

STATE OF INDIAN RAILWAYS

Prachee Mishra

September 2018



Business as usual may be an unsustainable prospect for Railways

Railways finances and infrastructure investment are stuck in a vicious cycle

In addition, the organisational structure of Railways needs an overhaul

INSIGHTS

Business as usual may be an unsustainable prospect for Railways

Railways' operating ratio has consistently been higher than 90% in the past several years, which indicates that its capability to generate operational surplus is low. Further, its expenditure on staff and pension has been increasing. Consequently, capacity growth is increasingly being funded through borrowings. However, an increased reliance on borrowings may further worsen the financial situation of Railways.

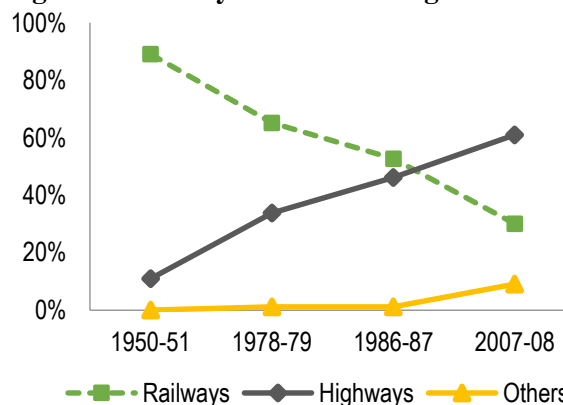
Improving operational surplus through fare hikes will be difficult for Railways because:

(i) Railways' freight rates are already higher than other modes of transport for several commodities. Consequently, it has been losing out on the FMCG and automobile markets (which are preferring roads). The share of Railways in total freight traffic has declined from 89% in 1950-51 to 30% in 2011-12. Further, the freight basket is limited to certain bulk commodities, and heavy dependence on coal transport poses a risk to the business.

(ii) Upper class fares face competition from low cost airlines and AC bus fares. Any further increase in upper class fares means Railways will lose traffic to other modes of travel, which are either faster or provide better last mile connectivity.

(iii) Second class passenger traffic which contributes to 67% of the total passenger revenue, continues to be cheaper than both road and air travel. However, it may be difficult to increase fares as these services are used by the relatively poorer section of society. The passenger business made losses of about Rs 33,000 crore in 2014-15, which are classified as social service obligations. The question is who should bear this subsidy – Railways, or the central government; or in case of suburban rail - the state or the local government.

Figure 1: Railways has been losing traffic share



Potential ways out from the current scenario could be to invest in: (i) Dedicated Freight Corridors that could bring back freight traffic, and (ii) high speed trains which could help improve passenger revenue. These services could be priced higher side than other modes of travel, but they would provide superior services. The challenge would be to make these services cost effective for the users.

Railways finances and infrastructure investment are stuck in a vicious cycle

Poor finances of Railways had led to low investment in infrastructure. Low investment means Railways' infrastructure and services take a hit (resulting in low speed, delays, and safety issues). Poor infrastructure and services result in loss of remunerative business for Railways which leads to further deterioration of finances. This has become a vicious cycle for Railways.

The rail network currently faces huge capacity constraints, and the high density network (network that connects metros) has already reached saturation. With high levels of capacity utilisation, and the introduction of new trains, trains tend to slow down, and affect the quality of services.

In addition, the organisational structure of Railways needs an overhaul

The organisational structure of Railways needs an overhaul to create a structure that is more conducive for nimble decision making, and is more accountable. Currently, decision making in Railways is centralised. The Railway Board has the powers of policy making, operations, and regulation. Railway zones have very limited powers with regard to raising their own revenue. Therefore, they are unable to contribute more effectively towards improving Railways' revenue. Further, apart from its core function of running trains, Railways also engages in peripheral activities such as running schools, and hospitals, staff housing, catering, and security.

INTRODUCTION

Indian Railways has the fourth largest rail network in the world after the United States, China and Russia.¹ The entire infrastructure is managed by the Railways Board, and it has a monopoly in providing rail services in India.

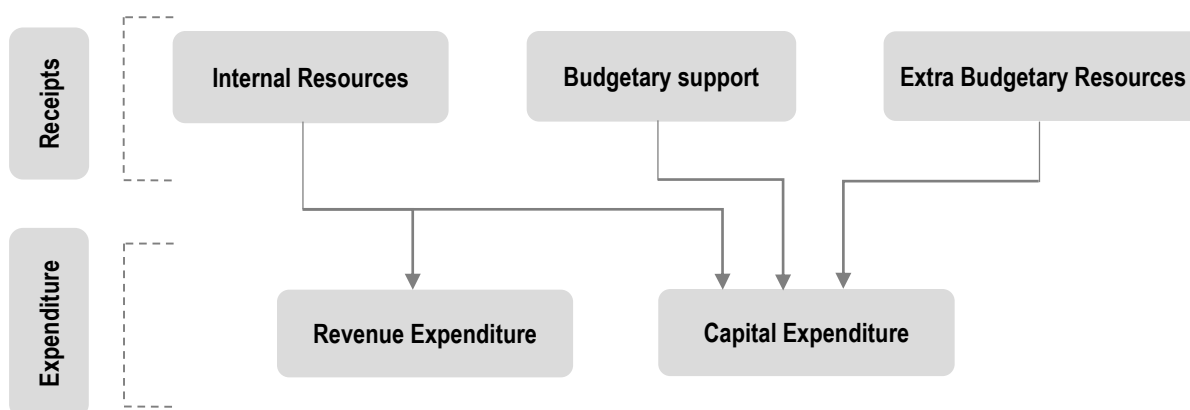
However, in the last few decades, traffic has been moving to other transport modes such as roads and air, which has led to declining rail traffic, and consequently declining revenue generation for the Railways. Deteriorating finances of the Railways have translated into lower investment in infrastructure, poor infrastructure maintenance, and poor services. Poor infrastructure has also had serious implications in the form of train accidents.

Several questions have also been raised about the efficiency of the Railways in terms of the human resources it employs, and their capacity. Further, the decision making in Indian Railways has been mostly centralised, with the zones and divisions not having much financial autonomy.

Recently, the Comptroller and Auditor General of India conducted a compliance audit for the year 2016-17, which has been tabled in Parliament. In this context, the note looks at the Railways' finances and challenges to financing, the Railways' infrastructure, and the current organisational structure of the Railways and the reforms suggested to restructure it.

RAILWAYS' FINANCES

Indian Railways is financed through: (i) its own internal resources (freight and passenger revenue, and leasing of railway land), (ii) budgetary support from the central government, and (iii) extra budgetary resources (primarily borrowings but also includes institutional financing, public private partnerships, and foreign direct investment).² Railways' working expenses (salaries, staff amenities, pension, asset maintenance) are met through its internal resources. Capital expenditure (procurement of wagons, station redevelopment) is financed through extra budgetary resources (58%), the budgetary support from central government (33%), and Railways' own internal resources (9%) (for the year 2018).



In the last few years, the growth of Railways' transportation business has been declining, and consequently, its ability to generate its own revenue has been on a decline. On the other hand, Railways' expenditure on salaries has been gradually increasing with a significant jump every few years due to Pay Commission revisions. There is an increasing expenditure on pension too, which is unproductive, as this does not generate any revenue for the Railways. The pension bill may increase further in the next few years, as about 40% of the Railways staff was above the age of 50 years in 2016-17.³ However, employees who joined since January 2004 are part of the contributing benefit scheme under the National Pension Scheme. The pension bill will start tapering off once these persons start retiring around 2040.

A decline in the growth of internal revenue generation has meant that Railways has been funding its capital expenditure through budgetary support from the central government and borrowings. While the support from central government has mostly remained consistent, Railways' borrowings have

been increasing. An increased reliance on borrowings could further exacerbate the financial situation of Railways.^{4,5} In the following section we discuss each of these financial components.

Table 1: Overview of Railways' finances (in Rs crore)

		2012-13	2013-14	2014-15	2015-16	2016-17	2017-18 RE	2018-19 BE
	<u>Receipts</u>							
1	Internal Resources	126,180	143,214	161,017	168,380	165,382	187,425	201,090
2	Budgetary Support	24,132	27,033	30,121	37,609	45,232	40,000	53,060
3	Extra Budgetary Resources	15,142	15,085	11,044	39,066	52,579	69,100	81,940
4	Total Receipts (=1+2+3)	165,454	185,332	202,182	245,055	263,193	296,525	336,090
	<u>Expenditure</u>							
5	Total Revenue Expenditure	117,914	139,473	153,352	157,874	160,469	181,000	188,100
6	Total Capital Expenditure	50,383	53,782	58,718	93,520	109,934	120,000	146,500
7	Total Expenditure (=5+6)	168,297	193,255	212,070	251,394	270,404	301,000	334,600
8	Operating Ratio	90.2%	93.6%	91.3%	90.5%	96.5%	96%	92.8%

Note: RE is revised estimates, BE is budget estimates.

