have obtained AFTO licences to move their freight via railways. Table 10 presents the overall loading by different stakeholders from 2018 to 2022.

**Table 10:** Automobile stakeholders – loading (2018-22) in tonne

Operator		2018-19	2019-20	2020-21	2021-22
M/S TCI Supply Chain Solution	TCIT	188,957	202,876	60,134	-
Apl Logistics Vascor Automotive Pvt. Ltd	ALVA	170,125	185,399	89,468	225,074
M/S Mahindra Logistics Ltd	MLL	36,327	45,119	54,357	128,467
M/S Maruti Suzuki India Ltd	MSIL	24,124	31,224	10,994	57,325
M/S Public	PUB	37,872	21,548	3,915	2,661
M/S Transport Corporation of India Ltd	TCOI	-	-	41,927	338,661
M/S Ivc Logistics Ltd	IVCL	-	14,108	17,903	45,827
M/S Metropolis Logistics (Pvt.) Ltd	MPLP	12,986	-	248	-
M/S Joshi Konoike Transport and Infra. Pvt. Ltd	JKTI	108	2,808	4,347	-
M/S Adani Nyk Auto Logistics Solution Pvt. Ltd	ANAL	-	540	1,782	4,104
M/S Sri K.P. Palanivel	SKPV	-	-	2,292	800
M/S Gromax Agri Equipment Ltd	GMAE	559	1,391	-	-
M/S Tafe Motors And Tractors Ltd	TMAT	-	1,222	315	5,191
M/S Ashmi Road Carriers Pvt. Ltd	ARCP	1,470	-	-	-
M/S Kishor Transport Services Pvt. Ltd	KTSL	-	-	1,025	16,892
M/S Mahindra and Mahindra Ltd	MMLT	262	-	512	3,064
M/S TVS Motors Company Ltd	TMCL	717	-	-	-

Operator		2018-19	2019-20	2020-21	2021-22
M/S Mysore Miniral Ltd.	MML	234	284	-	120
M/S Green Clean Facility Mgmt Services Pvt. Ltd	GCFM	-	331	175	1,390
M/S TAFE	TAFE	-	-	201	-
M/S NCC Pvt. Ltd	NCCV	-	-	138	-
<b>Total</b>		<b>473,739</b>	<b>506,849</b>	<b>289,731</b>	<b>829,576</b>

Source: Indian Railways

Further, number of wagons transported by each operator under AFTO policy between 2018 to 2022 have been mentioned in Table 11.

**Table 11:** Year-wise no. of wagons moved for automobile transportation

Consignor	Consignee	No. of wagons moved			
		April 2018- March 19	April 2019 - March 20	April 2020 - March 21	April 2021 - March 22
ALVA	ALVA	15,615	16,924	8,276	21,780
ANAL	ANAL		135	297	1,026
ARCP	PUB	25			-
GCFM	GCFM		46	25	197
GMAE	GMAE	49	122		-
IVCL	IVCL		2,166	2,533	6,015
JKTI	JKTI	27	702	806	-
KTSL	KTSL			125	2074
MLL	MLL	3,778	5,754	6,874	14,196
MML	MLL	50	47		-
MMLT	PUB	48		47	275
MPLP	MPLP	857		32	-
MSIL	MSIL	5,865	7,279	2,201	3,383
NCCV	PUB			23	-
PUB	PUB	4,340	2,405	287	343
SKPV	SKPV			96	32
TAFE	PUB			25	-
TCIT	TCIT	7,645	6,301	5,189	-
TCIT	PUB		25		-
TCOI	TCOI			2,847	5,964
TCOI	TCIT			75	-
TMAT	TMAT		97	25	525
TMSL	TMCL	96			-
<b>Total</b>		<b>38,395</b>	<b>42,003</b>	<b>29,783</b>	<b>55,810</b>

Note: Please refer to Table 10 for full names of stakeholders

Source: Indian Railways

As per SIAM,<sup>26</sup> railways only moved 1.5% in 2018-19, 1.9% in 2019-20 and 1.3% in 2020-21 of the overall production of automobiles in India. This suggests that nearly 98% of the automobiles produced are primarily transported via roadways and other alternate modes.

Case studies on APL Logistics Vascon, Maruti Suzuki, and Adani NYK Auto Logistics are given in Annexure C of the report.

### 11.12 Comparison of Freight Rates – Rail vs Road

To understand the difference between the freight rates of road and rail, it is essential to analyze various parameters involved in the cost derivation. Table 12 presents the difference between the rail and road cost for three OD pairs.

**Table 12:** Comparison of rail and road freight rates

Route	Melpakkam (MLPM) to M/S Sanjvik Terminal Pvt. Ltd (MSTB)	M/S Sanjvik Terminal Pvt. Ltd (MSTB) to M/S Innovative B2B Logistic Pvt. Ltd. (MILK)	Melpakkam (MLPM) to M/S Hasti Petro Chemical and Shipping Ltd at Sanand (MHPL)
<b>RAIL COST</b>			
Trips per annum	29	46	37
Railway Freight Rate (as per BCACBM freight table l/c of development surcharge of 5%)	INR 2,916,211	INR 1,960,431	INR 2,483,703
No. of wagons per rake	27	27	27
No. of cars per rake	318	318	318
No. of cars per wagon	12	12	12
Freight rate per car	INR 9,170	INR 6,165	INR 7,810
Terminal access charges per car at the origin	INR 127	INR 164	INR 127
Terminal access charges per car at the destination	INR 164	INR 483	INR 189
First-mile charges per car	INR 1,900	INR 1,800	INR 1,900
Last-mile charges per car	INR 1,580	INR 2,320	INR 1,350
Stabling charges per car per day	INR 49	INR 49	INR 49
Terminal handling cost per car	INR 1,450	INR 1,650	INR 1,150
Depreciation per rake per annum (INR 15 crore for 20 years)	INR 7,500,000	INR 7,500,000	INR 7,500,000
Depreciation per car	INR 808	INR 517	INR 646
Turnround cost	INR 13	INR 8	INR 10
Interest on rake (EMI for 2/3 <sup>rd</sup> cost of rake at 11%)	INR 1,365,670	INR 1,365,670	INR 1,365,670
Interest per car	INR 1,789	INR 1,145	INR 1,432

Contd..

<sup>26</sup> Details available at: <<https://www.siam.in/statistics.aspx?mpgid=8&pgidtrail=13>>

Route	Melpakkam (MLPM) to M/S Sanjvik Terminal Pvt. Ltd (MSTB)	M/S Sanjvik Terminal Pvt. Ltd (MSTB) to M/S Innovative B2B Logistic Pvt. Ltd. (MILK)	Melpakkam (MLPM) to M/S Hasti Petro Chemical and Shipping Ltd at Sanand (MHPL)
Administrative cost	INR 681	INR 572	INR 586
<b>Total rail cost per car</b>	<b>INR 17,719</b>	<b>INR14,865</b>	<b>INR 15,239</b>
<b>ROAD COST</b>			
No. of cars per truck	8	8	8
<b>Truck rate per car</b>	<b>INR 18,010</b>	<b>INR 14,006</b>	<b>INR 14,547</b>
<b>Difference (rail – road)</b>	<b>INR 291</b>	<b>INR 859</b>	<b>INR 692</b>

Rail turns out to be beneficial for one out of the three routes, Melpakkam to Gurgaon, which is 2252 km whereas other two OD pairs have a lead distance less than 1800 km. Therefore, IR is more beneficial when the transit distance is higher. If the railways wish to capture automobile freight movement for shorter distances as well, it is essential to provide certain amount of concession in a manner where it doesn't turn into losses for the railways.

## 11.13 Issues

### Lack of terminal infrastructure

AFTOs are responsible for provision of space and development of loading/unloading facilities, that play a crucial role in automobile transportation by railways. Since this requires huge capital cost, to be borne by the AFTO, the construction and facilitation are limited to a basic minimum such as provision of loading/unloading area, drinking water, ramps, etc. As railways is not directly responsible for the terminal infrastructure, the congestion caused due to inadequate loading/unloading, or other terminal activities ultimately hinders the overall rail movement and increases congestion on the network. The permissible free time for loading and unloading activities at the terminals have been presented in Table 13.

**Table 13:** Permissible free time (Loading and Unloading)

Wagon Type	Permissible free time (in hours and minutes)	
	Loading	Unloading
Covered wagons	5:00 (1 to 15 wagons)	5:00 (1 to 15 wagons)
	7:00 (16 to 25 wagons)	7:00 (16 to 25 wagons)
	9:00 (26 wagons & above)	9:00 (26 wagons & above)

Source: Indian Railways

### Rolling stock

Currently, both NMG and BCACBM rakes are available in a limited capacity with the NMG rakes can merely accommodate 125 small cars whereas BCACBM rakes can approximately carry 300 vehicles. Additionally, due to the unavailability of higher capacity rolling stock, there is a huge loss in the amount of tonnage carried



per trip. The maintenance of the rolling stock becomes challenging for the operators, as once sent to the repair sheds for examination there is no assurance of their return. The lashing mechanism available in the wagons does not facilitate safety of vehicles during transit loading, therefore, the operator may choose road as a preferred option.

### **Spare wagons and stabling charges**

The policy states that the operators should procure 4% additional wagons as maintenance spare and a brake van per rake. However, the policy fails to mention the provision of a parking area for the same. Instead, the operators are charged with stabling charges for the additional wagons which are parked within the railway premises and thus, incur a higher overall transportation cost in addition to the wagons in operation.

### **Cost of transportation – rail and road**

Freight rates of rail under the AFTO policy have not changed since 2013. Though there has been a decrease in road freight rates, there has been a significant increase in diesel prices. As highlighted earlier in the report, one of the major issues that railway has not been able to address is the first and last (F-L) mile cost that the transporter incurs while moving their freight by rail. The F-L mile cost significantly increases the overall cost by rail. Concessions are provided on main haul movement where the rates may be competitive with road for certain distance slabs. However, the terminal handling cost at origin and destination is often left unaccounted for. Terminal cost and other miscellaneous costs contribute to the overall rail cost as well.

Since roadways provide end-to-end connectivity with no multimodality involved, it has lower handling costs in comparison. This aspect should be explored by the railways as the customer would be driven towards lower transportation cost irrespective of the mode.

Secondly, the haulage cost of railways should be as low as possible which would allow railways to at least capture the traffic initially. An eventual increase in price after the establishment of the policy would be beneficial.

### **Transit Time**

Automobiles are time sensitive, high value commodities. Lack of time-tabled movement of automobile traffic increases the uncertainty of the customers and decreases their confidence. Loading cars at OEMs production centre, unloading car carrier at originating terminal, loading of the rake, unloading of the rake, and loading car carrier at the destination terminal increases the end-to-end transit time. Aggregation of cars to be loaded in rakes takes more time due to higher lot size. However, in case of road, the truck picks up the freight from the factory and directly transports it to the dealership. Implementation of GST has also abolished the inter-state checks, thereby further reducing the road transit time.

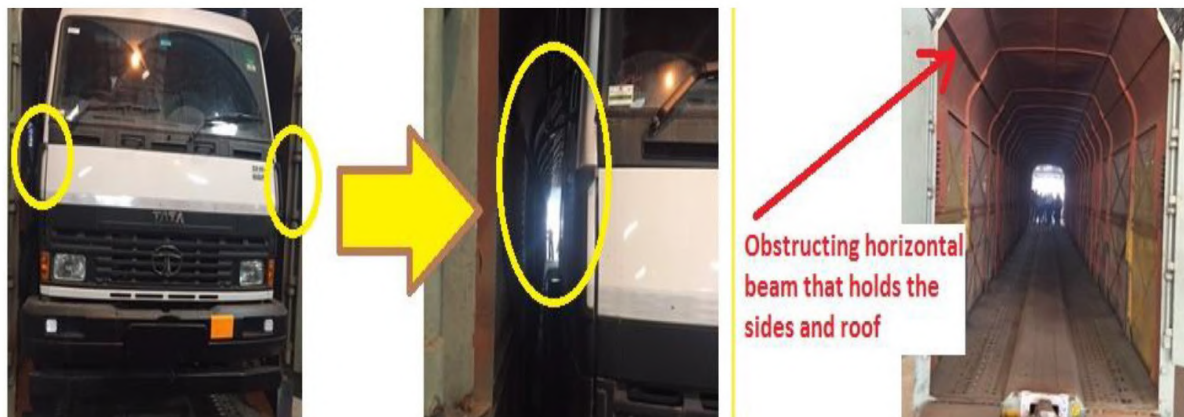
### **Security**

Since the freight is usually transported at owner's risk rate (ORR), the railways do not guarantee the security of a commodity. This becomes a demotivating factor for the transporter to move their freight by rail especially for a high value commodity like automobile. The freight charged for ORR is lower as compared to railway's risk rate (RRR), because of the operators tend to choose that.

Based on primary surveys, it has been noted that there are cases of vandalism in transit resulting into pilferages and damage to the detachable parts of the automobiles such as tyres, stereo, etc. Owing to a lack supervision during loading/unloading activities at the terminals, railways does not take any responsibility in case of thefts and vandalism. Most of the times, no compensation is provided despite raising claims. This may discourage OEMs from transporting two-wheelers and other smaller operators in railways as well.

### Wagon design and maximum moving dimensions

As per schedule of dimensions, maximum height for a wagon is permitted to be 4270 mm. For the existing BCACBM wagon, the MoR has allowed a height up to 4305 mm. The proposed wagon, currently being explored by the Railways, would allow SUVs (up to 1700 mm) to be loaded in the lower deck and sedan/compact cars (up to the height of 1530 mm) to be loaded in the upper deck.



Therefore, the total available height would be nearly 3200 mm, minus the mandatory clearances between the top of the automobile and the top of the wagon or deck.

This design is solely suited for routes where the maximum moving dimensions are higher, a small percentage. Ultimately, it may not turn out to be beneficial since there won't be enough loading of automobiles along these routes.

### Lack of two-wheeler transportation

Currently, the automobile movement by rail is primarily dominated by four-wheeler passenger cars. The potential for transporting two-wheelers by railways is yet to be explored. This would again require a specific wagon design allowing side loading of two wheelers and a better lashing mechanism for damage-free transit of vehicles. However, presently, most of the two-wheelers manufactured in the country are transported by roadways.

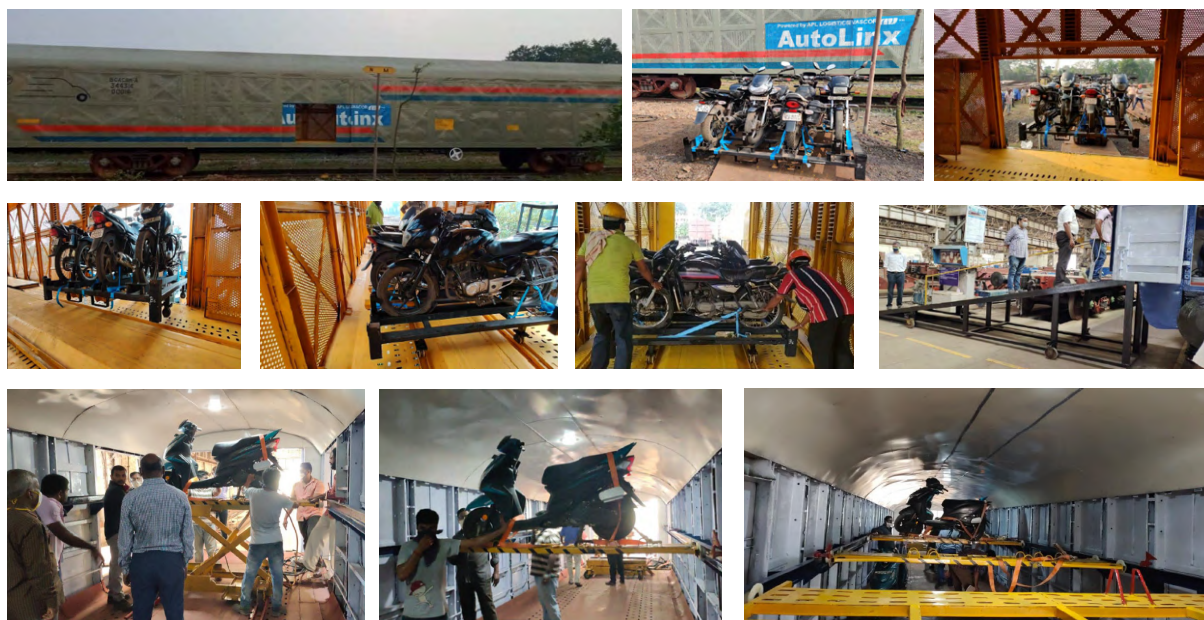
Loading of two-wheeler in BCACBM wagons with side doors, is being explored on an experimental basis. As per the RDSO design, an aperture is cut on the side wall that allows a cassette to be loaded in the wagon. Two-wheelers are strapped on the cassette at the terminals to minimize damagers and are picked up with forklifts and placed inside the rail car.

### Radio-Frequency Identification tags

Though RFID tags are present on automobile wagons, the lack of readers on the route makes the entire initiative inefficient. Users will not be able to track their wagons unless RFID readers are present along the routes.

### Time-tabled freight trains

Due to lack of scheduled freight trains, the customer feels a constant uncertainty while transporting their freight via rail. Also, delay in generating vehicle invoices increases the transit time leading to loss in sales. These delays are generally 2 to 10 days long.



**Figure 29:** Loading of two-wheelers on new wagons with side doors (testing)  
*Source: Indian Railways*

### Aggregations of automobiles

At times, putting together 280-318 cars to load a BCACBM rakes becomes a difficult task for the operator. Therefore, NMG rakes are used to transport automobiles which load 125 cars per rake and are also attached to passenger wagons, guaranteeing timely delivery. However, the main issue is the availability of NMG rakes. Since, railways have a limited rolling stock for these rakes, there is a constant competition between the AFTOs for allotment of these wagons.

## 11.14 Recommendations

### Terminal facilities

Provision of ramps along with a greater number of lanes for loading will accelerate the process and reduce the turnaround time. This would also mean that the free time provided for loading/unloading would go down. Automobile specific loading and unloading technology is essential as it would reduce the turnaround time and increase efficiency of operations at the terminals. It will also reduce the handling, loading, and unloading cost that has a major share in the overall rail transportation cost.

Using mobile ramps would require construction of level crossing (with blocks between rails) on both ends of the 635 m rake length for a stretch of 30 m.

### Cost of transportation

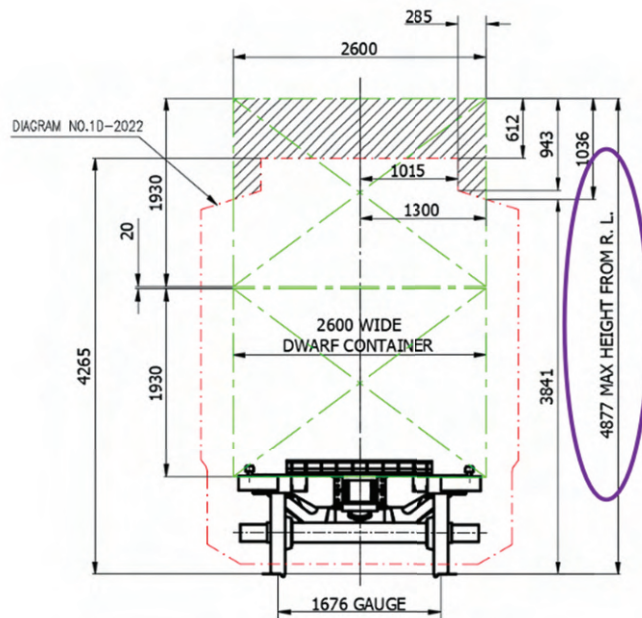
For rail to become an attractive mode for the customers, it is essential that rates are offered in a manner that they are competitive with the road sector. The example presented in the previous section shows that though railway rates are competitive for higher distance slabs, 1800 to 2500 km, they are not competitive for all other distances. Railways could provide concessions for lower slabs to capture that traffic.

**Wagon design and maximum moving dimensions**

Research Designs and Standards Organization (RDSO) is exploring an automobile-specific wagon, with a design height of 4875 mm. The proposed wagon would allow loading of SUVs with height up to 1850 mm, on both upper and lower decks. However, this feature would only be available on certain selected routes, with higher OHE wires, no tunnels, no or higher overhead bridges, etc. If IR wants to capture automobile traffic, there is a need to explore beyond production and consumption hubs. However, these routes where the movement of taller wagons is feasible, may not have pre-established major production or consumption centres. Therefore, they may not serve the purpose, and waste the effort of introducing new wagons. Railway Board would play a key role in selecting and allowing routes on which the proposed automobile rakes would move and altering/modifying them to allow movement of new automobile wagons. Initially, pilot runs on major routes such as Delhi-Chennai, or Delhi-Bangalore, should be explored for further expansion.

**Stacking permission**

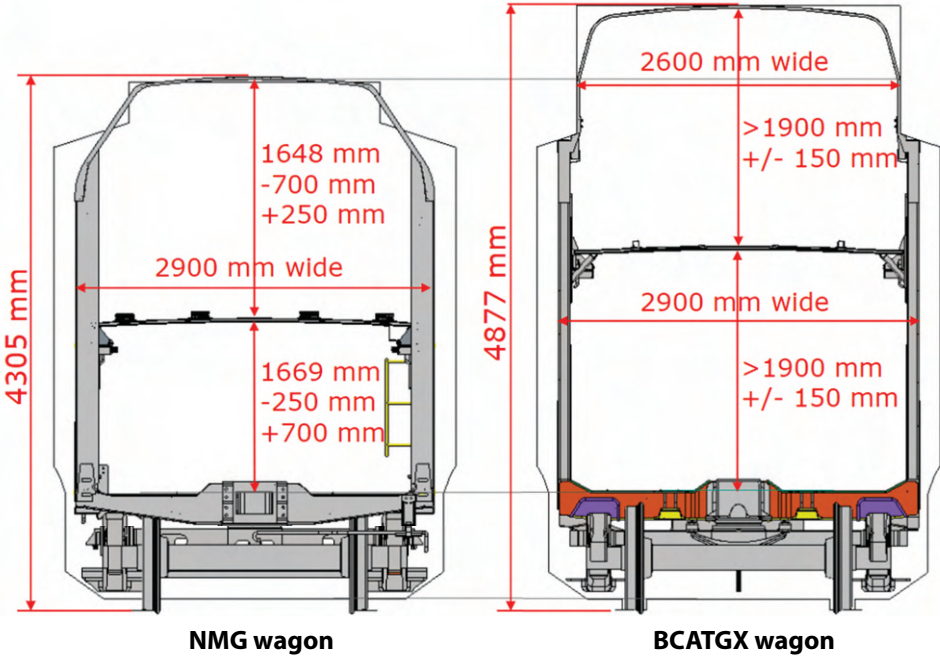
Railways has not given stacking permission of cars at the railway yards between the loading time and the dispatch of cars, due which the shippers incur demurrage and wharfage charges. Ad-hoc permissions are given, however, the number of days for free storage has been not be brought out by the railways.



**Figure 30:** Dimensions of double-stack dwarf containers  
 Source: Indian Railways

**Technical capacity**

The TXR examination assesses the condition of a wagon. However, since operators send the wagons over long distances, for many days, though the total Kilometres required for examination (6000 km or 30 days, whichever is earlier) have not been achieved, there is a loss in the number of trips and therefore, the tonnage carried. Railways could look at provision of examination facilities at the operator’s terminal itself as it would decrease travel time and increase overall volume transported as the number of trips would increase. It is beneficial for both parties, as operators would be able to transport more freight and railways would be able to earn higher revenue.



**Figure 31:** Current automobile wagon (NMG) versus proposed taller auto carrier design (BCATGX)

Source: Indian Railways

# 12 Long-term Tariff Contact

## 12.1 Background of the Policy

Since changes in the freight policies, IR started focusing on bulk commodities, that are operationally convenient for them. Conversely, the trucking industry has been able to provide customer-oriented dynamic freight policies, and along with the inherent advantage of moving from door-to-door which has gradually filled up the gap created by the railways. As per the railways' tariff structure, a distance-based uniform rate is applicable throughout the country irrespective of the geography, transit time, etc., with no discretion at the zone and division levels or capacity constraints, on all major routes. Furthermore, IR has faced a strong decay in the commodities that were traditionally moved by rail, as they have shifted to other competitive modes. IR have also been experiencing a continuous decline in its share of bulk commodities as well.

"LTTC Policy was able to deal with complete array of traffic in a comprehensive manner"

Long-term tariff contact (LTTC) Policy was introduced in the Budget Speech 2016-17 after a structured dialogue ('SAMVAD') with the key customers on a pre-determined price escalation principle. It focusses on providing customer-centric solutions to retain their traditional bulk goods. This Policy provided stability to the customer who offered long-term commitment to railways, by offering rebate on incremental loading of traffic.

## 12.2 Objective

The aim of the scheme was to ensure certainty of the long-term rail freight operations to the customers as well as the railways. This was launched to retain the declining share of the traditional rail friendly commodities.

## 12.3 Need for the Initiative

This policy was introduced to provide stability to the customer by offering rebate on incremental loading of traffic.

## 12.4 Salient Features

All commodities except coke and coal, iron ore, POL, military traffic, RMC, container traffic, automobile traffic and commodities with classification below Class-100 were eligible under the policy.

1. The pre-existing customers of the IR should already be offering at least one million tonnes per annum.
2. New customers were eligible if they offer more than three million tonnes over the agreement period, as well as at least one million tonnes during the first year itself.
3. The scheme could further be availed alongside other schemes such as 6% concession for traffic to and the North Eastern region, traditional empty flow direction, concession for loading of bagged consignment in

open and flat wagons, discounts as per assisted sidings policy, various wagon investment schemes, and terminal development scheme.

4. The net freight after availing the rebate should not be less than freight applicable to Class-100.
5. The customer is responsible for bringing in a minimum guaranteed gross freight revenue at 5% increase every year as per the contract over the previous year.
6. The customers who have signed the L TTC would be insured from the price hike, i.e., mid-year freight increase will not be passed on to the customer.
7. The agreement should not be less than 3 years and should not be extended for more than 5 years.

This policy was customer-oriented and inputs were bought in from the stakeholders to develop this policy.

There were two types of rebates offered under the policy rebate on incremental volume and rebate on retention of volume. The rebate is given on the gross freight revenue (GFR) paid to the consignor/consignee by the Indian Railways. It ranges from 1.5% to 35% based on the incremental growth in revenue and 0.5 to 5% on the total volume of traffic. Table 14 presents the rebate structure on the actual gross freight revenue (AGFR) based on the percentage incremental growth.

**Table 14:** Rebate structure

Increase in GFR and above the benchmark GFR (in %)	Rebate on actual gross freight revenue (AGFR)
0 – <=5	0
>5 – <=10	1.5
>10 – <=15	2.5
>15 – <=20	5
>20 – <=30	7.5
>30 – <=40	10
>40 – <=50	12.5
>50 – <=60	15
>60 – <=70	17.5
>70 – <=80	20
>80 – <=90	25
>90 – <=100	30
>100	35

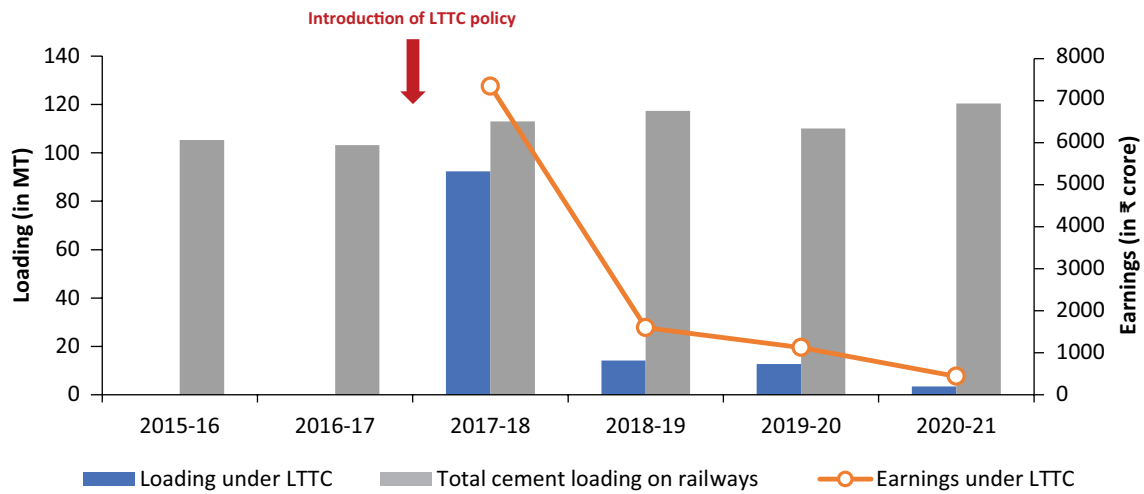
Source: Rate Circular No. 14 of 2017, Indian Railways<sup>27</sup>

## 12.5 Impact of the Policy

The policy took off in 2017 and showed the highest earnings and loading in 2017-18 (Figure 32). However, the policy was discontinued in 2020 and all the contracts beyond the prescribed term were stopped.

IR received a positive response towards this policy from the construction industry mainly the cement sector. Cement is the second-highest revenue-generating commodity and third-largest in volume carried by the IR.

<sup>27</sup> Details available at: <[https://indianrailways.gov.in/railwayboard/uploads/directorate/traffic\\_comm/Freight\\_Rate\\_2017/RC\\_14\\_2017\\_30032017.pdf](https://indianrailways.gov.in/railwayboard/uploads/directorate/traffic_comm/Freight_Rate_2017/RC_14_2017_30032017.pdf)>



**Figure 32:** Year-wise total cement loading and loading under LTTC

Source: Indian Railways

In 2019-20, it had 9.11% share in the overall commodity share. Cement is a price-sensitive commodity and saw a slight increase in the rail freight share after introduction of this policy.

The policy focused upon providing discounts to reduce empty flow trips. Major players such as Ultratech cement, ACC cement, Birla cement, etc., were able to avail benefits from this policy. Additional policies such as withdrawal of 5% sub charge of two-point for cement, helped boost freight operations.

However, other parameters influencing the modal decision of the customers such as tariff improvement and wagon availability were not guaranteed under this policy. Since, IR's basic freight strategy is to move bulk volume, low-rated commodities at a large distance—this policy was relevant for the cement and steel players. However, it was less successful for other commodities such as metals, fertilizers, etc.

The policy was discontinued in 2020 and is being revised through stakeholder consultation to bring in new parameters such as freight rate stability and ensure wagon availability.

## 12.6 Contracts under Long-term Tariff Contact Policy

A total of 34 contracts were operational under LTTC from 2017 to 2021. However, there was a sharp decline in loading due to discontinuation of the policy in 2020 as depicted in Figure 33.

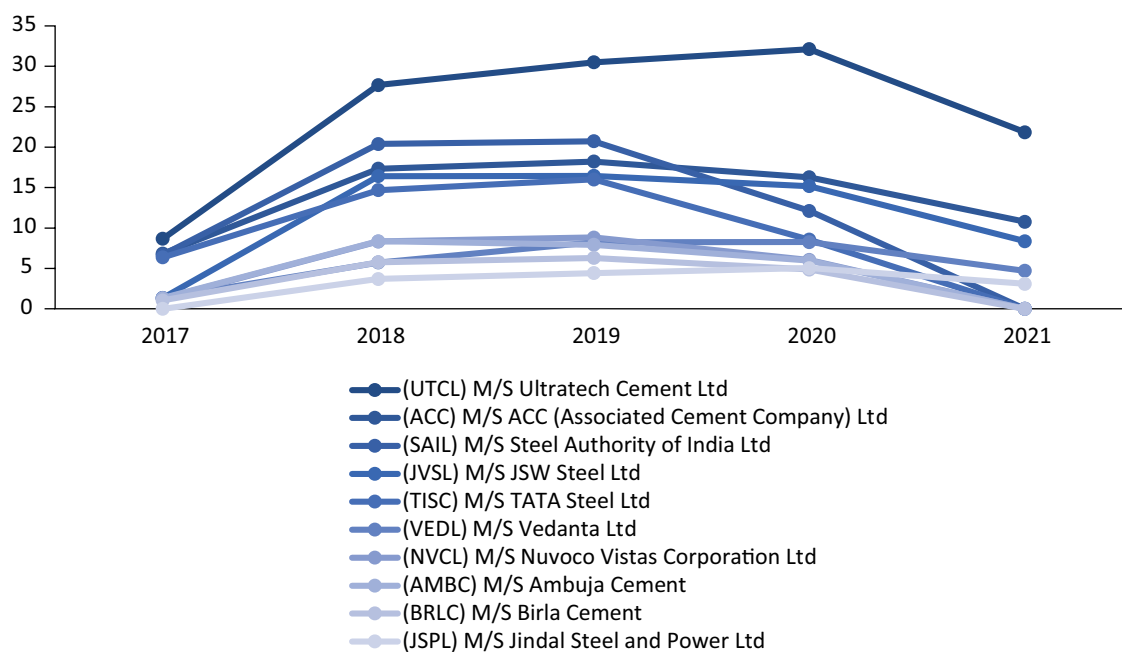
Ultratech has been one of the key players under the LTTC Policy as their loading increased significantly during 2017–18.

## 12.7 Issues with Long-term Tariff Contact Policy

### Unviable Increment of traffic

The policy requires a minimum guaranteed gross freight revenue increment of 5% each year, over the previous year's traffic which is an unfeasible expectation to have. For any business, the growth cannot be constant, therefore, the clause is made for the customer to fail.





**Figure 33:** Loading of top 10 companies under LTTC Policy (2017-21)

Source: Indian Railways

### Consistent slow processing of concessions

Unlike some of the other policies, the LTTC Policy does not offer freight rebate during the processing of RR: - instead it is processed several months later. This poses as a significant challenge for the customers while loading freight under this policy.

### Powers of the zonal railways

Zonal railways have not been using the powers assigned to them as per the policy. This is mainly due to the fear of backlash that the assigned authority could face after the giving out unequal concessions to various customers.

### Lack of guaranteed supply of wagons

The policy was not able to provide a regular supply of wagons on a demand basis, rather the wagons had to be booked well in advance by the customers, however, even after that the status of wagon was not assured.

### Lack of a time-tabled schedule for LTTC trains

Since most routes prioritize passenger trains instead of freight trains, lack of a fixed schedule causes delayed in the delivery increasing the uncertainty of transporting freight by rail.

### Lack of specially designed wagons for eligible commodities

One of the major concerns of the customers is the use of BCNHL wagon which is taller than the BCN wagon. This leads to difficulty in manual loading and unloading and inferior utilization of the wagons.

## 12.8 Recommendations

IR was able to design a policy which could cater to price-sensitive commodities and was able to deal with complete array of traffic given by big customers as it included inward and outward freight, as well as all the commodities in a comprehensive manner. However, it did not last mainly due to the lack of stability and on-demand guarantee which had to be assured by railways. At times, the cement manufacturers took undue advantage of the low freight charges, further demanding them to be reduced.

Additionally, the expectation of constant annual growth could be restructured or redesigned; based on identification and previous trends of the affected commodities. The current unrealistic expectations (5% annual increase) will encourage the customers to shift to alternate modes. Railways can think of restructuring this constant annual growth by keeping previous year's revenue earning or physical quantity as a benchmark.

Alternatively, the contract can be based upon assurance of certain 'rail coefficient' for each of the commodities. After the identification of these commodities, railways can look at provision of commodity-specific wagon or invite investments in a new commodity-specific wagon design for optimal utilization.

The trend should be based on a previous market analysis of the specific commodity which would help in determining the percentage growth that may be expected.

# 13 Demurrage Policy

## 13.1 Background

Wagon is considered as a precious asset for IR. Its efficient utilization brings more opportunity to carry additional goods. One of the efficiency indices is wagon kilometer per wagon hour which measures the distance travelled by a wagon in 24 hours. Evidently, any detention of wagon is to be avoided at all costs. Since the loading and unloading operation is done by rail users, there is possibility of unreasonable detention to wagons adversely resulting in increase in wagon turn-round. In order to ensure that loading and unloading of goods is done within reasonable time free time has been prescribed keeping in view the wagon type, number of wagons and process of handling. For mechanized loading/unloading free time is lower than the manual handling. If the prescribed free time for loading or unloading of goods is exceeded, the consignor or consignee pay a penalty that is known as demurrage charge. Demurrage is not treated as earning but a deterrent for using wagons as storage which is also a common practice with some traders. However, for large industrial customers it is an irritant. Railways, have discretion to waive part or full demurrage charges if there are genuine reasons for detention of wagons beyond the control of the consignor/consignee.

## 13.2 Categories of Demurrage

As per railways Master Policy Circular, 2016, circumstances leading to accrual of demurrage can be divided into three categories:

1. Reasons within control of consignor/consignee
2. Reasons beyond the control of consignor/ consignee like labour strike, transportation strike, general bandh, agitation, riots, curfew, fire, explosion, heavy rains, etc.
3. Act of God, act of war, and act of public enemies.

Hitherto, the policy was that waiver should not normally be done in category (1). Regarding cases pertaining to categories (2) and (3), waiver can be considered on merits in individual cases. A serious removal in the categories above was the omission of delays on account of infrastructural deficiencies at the terminal. The policy revision of September 2022, has now reduced the categories to only two heads, i.e., (2) and (3).

## 13.3 Objective of the Demurrage Policy

As per Railways, the policy aims at charging 'demurrage' on the customer when the free time for loading or unloading of wagons has expired, causing detention at the terminal (RMC/Demurrage-wharfage-waiver/2016/0).<sup>28</sup>

<sup>28</sup> Details available at: <[https://indianrailways.gov.in/railwayboard/uploads/directorate/traffic\\_comm/Freight\\_Rate\\_2017/RC\\_14\\_2017\\_30032017.pdf](https://indianrailways.gov.in/railwayboard/uploads/directorate/traffic_comm/Freight_Rate_2017/RC_14_2017_30032017.pdf)>

## 13.4 Salient Features

For levy of demurrage charge when the consignment is booked as a rake, the entire group of wagons will be treated as one unit for loading/unloading. Even if one wagon is detained beyond the expiry of free time, the charges will be levied on all the wagons in the group.

Currently, demurrage charges are levied @INR 150 per 8-wheeled wagon per hour, for detention of wagon more than the permissible free time. The same rate is applicable for all type of 8-wheeled wagons and coaching vehicles (other than passenger vehicles). The rate for 4-wheeled wagons is half of that for 8-wheeled wagons.

In case of excessive terminal detentions causing serious operational bottlenecks, the rates can be progressively increased, up to a maximum of six times of the prevalent rate. It can only be levied with a prior notice period of 48 hours and wide publicity. However, levy of six times increased rates should only be followed in case of tremendously alarming situations. Table 15 shows various instances under which demurrage can be incurred depending on the placement and release of wagons.

**Table 15:** Placement/release of rake through railway's locomotive

Rake is placed in one spur in one placement	Excess detention = (time of release – time of placement) – free time
Rake is placed in one spur in multiple placements	Excess detention = (time of release of the last part – time of placement of first part) – free time – total period of dies non <sup>29</sup>
Rake is placed in more than one spurs	Excess detention = (deemed release time of the rake – time of 1 <sup>st</sup> placement) – free time  Deemed release time of a placement = actual release time of that placement – dies non, if applicable <sup>30</sup>

Source: Guidelines Regarding Demurrage, Stabling, Wharfage, Stacking, Waiver and Write off<sup>30</sup>

The free time depends on the type of wagon being loaded. Further, they have also been defined on the type of loading/unloading i.e., mechanized or manual. Table 16 presents the free time for various wagons.

As per available data in February 2022, there are 2,254 freight terminals across IR network. Out of these 2002 are good sheds whose operations and maintenance of infrastructure must be done by IR. Whereas 1,179 are private siding and 73 are PFTs, where the maintenance of infrastructure is the responsibility of private entities.

There are variations in the system of charging demurrage in a few cases pertaining to private sidings. In case of private/assisted sidings where placement/release of a rake from and to interchange point is done through siding owner's locomotive, bunching allowance of 3 hours is allowed, but is permitted for the calendar day only.

Separate rules for free time for loading/unloading of wagons and allowances are applicable in the case of seven old steel plants (SAIL plants at Bhilai, Rourkela, Bokaro, Durgapur, IISCO Burnpur, RINL/Vizag, Tata/Jamshedpur).

<sup>29</sup> Hours or day when no legal business can be done as for legal purposes

<sup>30</sup> Details available at: <[https://indianrailways.gov.in/railwayboard/uploads/directorate/traffic\\_comm/Rates\\_Master\\_Circulars/2021/Compendium\\_Demurrage-Wharfage-Waiver.pdf](https://indianrailways.gov.in/railwayboard/uploads/directorate/traffic_comm/Rates_Master_Circulars/2021/Compendium_Demurrage-Wharfage-Waiver.pdf)>

**Table 16:** Free time for loading/unloading of wagons at railway terminals, private/assisted sidings other than steel plants, not under EoL

Type of wagons	Permissible free time (in hours and minutes)			
	Mechanized		Manual	
	Loading	Unloading	Loading	Unloading
OPEN wagons	5:00	7:00	9:00	9:00
HOPPER wagons	5:00	2:30	NA	NA
FLAT wagons	6:00	NA	8:00	8:00
BCNHL wagons	NA	NA	5:00 (1 to 20 wagons)	5:00 (1 to 20 wagons)
			7:00 (21 to 30 wagons)	7:00 (21 to 30 wagons)
			9:00 (31 to 45 wagons)	9:00 (31 to 45 wagons)
			11:00 (46 wagons & above)	11:00 (46 wagons & above)
Covered wagons other than BCNHL	NA	NA	5:00 (1 to 20 wagons)	5:00 (1 to 20 wagons)
			7:00 (21 to 30 wagons)	7:00 (21 to 30 wagons)
			9:00 (31 and above)	9:00 (31 and above)
BCFC	13:00	16:00	NA	NA
TANK wagons (Other than those specified as black oil)	6:00	6:00 (Up to 29 wagons) 8:00 (30 wagons & above)	NA	NA
TANK wagons (Black oil)	7:00	7:00 (Up to 29 wagons) 9:00 (30 wagons & above)	NA	NA
Military wagons – km	NA	NA	4:00	4:00
Military wagons (other than km wagons)	NA	NA	5:00 (Up to 20 wagons)	5:00 (Up to 20 wagons)
			7:00 (21 and more)	7:00 (21 and more)

Source: Guidelines Regarding Demurrage, Stabling, Wharfage, Stacking, Waiver and Write off<sup>31</sup>

<sup>31</sup> Details available at: <[https://indianrailways.gov.in/railwayboard/uploads/directorate/traffic\\_comm/Rates\\_Master\\_Circulars/2021/Compendium\\_Demurrage-Wharfage-Waiver.pdf](https://indianrailways.gov.in/railwayboard/uploads/directorate/traffic_comm/Rates_Master_Circulars/2021/Compendium_Demurrage-Wharfage-Waiver.pdf)>

Separate set of charges for loading and unloading of various types of block rakes in the case of freight terminals/ sidings /steel plants worked on engine-on-road concept have been prescribed. The free time in EoL sidings have been made very stringent.

To reduce detention and to ensure maximum utilization of rolling stock, zonal railways have been empowered to reduce loading of rakes of coal and iron-ore to 3 hours only, which is very stringent.