Sources: Railways budget documents; PRS.

Railways: Sources of revenue

Internal Resources

Railways earns its internal revenue primarily from passenger and freight traffic. In 2016-17 (latest actuals), freight and passenger traffic contributed to about 63% and 28% of the internal revenue respectively. In 2018-19, Railways expects to earn 61% of its internal revenue from freight and 26% from passenger traffic. The remaining 13% will be earned from other miscellaneous sources such as parcel service, coaching receipts, and platform tickets.

Table 2: Railways: sources of internal revenue (in Rs crore)

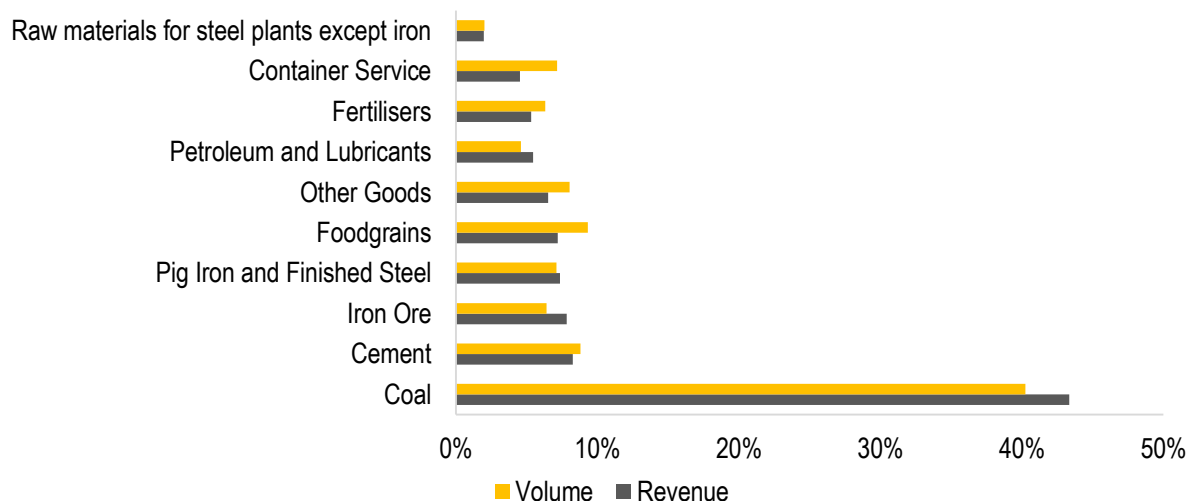
		2012-13	2013-14	2014-15	2015-16	2016-17	2017-18 RE	2018-19 BE
1	Gross traffic receipts (=2+3+4)	123,733	139,558	156,711	164,334	165,292	187,225	200,840
2	Freight revenue	85,263	93,906	105,791	109,208	104,339	117,500	121,950
3	Passenger revenue	31,323	36,632	42,190	44,283	46,280	50,125	52,000
4	Other traffic sources	7,147	9,020	8,730	10,843	14,673	19,600	26,890
5	Miscellaneous receipts	2,448	3,656	4,307	4,046	90	200	250
6	Internal Revenue (=1+5)	126,180	143,214	161,017	168,380	165,382	187,425	201,090

Note: RE is revised estimates, BE is budget estimates. Till 2015-16, miscellaneous receipts included a component on subsidy from general revenues towards dividend relief and other concessions.

Sources: Railways budget documents; PRS.

Freight traffic: Railways generates most of its freight revenue from the transportation of coal (43%), followed by cement (8%), food-grains (7%), and iron and steel (7%) (see Figure 2). It mostly transports bulk freight, and the freight basket has mostly been limited to include raw materials for certain industries such as power plants, and the iron and steel plants. In 2018-19, Railways expects to earn Rs 1,21,950 crore from goods traffic.

Figure 2: Share of freight volume and revenue in 2016-17 (in %)



Sources: Statement of Revenue Receipts and Expenditure 2018-19, Ministry of Railways; PRS.

Passenger traffic: Passenger traffic is broadly divided into two categories: suburban and non-suburban traffic. Suburban trains are passenger trains that cover short distances of up to 150 km, and help move passengers within cities and suburbs. Majority of the passenger revenue (94% in 2017-18) comes from the non-suburban traffic (or the long-distance trains).

Within non-suburban traffic, second class (includes sleeper class) contributes to 67% of the non-suburban revenue. AC class (includes AC 3-tier, AC Chair Car and AC sleeper) contributes to 32% of the non-suburban revenue. The remaining 1% comes from AC First Class (includes Executive class and First Class).

Flexi-fare system: Over the years, passenger traffic and consequently passenger revenue have been on a slow decline. In order to rationalise fares, and improve passenger revenue, in September 2016, the Ministry of Railways introduced a flexi-fare system for first and AC class passenger traffic in Shatabdi, Rajdhani and Duronto trains.⁶ The Comptroller and Auditor General of India (CAG) (2018) notes that this system was introduced irrespective of the demand and occupancy of these trains and classes.⁷ The system resulted in a decrease in occupancy in almost all the classes. The CAG also noted that the classes where flexi-fare was introduced, the occupancy was already low. Further, in AC 3-tier (one of the most profitable classes), the vacancy in berths increased from 0.66% to 4.46% post implementing the flexi-fare system.⁷ However, while the number of passengers carried declined by 2.65% post implementation of flexi-fares, the revenue increased marginally by Rs 552 crore.⁷

The CAG also noted a change in passenger preferences. Passengers preferred traveling by mail or express trains that were cheaper, over the Rajdhani/ Shatabdi/ Duronto trains, despite higher travel time. Passengers expected better quality of services commensurate with the enhanced fares.

Budgetary support from central government

The central government supports Railways in order to expand its network and invest in capital expenditure. Until recently, this budgetary support from the central government used to be the primary source of funds for capital expenditure for Railways (51% in 2014-15). However, post 2015-16, over 56% of the capital expenditure is being met through borrowings, and external investments.

In 2018-19, the gross budgetary support from central government, towards capital expenditure, is proposed at Rs 53,060 crore. The central government also reimburses Railways for the operating losses made on strategic lines, and for the operational cost of e-ticketing to IRCTC (Rs 2,028 crore in 2018-19).

Extra Budgetary Resources (EBR)

Extra Budgetary Resources (EBR) include market borrowings such as financing from banks, institutional financing, and external investments. External investments in Indian Railways could be in the form of public private partnerships (PPPs), joint ventures, or market financing by attracting

private investors to potentially buy bonds or equity shares in Railways. Railways mostly borrows funds through the Indian Railways Finance Corporation (IRFC). IRFC borrows funds from the market (through taxable and tax-free bond issuances, term loans from banks and financial institutions), and then follows a leasing model to finance the rolling stock assets and project assets of Indian Railways.

In the past few years, borrowings have increased sharply to bridge the gap between the available resources and expenditure. As mentioned earlier, majority of the Railways' capital expenditure was met from the budgetary support from central government. In 2015-16, this trend changed with majority of Railways' capital expenditure being met through EBR. In 2018-19, Rs 81,940 crore is estimated to be raised through EBR.

Other sources of revenue for Railways

Public Private Partnerships (PPPs): In the last few Budgets, the Railways Ministry has announced generating revenue through PPPs. However, the Ministry has not been able to generate much revenue through this stream. While there are a few private freight train operators, they are limited due to a lack of clear regulatory frameworks.

The Kelkar Committee on Revising the PPP model, in 2015, had recommended that relatively simpler PPP projects can be commenced in Railways to build market credibility initially.⁸ Projects could include redevelopment of existing assets, development of new stations, or maintenance and development of tracks. However, better implementation of such PPP projects would require the presence of an independent regulator in the sector. In May 2017, the Ministry of Railways set up the Rail Development Authority, with the approval of the Union Cabinet, through a notification.

Joint Ventures (JVs): JVs in Railways include JVs between the Ministry of Railways and (i) state governments for suburban Railways (e.g., Mumbai Railway Vikas Corporation Limited is a JV between Ministry of Railways and government of Maharashtra); (ii) state governments for local Railways (e.g., Hassan Mangalore Railway Corporation is a JV between the Ministry and government of Karnataka); and (iii) local companies (e.g., between South Eastern Coalfields, government of Chhattisgarh, and Railways Ministry).