## 13.5 Reasons for Demurrage

The consignees must pay demurrage due to the detention caused by the wagons at the terminals. This can happen due to following reasons:

- » No information is given to the consignees regarding the placement of wagons at the terminals by the railways.
- » Labour strike
- » Limited working hours of the labour
- » Lack of warehousing space at the terminal for storage of goods after unloading.
- » Delay in unloading due to rain to avoid cargo damage
- » Shortage of labour and drivers
- » Since the bags are carried on hooks, the pace of the labours slows down due to fatigue especially in humid climatic conditions.
- » Insufficient illumination at the terminals, which also increases the safety risk.
- » At times, cargo may have to be loaded from containers placed on the ground requiring more time and effort.
- » Inability to shut wagon doors within the permissible free time (The wagon door stands at a high ground as compared to the yard doors. It takes immense amount of time to seal all the doors especially on the railway trackside with no platform and low ground height. For example, in a mini rake of 21 wagons, 84 doors must be closed and sealed.
- » Inadequate approach road and bottlenecks at the entry and exit of the terminal

## 13.6 Types of Transfers at the Terminal

### Transfer of goods

The consignee or the contractor is liable to pay demurrage after the expiry of the free time for detention of wagons. This could be due to the insufficiency of labours or neglect, carelessness, incompetency, dishonesty of labourers or in case of other events. They are responsible for all the activities as per the contract and no other agency is to be deployed for the same.

### Transfer of RR

**Railway Receipt (RR):** Railway Receipt is prepared at the forwarding station and is issued by Railway Administration on acceptance of goods, which allows the consignee to receive the delivery of goods at the private terminal, where the train terminates. It highlights the volume of goods carried by rail and freight to be paid.

**Process of transfer of RR:** At the time of delivery, the receipt is transferred to the consignee by the Railway Administration, that the goods have been transported and delivered at the assigned destination.

## 13.7 Electronic Transmission of Railway Receipt

Electronic railway receipt transmission (eT-RR) was introduced in 2015 which aimed at providing a user friendly and paperless transaction system and it is directly transmitted to the customers. Almost all RRs are now eT-RRs.

## 13.8 Waiving-off Demurrage Charges

It is observed that most of the time the demurrage charges levied on the customers due to detentions at the terminals owing to beyond the prescribed time loading or unloading are waived off by the railways. This causes railways to lose the demurrage charges as well as the line capacity. The demurrage charges are waived off depending upon the schedule of power vested with the competent authority.

**Table 17:** Powers of officers to waive of demurrage charges

Designation of officer	Maximum amount of demurrage per wagons which can be considered by an officer
AGM	Full powers
CCM (Co-ordinating HOD in Commercial Department)	INR 100,000/-
DRM	INR 25,000/-
CTM/Sr DCM/ DCM working as Branch Officer	INR 10,000/-
DCM/DTM/Area Officer in senior scale	INR 600/-
ACM/ATM/Area Officer in junior scale	INR 300/-

Source: Rates Master Circular - Clarification TC-I/2019/201/6 (3298964)<sup>32</sup>

## 13.9 Reasons and Process of Waiver

The demurrage is waived off on account of various reasons such as labour strike, manual unloading, shortage of trucks, supply of unfit wagons, old and worn-out tippers, defective door, bad/wet condition of cargo, breakdown of crane and conveyor belt, electrical and mechanical failure in packing plant, and non-provision of full rake facilities with the siding premises.

Suitable infrastructure is essential in completing loading/unloading of goods within the free time available. Sufficient lighting is required for ensuring safe and quick loading/unloading of wagons. Attention to approach road and other required facilities are also necessary to be put in place. While maintenance and upkeep of infrastructure of private sidings/PFTs are responsibilities of their owners, railway administration bears the responsibility in case of goods sheds. Freight customers' complaints of inadequate infrastructure often relate to railway good sheds.

The waiver is originally applicable on reasons beyond the control of consignor/consignee. The process includes submission of an application to the Station Manager/Chief Goods Supervisor within 10 days from the accrual date for goods sheds and one month for large sidings. The initial waiver is to be done by the division. In case of unsatisfactory results, consignee/consignor can appeal to higher authority (twice) after deposition of demurrage. The entire process of appeals should be completed within six months (Comptroller and Auditor General of India, 2013).<sup>33</sup>

<sup>32</sup> Detail available at: <[https://indianrailways.gov.in/railwayboard/uploads/directorate/traffic\\_comm/Rates\\_Master\\_Circulars/2021/Waiver%20of%20Demurrage%20Wharfage-%20Schedule%20of%20Power.pdf](https://indianrailways.gov.in/railwayboard/uploads/directorate/traffic_comm/Rates_Master_Circulars/2021/Waiver%20of%20Demurrage%20Wharfage-%20Schedule%20of%20Power.pdf)>

<sup>33</sup> Details available at: <[https://cag.gov.in/uploads/download\\_audit\\_report/2014/Union\\_Performance\\_Railways\\_Management\\_Goods\\_trains\\_31\\_2014.pdf](https://cag.gov.in/uploads/download_audit_report/2014/Union_Performance_Railways_Management_Goods_trains_31_2014.pdf)>

## 13.10 Ways of Manipulation to Avoid Demurrage

During the unloading process at the destination station done by the consignee and supervised by the goods clerks, the time of placement and release as well as any defect in the seals, and shortage or damage to the consignment, are noted in the unloading register maintained for this purpose. It plays a crucial role in recovery of demurrage charges w.r.t the consignment loaded and unloaded the consignor and consignee, respectively.

Though this feature is present at the terminal, it is noticed that very often manipulation of timings is done by frontline railway staff in connivance with the parties to avoid demurrage. Some ways of manipulation timings are as follows:<sup>34</sup>

- » The stocks are declared unfit or sick for loading in case the consignor is unable to bring their goods on time.
- » The time portrayed in the official records is within the prescribed time even when the merchant takes longer.
- » Delayed placement of wagons to suit consignee's convenience.
- » The wagons are rendered 'unconnected' by removal of side labels or suppressing transshipment particulars.

Wrong placement of wagons at an unloading point not nominated for specific traffic for the consignee who is intentionally done not ready to load their consignments. It is seen that to avoid the severity of demurrage charges to the railways, freight customers often resort to methods such as listed above to avoid making payments to railways.

## 13.11 Pros and Cons of Demurrage Policy

Pros	Cons	Remarks
Strategy of immediate removal of goods at the terminals.	Concept of demurrage is non-existent in the road sector, which makes it more competitive to other modes and accessible to the customers.	
Mention of infrastructural needs in the policy – <ul style="list-style-type: none"> <li>» Sufficient lighting for loading/unloading of wagons</li> <li>» Adequate approach roads</li> <li>» Basic facilities such as drinking water, toiler, resting, wharf, etc., at the goods sheds.</li> </ul>	No provision of warehouses/storage rooms where the goods can be stored after unloading, due to which the goods are left at the unloading spot at the terminal. This causes the overall time from unloading to loading, to increase significantly.	Support the modal shift towards more environmentally friendly modes of transport by increasing the detention free period.
The demurrage charges can be waived off depending upon the schedule of power vested with the competent authority.	The demurrage charge is waived off despite detention leading to reduction in the line capacity on the rail network.	
FOIS/CRIS will design utility for accounting debit/credit hours.	Debit/credit scheme of demurrage is applicable on the customers who handle full rake and not on multi-party rakes.	

<sup>34</sup> Report of the Railway Corruption Enquiry Committee 1953-55. Details available at: < <http://irdd.railnet.gov.in/bitstream/123456789/668/1/00003-RE0139-204.pdf>>



### 13.12 Debit/Credit Policy of Indian Railways

Freight customers have consistently expressed concerns to the Railways regarding the inequitable nature of the demurrage policy. They rightfully argue that while they are penalized for exceeding the allotted free time for loading/unloading consignments, there is no corresponding incentive when they manage to complete these operations more efficiently than the prescribed free time permits. This asymmetrical approach has been a recurring point of contention among freight customers.

In response to this, the policy of debit/credit of demurrage hours was introduced in September 2020. In the policy, credit hours are the hours given to a customer if they handle wagons in less than the permissible free time. It was adjusted to 100% extent against the debit hours. It was done monthly on the same stock and type of operation, i.e., loading and unloading. Credit hours are non-refundable.

Demurrage is levied based on net debit hours. It was applicable for customers offering 1 MT traffic per annum. Initially, the policy was open only to private/assisted sidings but in August 2021, the scheme was extended to all kinds of freight terminals, i.e., goods sheds, private sidings, PFTs, EoL terminals, etc.

Debit/credit scheme of demurrage was applicable to the customers who handle full rake and not on multi-party rakes. A nominated handling agent could act on behalf of the owner to pay demurrage charges to the railways after settling the debit/credit hours. Wagons would be charged on an hourly basis; netting would be done at the end of the period to arrive at a final wagon-hour to determine the total demurrage.

The policy was well received by the freight customers as it displayed the sensitivity of railway administration towards making the demurrage rules fair towards its customers.

### 13.13 Policy Revision

A major policy revision was done by Railways in September 2022 wherein various key changes were brought in. The application of base rate of demurrage which was previously charged at INR 150 per-wheeled wagon per hour has been revised wherein:

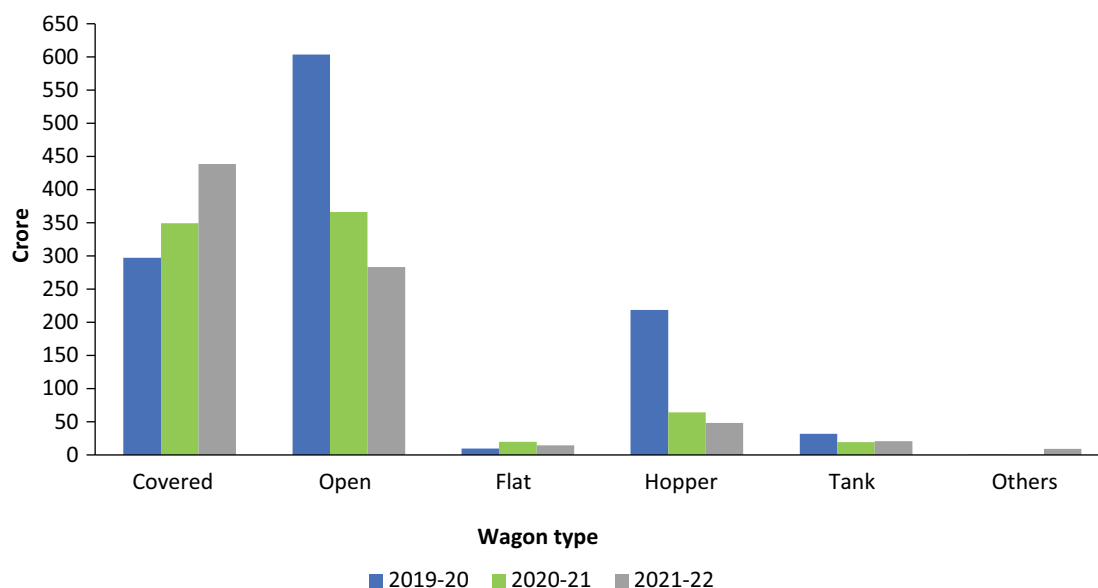
- a. Up to 6 hours, the penalty would be INR 150 per wagon per hour.
- b. Beyond 6 hours up to 12 hours, the penalty would be base rate + 10% of the base rate.
- c. Beyond 12 hours up to 24 hours, base rate + 25% of the base rate.
- d. Beyond 24 hours up to 48 hours, base rate + 50% of the base rate.
- e. Beyond 48 hours to 72 hours, the penalty would be twice the base rate.
- f. Beyond 72 hours, the penalty would be thrice the base rate.

In case of excessive congestion, the demurrage rates can be progressively increased to a maximum of six times w.r.t the base rate. The penal demurrage rates should be implemented after wide publicity and a notice of 24 hours at the terminal.

The waiver of demurrage should not be provided for reasons within the control of consignor/consignee. The application for waiver should be electronically processed by CRIS. The collection would be done in a time-bound manner as per the Schedule of Power resting with the competent authority. Any failure shall be flagged and investigated.

Furthermore, the debit/credit scheme of demurrage has been discontinued at all freight terminals, i.e., goods sheds, private sidings, PFTs, EoL terminals.

Figure 34 depicts the demurrage accrued (according to wagon type) details of IR for FY 2019-2022. It is observed that maximum demurrage has been accrued in covered wagons followed by open and hopper wagon types. Accrual of demurrage is high in covered wagons because of the nature of commodities (bulk) they carry like cement, fertilizer, food grains, etc. which require manual loading and offloading. Container wagons accrued the least demurrage because of their versatility, mechanization of operations and ease of loading and unloading. An interesting observation here is that open wagons have experienced a considerable decline in demurrage accrued during last three consecutive FYs, while covered wagons have experienced a rise in the accrued demurrage charges.



**Figure 34:** Details of demurrage accrued w.r.t wagon type (FY 2019-22)  
Source: Indian Railways

**Table 18:** Details of demurrage charges (in crore)

Wagon Type	FY 2019-20			FY 2020-21			FY 2021-22		
	Accrued	Waived	Collected	Accrued	Waived	Collected	Accrued	Waived	Collected
<b>Covered</b>	297.32	172.64	119.00	349.45	137.07	200.49	438.71	93.79	333.36
<b>Open</b>	603.79	476.97	112.43	366.22	218.79	133.08	283.43	103.33	121.15
<b>Container</b>	1.37	0.75	0.51	1.29	0.41	0.77	3.57	1.04	2.11
<b>Flat</b>	9.75	8.34	1.33	20.19	10.71	9.39	14.74	6.73	7.01
<b>Hopper</b>	218.60	200.81	16.14	64.49	59.59	1.77	48.50	28.30	3.21
<b>Tank</b>	32.03	25.01	6.44	19.35	13.12	5.59	20.86	10.13	8.92
<b>Others</b>	0.13	0.12	0.01	0.49	0.39	0.09	9.26	5.07	3.68
<b>Total</b>	<b>1163</b>	<b>884.64</b>	<b>255.86</b>	<b>821.48</b>	<b>440.09</b>	<b>351.17</b>	<b>819.08</b>	<b>248.41</b>	<b>479.44</b>

Source: Indian Railways

Further, IR has managed to collect 21%, 36%, and 45% revenue from the total accrued demurrage during FY 2019-20, FY 2020-21 and FY 2021-22, respectively, which shows a significant rise in collections. Similarly, the waived amount has declined from 77% in FY 2019-20 to 61% and 42% in FY 2020-2021 and FY 2021-22, respectively from the total accrued demurrage which shows greater reluctance on the part of IR administration to waive off demurrage charges. However, there are some outstanding amounts that IR still needs to recover, which contribute approximately 4%-5% (on an average). It is imperative to note that IR has received a significant percent of surge in their earnings from collection of demurrages during three previous financial years as a result of their stringent policy.

A case study on M/S Central Warehousing Corporation MILK is attached in Annexure D of the report.

### 13.14 Issues



**Lack of shelter for labours**



**Due to heavy rain, the condition of the circulation and the unloading area deteriorates, therefore the condition of the commodity also deteriorates.**

#### Cooperation

Cooperation between railways and the party to quickly load or unload, should be a voluntary move instead of a penal measure being imposed on the operator. This is also due to the absence of code of healthy practices by trade associations. Due to lack of cooperation from the previous unloader, the next consignee is deprived of their normal functioning.

#### Waiver

The 2022 policy revision has brought significant changes in the demurrage waiver process. Earlier, due to decisions of individual railway officers, most of the demurrage charges leading to detention and congestion on the network capacity were waived off. The new stringent rules heavily penalize the customers thereby discouraging them to move their freight via railways.

#### Lack of facilities

Though a new policy has been introduced, the facilities and amenities at the terminals or sidings remain the same, along with the line capacity. Therefore, demurrage becomes a source of revenue for IR. Manual handling

is not efficient and factors like frequent breaks taken by the labours, unfavourable weather conditions, festivals, etc., hinder the optimal utilization of the permissible free time. On multi-line goods shed or siding, when rakes are simultaneously placed for the unloading, it gets difficult to unload goods from both/all rakes within the permissible free time. Frequently, customers suffer demurrage due to lack of adequate and efficient manpower.

In some cases, the goods are unloaded on the wharf; however, the evacuation of goods takes time. Meanwhile, if another rake is placed on the same line, unloading of goods cannot begin as the wharf is occupied. Many other factors: poor condition of circulation area, approach road, absence of storage place, etc. also contribute to delayed unloading operations.

### **Surpassing high demurrage rate**

Penal demurrage is imposed on a terminal on certain days when the free time for unloading expires due to slow operations or high demand. This is nearly three to six times the regular demurrage rate. Due to this, the operators at the terminals either stop loading their freight till the demurrage rate is back to normal or divert it to the road sector. Railways loses a significant amount of freight and revenue to the roadways. The powers to bring down the rates lie with zonal and divisional railways while the goods superintendent at the terminal has no power to change the rates. The operators resume the loading/unloading operations once the demurrage rate is normal.

### **Round-the-clock operations**

Since railways offers a twenty-four seven, 365 days service, the demurrage continues to accumulate even during the holidays or festival season when the labour is not available at the terminals. This increases the overall cost of transportation incurred by the operator while transporting freight by rail. In the Northern and Eastern regions, labours windup their operations before sunset due to safety concerns. Whereas, labours in the Western region such as Mathadi workers in Maharashtra, abide to the rules of the labour union and only work till 8 pm. Limited lighting and absence of labour facilities like canteen, washroom, and rest room, discourages labours from working overnight.

## **13.15 Recommendations**

### **Slow elimination of demurrage charges**

Demurrage charges have been an irritant to the customers due to a wide variety of reasons as listed above. IR is charging heavily on an aspect which should not be a source of income in the first place. Reviving the line capacity and adding revenues should be done in a considerate manner. Such high penalties would simply drive the customers and the commodities away from rail to road, leaving railways in a difficult situation.

Introduction of a strict policy without augmentation of line capacity or provision of adequate stacking space for the customers may lead to withdrawal of the customers from railways. Demurrage may or may not be the customer's fault and should be tackled in a systematic manner wherein a prime organization/third party is placed at the terminal and is responsible for all terminal-related activities; including coordination with customers. Without a coordinated effort, line capacity and revenue will continue to deteriorate at a faster pace. Generally, the demurrage charges are waived off due to which both line capacity and revenue are ultimately hindered. This is not the most viable way of earning and a systematic approach is necessary to deal with such an issue, wherein both line capacity and terminal space are optimally utilized.

Developing terminal facilities at the railway goods sheds is the sole responsibility of the railways and should be the key focus area.

### **Provision of terminal infrastructure**

Generally, the customers express the concern of not having adequate terminal facilities. Since most goods are stacked at the terminal itself, it is essential that a segregated space is provided to the customers where the goods could be stored after unloading. Stacking areas should become of prime importance at all terminals. This would help in quick clearance of commodities from the unloading area as well as reduce damage to the commodities. Further, mechanization at the terminals can enhance the operations by reducing the loading/unloading time, ultimately decreasing the turnaround time.

The fact that railways is not able to provide adequate network capacity or properly designed wagons should be addressed. Amenities such as illumination, labour shed, drinking water, toilet facilities, etc., should be provided at all terminals and private sidings.

The committee report on Mission 3000 MT by MoR,<sup>35</sup> IR has realized that there is a need for rationalisation of some charges like Demurrage/Wharfage, it reported:

*"None of these charges contribute in a big way in the overall kitty of railway freight earnings yet become a major cost burden and compliance on customers. Some of these charges are results of railway's own high input cost (e.g., staff cost, maintenance cost) or inefficiency in operations and inability to provide assured transit time or publicized schedule, leading to high demurrage/wharfage charges which the hapless customer bears. In addition, to protect its own investment in wagons that at times may not be customers' choice, the railway imposes both physical and financial barriers on wagons/containers, etc. Most of these charges emanate from lack of railway capacity and will get addressed with adequate increase in capacity."*

Further, IR has already identified top 200 loading/unloading terminals with a target to minimize terminal detention below 8 hours and make terminals customer friendly. Apart from this, various other measures to enhance the terminal infrastructure facilities like creation of material-handling infrastructure, are also to be initiated under the mission. IR has targeted a huge investment in the areas of increasing the line capacities including doubling, 3<sup>rd</sup>, 4<sup>th</sup>, and 5<sup>th</sup> lines, wagons fleets, locomotives, etc. for the next five years. However, IR also need to focus and invest more on terminal facilities and infrastructure.

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<sup>35</sup> In Annexure C-1 under Strategy & Approach section. Details available at <[https://indianrailways.gov.in/railwayboard/uploads/directorate/mec\\_engg/2022/MT3000.pdf](https://indianrailways.gov.in/railwayboard/uploads/directorate/mec_engg/2022/MT3000.pdf)>

# General Purpose Wagon

## 14 Investment Scheme 2018

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### 14.1 Background

Timely availability of wagons plays an important role in IR's freight operations on a day-to-day basis. IR has been trying to ensure timely wagon availability to enhance the efficiency of freight movements. Making private parties invest in wagons is one of the simplest ways of adding more wagons to the pool. IR introduced its first Own Your Wagon Scheme in 1992, to increase wagon supply by leveraging the private sector. The scheme allowed private sector firms to purchase wagons, either directly or through IR, own them, and lease them to the Railways. The scheme was open for bulk users, financial and wagon leasing companies for all kind of wagons with guaranteed clearance with special wagons (no lease charges to owners) and concession in freight rates. Revisions and recasting of the scheme led to the Wagon Investment Scheme in 2005 and the Liberalized Wagon Investment Scheme in 2008 (Raghuram & Gangwar).

A Public-Private Partnership (PPP) model of Wagon Investment Scheme was announced in the Railway Budget 2005-06 on 26 February, 2005. The policy had a profound effect on iron ore transportation of India. Investors, both individuals and corporations, associations of group companies, public sector undertakings (PSUs) and private trading houses were allowed to invest. The wagons could be procured from India or from outside subject to RDSO specification and inspection. Wagons permitted were BCN, BOXN, BTPN, BOST, BOBRN and BFNS.

The invested rake was to ply between a specific origin-destination pair with a fixed monthly supply of rakes based on distance, and with 10% rebate in railway freight. It was on a first-come-first-served basis. The OD could be a public goods shed of the station or a private siding. Railway Board approved the applications received from investors, forwarded by Zonal Railways. The investment in the rake guaranteed a fixed supply of rakes with freight rebate, and two more rakes with the Engine on Load (EoL) scheme. Following 10 years of commercial notification of the introduction of rakes, the rake would be owned by IR, and would be its wagon fleet. The scheme drew a response from iron ore, coal, steel sectors for BOXN, and BCN from fertilizers. Applications for 140 rakes were approved by the Railways, of which 114 BOXN rakes were inducted, with a guaranteed supply of 6 times per month. Private investment of approximately INR 1500 crore was generated under the scheme.

**Liberalized Wagons Investment Scheme (2008)** which replaced the Wagon Investment Scheme and Own Your Wagon Scheme, was launched in a view of encouraging procurement of wagons through Private Public Partnership (PPP) and increasing the earnings. Only wagon leasing companies and end users (who will invest for their own traffic only) were allowed to procure rakes and only high-capacity wagons (HCW) and special-purpose wagons (SPW) were allowed under the scheme with coal & coke, ores and minerals as restricted

commodities. Investment in HCW, with a pay load of 2 tonnes more than the pay load of extent similar wagons was eligible for a freight concession of 12% for a period of 20 years. For each additional tonne of pay load, an additional 0.5% of freight discount was granted. Freight concession of 15% was granted for a period of 20 years for SPW.

**Wagon Leasing Scheme (2008)** was launched with a view to introduce the concept of leasing rakes that runs on the IR networks. The scheme aimed at the induction of rakes on lease basis through PPP route. Initially, wagon leasing company (WLC) with defined eligibility criteria, experience and financial standing and solvency were allowed to procure HCW, SPW, as well as wagons for container movement and lease them to end users and operators with prior administrative and technical approval of MoR. Freight concessions to which investors are entitled under Liberalized Wagons Investment Scheme (LWIS) were made available to lessees. However, the benefit was unavailable if the wagons were leased to operators. For empty running as per request of WLC, freight charges at Class -100 were collected. If the rake of WLC was stabled in IR system, stabling charges were levied. The lessee of WLC was liable to pay freight, demurrage, wharfage, stabling and any other charges claimed by IR.

**Special Freight Train Operator (SFTO) Scheme (2010)** was launched to increase the share of railways in non-conventional traffic in high capacity<sup>36</sup> and special purpose wagons.<sup>37</sup> The policy provided an investment opportunity for the logistics service provider and the manufacturer/ producer to get a wagon. The commodities included under this scheme were divided into four categories:

Category No.	Registration fee (in INR)	Commodities
Category 1	7 crore	Bulk fertilizer, bulk cement, fly ash
Category 2	10 crore	Bulk chemicals, petro-chemicals, bulk ammonia
Category 3	10 crore	Steel product which requires special wagon
Category 4	3 crore	Molasses, edible oil, caustic soda

An agreement was executed between railways and SFTO for 20 years. 'SFTO' here means a party who invests to procure the rake and obtains permission from the MoR to arrange for loading / unloading of traffic in its freight train. Wagons issued under the scheme were certified by the prescribed standard and RDSO. For each loading of a rake, freight rebate of 12% was granted for a period of 20 years or till recovery of the cost of investment whichever is earlier. In case loading in the empty direction was done by the operator, other than the registered commodity, a freight rebate of 10% on the public tariff for that commodity was provided. However, the tariff to be paid by the SFTO after concession should not be less than class 100. The wagons procured by SFTO were not be included in the wagon pool of IR.

**Liberalized Special Freight Train (LSFTO) Scheme** was initiated on 16<sup>th</sup> March, 2020 by amalgamating two former schemes, viz. LWIS and SFTO Scheme. The objective of the policy was to increase Railways' share in transportation of non-conventional traffic in high-capacity and special-purpose wagons to increase the commodity base of rail traffic. The policy provided an opportunity to logistics service providers or manufacturer to invest in wagons and use advantages of rail transport of selected commodity to create a win-win situation for railways and themselves. This also creates an avenue for end users to optimally utilize their rolling stock by transporting their commodities as well as commodities of third party.

<sup>36</sup> High Capacity Wagons: Wagons with payload which are at least 2 tonnes higher than the payload of extant similar wagons on IR for 25.0 or 22.9 tonnes axle load route, as the case may be.

<sup>37</sup> Special-purpose Wagons: Wagons designed for rail transportation of a specific commodity or group of commodities.

**Automated Freight Train Operator Policy (2013)** has been discussed in detailed in chapter 11 of this document.

**General Purpose Wagon Investment Scheme (GPWIS)** was introduced in 2018 as, freight users had a long-term demand of better and timely availability of General Purpose Wagons (GPW). A GPW carries multiple commodities in BOX, BOXN, BCN, etc., and under GPWIS it moves on pre-approved routes as decided by IR. The carriage of suitable commodities in the wagon procured under GPWIS does not require specific approval from MoR with reference to commodity. However, commodity-specific wagons are not covered under the scheme.

## 14.2 Salient Features

GPWIS is applicable for producers/consumers of goods transported by rail, PSUs, Central Public Sector Enterprises, logistics providers, port owners/port rail companies, mine owners, and wagon leasing company (for end-users). The rakes under the scheme are distinctly colored to allow differentiation from IR's pool of wagons and are only run on pre-approved circuits.

“GPWIS attracted customers from all sectors by assuring supply of wagons”

A freight rebate of 10% is given on the base rate is provided on each loaded wagon for a period of 15 years. The amount of rebate on freight is capped to the extent of lease charges payable by IR to Indian Railway Finance Corporation Ltd (IRFC), both on annual as well as cumulative basis for an equivalent amount of capital raised by it for financing rolling stock for IR. In case, the investment is recovered in less than 15 years, the freight rebate will cease from the exact date of full recovery. However, if the investor is unable to recover the original investment, then the period of rebate is extended till the recovery of capital cost of investment.

The capital cost is reckoned w.r.t. the purchase order of the rakes given by the party subject to a maximum of cost of last procurement of such wagons by IR as certified by the concerned Directorate of Railway Board. The rebate provided under the scheme is given concurrently to any other freight incentive granting scheme applicable for the loading done in the rake. On recovery of investment by the end user loading in these rakes is eligible for other freight incentive schemes in vogue at that time.

The period of agreement depends on the codal life of each rake of the specific type of stock notified at the time of induction by the MoR. IRS design is applicable on all rakes at the time of procurement. Rakes were allowed to be procured and presented for induction under this scheme within 18 months from the date of signing of the agreement. Fresh NOC must be obtained for the circuit on expiry of this time limit.

## 14.3 Process for Procurement of General Purpose Wagons

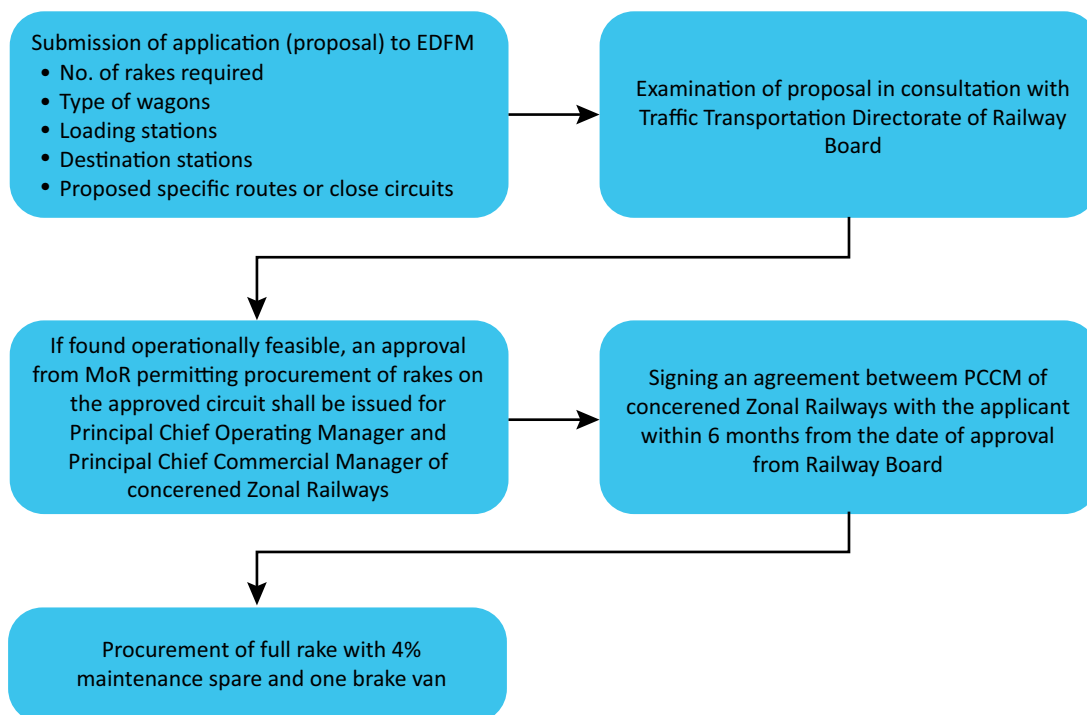
The operation of GPWIS is applicable between private sidings/terminal, PFTs, inland container depots (ICDs), ports, mines. Further, the operation of GPWIS at a goods shed will only be allowed after due clearance for handling the traffic.

The Zonal Railways are responsible for keeping a tab on the wagons and brake vans procured for each rake by the party. Zonal Railways are clubbed into groups depending on the type of rolling stock for identified pre-approved circuits.

The ownership of the rakes under the scheme lies with the party who has procured it. The rakes are allowed to operate till the codal life of the rake or till they are in a safe condition safe to operate whichever is earlier. These rakes are not be merged with the wagon pool of IR.

Loading in wagons procured under the scheme was permitted only against indents registered by end users subject to extant rules for allotment of wagons. Furthermore, the GPW will run on carrying capacity basis





*Note: Basic criterion followed for deciding the circuits is to limit private wagons to move empty on congested sectors, perhaps to maximize the loading.*

(7000 km brake power certificate (BPC) validity) Validity or as per the latest circular) and the maintenance depot will be decided based on the proposed circuits.

The circuit on which the rakes are proposed to be deployed by the end user would be approved by the Traffic Transportation Directorate, Railway Board. Based on the commodity flows, various Zonal Railways were clubbed into groups for each type of rolling stock. The Empty Return Ratio (ERR) for the stock originating and terminating within such a group of the zones were calculated and only those circuits were approved where the ERR was at par or better (i.e., ERR is less) than the benchmark ERR for the said group of zones. The condition of ERR was not applicable in case of small lead circuits (lower than 100 km) and the circuits were not allowed to be revised for at least 6 months. This is as per the initial circular 2018/TC(FM)/04/01.

Terminal access charges are levied on GPWIS parties at the railway owned terminals in the following manner:

Type of rake handling	Terminal access charge (TAC)
Loaded rake in and empty rake out	1 x Rate of TAC
Empty rake in and loaded rake out	1 x Rate of TAC
Loaded rake in and loaded rake out	1.5 x Rate of TAC

Free time when placed at a railway-owned terminal will depend on the type of stock and will begin with the placement of the first wagon. Also, ground usage charge will be levied for using the ground at Railway goods sheds. The GPWIS user will be given free time for using the railway goods sheds based on the type of goods shed.

Type of goods shed	Present rate of wharfage charge (per wagon per hour)
Group I	INR 150
Group II	INR 120
Group III	INR 75

No additional freight will be charged if the movement of empty rakes is as per the approved circuit.

## 14.4 Policy Revisions

IR has tried to amend the policy to make it more customer friendly and inclusive from time to time. Some key revisions are discussed as under:

Wagons under GPWIS run in closed circuits. Movement for taking these rakes for closed-circuit examination outside the circuit (if required) may be undertaken on Railways' account. During this movement loading/unloading for enroute points can be done by IR to avoid empty running. The Traffic Transportation Directorate, Railway Board approves the circuits based on its operational feasibility.

The grouping of zonal railways for estimating empty return ratio has been eliminated. While preparing the Railway Receipt, if the payment is made by the owner of the rake, the rebate will be granted upfront, otherwise it will be accrued to a deposit miscellaneous account of the owner. No freight will be charged for movement of empty rakes, if the rakes move as per the approved circuit.

The party also has an option to take the freight rebate without any annual cap wherein the interest component of investment cost would be limited to IR's payment to IRFC.

## 14.5 Current Status of the Policy

To take away the burden of capital investment, Railways are endeavouring wagon procurement through private investments.

A review of GPWIS in terms of implementation depicts that about 83 rakes have been inducted (as of December 2022) with total approvals granted for 550 rakes. When compared to various other schemes like LGWIS, SFTO, AFTO and LSFTO, GPWIS tends to perform better in terms of number of rakes approved.

**Table 19:** Rakes approved and inducted under GPWIS

Year	Rakes approved	Rakes inducted
2018	44	2
2019	115	24
2020	69	6
2021	71	30
2022	251	21

Source: Indian Railways

**Table 20:** Wagon procurement: comparison between different schemes (till July, 2021)

Name of scheme	Rakes approved	Rakes inducted
LGWIS	133	57
SFTO	37	16
AFTO	69	35
LSFTO	20	0

Source: Indian Railways

At present, GPWIS provides good service to consumers, as well as assured supply of railway wagons which is crucial. GPWIS owners have better control over the wagon/rake movement and manage their supply chain better which perhaps provides them with an edge over their competitors. Most of the investments under GPWIS have been from the bulk industries and majority are those moving coking coal (for steel industry) or iron ore.

**Table 21:** Commodity-wise loading under GPWIS (FY 2019-21)

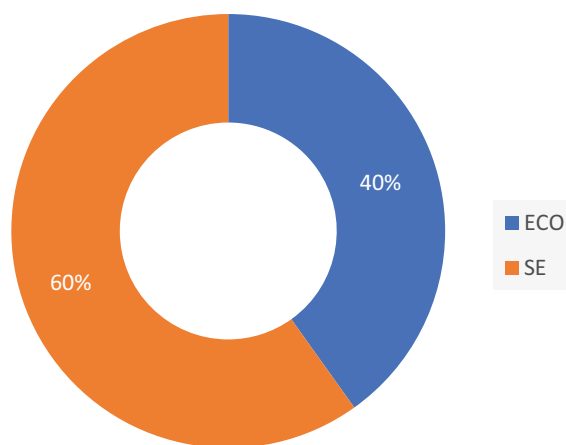
FY	2020-21		2019-20		
	Commodities	Total loading	Percentage	Total loading	Percentage
	Coal and coke	4,382,016.2	38.99	2,304,008	40.29
	Iron or steel	187,053.6	1.66	293,029.1	5.12
	Metal scrap and pig iron	788,707.6	7.02	443,346.9	7.754
	Minerals and ores	5,879,595.5	52.32	2,677,836.3	46.83

Source: Indian Railways

Furthermore, due to the concentration of these activities, almost all of the loading has taken place within ECOR and SER under GPWIS so far.

Based on the historical data sets, it is also evident that the maximum amount of loading has been done from private sidings, which demonstrates that the private parties have welcomed the scheme, perhaps a positive sign for the Railways. During May, 2019-September, 2022, maximum loading (i.e., >90%) was done in BOXNHL wagons and the lead-wise analysis depicts that around 10% of the movement took place within 200 km, around 51% of the movement took place within 300 km and about 80% took place within a lead of 400 km.

Major players such as TATA Steel Ltd, Rungta Mines Ltd, Adani group, etc. tied hands with Railways and got their wagons inducted under the scheme. The list of investors, number of wagons inducted by them with their type are given in Table 22.



**Figure 35:** Loading under GPWIS  
Source: Indian Railways

**Table 22:** Investor-wise inducted rakes and wagon type in GPWIS (till December, 2022)

Investor	Wagon type	Total rakes induction
Orissa Metaliks	BOXNHL	2
Orissa Metaliks	BOXNHL	1
Adani LL	BOXNHL	6
TMILL	BOXNHL	7
Adani LL	BOXNHL	2
Rungta Mines	BOXNHL	5

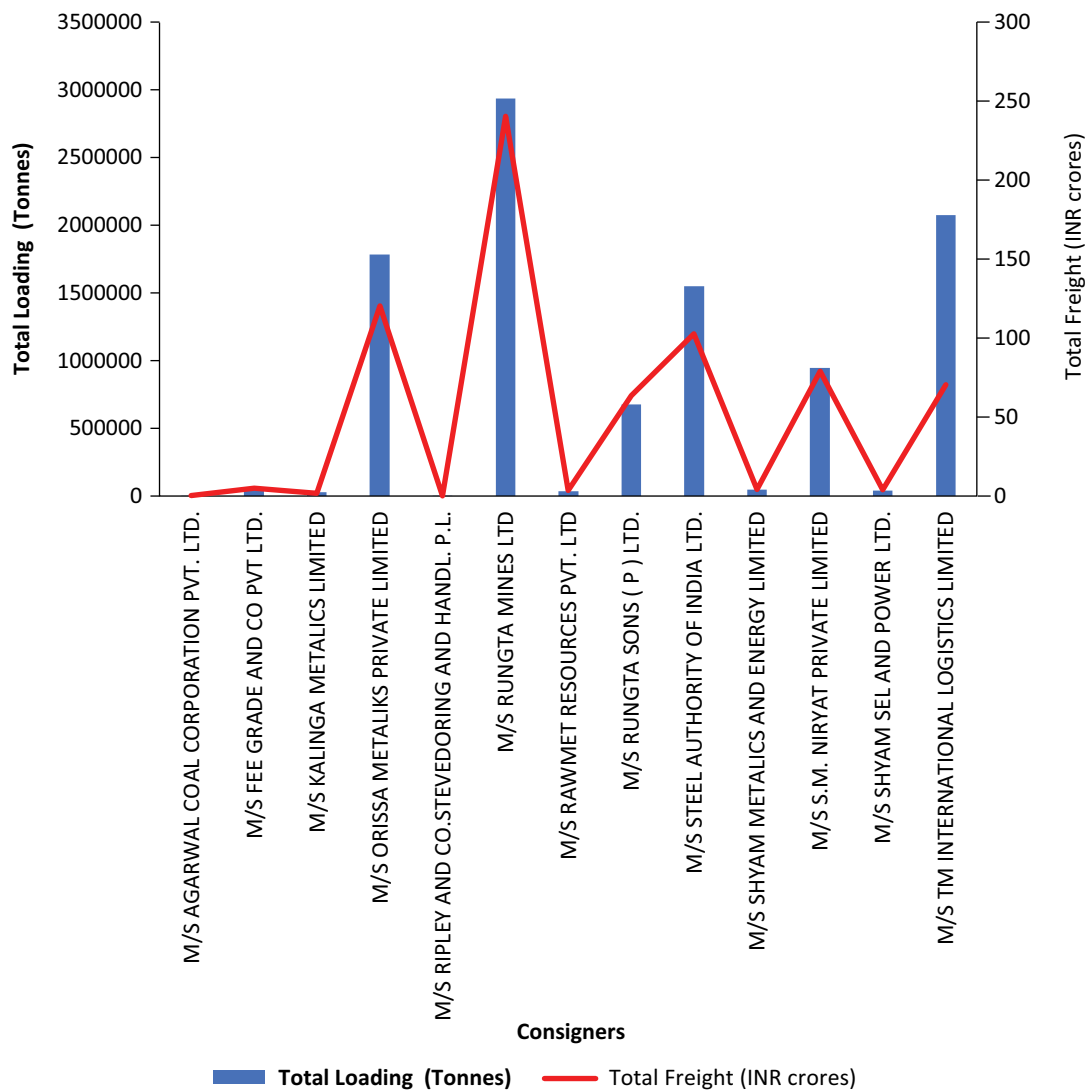
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Investor	Wagon type	Total rakes induction
TMILL	BOXNHL	5
Adani LL	BOXNHL	1
TMILL	BOXNHL	1
Adani LL	BOXNHL	3
TMILL	BOXNHL	1
Adani LL	BOXNHL	11
Rungta Sons	BOXNHL	5
SM Niryat	BOXNHL	5
Kalinga	BOXNHL	2
Rungta Sons	BOXNHL	1
Kalinga	BOXNHL	2
Adani LL	BOXNHL	2
TMILL	BOXNHL	1
Shyam Metalics	BOXNHL	2
Shyam Sel & Power	BOXNHL	1
Hindalco	BOXNHL	1
Adani LL	BOXNHL	2
Adani LL	BOXNHL	3
Adani LL	BOXNHL	2
SAIL	BOXNHL	4
NTPC	BOBRNHSM1	2
HINDALCO	BOBRNAL	1

Source: Indian Railways

Figure 36 shows the list of consigners with their loadings under GPWIS from May, 2019 to September, 2022. Major players like Rungta Mines Ltd, Orissa Metaliks Pvt. Ltd, Steel Authority of India, and TM International Logistics Ltd have significant loading with contributing about 77% of the total freight business of IR under the policy within the said period.

Figure 37 presents the overall loading and revenue earned, along with the rebate provided under this policy from May, 2019 till September, 2022. It is observed that there has been a positive growth since IR has made efforts to make the policy more inclusive and user-friendly by amending it time-to-time which, is a win-win situation for both the parties. Some examples: allowing empty run on pre-approved circuits, option for taking freight rebate without the annual capping of lease charges to IRFC by IR, elimination of grouping of zonal railways for estimating ERR, are to name few. Therefore, it is evident that railways are beneficial for carrying higher tonnage.