In December 2015, Cabinet approved the formation of joint ventures between Ministry of Railways and state governments for rail infrastructure projects.⁹ This was to ensure (i) greater participation by states in the decision making process for railway projects, and (ii) speeding up of the process of getting approvals for such projects. The initial paid up capital of the Ministry of Railways for each state was to be limited to Rs 50 crore.

Use of assets: Railways also generates some resources by leveraging its assets such as selling right-of-way, and commercial development of real estate. For example, RailTel sells the optic fibre cable running along railway right-of-way to telecom companies. Railways has also generated resources by auctioning off land in Mumbai.

Foreign Direct Investment (FDI): The central government allowed FDI in Railways in select activities in August 2014.¹⁰ Earlier, FDI was prohibited in all Railways transport except mass rapid transit. This has been changed to allow 100% FDI in activities such as: (i) suburban corridor projects through Public Private Partnerships; (ii) high speed train projects; (iii) dedicated freight lines; (iv) rolling stock; (v) passenger terminals; (vi) mass rapid transit systems, etc. Between April 2014 and December 2017, Railways has seen an FDI equity inflow of USD 389.83 million.¹¹

Railways Expenditure

In 2018-19, Indian Railways plans to spend most of its working expenses on staff (41%) and pension (25%), followed by fuel (16%). Most of the remaining expenditure is towards the depreciation and safety funds. In 2018-19, the total revenue expenditure is estimated at Rs 1,88,100 crore.

Staff wages and pension

Staff wages and pension together comprise nearly two-thirds of Railways expenditure. As on March 31, 2017, Railways had around 13 lakh employees.¹²

For 2018-19, the expenditure on staff is estimated at Rs 76,452 crore, and allocation to the Pension Fund is estimated at Rs 47,600 crore. Together, these constitute about 66% of the Railways' estimated expenditure in 2018-19.

Table 3: Railways' expenditure (in Rs crore)

	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18 RE	2018-19 BE
1 Total Revenue Expenditure (=2+6+7)	117,914	139,473	153,352	157,874	160,469	181,000	188,100
2 Total working expenses (=3+4+5)	111,572	130,321	142,996	147,836	159,030	179,300	186,000
3 Ordinary Working Expenses	84,012	97,571	105,996	107,736	118,830	130,200	138,000
4 Appropriation to Pension Fund	20,710	24,850	29,225	34,500	35,000	44,100	47,500
5 Appropriation to Depreciation Reserve Fund	6,850	7,900	7,775	5,600	5,200	5,000	500
6 Miscellaneous expenditure	993	1,144	1,183	1,315	1,440	1,700	2,100
7 Dividend payable to central government	5,349	8,009	9,174	8,723	-	-	-
8 Total Capital Expenditure	50,383	53,782	58,718	93,520	109,934	120,000	146,500
9 Total Expenditure (=1+8)	168,297	193,255	212,070	251,394	270,404	301,000	334,600

Note: RE is revised estimates, BE is budget estimates.

Sources: Railways budget documents; PRS.

Employee efficiency is low and expenditure on staff is high

Railway staff productivity is measured in terms of transport output (NTMK+PKM in millions) per employee. A higher ratio indicates efficient transport of freight/passenger. The NTDPC had noted that over the years, staff productivity has improved from 0.23 in 1980-81 to 1.2 in 2010-11. The productivity has increased due to increase in transport volumes due to improved operations and a reduction in the number of employees from 16.5 lakh in 1990-91 to 13.2 lakh in 2010-11. However, the productivity is low compared to countries such as Russia and China (see Table 4).

Pay Commission revisions

The Committee on Restructuring Railways (2015) observed that during the implementation of the Sixth Pay Commission, Railways had healthy fund balances of about Rs 20,000 crore. Further, the Ministry had anticipated the additional expenditure and made a provision of Rs 750 crore in ordinary working expenses and Rs 500 crore in the pension fund in the year 2008-09.¹ In comparison, with the Seventh Pay Commission, there were no such prior provisions and the organisation did not have any reserves to meet the financial impact.

The Committee on Restructuring Railways (2015) had observed that the expenditure on staff is extremely high and unmanageable. This expense is not under the control of Railways and keeps increasing with each Pay Commission revision.¹ Further, employee costs (including pensions) is one of the key components that reduces Railways' ability to generate surplus, and allocate resources towards operations.¹

The Committee had also recommended unifying and streamlining the recruitment process, and rationalising the manpower.¹ In addition, the Committee noted the importance of planned job rotation and training, for developing competencies in relevant areas.¹ This would help employees think about the larger organisational goals and objectives instead of working in silos. The Committee had

also recommended making the organization more business oriented, amenable to private participation and retain an optimal level of functional specialization within it.¹ It also recommended that a Performance Assessment System should be rolled out to rationally differentiate the performance,

Table 4: Railways international comparison (2008)

Country	Million traffic units (PKM+NTKM) per employee	Route km per million population	Route km per square km area
USA	15.3	747.4	23.6
Russia	2.6	598.1	4.9
Japan	2.2	157.5	53.0
France	2.1	466.5	54.2
China	1.6	45.5	6.4
India	0.9	55.2	19.3
Germany	0.7	410.9	94.9

Note: USA data is for AAR Class 1 and Amtrak.

Sources: Indian Railways Vision 2020; PRS.

capability and aptitude of the employees and rate their performance. Note that the Union Cabinet had approved productivity linked bonus for eligible non-gazetted railway employees (excluding Railway Police Force personnel) in September 2016.¹³ The bonus was equivalent to 78 days' wages for the financial year 2015-16.

Fuel and electricity

In the last few years, Railways has been spending between 16% - 19% of its revenue expenditure on fuel. In 2018-19, the expense on fuel and electricity is estimated to be Rs 30,328 crore, which is about 16% of revenue expenditure.

In 2015-16, due to the fall in fuel prices, the expenditure on fuel was lower by around 5% from the expenditure in 2014-15. Since then, Railway's expenditure on fuel has been increasing gradually. Recently, with fuel prices increasing, it remains to be seen how it will affect Railways' expenditure.

Depreciation Reserve Fund (DRF)

Appropriation to the DRF is intended to finance the costs of new assets replacing old ones.⁵ In the last few years, appropriation to the DRF has decreased significantly. In 2016-17, appropriation to the DRF was Rs 5,200 crore. This means that Railways spent Rs 5,200 crore towards its depreciating assets in 2016-17, as compared to Rs 7,775 and Rs 5,500 in 2014-15 and 2015-16 respectively. Under-provisioning for the DRF has been observed as one of the reasons behind the decline in track renewals, and procurement of wagons and coaches.⁵

Table 5: Break up of revenue expenditure (% share)

	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18 RE	2018-19 BE
Staff cost	34%	33%	30%	36%	43%	40%	41%
Pension fund	17%	17%	18%	22%	22%	24%	25%
Fuel	18%	19%	18%	17%	18%	16%	16%
Lease charges	4%	4%	4%	5%	5%	5%	5%
Depreciation Reserve Fund	5%	6%	5%	4%	3%	3%	0%
Dividend	4%	6%	6%	6%	0%	0%	0%

Note: RE – Revised Estimates, BE – Budget Estimates.

Sources: Railways Budget documents; PRS.

In 2018-19, appropriation to the DRF is estimated at Rs 500 crore, 90% lower than the revised estimates of 2017-18 (Rs 5,000 crore). Provisioning Rs 500 crore towards depreciation might be an extremely small amount considering the scale of infrastructure managed by the Indian Railways.¹⁴

The Standing Committee on Railways (2015) had observed that appropriation to the DRF is obtained as a residual after payment of the dividend and appropriation to the Pension Fund, instead of the actual requirement for the replacement of assets.⁵ Further, in 2017-18, the Railways' contribution towards its new safety fund, the Rashtriya Rail Sanraksha Kosh (Rs 5,000 crore) was advanced entirely from the DRF. The Standing Committee on Railways (2018) had noted that transferring funds from DRF to the Rail Sanraksha Kosh, does not allow for replacement and repair of depreciating assets. It shows a lack of vision and poor way of utilising and appropriating valuable resources.¹⁴

Rashtriya Rail Sanraksha Kosh

In Union Budget 2017-18, the Rashtriya Rail Sanraksha Kosh was created to provide for passenger safety in Railways. Typically, the safety fund is used towards elimination of unmanned level crossings, and improving and modernising signalling systems. It was to have a corpus of Rs one lakh crore over a period of five years (Rs 20,000 crore per year). The central government was to provide a seed amount of Rs 1,000 crore, and the remaining amount would be raised by the Railways from their own revenues or other sources.

For the year 2017-18, Rs 20,000 crore was allocated to the Rail Sanraksha Kosh. Of this, Rs 15,000 crore was to be contributed from gross budgetary support, and the remaining Rs 5,000 crore was to be contributed by Railways. With the Railways struggling to meet its expenditure and declining internal revenues, it is unclear how Railways will continue to fund the Rail Sanraksha Kosh.