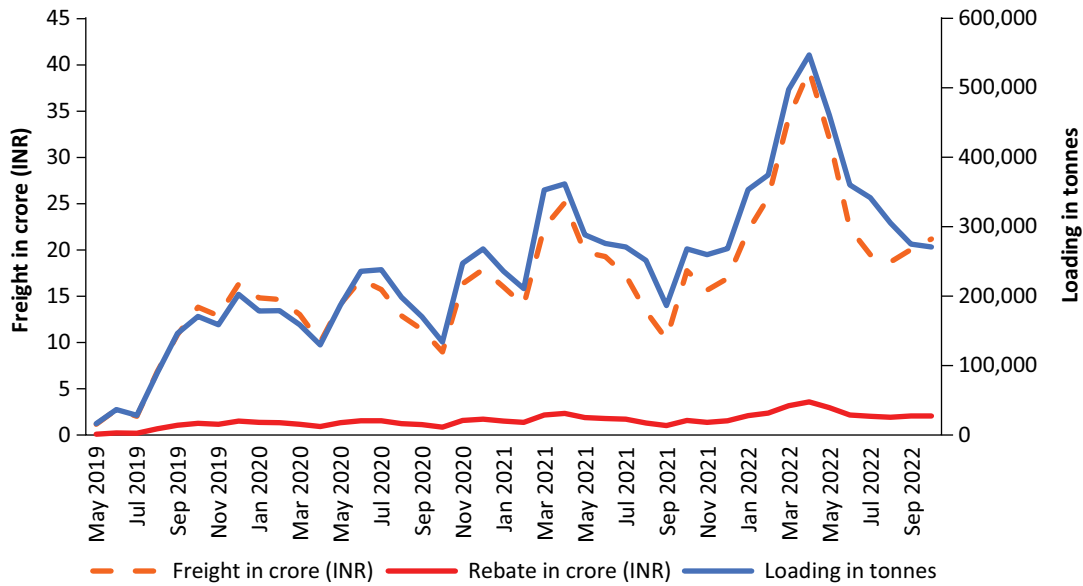


**Figure 36:** Consigner-wise loading (tonnes) and total freight (crores) under GPWIS (May, 2019-September, 2022)  
 Source: Indian Railways

Iron ore mines are affected by rain during the monsoon seasons leading to decrease in loading during those months. A possible reason for the steep fall after May, 2022 could also be due to the increase in the export duty of iron ore by the government. From May 22, 2022, the export duty on iron ore lumps (more than 58% Fe content) was raised from 30% to 50% ad valorem; export duty of 50% was imposed on iron ore with Fe content below 58%; export duty of 45% was imposed on iron ore pellets; export duty of 15% ad valorem was imposed on different forms of alloy and non-alloy steel including pig iron.<sup>36</sup> The duty was withdrawn on November 19, 2022.

Looking at current traffic, capacity constraints and the shortage of wagons in the IR’s pool, GPWIS schemes will tend to have a greater positive impact according to the experts for both the private parties and the IR freight business.

<sup>36</sup> Details available at: <<https://pib.gov.in/PressReleasePage.aspx?PRID=1877232#:~:text=Exports%20of%20iron%20ore%20lumps,will%20attract%20nil%20export%20duty>>



**Figure 37:** GPWIS monthly performance data (May 2019- September 2022)  
 Source: Railway Board

A key feature of GPWIS is the 10% rebate linked to IRFC lease charges, which makes it different from other wagon investment schemes.

However, according to the Amendment 4 (2018/TC(FM)/04/13), the party has an option of taking freight rebate with or without the annual capping. In this option, the interest component of cost of investment shall be limited to IR’s payment of same to IRFC.

The capping option becomes crucial in case of wagon leasing. After leasing rakes from a third party and taking full advantage of the rebate offered under the scheme and recovering the full cost before 15 years, no rebate will be provided from that point on, so it becomes unfair and unviable for the other party who is willing to lease the same rake since they will not receive a rebate. Hence, capping is essential in case of leasing rakes to maintain balance and provide equal advantages.

Wagons are valuable assets that have great revenue potential. A key point to be noted is that wagons on IR have a life expectancy of approximately 35 years. Even if we consider the chances of these wagons becoming either, technically or commercially obsolete, the life could still extend beyond 35 years.

## 14.6 Issues

Based on the stakeholder consultations, a prominent concern among private players is the substantial price difference they encounter while procuring wagons compared to IR’s rates. As per the latest tender accepted by IR, the cost of BOXNHL wagon to IR is approx. 36 lakh.<sup>37</sup> The major reason behind this is IR’s bulk buying of wagons and a greater negotiating power than any other individual, or party to enforce reduction in price.

Moreover, the scheme can be deemed successful, considering the approval of approximately 550 rakes since 2018, and the ongoing interest displayed by investors in acquiring more rakes in the future. However, it is noteworthy that the number of rakes actually inducted remains comparatively lower when compared to the approved count. The primary reason for this, as highlighted in stakeholder discussions, was the economic

<sup>37</sup> As per stakeholder meeting held

scenarios during and post COVID-19. Another reason for the high number of approvals is the duplication of the approval requests raised by Wagon Leasing Companies (WLC) and private users/investors for the same interest which is currently counted as two different approval requests.<sup>38</sup> Investors showed an exceeding interest for the scheme with railways also welcoming the investments by providing approvals. Nonetheless, the rakes could not be inducted on time due to various financial scenarios. However, IR is very lenient with their schemes and is allowing induction even after certain delays to support the investors. Though GPWIS assured guaranteed supply of wagons initially but however, timely supply of wagons is also one of the major issues with the policy.

The other major issue is with the Drawing Approval (DA) charges and Inspection Charges (IC) that are currently not considered as part of capital expenditure. Hence, investors get zero returns on these expenses.<sup>39</sup> Expenses incurred as DA and IC are dead investments for the investors such as Third-Party Logistics companies. This is also one of the reasons in slow induction of rakes despite of large number of approvals. According to IR, these charges are a main source of revenue for RDSO, so removing them will have implications for RDSO's financing. If it cannot be avoided, it would be prudent to retain these charges (in the interests of RDSO), but include them as capital expenditures as well, so the investors are also able to benefit from them.

The freight rebates under the GPWIS are capped, due to which investors cannot earn more rebates by making more use of their wagons. Thus, it is important that the cap on freight rebate includes all expenses incurred by investors. There is, however, a need to point out that the loading has been limited to only a few sectors and it is not widespread.

## 14.7 Recommendations

GPWIS seems to be providing a cushion to both railways and the investors currently. GPWIS has come out to be one of the best ways of adding wagons for freight movement catering to the wagon shortage. Additionally, an enormous amount of revenue will be generated by inducting 550 rakes, and IR will continue to generate revenue from these investments in the near future as well. However, revisiting the current problem statements, a few recommendations have been provided are as under:

### **Delinking the rebate to the capital cost of the wagon**

The freight rebates under the GPWIS are capped to, which acts as de-incentivization to the investors. IR can consider reducing the rebate rate from the current 10% but not capping it with the wagon's capital cost as in other schemes (e.g., LSFTO, AFTO). This will be a win-win situation for both parties.

### **Increasing loading throughout the sectors and ensuring timely wagon supply**

As indicated, most of the loading is under few selected commodities and the sectors which may lead into a monopoly in the future. This could go against IR's plan of providing equal services. Major players tend to have a greater impact under the scheme. Hence, railways could figure out discussing and directing the major players to plan their freight movement throughout the sectors and ensuring timely supply of wagons.

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<sup>38</sup> As per stakeholder meeting held.

<sup>39</sup> Design loan charges (DLC) were also included on the list, but IR recently dropped them.

# Liberalized Automatic Freight Rebate Scheme for Traffic Loaded in Traditional 15 Empty Flow Directions 2016

## 15.1 Problems of Empty Flow

India's railway network is extensive and connects the entire country. IR's network primarily carries bulk commodities that are mostly produced or available in the eastern part of the country, while they are used across the country. In order to maintain a continuous supply of wagons for major bulk commodities, rail companies are forced to return empty wagons from consumption centres to the production regions in the east in order to load them. The empty return ratio (ERR) depends upon the type of stock, and the demand of that particular wagon.

The Traditional Empty Flow Directions (TEFD) policy is designed to incentivize loaded traffic on the route on which railways are already incurring the cost of running empty rakes. Any traffic attracted towards the empty direction is an additional traffic to for IR. The streams of the empty flow are decided on the operating conditions and have been monitored and altered by the railways from time-to-time to keep track of the traffic and revenue with the changing trends.

## 15.2 Background

In 2005, the Railway Board had introduced the empty flow direction scheme for covered wagons particularly to attract incremental traffic for specific commodities. The scheme was introduced as an experiment for a period of three months providing concession of 20% on incremental traffic beyond 110% of the number of rakes loaded during the corresponding month of the previous year. It was applicable on South Central Railways for traffic originating from sidings in the zone booked to Central, Western, West Central, and Northern Railways. The scheme was thereafter extended as 'Incentive Scheme for Traditional Empty Flow Direction' applicable up to March 2006. Though, initially the new scheme was notified for traffic from Nanded Division to Central Railway, it was eventually extended to Western and North Western Railways for a period of one year from April 2006.<sup>40</sup>

The scheme was reintroduced in 2014 as 'Automated Freight Rebate Scheme for traffic loaded in Inter-zonal Traditional Empty Flow Direction' with an aim of generating additional revenue through an automatic rebate

<sup>40</sup> Details available at: <[https://cag.gov.in/uploads/old\\_reports/union/union\\_compliance/2007\\_2008/Railways/Report\\_no\\_6/chap\\_2.pdf](https://cag.gov.in/uploads/old_reports/union/union_compliance/2007_2008/Railways/Report_no_6/chap_2.pdf)>



system offered under FOIS. The scheme was launched as a pilot project and was initially implemented only for BCN group of rakes originating from (i) Southern Railway to South Central Railway and (ii) North East Frontier Railway to ER/SER/WCR/NR. All the loaded rakes from SR to SCR and NFR to ER/SER/WCR/NR were charged at Class-LR for trainload traffic and Class 100 for wagonload traffic irrespective of the terminal, commodity and the customer, after crossing the decided benchmarks as per the Rate Circular 25 of 2014. Freight concession under following schemes was permitted concurrently:

- a. Incentive Scheme for Incremental Traffic
- b. Incentive Scheme for Traditional Empty Flow Direction
- c. 6% concession from and to North East
- d. Liberalized Siding Rules

However, the freight charged shall not be lower than Class LRI for train load and Class 100 for wagon load traffic. TEFDs were charged in Class LR1 because, the cost of running empty movements was recovered in the class.

It was launched to facilitate ease of doing business for customers. Since the rakes were moving in the empty flow direction, the scheme would help in carrying additional tonnage. It was introduced after detailed study on the movement of empty rakes. The affected sectors and commodities were also studied for the scheme.

The pilot scheme was discontinued in 2015 and was revamped on all zonal railways (inter-zonal and intra-zonal) and with the title 'Automated Freight Rebate Scheme for traffic loaded in Traditional Empty Flow Direction'. All the loaded rakes in the notified empty flow directions were charged at Class LRI for trainload traffic and at Class 100 for wagonload traffic irrespective of the terminal, commodity and customer. Short lead traffic (<200 km) was not allowed under the scheme with restricted commodities as mentioned below:

- a. Mineral and ores
- b. Coal and coke
- c. POL traffic
- d. RMC traffic
- e. Military traffic
- f. Commodities under Classes LR2 and LR3

Apart from the above-mentioned commodities, certain commodities were also restricted in particular O-D zones to attract new additional traffic within these zones and not provide any kind of partial benefits.

It was applied on all goods sheds, sidings and PFTs. The type of eligible wagons under the scheme were open wagons such as BOXN, covered wagons such as BCN, BCNHL group; and flat wagons and mixed steel rakes such as BRN group, BOST group and CONCORD. The minimum offer of traffic was the half-rake of the permitted stock. The half-rake for different stock was as under:

Wagon	Minimum number of wagons in half-rake
BCN/BCNA/BCNAHS	20
BCNHL	29
BOXN group	29
BOST	22
BRN	21
<b>Mixed rakes</b>	
BOXN +BRN group/BOST/BFNS	20 (minimum 5 of each type and maximum 10 of BOXN group)

The scheme was valid till December 31, 2016.

## 15.3 Objective

The scheme aims to reduce the ERR on IR and to garner additional revenue for the Railways. This was done by a suitable pricing mechanism based on the discount in the TEFD, whereby automatic rebate from the computerized FOIS system became available to customers offering traffic in inter-zonal/intra-zonal traditional empty flow direction subject to fulfilment of certain criteria elaborated under the policy.

## 15.4 Salient Features

Prior to 2015, the TEFD policy was quite restricted and manually implemented. The policy was renewed in 2015 and Automated Freight Rebate for Traffic Loaded in TEFD was introduced. Based on the suggestions received from the zonal railways and customers, the TEFD policy was liberalized in 2016. Notified streams under TEFD were based on flow of empties between divisions in case of intra-zonal traffic and from divisions to other zones in case of inter-zonal traffic. Traffic under TEFD could be booked from end to end (division to any point lying in the destination division/zone of notified empty flow stream) or from any terminal of the originating division of empty flow stream to any intermediate terminal in the direction of empty flow stream (subject to certain conditions).

It was applicated on all goods sheds, sidings and PFTs. All commodities except iron ore (all type), coal & coke, POL traffic, RMC traffic, Military traffic and commodities under Classes LR2 and LR3 were eligible under the scheme. Short lead traffic (<200 km) was ineligible. The type of eligible wagons under the scheme included: open wagons- BOXN, covered wagons such as BCN, BCNHL group and flat wagons and mixed steel rakes such as BRN group, BOST group and CONCORD. No other concession was admissible to the traffic booked under the scheme.

Freight was charged at Class-LR1 for trainload and Class-100 for wagonload for traffic booked on the notified O-D pair. Discounted freight was charged from the first rake itself for the traffic loaded in empty flow directions except in case of specific commodities mentioned against the O-D pair. In case of these commodities, discounted freight at Class-LR1 (trainload) and Class-100 (wagonload) was charged only when the monthly benchmark loading was crossed. This was the total NTKM of that commodity in the O-D pair during the corresponding month of previous year so as to attract new traffic to on the empty direction as not give favourable advantage to the already moving traffic.

Corrigendum 2 (dated: March 30, 2017) made certain advancements in the scheme. A few of them were: 'chemical manures' and 'food grain and pulses' were included in the list of restricted commodities to push the empty run and intra-divisional booking was restricted throughout.

In case of intra-zonal and inter-zonal traffic, TEFD concession for IRST (iron and steel) booking were not allowed in open stock if that O-D flow is restricted for booking of flat wagons and mixed steel rakes in empty flow direction. However, once the flat and mixed steel rakes crossed the (NTKM) set for IRST traffic, they received the TEFD concession.

One of the major features of the TEFD policy of 2017 was permitting those commodities which were regularly loaded in the identified TEFD streams, along with benchmarks. The mechanism of benchmarking ensured that only additional traffic that comes to IR under the policy gets concessions and not the traffic that railways already had before, which was full freight paying traffic.

The scheme was revised in 2018 and as per its Corrigendum 6 (dated November 15, 2019). With effect from December 1, 2019, food grains, flours and pulses were removed from restricted commodities and the scheme was in force till April 30, 2020.

The scheme again underwent revision in 2020 and IR reduced the eligibility of short lead traffic from 200 km to 100 km. Moreover, pure BOST rakes were allowed to be treated as open wagons and BOST wagons in mixed steel rakes were treated as flat wagons under the policy from there on. No other concession was admissible to the traffic booked under the scheme which was in force till March 31, 2021.

### 15.5 Policy Revision

Previously, TEFD would charge for train and wagon loads at standard rate classes, which resulted in substantial discounts for high order traffic. Railways felt that a lesser discount might also work as a suitable incentive and the policy was revised again in 2021 with an objective to reduce the ERR on IR and to garner additional revenue for the Railways. The traffic could be booked from either end-to-end or from any terminal of the originating division of empty flow stream to any intermediate terminal in the direction of empty flow stream. Apart from the previous restricted commodities, commodities under Classes 100 and 100A, LR1, LR2, LR3 and LR3A were included in the list of restricted commodities. The short-lead traffic ( $\leq 100$  km) was restricted under the scheme. The type of eligible wagons was revised from BCN rakes to open wagons such as BOXN, pure BOST rakes, covered wagons such as BCN, BCNHL group and flat wagons and mixed steel rakes such as BRN group, BOST group and CONCORD.

Charging under the policy was revised to:

1. Inter zonal traffic – 15% and 20% discount on NTR if floor limit of NTR of Class 100 (TL) and Class 110 (WL)
2. Intra zonal traffic – 15% and 20% discount on NTR if floor limit of NTR of Class 100 (TL) and Class 110 (WL)
3. Inter zonal intermediate point (only one) – 15% discount on NTR if floor limit of NTR of Class 100 (TL) and Class 110 (WL)
4. Inter zonal traffic: Divisions of the destination zone other than notified divisions – 15% discount on NTR if floor limit of NTR of Class 100 (TL) and Class 110 (WL)

The minimum offer of traffic was allowed to be half rake of the permitted stock. But the zonal railways were advised that in case of BCN/BCNA/BCNAHS and BCNHL wagons, full rakes should be placed. Additionally, the minimum number of wagons to be loaded was reduced from 20 to 10 or more for availing the benefit. Other features were as per previous scheme.

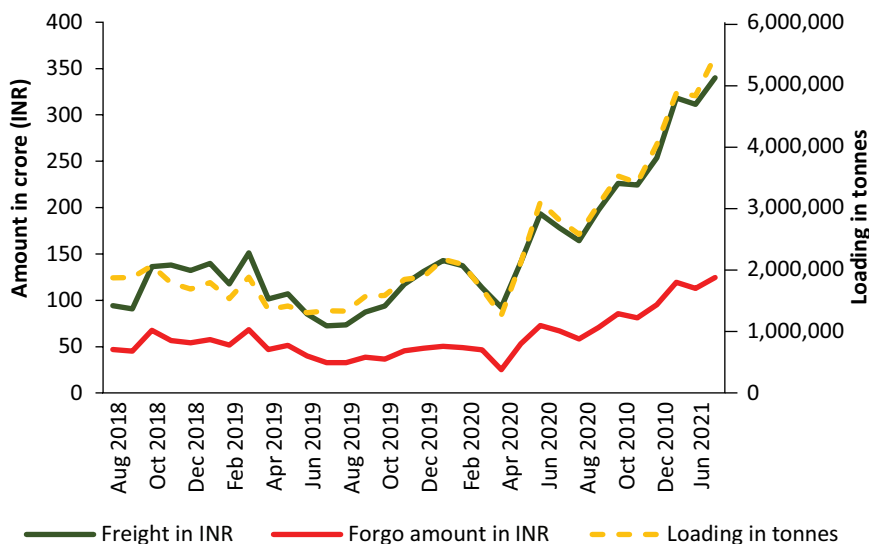
### 15.6 Current Status of the Policy

With this policy, IR has able to capture a share of long-lead traffic with a focus on inter and intra-zones. Figure 38 presents the overall loading and revenue earned under this policy since August 2018 to March 2021.

The overall NTKMs under the scheme witnessed a major surge post COVID-19, with major commodities carried including: Limestone for steel plants (LSST), cement clinker (CLKR), iron & steel (IS) and dolomite for steel plants (DCLST).

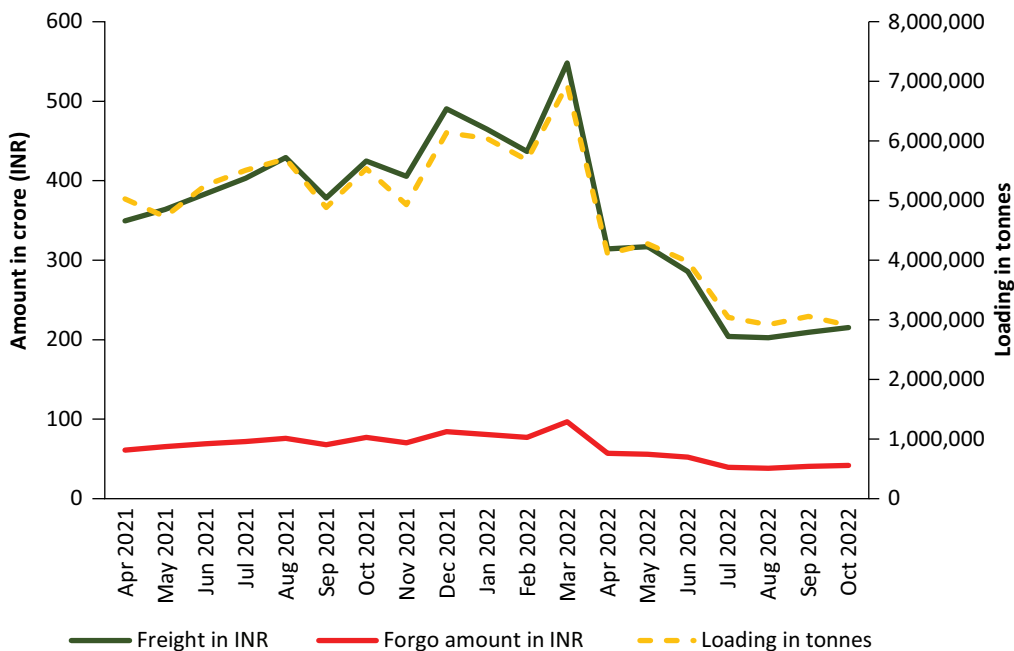
It is observed that there is a significant rise in the loading in the empty directions since revised concessions of 15% and 20% were offered under the scheme which are depicted in Figure 39.