The Standing Committee on Railways (2018) noted that by the end of January 2018, the expenditure out of the Rail Sanraksha Kosh was Rs 10,709 crore (about 50% of the allocation). It observed that if funds from the Kosh cannot be utilised well, then the purpose of having a dedicated safety fund becomes futile.

Dividend

Railways used to pay a return on the budgetary support it received from the government (GBS) every year, known as dividend. The rate of this dividend was determined by the Railways Convention Committee, and was about 5% in 2016-17.⁵ Various Committees had observed that the system of receiving support from the government and then paying back dividend was counter-productive.^{1,5} It was recommended that payment of dividend can be avoided till the financial health of Railways improves. In September 2016, along with the budget merger, the requirement to pay dividend to the central government was removed. The last dividend amount paid was in 2015-16, which was Rs 8,723 crore.

Post the dividend waiver, the Standing Committee on Railways (2017) had noted that part of the benefit from dividend is being utilised to meet the shortfall in the traffic earnings of Railways.³ It had noted that this defeats the purpose of removing the dividend liabilities since they are not getting utilised in creating assets or increasing the net revenue of Railways.

Merging of the Railways Budget with Union Budget

The Railways Budget was separated from the Union Budget in 1924. While the Union Budget looks at the overall receipts and expenditure of the central government, the Railways Budget looked at the revenue and expenditure of the Indian Railways. The separation of the Budgets was done to ensure that the central government receives an assured contribution from the Railways' revenues (known as dividend), since the proportion of Railways Budget as compared to the Union Budget was much higher then.¹⁵ However, in the last few years, Railways' finances have deteriorated and it has been struggling to generate enough surplus to invest in improving its infrastructure.

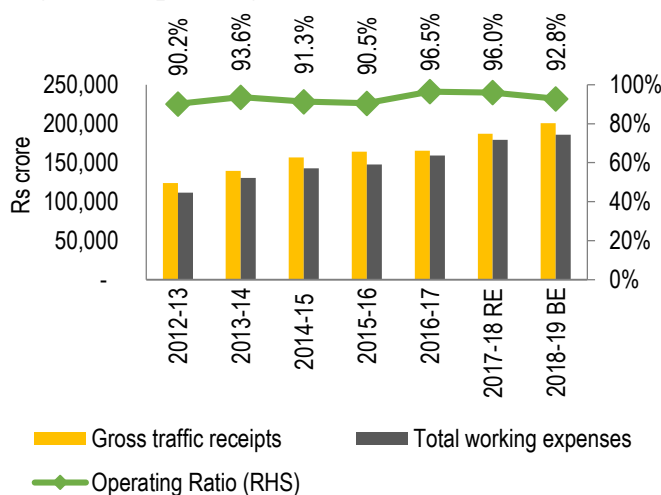
In September 2016, the Union Cabinet announced the merger of the Railways Budget with the Union Budget. Consequently, there was no separate budget for the Railways for 2017-18. It was tabled and discussed in Parliament, similar to the demand for grants of other ministries. All proposals under the Railways Budget are now presented under the Union Budget. Further, Railways continues to maintain its autonomy and financial decision making powers.

Revenue Surplus and Operating Ratio

Railways' surplus is calculated as the difference between its total internal revenue and its revenue expenditure (this includes working expenses and appropriation to pension and depreciation funds). Operating Ratio is the ratio of the working expenditure (expenses arising from day-to-day operations of Railways) to the revenue earned from traffic. Therefore, a higher ratio indicates a poorer ability to generate surplus that can be used for capital investments such as laying new lines, or deploying more coaches.

In the last decade, Railways has been struggling to generate higher surplus. Consequently, the Operating Ratio has consistently been higher than 90% for the last 10 years.

Figure 3: Operating Ratio



Note: RE – Revised Estimates, BE – Budget Estimates.
Sources: Railways Budget documents; PRS.

In 2016-17, the ratio worsened to 96.5% which is the highest since 2000-01, when the ratio was 98.3%.¹⁶ For the same year, if the actual expenditure on pension payments were to be considered, the Operating Ratio would worsen to 99.5%. In 2018-19, Railways expects to generate a revenue surplus of Rs 12,990 crore, with an Operating Ratio of 93%.

Issues with financing

Railways' ability to generate its own revenue has been slowing

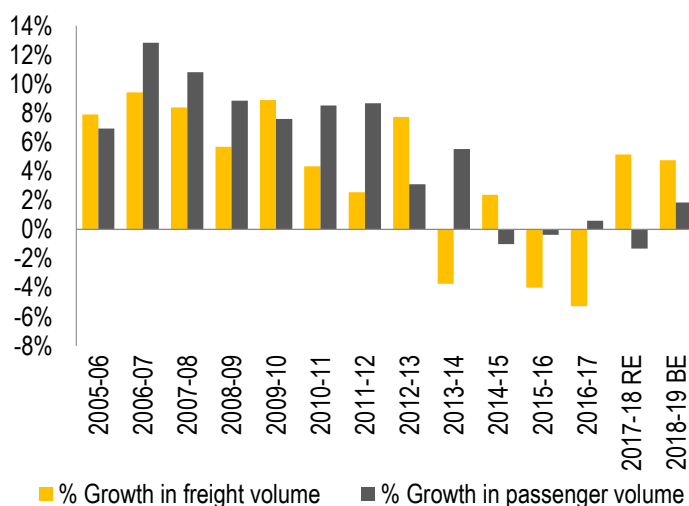
The growth rate of Railways' earnings from its core business of running freight and passenger trains has been declining. This is due to a decline in the growth of both freight and passenger traffic (see Figure 4).

Freight traffic growth has been declining, and is limited to a few items

Growth of freight traffic has been declining over the last few years. Growth in freight traffic has declined from around 8% in the mid-2000s to a 4% negative growth in mid-2010s, before an estimated recovery to about 5% now.

The NTDP had noted that freight services are run with a focus on efficiency instead of customer satisfaction. The rail network's capacity is severely constrained due to which trains tend to slow down, affecting the quality of services. Further, Indian Railways does not have an institutional arrangement to attract and aggregate traffic of smaller parcel size.²¹ Therefore, it has been losing out on high potential markets such as FMCGs, hazardous materials, or automobiles and containerised cargo. Most of this traffic is transported by roads.

Figure 4: Volume growth for freight and passenger traffic



Note: RE – Revised Estimates, BE – Budget Estimates.

Sources: Railways Budget documents; PRS.

The freight basket is also limited to a few commodities, most of which are bulk in nature (see Figure 2). For example, coal contributes to about 43% of freight revenue and 25% of the total internal revenue. Therefore, any shift in transport patterns of any of these bulk commodities could affect Railways' finances significantly.

For example, if new coal based power plants are set up at pit heads (source of coal), then the need for transporting coal through Railways would decrease. If India's coal usage decreases due to a shift to more non-renewable sources of energy, it will reduce the amount of coal being transported. Such situations could have a significant adverse impact on Railways' revenue.

In order to improve freight revenue, in 2016-17, the Railways Ministry had proposed expanding the freight commodities basket, and reviewing the freight tariff policy. In 2017-18, the Railways Ministry implemented several policies such as: (i) liberalising automatic freight rebate scheme in empty flow directions (routes with low freight traffic), (ii) getting into long term tariff contracts with key freight customers, and (iii) introducing double stack dwarf containers as a new delivery model to increase loadability of trains. However, in both years, the freight traffic and revenue was lower than the budget estimates.

Freight traffic cross-subsidises passenger traffic

In 2014-15, while Railways' freight business made a profit of about Rs 44,500 crore, its passenger business incurred a net loss of about Rs 33,000 crore.¹⁷ The total passenger revenue during this period was Rs 49,000 crore. This implies that losses in the passenger business are about 67% of its

revenue. Therefore, in 2014-15, for every one rupee earned in its passenger business, Indian Railways ended up spending Rs 1.67.¹⁷

These losses occur across both suburban and non-suburban operations, and are primarily caused due to: (i) passenger fares being lower than the costs, and (ii) concessions to various categories of passengers. According to the NITI Aayog, about 77% to 80% of these losses are contributed by non-suburban operations (long-distance trains). Concessions to various categories of passengers contribute to about 4% of these losses, and the remaining (73-76%) is due to fares being lower than the system costs.

The NITI Aayog (2016) had noted that Railways ends up using profits from its freight business to provide for such losses in the passenger segment, and also to manage its overall financial situation.¹⁷ Such cross-subsidisation has resulted in high freight tariffs. The NTDP report (2014) had noted that, in India, the average freight revenue per NTKM is one of the highest in the world, second only to Germany. In comparison, the average realisation per PKM is one of the lowest in the world.