IR has experienced a substantial decline in the loading from touching nearly 7 million tonnes in March 2022 to 3 million tonnes by October 2022 equivalent to the loading in June 2020. The major reason behind this



**Figure 38:** TEFD month-wise summary (August, 2018- March, 2021)

Source: Railway Board

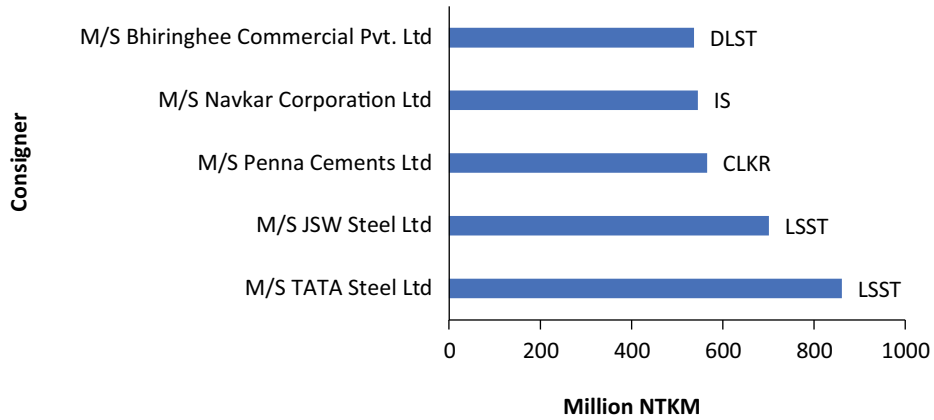


**Figure 39:** TEFD month-wise summary (March, 2021- October, 2022)

Source: Railway Board

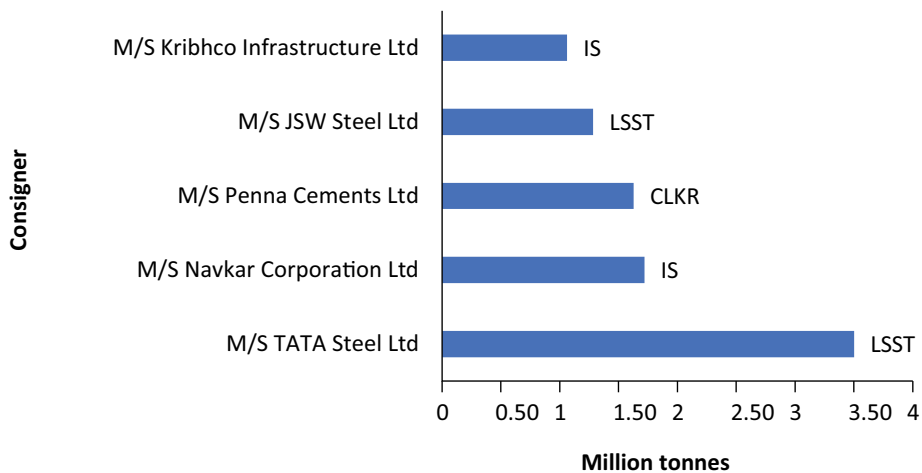
downfall is the restrictions imposed on the concessions by frequent changes in the defined O-D pairs, along with commodity-specific restrictions on certain O-D routes. As a result, the scheme initially looked favourable provided but with time IR, by changing the O-D pairs has reduced the impact both in terms of tonnage and money. Therefore, IR has failed in the ultimate test of having a larger impact and decreasing the empty run as depicted in Table 23.

The empty direction concession was provided on pre-defined routes as mentioned in the Rates Circular no.13 of 2021 and further extended vide Corrigendum no.5 to Rates Circular no.13 of 2021. IR has registered around 94.62 billion NTKM with net revenue of about INR 117.31 billion and granted total concession of nearly INR 31.54 billion under this policy from the period August 2018-October 2022.



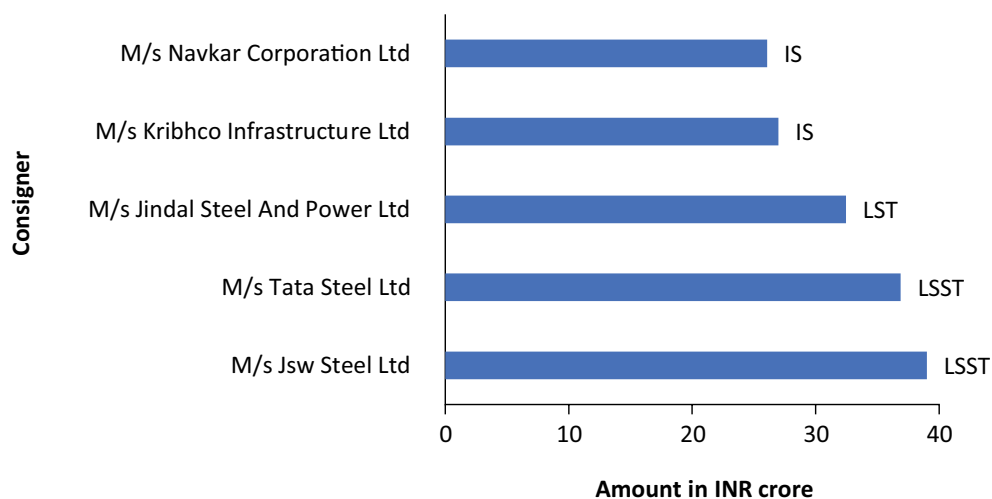
**Figure 40:** Top five consigners and their commodities in terms of highest NTKM (August, 2018- October, 2022)

Note: DLST=Dolomite for Steel Plants, IS=Iron & Steel, CLKR=Cement Clinker, LSST= Limestone for Steel Plants  
Source: Railway Board



**Figure 41:** Company-wise (with commodities) loading under TEFD (August, 2018- October, 2022)

Note: IS=Iron & Steel, CLKR=Cement Clinker, LSST= Limestone for Steel Plants  
Source: Railway Board



**Figure 42:** Company-wise (with commodities) forgo amount under TEFD (August 2018-October 2022)

Note: IS=Iron & Steel, CLKR=Cement Clinker, LST=Limestone Ores, LSST=Limestone for Steel Plants  
Source: Railway Board

Figure 40 depicts the top five consigners and their loaded commodities in terms of million NTKM carried under this policy from August 2018–October 2022. It shows limestone’s dominance for steel plants. Figure 41 on the other hand, shows that the maximum loading during the same period was done by Tata Steel Ltd. Figure 42 illustrates forgo amount (in crore) received by companies for respective commodities under the scheme. During the mentioned timeframe, JSW steel and Tata steel, respectively received benefits of whopping INR 39 crore and INR 37 crore for carrying Limestones followed by Jindal steel and power, Kribhco Infrastructure, and Navkar Corporation who got benefits of nearly INR 32.5 crore, INR 27 crore and INR 26 crore, respectively for carrying limestone and iron & steel. The net earning under this policy for the said period stands around INR 117.31 billion with a total rebate offered of around INR 31.54 billion with INR 94.62 billion NTKM covered.

Further, various changes have been made in the 2021 policy, where the charging mechanism was revised.

In the previous policies, benchmarking concept favoured the ‘wait and watch’ concept where the smaller players waited for the bigger players to cross the threshold limits of the monthly loading preceding to which they can claim concessions under the scheme, in particular streams which had to be addressed. The new policy does not make any such distinction. Further, it is seen that even after IR revised the charging of TEFD traffic instead of classes like LR-1, 100, the existing traffic of highly rated bulk commodities (steel, iron, clinker, etc.) which had been availing of TEFD concessions remained with the railways.

Table 23 shows the historical ERR performance from FY 2008-09 to FY 2021-22. The overall empty run has witnessed an increase in ratio vis a vis loaded runs in the years between FY 2008-09 and FY 2021-22. It may be observed that the performance of IR varied from year to year and for different types of wagons as well.

The best overall ERR performance of IR was observed during FY 2010-11, with the lowest at 36.67% as opposed to 40.53% during FY 2021-22.

Among all wagons, freight loading on IR is majorly done in BOXN, BCN, BCNHL, BRN, and BOBRN whose ERR also increased during the said period. The best ERR observed for BOXN wagons was 37.96% achieved during FY 2009-10. For BCN and BCNHL wagons, the best ERR observed was 29.28% and 37.94% during FY

2010-11 and FY 2012-13, respectively which shot up to as high as 40.63% and 51.19% during FY 2021-22. The trend of ERR for BRN and BOBRN wagons has also shown substantial deteriorations from their previous best achieved figures. Nevertheless, it may be noted that the figures in the Table 23 are presented in ratios and an increase in wagon population also has a bearing. For instance, the number of BOXN, BOBR, and BCN wagons has increased by 52%, 45%, and 30%, respectively between FY 2008-09 and 2021-22. The major fall in the loading of BCN, BCNHL, NMG wagons is observed in the last decade from 71% to 59%, 61% to 49%, and 67% to 55%, respectively. This led to a considerable increase in empty run by considerable numbers despite of having concessions for empty return, which is a matter of concern for IR.

However, to maintain the operational flow and timely availability of wagons for certain crucial commodities like movement of coals, food grains, empty return becomes indispensable.

It may be seen from the Table 23 that the container wagons have shown a tremendous improvement in ERR over the period. Their ERR has fallen from 48.22% in FY 2008-09 to 4.76% in FY 2021-22. A major reason behind the ideal ERR of container wagons is their versatility to carry different types of commodities and underlines the need for railways to increase the use of containers to garner more traffic in the domestic sector.

Table 23: Wagon-wise ERR (2008-09 to 2021-22)

Wagon type	2008-09		2009-10		2010-11		2011-12		2012-13		2013-14		2014-15		2015-16		2016-17		2017-18		2018-19		2019-20		2020-21		2021-22			
	Loaded:	empty	Loaded:	empty	Loaded:	empty	Loaded:	empty	Loaded:	empty	Loaded:	empty	Loaded:	empty	Loaded:	empty	Loaded:	empty	Loaded:	empty	Loaded:	empty	Loaded:	empty	Loaded:	empty	Loaded:	empty		
BOXN	59.44:	62.04:	61.17:	60.58:	60.36:	60.13:	61.36:	59.94:	58.9:	59.82:	59.94:	59.94:	59.82:	59.94:	59.94:	59.82:	59.94:	59.82:	59.94:	59.82:	59.94:	59.82:	59.94:	59.82:	59.94:	59.82:	59.94:	59.1:	40.9	
BCN	66.97:	69.87:	70.72:	70.62:	68.8:	67.26:	65.97:	63.93:	63.03:	62.8:	62.75:	62.8:	62.75:	62.75:	62.8:	62.75:	62.75:	62.8:	62.75:	62.75:	62.75:	62.75:	62.75:	62.75:	62.75:	62.75:	62.75:	59.37:	40.63	
BCNHL	0:	100	49.89:	59.58:	60.24:	39.76	60.24:	59.58:	60.24:	39.76	60.24:	59.58:	60.24:	39.76	60.24:	59.58:	60.24:	39.76	60.24:	59.58:	60.24:	39.76	60.24:	59.58:	60.24:	39.76	60.24:	59.58:	48.81:	51.19
BOBR	50.1:	49.9	54.55:	45.45	54.8:	45.2	53.85:	46.15	53.85:	46.15	53.85:	46.15	53.85:	46.15	53.85:	46.15	53.85:	46.15	53.85:	46.15	53.85:	46.15	53.85:	46.15	53.85:	46.15	53.85:	54.96:	45.04	
BRN	56.54:	43.46	57.5:	42.5	57.83:	42.17	58.9:	41.1	58.58:	41.42	59.61:	40.39	57.82:	42.18	56.54:	43.46	55.43:	44.57	57.31:	42.69	54.67:	45.33	56.24:	43.76	55.94:	44.06	54.67:	45.33	53.88:	46.12
BOST	56.16:	43.84	57.39:	42.61	57.35:	42.65	57.47:	42.53	58.21:	41.79	57.2:	42.8	57.95:	42.05	55.28:	44.72	54.06:	45.94	58.38:	41.62	60.88:	39.12	56.74:	43.26	60.88:	39.12	52.42:	47.69	56.15:	43.85
SHRA	51.05	48.95	50.78:	49.22	50.09:	49.91	56.63:	43.37	54.38:	45.62	50.22:	49.78	51.82:	48.18	50.95:	49.05	51.46:	48.54	51.07:	48.93	52.42:	47.58	52.42:	47.58	50.01:	49.99	52.42:	47.58	51.09:	48.91
CONT	51.78:	48.22	50.09:	49.91	50.09:	49.91	97.52:	2.48	96.9:	3.1	96.76:	3.24	97.93:	2.07	98.18:	1.82	97.89:	2.11	96.28:	3.72	96.28:	3.72	96.28:	3.72	95.82:	4.18	95.82:	4.18	95.24:	4.76
BTPN	56.69:	43.31	57.28:	42.72	56.99:	43.01	55.18:	44.82	55.64:	44.36	57.04:	42.96	56.45:	43.55	56.58:	43.42	55.93:	44.07	55.74:	44.26	55.86:	44.14	54.66:	45.34	55.86:	44.14	54.66:	46.21	53.79:	46.21
NMG	68.66:	31.34	73.79:	26.21	66.34:	33.66	67.22:	32.78	66.96:	33.04	65.23:	34.77	58.86:	41.14	60.21:	39.79	62.64:	37.36	61.78:	38.22	63:	37	60.66:	39.34	60.66:	39.34	57.36:	42.64	55.25:	44.75
OTHR	64.48:	35.52	62.98:	37.02	65.25:	34.75	63.48:	36.52	66.15:	33.85	67.69:	32.31	69.22:	30.78	67.85:	32.15	68.2:	31.8	69.6:	30.4	70.52:	29.48	70.52:	29.42	68.07:	31.93	68.07:	30.48	69.52:	30.48
ALL	61.2:	38.8	63.16:	36.84	63.33:	36.67	62.7:	37.3	62.53:	37.47	62.08:	37.92	62.53:	37.47	60.88:	39.12	60.17:	39.83	60.92:	39.08	61.31:	38.69	60.12:	39.88	60.12:	39.88	57.6:	42.4	59.47:	40.53

Source: Railway Board



# References

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- Aritua, B., Havenga, J., Simpson, Z., and Chiew, E. W. (2018). *Unlocking India's Logistics Potential, The Value of Disaggregated Macroscopic Freight*. World Bank Group
- FICCI and CRISIL. (2021). *Indian Railways 2.0 – Reclaiming pole position in freight transport*
- Gol (1957). *The Freight Structure Enquiry Committee, 1955-57*. New Delhi. Ministry of Railways
- Gol (1957). *The Freight Structure Enquiry Committee, 1955-57*. New Delhi. Ministry of Railways
- Gol (1995). *Public Accounts Committee (1994-95) - Marketing by Indian Railways*. New Delhi. Ministry of Railways. Retrieved from: [https://eparlib.nic.in/bitstream/123456789/4353/1/pac\\_10\\_99\\_1995.pdf](https://eparlib.nic.in/bitstream/123456789/4353/1/pac_10_99_1995.pdf)
- Gol (2009). *Indian Railways Vision 2020*. New Delhi. Ministry of Railways
- Gol (2010). *Freight and Wagon Management on Indian Railways (2009-10)*. New Delhi. Ministry of Railways
- Gol (2020a). *Indian Railways Vision*. New Delhi. Ministry of Railways. Retrieved from: [https://indianrailways.gov.in/railwayboard/uploads/directorate/infra/downloads/VISION\\_2020\\_Eng\\_SUBMITTED\\_TO\\_PARLIAMENT.pdf](https://indianrailways.gov.in/railwayboard/uploads/directorate/infra/downloads/VISION_2020_Eng_SUBMITTED_TO_PARLIAMENT.pdf)
- Gol (2020b). *The National Rail Plan (NRP)- India Draft Final report*. New Delhi. Ministry of Railways
- Gol. (1980). *The Rail Tariff Enquiry Committee, 1977-1980*. New Delhi. Ministry of Railways
- Gol. (1981). *Budget Speech (1981-82)*. New Delhi. Ministry of Railways
- Gol. (1993). *Railway Fare and Freight Committee, 1993*. New Delhi. Ministry of Railways
- Gol. (2001). *Rakesh Mohan Committee, 2001*. New Delhi. Ministry of Railways
- Gol. (2012). *Expert Group for Modernizaion of Indian Railways Sam Pitroda Committee*. New Delhi. Ministry of Railways
- Harris, R. G. (1977). *Economies of Traffic Density in the Rail Freight Industry*. *The Bell Journal of Economics*, 8(2)
- Lutian Li and Jingwei Guo. (2019). *Analysis of the problems in China's railway freight pricing system*. *IOP Conf. Ser.: Mater. Sci. Eng.* 688 022057
- Mohanty, G. (2021). *Iron Ore- The Railway Story*. (S. Mookerjee, Ed.) Kolkata India: Gopal K. Mohanty
- Murray Bruce (2014). *Working Paper No. 1, Russian Railway Reform Programme*. European Bank for Reconstruction and Development
- National Transport Development Policy Committee. (2012). *Working Group on Railways*. Retrieved from: [https://niti.gov.in/planningcommission.gov.in/docs/sectors/NTDPC/Working%20Group%20Reports/Railways/Report%20of%20Working%20Group%20on%20Railways\\_Submitted%20to%20the%20Govt%20on%20Aug%209th%202012.pdf](https://niti.gov.in/planningcommission.gov.in/docs/sectors/NTDPC/Working%20Group%20Reports/Railways/Report%20of%20Working%20Group%20on%20Railways_Submitted%20to%20the%20Govt%20on%20Aug%209th%202012.pdf)
- NITI Aayog, RMI, and RMI India (2021). *Fast Tracking freight in India – A roadmap for clean and cost effective goods transport*
- Paranjape H. K. (1986). *Tariff-Making on the Indian Railways: A Case Study*. *Economic and Political Weekly*, Vol. 21, No. 9
- Rónai Péter. (2003). *Marginal Cost Calculations and Price Discrimination in The Railway Freight Sector*. *Periodica Polytechnica Ser. Transp. Eng.* Vol. 31, No. 1–2
- Sthanunathan V. K. (1986). *Railway Economics*. Chennai, India. S Viswanathan Pvt. Ltd
- The Organization for Economic Cooperation and Development. (2004). *Regulatory Reform of Railways in Russia*. European Conference of Ministers of Transport, OECD
- World Bank (2017). *Railway Reform – Toolkit for improving rail sector performance*

# Annexures

## Annexure A

### Kishanganj, New Delhi: A Case Study

Kishanganj railway station is located at Beri Wala Bagh, Sarai Rohilla, New Delhi, Delhi. This station falls under the authority of Northern Railways (NR). Highest volume of freight originates from Kishanganj under FFS.

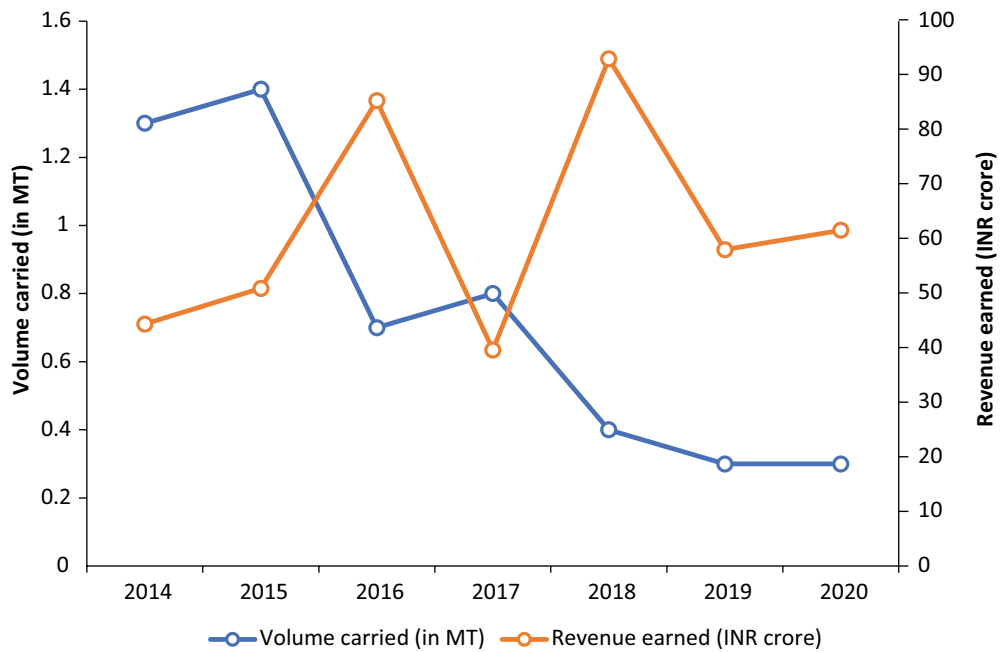


**Figure 43:** Kishanganj railway station, New Delhi  
Source: TERI

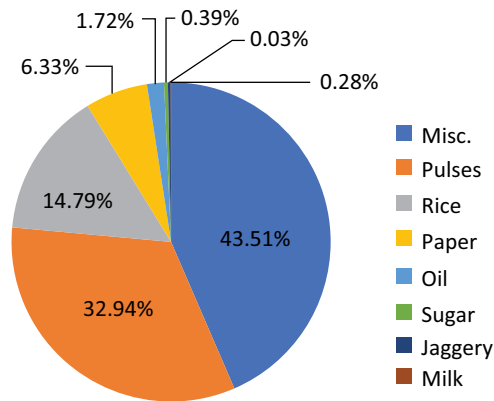
### Current Scenario at Kishanganj

There is a single aggregator that functions as a host from Kishanganj under FFS. Upon interaction, it was found that most traffic comes via road from Lawrence Road (Delhi) and GT Karnal Road. A few major destination points are Azara, Chang Sari, and New Guwahati. On an average, daily volume shipped is 2660 tonnes i.e., 33 wagons which originate from Kishanganj. Due to the nature of the commodity, only covered wagons are used at this location i.e., BCN, BCNHN, and BCNA. Loading of goods takes approximately 18 to 20 hours per rake. Originating terminal charges and terminal access charges are INR 10 lakh per month and INR 53,000, respectively at Kishanganj.

Eight major commodity groups originate from Kishanganj of which pulses and rice account for nearly 48% of the overall share, whereas other miscellaneous commodities such as grocery, cotton, fitkari, edible snacks, etc., account for 43% of the share. The share of commodities for the FY2020-21 is presented in Figure 44.

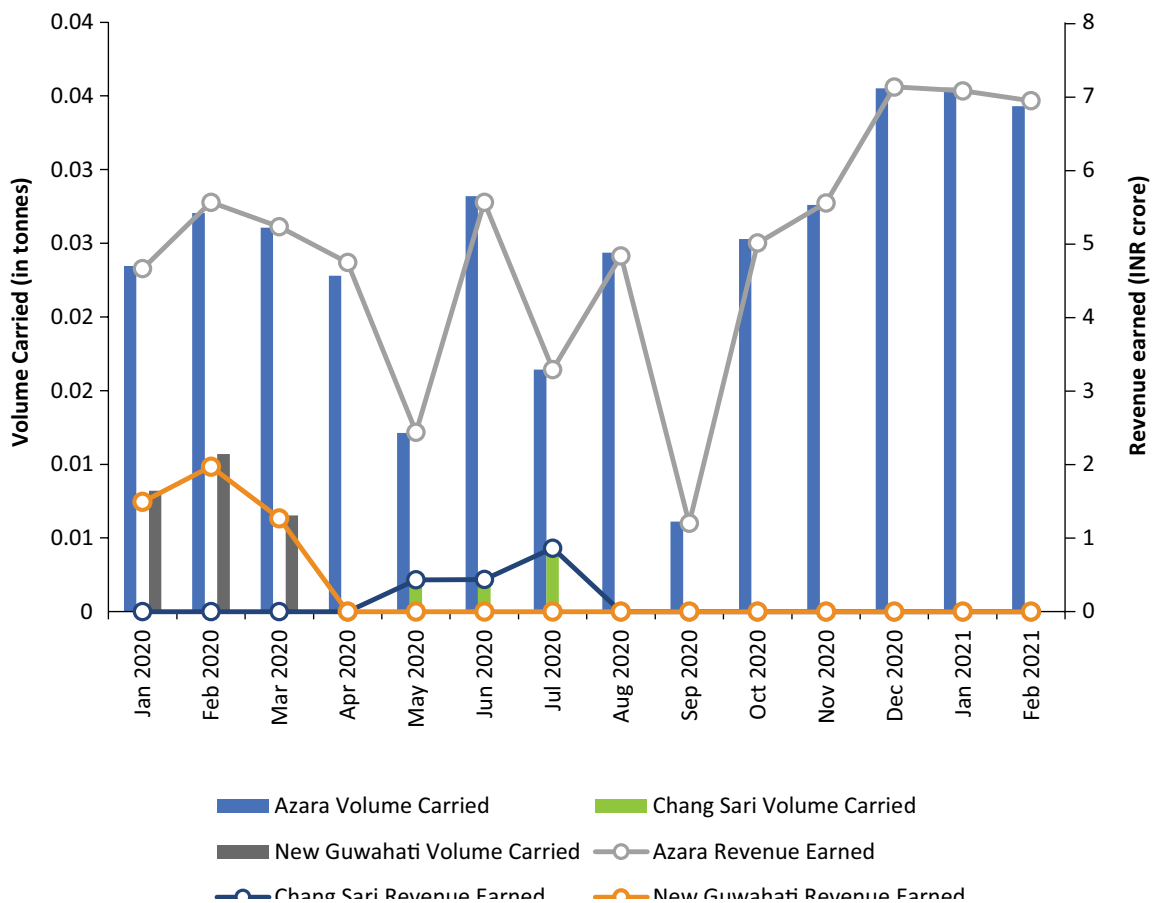


**Figure 44:** Volume carried, and revenue earned - Kishanganj  
 Source: Indian Railways and TERI Analysis



**Figure 45:** Commodity share at Kishanganj (2020-21)  
 Source: India Railways and TERI Analysis

Three major destination points are in North-East Zone, mainly Assam. Figure 46 presents the month-wise volume carried and revenue earned for these destinations. Maximum volume is transported to Azara (Assam), accounting for 0.34 MT, resulting in earning of INR 69 crore in 2020-21, followed by New Guwahati (0.025 MT).



**Figure 46:** Monthly volume carried and revenue earned (2020-21)

Source: Indian Railways and TERI Analysis

### Terminal Facilities at Kishanganj



**Kishanganj railway station – loading/unloading area**



**Loading/unloading area – truck to wagon**



**Doubling locking of the doors to avoid theft and loss**



**Lighting at Kishanganj**



**Trucks parked next to the goods train**

**Labour shed at Kishanganj**

## Terminal-related Issues at Kishanganj

- » Lack of basic amenities such as access to toilets and drinking water
- » Inadequate access roads to the terminals – ultimately increases travel time and delays, causing more damage to the vehicles

## Key Requirements of the Freight Forwarders at Kishanganj

The freight forwarders requires space for stacking of goods particularly at the originating stations depending on the amount of volume handled at that station.

## Annexure B-I

### Case Study: Konkan Railways (KR)

#### *Genesis and Background of Ro-Ro on KR*

In 1999, Ro-Ro was introduced to KR primarily as a dedicated service for a fertilizer industry. It was used to transport chlorine tankers from Mumbai to Goa (for Zuari Agro Chemicals). As a result of which, they were able to generate revenue on routes which had no traffic and spare unutilized capacity. Ro-Ro service completed 81 trips which raised earnings of INR 0.39 crore in 1999.

Eventually, the demand grew on rail owing to high operating cost of the trucking sector and high transit time due to the steep slope/gradient in the region. Consequently, Ro-Ro service was introduced on route from Kolad to Suratkal. Originally, KR had leased DBKM (Military) wagons-dedicated wagons for transporting military trucks, from the IR for the Ro-Ro services. These wagons could load two trucks on a single wagon as the trucking industry then merely had two-axle trucks. Later, DBKM wagons were replaced with BRN wagons. With local modifications, KR was still able to run the Ro-Ro services on these routes.

Also, initially the haulage charges were irrespective of the weight since trucks were two-axled only. However, with the change in the trucking industry and introduction of three-and four-axle trucks, KR also changed their pricing mechanism. They started charging their customers based on three parameters: weight (as trucks became heavier), number of axles loaded per wagon and the change in the diesel prices. Other miscellaneous costs such as driver cost, cost of wagon, marketing charges were also accounted for while offering the prices to the customer.

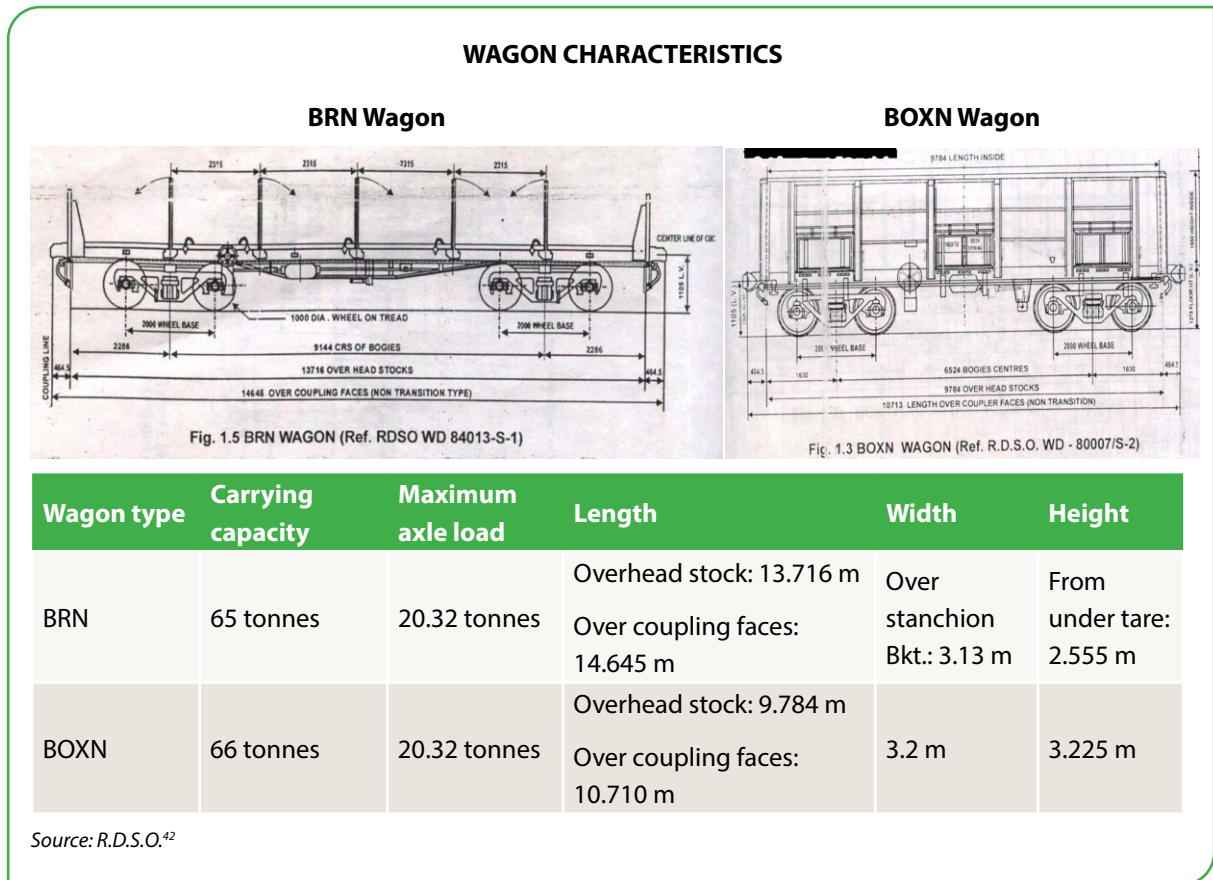
**Operator:** KR had appointed an operator for bringing in the Ro-Ro traffic, however they were not able to meet the fixed traffic requirements as per the contract, which led KR to switch to a retail approach, wherein presently, a marketing agency is responsible for getting in touch with the trucking agencies. All documentation is performed offline at the terminals between the trucking agencies and KR.

**Dynamic pricing mechanism:** While moving from North to South (Kolad to Suratkal), the rates are higher as compared to the rates for South to North with a difference of INR 2000. This is due to lack of traffic demand for moving trucks on rail from South to North which pressurizes the operator to reduce their prices. Also, after the introduction of pricing policy in 2017, prices are reviewed every month.

**Wagons for Ro-Ro operations:** Currently, BRN and BOXN wagons are used for Ro-Ro operations on KR. BRN wagons which have been locally modified by using flap door design and stronger base sheets are used to carry heavier trucks whereas BOXN wagons which have reached its end-of-life are used. They have been modified by removing the sides for easy loading/ unloading and are primarily used for carrying small trucks. IR has

leased nearly 200 wagons to KR as of now. In 2015, KR achieved the best performance with 55,919 trucks being transported with a tonnage of 1.957 million tonnes, raising an earning of INR 73.18 crore.<sup>41</sup> The turnround days for Ro-Ro trains were 2.96 days in 2019-20 as compared to 3.21 days in 2018-19. Since, the introduction of Ro-Ro services in 1999, 6.25 lakh trucks have been transported by KR (Konkan Railway Corporation Ltd, 2019-20).

**Infrastructure:** KR is responsible for provision of terminal facilities:- approach roads, ramps for loading and unloading, and basic amenities including drinking water and toilets at the Ro-Ro terminals, however, the adequacy of these facilities needs to be improved.



### Ro-Ro Circulars

As per KR,<sup>43</sup> Ro-Ro traffic should meet the following requirements:

**Table 24:** Features of Ro-Ro service on KR

Maximum gross weight of the trucks	40 tonnes
Maximum height	3425 mm
Rake composition	3-axle trucks, 4-axle trailer trucks

<sup>41</sup> Details available at: <[https://konkanrailway.com/uploads/editor\\_images/1476789572\\_Optg-Indices.pdf](https://konkanrailway.com/uploads/editor_images/1476789572_Optg-Indices.pdf)>

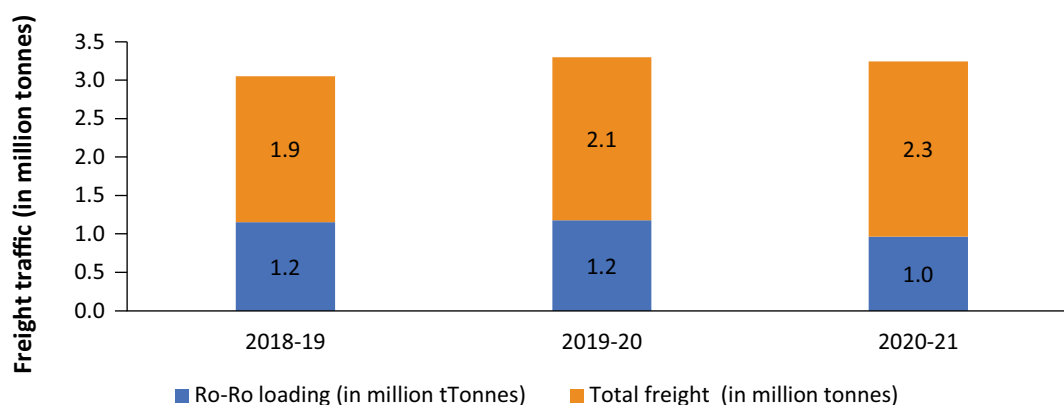
<sup>42</sup> Details available at: <<https://rskr.irimee.in/sites/default/files/TYPES%20OF%20WAGON%20STOCK.pdf>>

<sup>43</sup> Details available at: <[https://konkanrailway.com/uploads/pdfs/rorkfr0200\\_eng.pdf](https://konkanrailway.com/uploads/pdfs/rorkfr0200_eng.pdf)>

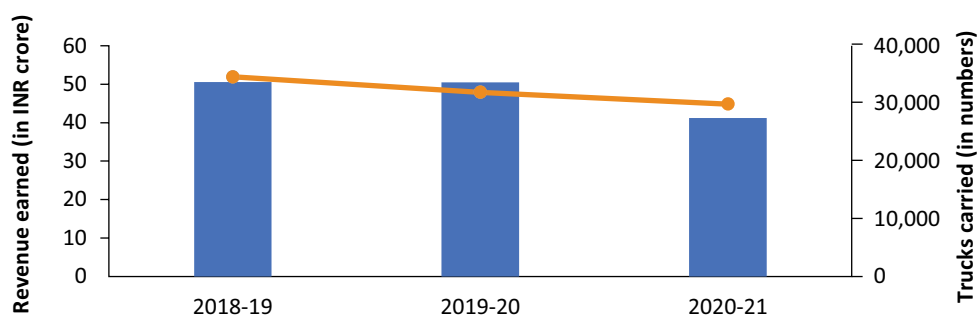
**Table 25:** Freight rates for Ro-Ro service on KR

Route	Freight rate per vehicle (2022)	Additional rate per additional MT
Kolad (Maharashtra) – Suratkal (Mangalore)	INR 17,941 up to 15 MT	16 MT to 25 MT – INR 500 per MT 26 MT to 50 MT – INR 600 per MT
Suratkal – Kolad	INR 15,941 up to 10 MT	11 MT to 15 MT – INR 400 per MT 16 MT to 25 MT – INR 500 per MT 26 MT to 50 MT – INR 600 per MT
Kolad – Verna (Goa) – Kolad	INR 9,947.00 up to 15 MT	16 MT to 50 MT – INR 350 per MT
Suratkal – Verna – Suratkal	INR 7,624.00 up to 15 MT	16 MT to 50 MT – INR 250 per MT

Source: Konkan Railway Ro-Ro Rate Circular<sup>44</sup>

**Figure 47:** Ro-Ro Loading as a part of the total loading on Konkan Railways

Source: Operating Indices – Konkan Railways, 2021

**Figure 48:** Trucks carried and revenue earned under Ro-Ro services on Konkan Railways

Source: Operating Indices – Konkan Railways, 2021

<sup>44</sup> Details available at: <[https://konkanrailway.com/uploads/pdfs/rorkfr0200\\_eng.pdf](https://konkanrailway.com/uploads/pdfs/rorkfr0200_eng.pdf)>



### Issues in KR

Some of the key issues related to KR are:

**Inadequate terminal facilities:** As mentioned earlier in the report, though KR has provided terminal facilities, their adequacy is debatable.

**Lack of funds:** New Ro-Ro wagon prototypes could be explored; however, funding is an issue.

**Movement restrictions:** KR is 100% electrified, therefore, due to presence of overhead electrical wires, wagons can only move a maximum of 50-tonne truck (as compared to a 60-tonne truck on DFC). This becomes a lost opportunity in terms of carrying more tonnage and generating additional revenue.

## Annexure B-II

### Ro-Ro Service on Dedicated Freight Corridor: Case Study

As per the rates circular 2021 issued by IR,<sup>45</sup> the features of the Ro-Ro services on DFC have been stated below.

#### Objective

It aims at reducing the transportation cost of rail owing to higher axle load, speedier transport, and long-haul trains, thus reducing the time taken by trucks.

#### Salient Features

- » **Charges:** Freight charges to be paid by the licensee once the rakes are available.
- » **Cancellation:** In case of non-loading, cancellation or loading beyond 19 hours, penalty of amount equal to one trip must be paid by the licensee.
- » **Facilities to be provided by DFCCIL:**
  1. Dedicated loop line for handling rakes
  2. Entry/ exit ramps
  3. Pedestrian pathway along the rail track
  4. Lighting in traffic yard
  5. Connectivity from traffic yard to a motorable road (approach road)
- » Facilities to be provided by the licensee:
  1. Road weighbridge
  2. Toolrooms, storehouse
  3. Basic truck repair facilities
  4. Air filling stations
  5. Washrooms for drivers, and attendants
- » **E-demand** for 100 rakes, 50 in each direction should be placed by the licence on FOIS.
- » Freight would be charged on a prepaid basis, for actual number of wagons supplied.
- » No guarantee of wagon supply by DFCCIL.
- » **Demurrage:** If the cumulative monthly excess hours of rake detention reach 16 hours beyond the free

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<sup>45</sup> Details available at: <[https://indianrailways.gov.in/railwayboard/uploads/directorate/traffic\\_comm/Rates-Letters/2021/Ro-Ro-Service-150121.pdf](https://indianrailways.gov.in/railwayboard/uploads/directorate/traffic_comm/Rates-Letters/2021/Ro-Ro-Service-150121.pdf)>

loading/unloading time, a penalty equivalent to one single trip will be charged.

» **Operational specifications**

Wagon type used	BRN wagon
Height of wagon	Double stack (WC) = 7.1 m Single stack (EC) = 5.1 m
Reserve price for single trip per rake	INR 900,000/- payable by the licensee
Minimum contract value	INR 810,000,000/- payable by the licensee
Transit time for one way movement:	10 hours
Loading/unloading time for one rake of 45 BRNs	6 hours

## Route Analysis: New Rewari to New Palanpur

**Table 26:** Operational characteristics of Ro-Ro service on DFC

Particulars	Details	Unit
<b>Operational Indices</b>		
Route	New Rewari (Haryana) to New Palanpur (Gujarat)	-
Date of commencement	12 <sup>th</sup> August 2021	-
Distance	637	Kilometre
No. of rakes loaded since initiation of the project	220	Rake
Average no. of wagons per rake	21	Wagon
Average tonnage carried per trip	643	Tonne
Average earnings per rake	11.76	Lakh
Major commodities carried	<b>Rewari to Palanpur:</b> rice, sugar, ply DOC, coil <b>Palanpur to Rewari:</b> coal, wood, salt, PVC, wood, ply, tiles	-
<b>Savings</b>		
Road distance between Rewari and Palanpur	712	Kilometre
Total truck km saved since initiation	3,223,224	Kilometre
Fuel consumption of trucks	0.3	Litre / Kilometre
Total diesel saved since initiation	966,967	Litre
Emission factor (diesel)	2.644	kg CO <sub>2</sub> / Litre
Total emission savings till date	2,557,048	kg CO <sub>2</sub>
	2,557	tCO <sub>2</sub>

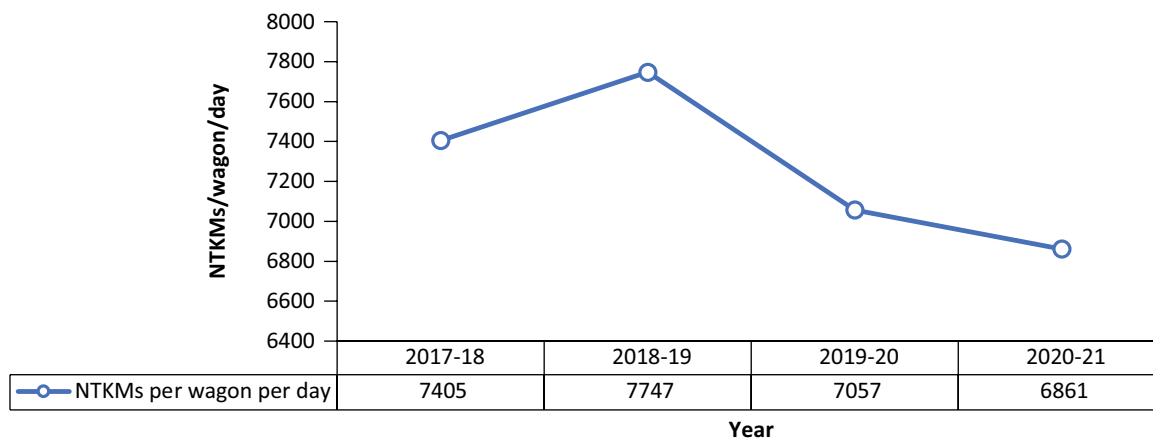
Source: Primary Survey

<sup>44</sup> Details available at: <[https://konkanrailway.com/uploads/pdfs/rorkfr0200\\_eng.pdf](https://konkanrailway.com/uploads/pdfs/rorkfr0200_eng.pdf)>

## Annexure C

### Case Studies: Automobile Freight Operators

Many automobile manufacturers in India have realized that trucks are not the most energy and time efficient mode to carry automobiles. Therefore, many companies have joined hands with railways to transport their automobile traffic from manufacturing point to the marketing area. Detailed analysis for three operators – APL Logistics Vascor, Maruti Suzuki and Adani NYK Auto Logistics have been presented below. There are five components which determine the transportation cost: handling at either end including the cost of storage, first/last-mile connectivity cost and haulage charges, impact cost, transit time and safety. The transit time not only impacts the customer satisfaction but also the utilization of assets. The total transport cost by rail often makes it uncompetitive vis-à-vis the road. Even the slight increase in the transport cost may lead to diversion of traffic from rail to road. Furthermore, the transit times by road have been improving significantly on account of construction of highways and expressways, whereas the transit time and overall asset utilization by railways has been on a decline as depicted in Figure 49.