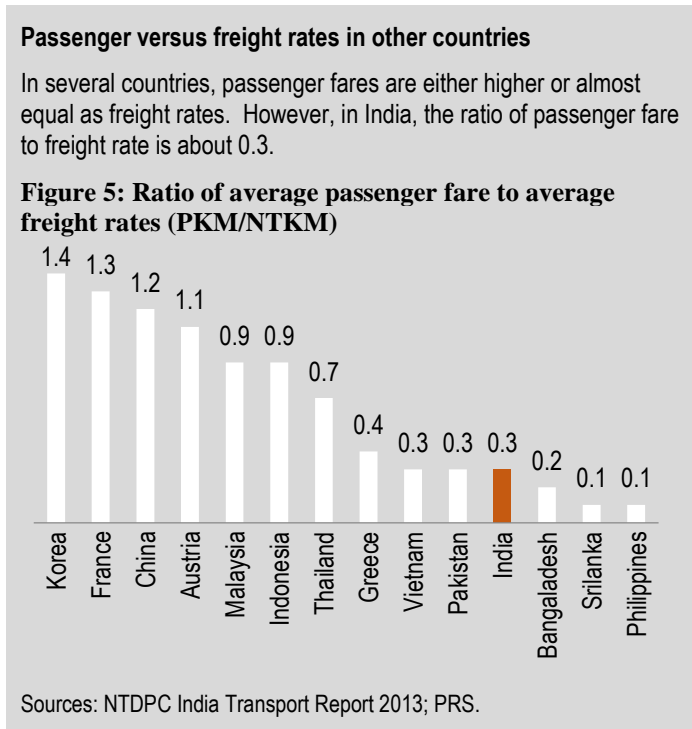
Higher freight tariffs could be counter-productive towards growth of traffic in the segment. The NTDP report had also noted that due to such high tariffs, freight traffic has diverted to other modes of transport. The higher cost of freight segment is eventually passed on to the common public in the form of increased costs of electricity, cement, steel, etc.¹⁷ The NITI Aayog (2016) had recommended that Railways should also consider ways to rationalize goods tariff distortions.

Various experts have recommended rationalising both freight and passenger fares. One of the ways could be to price passenger fares closer to cost, thereby increasing these fares. However, in a competitive market where the demand for transport is elastic, Railways can only increase fares up to a certain limit depending on competition.¹⁷ Recently air fares have become competitive as compared to Railway fares. The CAG (2018) has noted that post implementation of flexi-fare, air fares were cheaper than the respective train fares for several routes.⁷ When compared to the time taken and the cost of premier trains, air fare becomes a cheaper and preferable mode of travel.⁷

Losses made by passenger business are classified as social service obligations

In 2014-15, the passenger business incurred a loss of about Rs 33,000 crore.¹⁷ Railways classifies these losses as the social service obligations of its passenger business. As mentioned earlier, these obligations include: (i) pricing tickets at fares lower than costs, and (ii) passenger concessions (such as cheaper tickets for senior citizens, army veterans).¹⁷

Three issues arise from such classification. First, it is not clear whether this figure hides any operational inefficiencies. The Committee on Restructuring Railways had noted that the methods of calculating the cost of running passenger business are not scientific and accurate.¹ Therefore, it is difficult to compute accurately the levels of under-recoveries. The calculation of social costs does not factor the efficiency of the various expenditures (whether fuel consumption is optimal, whether maintenance practices and costs are reasonable, etc.).¹ The calculation also does not factor in Railways’ potential to leverage existing assets (such as stations, land banks) that could increase its revenue sources.



Second, inefficiency in Railways' fare structure may also be a factor contributing to the losses in the passenger service business.¹⁷ The NITI Aayog had suggested that Railways can price passenger fares as per the prevalent market rates in corresponding transport modes. The CAG (2018) had noted that there is no justification for the Railways for not fully recovering the cost of passenger services in case of 1AC, 2AC, and First Class travel.¹⁶

Third, this raises the question whether Railways should bear these social obligations, when it works as a commercial department under the government. The NITI Aayog (2016) had noted that there is lack of clarity on the social and commercial objectives of Railways. The Committee on Restructuring Railways (2015) had noted that several decisions on the Indian Railways such as increase in fares, introduction of new trains, and provision of halts are not taken on the basis of commercial considerations. The central government reimburses Indian Railways only for the investment in national projects and strategic lines, such as those in Jammu and Kashmir and the north-eastern states.

It may be argued that rail transport services are being provided at lower prices since it is considered as a public good. However, the question is who should bear the burden of running trains at fares lower than the cost, or pay for the concessions? Should it be Indian Railways, or should the government provide this amount through an explicit subsidy? Further for the suburban rail, and inter-city rail within a state, should the subsidy be borne by the Indian Railways or the state or local governments.

Financing for roads and railways is skewed

Currently, Indian Railways bears all costs of buying its rolling stock, operations, and maintenance of the entire infrastructure. Its capital costs are funded mostly by either the central government or borrowings. Until 2015-16, the amount received from central government was in the form of a perpetual loan.

In case of roads, highway expansion is funded through debt-free transfers from the Central Road Fund (CRF). A portion of the Road and Infrastructure Cess collected on motor spirit and high speed diesel (Rs 8/litre) is transferred to the non-lapsable CRF, and is earmarked for the development of both national and state highways. This cess is collected from all motor-vehicle users, but could be used to fund highways in a specific region of the country. Therefore, one may argue that highways receive a general subsidy in the form of cess collected from users all over the country. Further, in case of highways, most of them are constructed through public private partnerships, and the private player collects toll that is used for maintaining that particular highway. However, in case of Railways, revenue from ticketing may not be used towards the specific line from where the revenue is collected.

The question is should railway projects be subsidised by the government in a similar manner as highways are. Since 2018-19, CRF (renamed as the Central Road and Infrastructure Fund) may be used for development and maintenance of National Highways, state and rural roads, railway projects, improvement of safety in railways, and other infrastructure.¹⁸

Railways' accounting system does not create any distinction between the commercial and social role of Railways

The current accounting system in Railways does not provide details of the cost of various activities and services, such as introduction of new trains and scheduling of stops. It neither tracks assets nor assesses liabilities. It also does not create any distinction between the commercial and social role of Railways (such as running un-remunerative projects, subsidising passenger fares). Consequently, it is difficult to compute the costs and benefits of any project or activity, or assess the costs of and returns from various investments.

The Committee on Restructuring Railways had recommended switching to a commercial accrual-based double entry accounting system. This would help distinguish between revenue and capital expenditure, and present a complete picture of Railways' debt and other liabilities. Additionally, it will help determine the costs and viability of running a train. Some Railway divisions such as the Jaipur and Ajmer divisions in the North Western Railways have started pilot projects to implement the commercial accrual-based double entry accounting system.

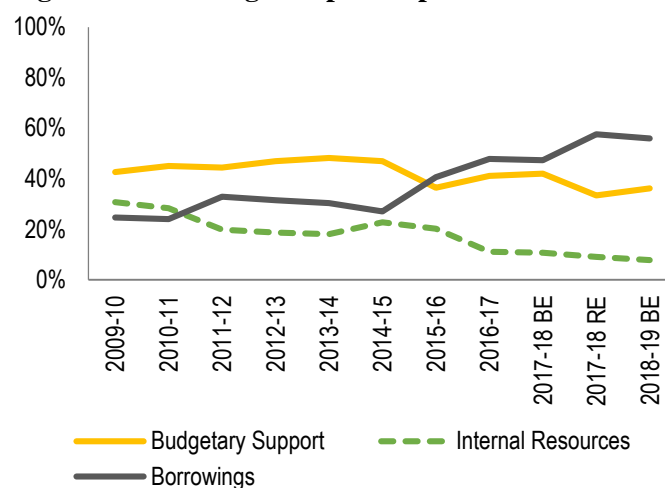
Such a system will also enable the different Railways zones across the country to function as separate cost and profit centres, as their balance sheet will indicate the revenue and liabilities. This will make them responsible for their own service delivery and revenue generation.

Railways’ ability to invest in capital expenditure has been declining

As discussed earlier, in the last few years, Railways has been struggling to run its transportation business, and generate its own revenue. Further, with increasing expenditure on staff and pension, Railways’ ability to invest in capital expenditure using its own resources has been declining. The financial support from central government and borrowings have become the bigger sources of investing in Railways infrastructure.

Figure 6 shows how the different revenue sources contribute towards capital expenditure. While the share of internal resources has declined, the share of gross budgetary support has remained constant, and there is increased reliance on borrowings.