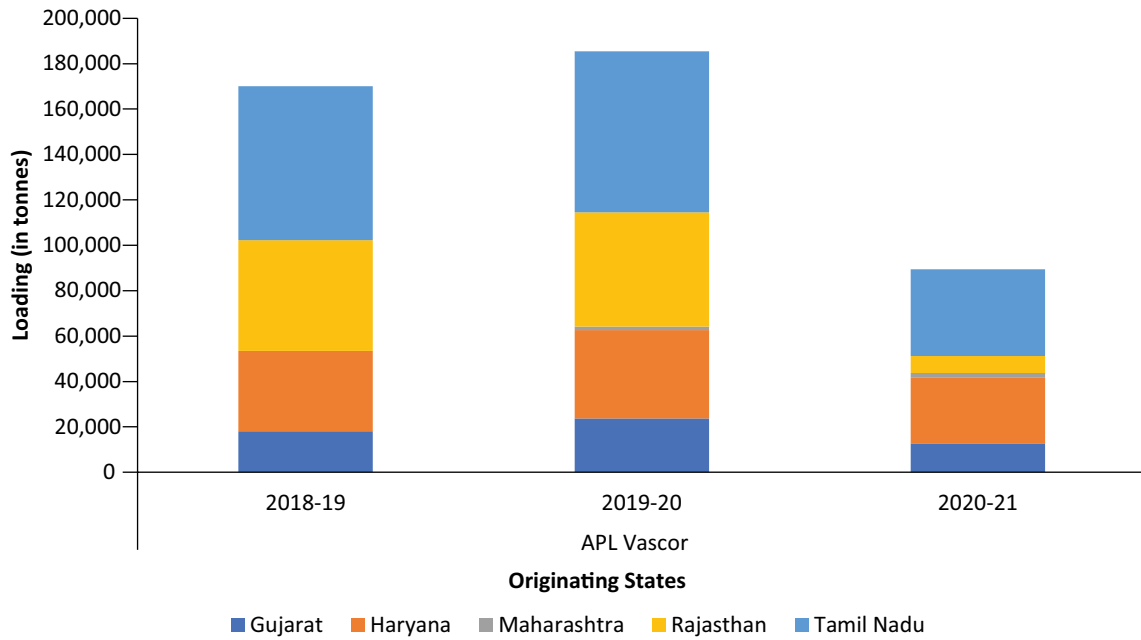
**Figure 49:** Asset utilization of wagons in terms of NTKMs/wagon/day  
 Source: Indian Railways Annual Report & Accounts (2017-21)

### Logistics Vascor

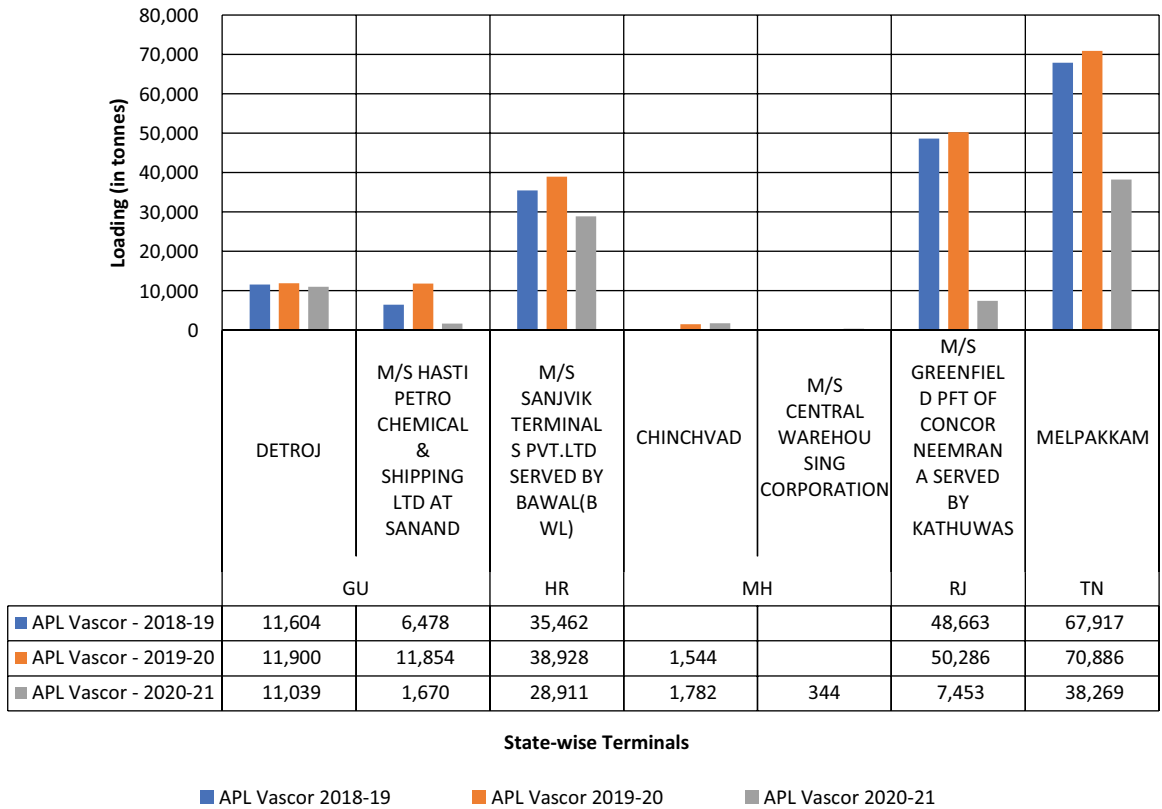
APL Logistics Vascor has been associated with the AFTO policy since the beginning. They commenced their operations on 4<sup>th</sup> September 2014 between Melpakkam and Kathuwas. They have been able to procure a large number of BCACBM rakes; 22 out of 43 rakes under this policy of which 18 are owned and 4 are on a long-term lease.

The overall loading of automobile on railways has reduced (Figure 50) mainly due to the COVID-19 pandemic; because of decline in the manufacturing output as well as shortage of semi-conductor/chips. Key production centres for APL Vascor are in Gujarat, Haryana, Maharashtra, Rajasthan, and Tamil Nadu. Figure 51 presents the terminal-wise loading in the mentioned states. Maximum freight is loaded from Melpakkam in Tamil Nadu, one of the key terminals for all automobile players. The manufacturing plants are located at an average distance of 30-100 km from the automobile rail terminal.

As per the AFTO policy, line for auto rake handling, staging yard, carrier loading area, approach road, etc., are required at the terminal. APL Vascor has developed terminal facilities at various locations including Melpakkam (outside the railway boundary, near the handling lines), Bawal (Private Freight Terminal), Changsari (outside



**Figure 50:** APL Logistics Vascor: loading (in tonnes) from 2018-2021  
Source: Indian Railways



**Figure 51:** APL Logistics Vascor: terminal-wise loading  
Source: Indian Railways

the railway boundary), and Chharodi (outside the railway boundary, near the handling lines). Key terminal facilities developed by APL Vascor include paved area, delineated parking slots, wall with concertina fencing, CCTV cameras, security, office complex, resting area for drivers etc.

A challenging aspect is the access of the car carrier trailers into the terminals. A typical height gauge on roads is 4.67 m whereas the height of a typical car carrier is 4.75 m (as per Central Motor Vehicles Rules). This poses as an issue for the driver while entering the terminal.

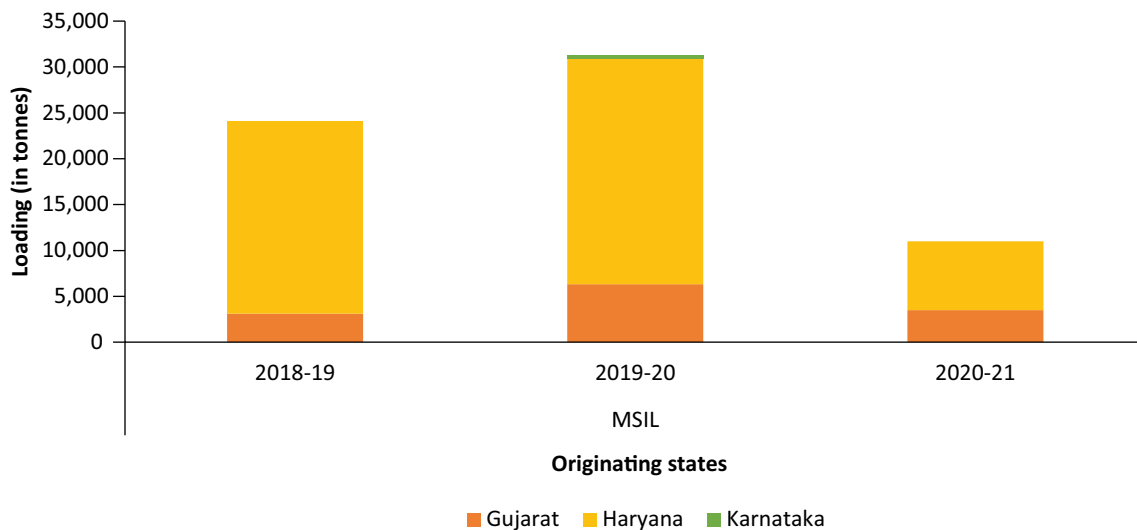
Further, based on the primary surveys with the stakeholder, it was found that due to lack of security during transit between two rail terminals (main haul trip), vandalism and theft is a frequent occurrence. Apart from the locking system provided by the railway, improved locks have been developed to enhance the security of APL Vascor rakes in transit. Regular monitoring is also done through GPS for all the enroute rakes.

One of the key concerns was the lack of guaranteed transit time under the AFTO Policy. APL Vascor has been able to determine the transit time from the factory to dealership, keeping in view the average speed of the rake. Delay in transit attracts penalty on the AFTO from the OEM, which is on a per vehicle per day basis. There is a need of scheduled time-tabled trains, (like the movement of containers), that should be published and adhered to. Secondly, automobile traffic is aggregated by the AFTO at the terminals, however, sudden imposition of restrictions on automobile movement by the railways leads to delay in delivery and imposition of penalty on the AFTO by the OEMs. Railways could explore the potential of exempting this traffic from operational restrictions.

### Maruti Suzuki

Maruti Suzuki was the first automobile manufacturer to obtain an AFTO license in 2013. To promote greener transportation and sustainable development, Maruti Suzuki became an example for other operators to move vehicles via railways. Over the last eight years, their automobile transportation via rail has gone up from 5% to 14.6% in 2022, an increase of 192%.

They have transported about a million vehicles, saved over 4800 million tonnes of CO<sub>2</sub> in the last eight years and were able to avoid 1,56,000 truck trips.

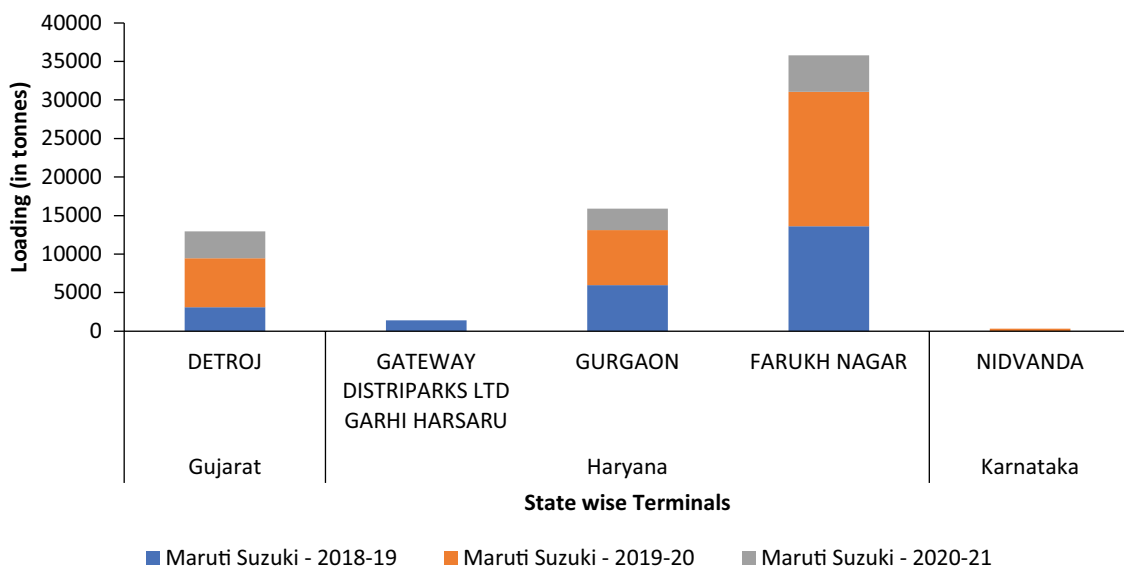


**Figure 52:** Maruti Suzuki: loading (in tonnes) from 2018-21  
Source: Indian Railways

Key production centres for Maruti Suzuki are Gujarat, Haryana, and Karnataka, of which maximum freight originates from Farukh Nagar, Haryana.

Certain facilities at the terminals include paved area for loading and unloading, fencing around the facility, lighting, ramps, etc. The railway terminals are located at an average distance of 8 to 100 km from the warehouses. Nidvanda has become a choke point due to a single unloading ramp which causes a delay of 2 to 3 days in operations.

Certain key concerns were the stabling charges borne by the operator on account of parking of additional spare wagons. These charges are paid to the railways due to lack of parking space. Secondly, the registration fee for the new operators has been waived off completely, which is not fair for the operators who had signed the contract initially. Lack of time-tabled trains usually results in loss of sales as automobile is a high-value perishable commodity. If the delivery is not timely, the order perishes.



**Figure 53:** Maruti Suzuki: terminal-wise loading

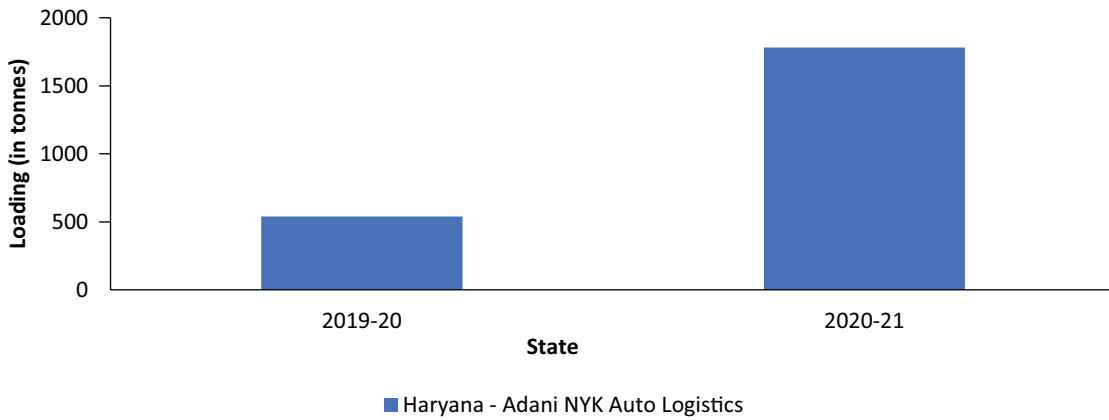
Source: Indian Railways

## Adani NYK Auto Logistics

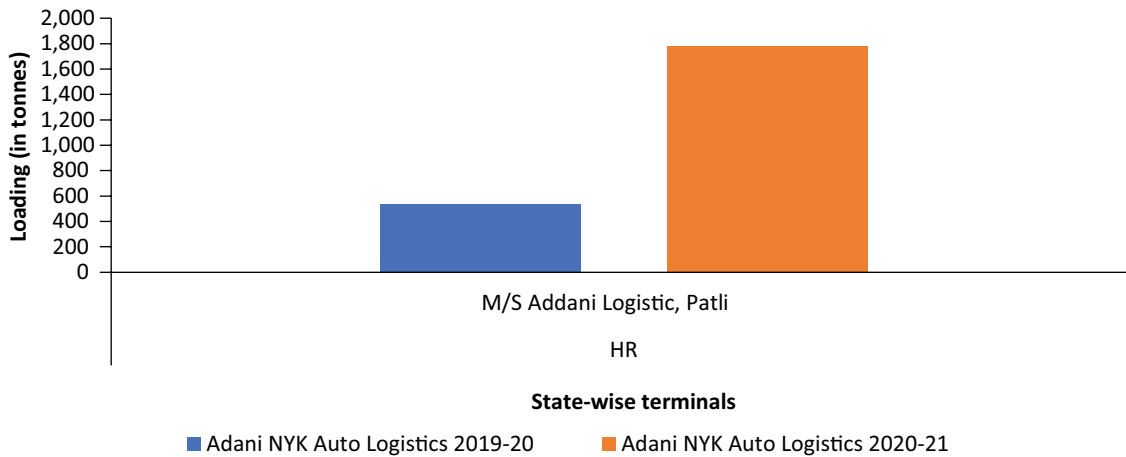
Adani started AFTO operations in December 2019, though the operations had stopped for a period of 18 months due to the COVID-19 pandemic. There is currently one OEM responsible for operations between one OD pair, Patli to Nidvanda. There are 3 BCACBM rakes in operation with 81 operational wagons and 4 spare wagons.

The key state serving as the main production point for Adani NYK Auto Logistics is Patli, Haryana. The terminals are equipped with various facilities such as a parking space for 700 cars which can be further expanded to accommodate nearly 2000 cars, trained workforce at the stockyard, warehousing facilities, etc. NYK serves as a first and last mile truck operator to transport automobile to and from the terminal.

Since the operator has their own terminals to park their wagons, space is not a constraint. However, a major concern is the TXR examination of wagons for which they are to be sent over long distances from the parking



**Figure 54:** Adani NYK Logistics: loading (in tonnes) from 2019 to 2021  
 Source: Indian Railways



**Figure 55:** Adani NYK Logistics: terminal-wise loading  
 Source: Indian Railways

area, much before they have completed 7500 km. Further, the delay caused due to examination leads to decrease in the number of trips.

## Annexure D

### Case Study: M/S Central Warehousing Corporation MILK

MILK siding falls under the Central Railway zone. It is in the Raigad district, Maharashtra. The siding majorly deals with the cement and fertilizer traffic, which are bagged commodities and manual unloading takes place.

Majority of the un-waived demurrage are of milk siding. Therefore, the operator had to pay the penalty. Some of the reasons for provision of no waiver given to freight customer were as follows:

1. The concept of hooks is utilized all over IR, thus, it is not a new model and should not be a reason for delayed unloading.
2. Rainy season should not be a reason for delay and should be accepted by the party as a crisis during unloading.

**Table 27:** Demurrage charges at MILK Siding (April 2021 – March 2022)

Month	Accrued	Cleared	Waived
Apr-21	32,400	0	0
May-21	0	0	0
Jun-21	0	0	0
Jul-21	214,200	0	0
Aug-21	75,600	33,075	0
Sep-21	272,100	36,150	14,175
Oct-21	499,650	225,945	0
Nov-21	354,600	272,970	65,205
Dec-21	0	42,750	3,780
Jan-22	33,000	517,801	0
Feb-22	0	0	211,499
Mar-22	0	12,600	12,600
<b>Total</b>	<b>1,481,550</b>	<b>1,141,291</b>	<b>307,259</b>

Source: Primary Survey

- Insufficient illumination at the PFT will be informed to the manager.
- Though labours work only during day-time, the terminal/siding may be operational round-the clock, and the party must follow railway rules and regulations.
- It is the responsibility of the handler to shut all doors one by one, as the unloading completes in each wagon.
- Issues such as waterlogging, availability of roof/shed should be brought to the manager's notice to provide better amenities.

Further, a comparison between the average unloading time and maximum permissible free time has been made for various commodities at different terminals.

**Table 28:** Average unloading time vs maximum permissible free time

Farrukhabad			
Commodity	Average unloading time	Wagon type	Maximum permissible free time (hours)
Cement	14:24:26	Covered	09:00:00
Fertilizer	16:23:00	Covered	09:00:00
Imported fertilizer	16:50:50	Covered	09:00:00
Imported muriate of potash	21:00:00	Covered	09:00:00
NPK fertilizer	15:02:30	Covered	09:00:00
Rice	16:45:00	Covered	09:00:00
Salt	02:00:00	Covered	09:00:00



<b>Farrukhabad</b>			
<b>Commodity</b>	<b>Average unloading time</b>	<b>Wagon type</b>	<b>Maximum permissible free time (hours)</b>
Wheat	06:40:00	Covered	09:00:00
<b>Tiruppur</b>			
Maize	18:13:38	Covered	09:00:00
Bajra	14:29:35	Covered	09:00:00
Wheat	11:42:09	Covered	09:00:00
Boiled rice	17:42:51	Covered	09:00:00
Food grain	09:17:00	Covered	09:00:00
Rice	15:59:00	Covered	09:00:00
De oiled cakes	08:36:40	Covered	09:00:00
Cement	11:02:30	Covered	09:00:00
Paddy	07:40:00	Covered	09:00:00
<b>Tapasi</b>			
Dolomite ores	08:00:00	Open	09:00:00
Iron ore	11:47:49	Open	09:00:00
public coal	09:48:30	Open	09:00:00
Imported coal	09:00:00	Open	09:00:00
Manganese ore	07:00:00	Covered	09:00:00

Source: TERI Analysis

For most commodities, the permissible free time for unloading the goods is not sufficient. A definite analysis should be conducted by the railways to identify and assess the actual on-ground time required by various commodities for loading and unloading activities.







This report is part of a larger study 'Strategies to Increase Railway's Share in Freight Transportation in India'. The study has identified and discussed three key aspects concerning the growth of the freight business: Terminal Development and Operations, Freight Marketing Policies, and Rail Freight Tariff Policies.

Rest of the reports, policy briefs, and opinion pieces can be accessed using the given link/QR code: <https://www.teriin.org/project/strategies-increase-railways-share-freight-transportation>



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