Figure 6: Financing of capital expenditure



Note: RE – Revised Estimates, BE – Budget Estimates.
Sources: Railways budget documents; PRS.

Consequently, dependence on market borrowings has been increasing

The share of borrowings (or extra budgetary resources) to fund Railways’ capital expenditure has been increasing (see Figure 6). Since 2015-16, majority of the capital expenditure is getting funded through borrowings. Various committees have noted that an increased reliance on borrowings will further exacerbate the financial situation of Railways.^{1,5} It has been recommended that the cash flow from investments should be more than the cost of borrowing to avoid getting into a debt trap.

Besides capital expenditure, Railways has been using market borrowings to fund its asset maintenance as well.¹ This was because decreasing support from the central government and the payment of dividend leaves lesser funds with the Railways for the maintenance of assets. The Committee on Restructuring Railways had recommended that funds borrowed from the market should be used exclusively for capacity generation and should not be diverted for asset replacements.

RAILWAYS INFRASTRUCTURE

Rail Infrastructure

Indian Railways has a multi-gauge, multi-traction system covering 67,368 km of route length (as on March 2017).¹² Of this 22,021 km has double and multiple tracks. 25,367 km of route length is electrified (38%).¹² India's track density at 45.74 per sq km is comparable to the track density in the United States but much lower than that of Germany, Russia, China or Canada.¹²

Railways runs about 13,300 passenger trains and 9,200 freight trains daily, covering around 7,200 stations.¹² These trains carry 23 million passengers and around 3 million tonnes of freight every day.¹² Each kilometre of track caters to 19,133 people in India (as compared to 13,227 in China).¹²

Capacity constraints have been increasing, affecting the quality of services

The NTDP had noted that the rail network faces huge capacity constraints and the current high density network (network with the highest traffic, roughly identical to the network that connects metros) has already reached saturation. In 2009-10, of the 212 sections on the high density network, 141 (66%) had line capacity utilisation exceeding 100%. A capacity utilisation of 80% is considered optimum as smooth train operations requires some relaxation in the line capacity to absorb and recover from any unanticipated disruptions.

The traffic flow on the rail network is also highly uneven and imbalanced. For example, passenger trains utilise nearly 65% of the network capacity, but contribute to less than 30% of the revenue. The golden quadrilateral and the diagonals connecting the four major metros (Delhi, Kolkata, Chennai, and Mumbai) together constitute 16% of the network but account for around 50% of the freight and passenger traffic.

Line capacity is severely constrained due to introduction of more trains over the years.¹⁹ Since independence, while Railways' route kilometres have increased by 23%, passenger and freight traffic over the Railways network has increased by 1,344% per cent and 1,642% respectively.²⁷ The Committee on Restructuring Railways had noted that with high levels of capacity utilisation, and the introduction of new trains, trains tend to slow down.

Capacity constraints and oversaturation in the network also affects Railways' ability to meet customer expectations. For example, speeds of freight trains have continued to remain between 25-30 kmph over the last three decades. Indian Railways also does not operate heavy-haul freight trains on the network, as the network is common to both freight and passenger trains. Indian trains carry a maximum gross load of 5,400 tonnes as compared to 20,000-37,000 tonnes carried by trains in China, South Africa, Brazil, and Australia.

The Expert Group for Modernisation of Indian Railways (2012) had noted that improving signalling would substantially improve the safety of workers and passengers, and generate a 30% increase in capacity and associated revenue potential.²⁰ It had recommended implementing automatic block signalling, providing communication based train controls, and establishing centralised maintenance control centers.

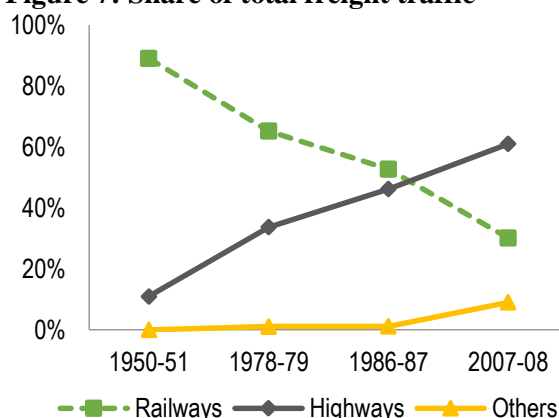
Poor investment has resulted in a decline of Railways' share across all transport modes

Within the overall transport sector, in the past few years, roads have consistently received a larger chunk of the infrastructure investment. While historically Railways have received most of its funding from the public sector, recently private sector investment has increased. In comparison, roads have been receiving investments from both public and private sectors. The 12th Five Year Plan proposed to encourage private investments in Railways.

With investment levels being low, and a general decline in ability to generate more revenue, the quality of services has been declining. Further, due to the cross-subsidisation by freight traffic, freight fares have been increasing. Consequently, Railways has been losing traffic share to other modes of transport.

The share of Railways in total freight traffic has declined from 89% in 1950-51 to 30% in 2011-12 (see Figure 7).²¹ Between roads and rail, roads passenger traffic has increased from 32% in 1950-51 to 90% in 2011-12, and rail passenger traffic has decreased from 68% to 10%.

Figure 7: Share of total freight traffic



Sources: NTDP India Transport Report 2013; PRS.

Railways versus Roads: Environmental sustainability

The National Transport Development Policy Committee (NTDPC) report of 2014 (Chair: Dr. Rakesh Mohan) also compared the environmental and social sustainability of transport by road and railways and made certain observations. Some of these are as follows:

- **Energy consumption:** As compared to roads, Railways consume 75 per cent to 90 per cent less energy for freight traffic and 5 per cent to 21 per cent less energy for passenger traffic.
- **Financial costs:** Unit cost of rail transport was lower than road transport by about Rs 2 per NTKM and Rs 1.6 per PKM (in the base year 2000).
- **Environmental damage:** Rail transport emits 17 gram CO₂ equivalent per PKM as compared to 84 gram per PKM in case of road transport. Rail transport emits 28 gram CO₂ equivalent per NTKM as compared to 64 gram per NTKM in case of road transport.

The NTDPC recommended that a strategic decision should be made in terms of the relative allocation of resources between rail and road, and accompanying pricing and taxation policies (see page 11 – subsection on comparing financing of roads and rail). Such initiatives can then be used to move transport demand towards the desired share of road and railways as mode of transport.

Train speeds on the Indian rail network

As mentioned earlier, while the rail network is fairly large as compared to other countries, trains on the network are slower. The speed of freight trains has been around 25-30 kmph for a long time.²² The maximum permissible speed on Indian Railways is between 100 kmph to 160 kmph, and the actual speed achieved is lower, in the range of 60-70 kmph. In comparison, in several developed countries, the conventional trains have a maximum permissible speed of 200 kmph, while high speed trains have speeds between 300-350 kmph.

Higher speed trains require dedicated tracks which could either be fenced or elevated tracks, and hence require significant capital investment. Indian trains tend to be slower because of over-stretched capacities of the trains, mixed traffic on the network and poor tracks. The superfast trains such as Rajdhani, Durgam and Shatabdi also use the same tracks as the slow passenger trains and goods trains, and hence are unable to reach their maximum speed.

Dedicated Freight Corridors

Dedicated Freight Corridors were planned on the western and eastern routes to augment the freight carrying capacity of Railways. It involves construction of about 3,400 km of dedicated freight lines to predominantly carry coal and steel on the eastern corridor and containers on the western corridor. These freight lines will be connected to the coal mines and power plants on the eastern lines, and to the ports on the western lines to help improve connectivity. The Eastern Dedicated Freight Corridor (EDFC) is from Ludhiana to Dankuni (1,318 km from Ludhiana to Sonnagar, and 538 km from Sonnagar to Dankuni).²³ The Western Dedicated Freight Corridor (WDFC) is from Jawaharlal Nehru Port Terminal to Dadri (1,504 km).²³

The estimated cost of the project is Rs 81,459 crore.²³ The EDFC is funded by the World Bank, and WDFC is funded by the Japan International Cooperation Agency (JICA), with some funding coming from the Railways in the form of equity and some through PPPs. Till May 2018, Rs 38,465 crore has been spent on construction of both the corridors.²³ Both the corridors are targeted to be commissioned by 2020.²³ The financial and physical progress on EDFC and WDFC is 47% and 50% respectively.²³

These corridors are designed for a speed of 100 kmph. This will increase the speed of freight trains from the current 25 kmph, and reduce transit times by less than half of current levels.²¹ The carrying capacity on these routes will also be higher, and wagons with higher capacity will also be introduced on these routes. With freight trains shifting to these dedicated routes, this will free up the rest of the routes for passenger trains and help improve their speeds.²¹

High Speed Rail

High Speed Rail is a distinct category of passenger rail system that operates with separate tracks and rolling stock on separate tracks. The first high speed rail project being implemented in India is the Mumbai-Ahmedabad High Speed Railway Corridor.²⁴ It has a total proposed length of 508 km, where train speeds are expected to be between 300-350 kmph with a total travel time between 2 and 2.5 hours. The project is expected to be completed by 2023.

The project is estimated to cost around Rs 1,10,000 crore.²⁵ Of this amount, Rs 88,000 crore will come from JICA, in the form of a concessional loan of 0.1%.²⁴ The loan term period is 50 years with a moratorium of 15 years.²⁴ The remaining amount will be contributed by the special purpose vehicle, the National High Speed Rail Corporation of India Limited which will implement the project.²⁶

The NTDPC (2014) had noted that the demand for high speed services must be high in order to make the investment in them socially profitable.²¹ These projects must target corridors that link densely populated metropolitan areas which suffer from severe road congestion and have deficient air links. It had recommended that in view of the poor financial situation of the Indian Railways, priority should be given to dedicated freight corridors that are self-financing.²¹

Safety in Indian Railways

Under-investment in Railways leading to accidents

Safety has been one of the biggest concerns in the Indian Railways system. While the number of accidents have gone down over the last few years, the number still remains above 100 per year. The Standing Committee on Railways noted that slow expansion of rail network has put undue burden on the existing infrastructure leading to severe congestion and safety compromises.²⁷ Addition of new passenger trains without providing additional resources (for operations and maintenance) and capacity augmentation, can also compromise safety in the network.

The Standing Committee on Railways (2016) had noted that under-investment in Railways results in more rail accidents.²⁷ Avoiding such accidents in the future would also require significant investments towards capital and maintenance of railways infrastructure. Safety works include signalling, removal of level-crossings, and track modernisation or renewal. According to the High Level Safety Review Committee (HLSRC) (Chair: Dr. Anil Kakodkar), the total financial implication of the safety measures over a five-year period (2012-17) was likely to be around Rs one lakh crore. According to the NTDPC, safety works on the entire railways network would cost Rs 2.5 lakh crore.

Causes of rail accidents

The number of rail accidents has declined from 325 in 2003-04 to 103 in 2016-17.²⁸ The number of railway accidents as per the cause are shown in Figure 8 below. In 2016-17, majority of the accidents were caused due to derailments (75%), followed by accidents at level crossings (19%).

Derailments were also the second highest reason for casualties. The Standing Committee on Railways (2016) had noted that one of the reasons for derailments is defect in the track or rolling stock.²⁷ It also noted that 4,500 km of track length should be renewed annually. However, between 2015-16 and 2018-19, the target for track renewal has been set between 2,500 km (in 2015-16) and 3,900 km (in 2018-19).¹⁴ The table below shows the track length renewed in the last three years.

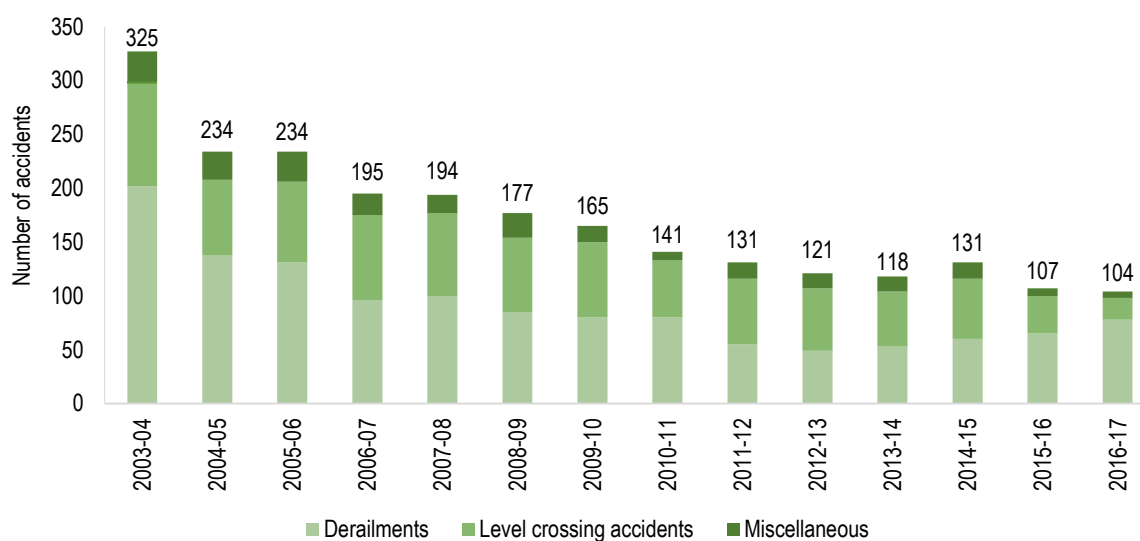
Table 6: Track renewals (in route kms)

	2015-16		2016-17		2017-18 RE		2018-19 BE
	Target	Achievement	Target	Achievement	Target	Achievement	Target
Track Renewal (RKM)	2,500	2,794	2,668	2,487	3,600	3,600	3,900

Note: RE is Revised Estimates, BE is Budget Estimates.

Source: Standing Committee on Railways, 2018; PRS.

The Standing Committee (2016) had recommended that Indian Railways should switch completely to the Linke Hoffman Busch (LHB) coaches as they do not pile upon each other during derailments and hence cause lesser casualties.²⁷

Figure 8: Types of railway accidents

Sources: Indian Railways Annual Reports; PRS.

Un-manned level crossings

Unmanned level crossings (UMLCs) continue to be the biggest cause of casualties in rail accidents. As on April 1, 2017, there were 7,701 UMLC in the railway network.²⁹ Between 2010 and 2013, the Ministry fell short of meeting the targets to eliminate UMLCs. Further, the target of eliminating UMLCs was reduced by about 50% in 2014-15.²⁷ The Standing Committee on Railways had recommended that audio-visual warnings should be implemented at level crossings to warn road users about approaching trains. These may include Approaching Train Warning Systems, and Train Actuated Warning Systems.²⁷

Currently, Automatic Train Protection (ATP) Systems have been implemented in certain sections (Delhi-Agra, Chennai Suburban, Mumbai Suburban, and Kolkata Metro).³⁰ A Train Collision Avoidance System (type of ATP system) is currently under trail in South Central Railways as a pilot.

Railway safety in other countries¹⁹

USA, UK, Ireland, Australia, and South Korea have dedicated statutory and independent institutions for rail safety. Further, some countries such as USA (2008), Australia (2010) and UK (2003) also have Rail Safety Improvement Acts.

European countries have European Train Control System (ETCS), which creates a standardized train control system at European level to address concerns on track-to-train transmission of information. USA has a Positive Train Control system for command, control, communication and information. Besides a few track side identifiers, the train position and speed are correlated with precision using GPS signals. This reduces the probability of collision between trains and works all along the rail route. Japan rail mostly uses radio for track to train information exchange.

ORGANISATIONAL STRUCTURE OF THE RAILWAYS

The entire rail transport network, and policies related to it is managed by the Railway Board, which falls under the administration of the Ministry of Railways. Railways employs around 1.33 million people.³¹ Indian Railways is the world's second largest rail network under one central management. It has a monopoly in the rail segment, with private participation seen only in certain ancillary activities. While the entire network is managed by the Railways Board, for ease of management, the network is divided into 17 zones and 68 divisions.³² These zones have developed historically and not from a specific strategy.

Each railway zone is responsible for the operation, management, and development of the railway system under its jurisdiction. Each zone is headed by a General Manager (GM). Zones are further divided into divisions which are headed by a Divisional Railway Manager (DRM). Under the current departmental structure, officers in divisions are held accountable to the DRMs, who in turn report to the GM in-charge of the zone.

Organisations under Railways

Besides the zones and divisions, Railways also has six production units concerned with the manufacture of wagons, coaches, and other related items. The Research, Designs and Standards Organisation is the research and development wing of the Railways and provides technical advice to the Ministry, zonal railways and the production units.

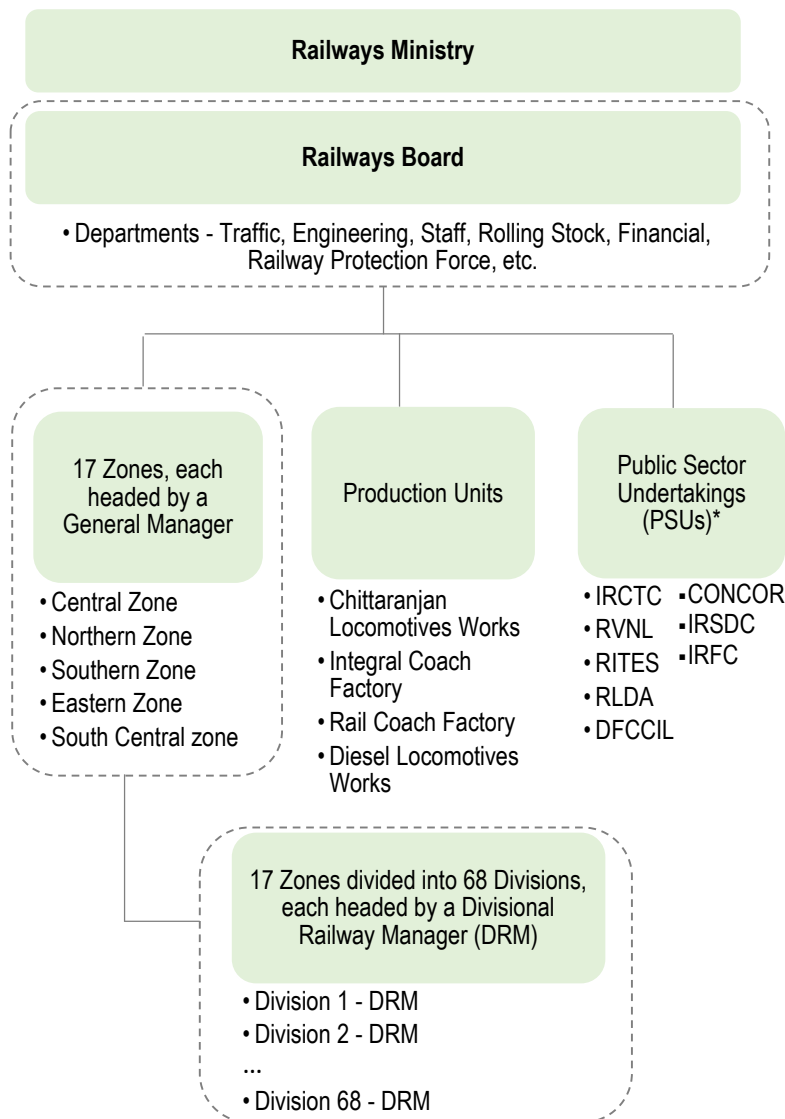
Railways also operates various corporations such as: (i) the Indian Railways Finance Corporation (IRFC), which mobilises resources for Railways through market borrowings from both domestic and international markets; (ii) the Dedicated Freight Corridor Corporation of India (DFCCIL), which undertakes the planning and development, mobilization of financial resources and construction, maintenance and operation of the Dedicated Freight Corridors; (iii) the Indian Railway Catering and Tourism Corporation (IRCTC), which manages the catering, tourism and online ticketing operation for Railways; (iv) the Railway Land Development Authority (RLDA), which looks at the commercial development of vacant railway land; (v) Rail Vikas Nigam Limited (RVNL), (vi) the Indian Railway Stations Development Corporation Limited (IRSDC), which looks at station development and (vii) Container Corporation of India Limited (CONCOR).

Besides running trains, Indian Railways also manages various non-remunerative activities such as running schools and hospitals for their employees, and managing the railway police force. The Railway Protection Force (RPF) looks at the protection and security of railway property, passenger areas and passengers. The Government Railway Police (GRP) is responsible for the prevention and detection of crimes on railways, registration of crimes and their investigation. Note that Indian Railways bears 50% of the cost of the GRP, and the rest of the cost is borne by the state governments.

Human Resource Management

The Committee on Restructuring Railways had noted that Indian Railways has a matrix organization structure (combination of geographical and departmental models) with its operational field units organized in three layers (zones, divisions and other operational units). It has a high level of formalization and centralization of power. Currently, specialized activities and jobs within the Indian Railways are organized in departments along functional lines. Such departmentalization has resulted in: (i) a lack of transparent and fair policies, (ii) competition amongst departments in allocation of resources and investment decisions, and (iii) sub-optimal decision making. The major reason for departmentalization is the multiplicity of different channels through which people are hired into the railway services and the resulting isolated structure of the various services.

Figure 9: Organisational structure of Indian Railways



Railways Ministry operates the Railways Board.

Railways Board manages the overall rail network, and is responsible for policy making, regulation and operations. There are several directorates under the Board, mostly on departmental lines, to assist the Board.

Entire Railway network is divided into 17 zones, each headed by a General Manager (GM). The GMs manage rail operations within each zone, and have powers to sanction certain projects up to a certain amount.

The various production units look at manufacturing such as coaches, locomotives, and wheels.

PSUs manage various ancillary activities such as catering, ticketing, developing railways; land, and managing the dedicated freight corridors.

The 17 zones are divided into 68 divisions, each headed by a DRM. DRMs can sanction projects or contracts up to a certain amount that is lower than that of the GMs.

Note: * Railways has several other smaller PSUs, that are not mentioned in the chart.
Source: Ministry of Railways website, last accessed on September 1, 2018; PRS.

Issues with the organisational structure

Decision making in Railways is centralised, with the zones having little autonomy

Various experts have noted that over the years, the GM's powers have been reduced with the objective of budgetary control. This has left the GMs with little independence. Further, while the zones prepare their annual budget, it is based on the annual financial outlay provided by the Railway Board, for each of them. The power to make financial decisions does not rest with the zones and hence they do not possess enough autonomy to generate their own revenue.

The Committee on Restructuring Railways (2015) had recommended the decentralization of powers to the level of zones. The GM must be fully empowered to take all necessary decisions independent of the Railway Board. Zones should be independent, and must be able to compete with each other. Zonal railways should also have full power for expenditure and re-appropriations and sanctions. These steps will make each division and zonal railway accountable for its own transport output and profitability.

The Committee on Restructuring Railways (2015) had also recommended the decentralization of power and functions down to the level of the divisions. It has also suggested delegation of powers with regard to tendering, procurement, and financing of projects to the DRMs. Finance must

completely be under the DRMs. This will enable every division to function as an independent business unit and retain its own earnings for the up-keep of trains, stations and tracks that fall within its jurisdiction.

Railways engages in peripheral activities that are non-remunerative

Apart from its core function of running trains, Railways also engages in peripheral activities such as running schools, and hospitals, real estate development (housing for staff), catering, and security. The Committee on Restructuring Railways had noted that several of these activities are un-remunerative and impose a huge financial burden on Railways. It had recommended that these non-remunerative activities be separated from Railways' core business. These non-core activities can be outsourced to private entities.

For example, with regard to security, Indian Railways pays the entire cost of RPF (it is a department under the Railways Board), and half the costs of the GRP. While RPF manages the security of passengers, GRP looks at the registration and investigation of crimes. The Committee noted that since law and order is a state subject (under the Constitution), states should be asked to bear the entire cost of the GRP. Further, GMs and DRMs should be given the power to decide whether they want to use choose the RPF or private security agencies. With regard to running schools, the Committee suggested that educational needs of Railways' employees' children can be met through subsidising their education in other schools. Similarly, medical facilities for the employees can also be subsidised in private hospitals.

Restructuring railways: Examples from other countries

Several other countries such as Japan, China and UK have restructured their Railways. Most of it has been on the lines of segregating bodies on the basis of their functions, and creating autonomous bodies that are independent of the government.

Japan privatised its railway system in 1987. Based on geographical demand, Japanese railway system was divided into six regional passenger railway companies, and one nationwide freight carrier. Each company would make its own decisions on which lines to operate and which ones to close.

In China, restructuring reforms have included the splitting of freight, passenger and network management businesses into independent divisions. Several freight and passenger companies have been created including three specialist freight companies dealing with container, express cargo, and special cargo. Non-core activities such as construction, manufacture, telecom, design, education, and other social activities have been separated, and are being provided on a tendered basis.

In the UK, the railway system was privatised in 1993. Railways was separated into 25 train operation units known as train operating companies, which were privatised by a franchising process. A rail regulator was appointed with powers to grant operating licenses, enforce compliance with those licenses, and authority to regulate access to tracks, stations, and depots.

Need for an independent regulatory authority

Since 1992, Indian Railways has made several attempts to allow private sector participation in the sector through schemes on wagon investment, and freight train operations. Private players can participate in Railways through: (i) service and management contracts, (ii) leasing to and from the private sector, (iii) concessions, (iv) joint ventures, and (v) private ownership. However, private sector participation in Railways has been muted as compared to other transport sectors such as roads, and airports.

The Committee on Restructuring Railways noted that one of the key reasons for the failure of private participation in Railways is that policy making, the regulatory function, and operations are all vested with the same organisation, that is, the Ministry of Railways (or the Railways Board). The Committee recommended that the three roles must be separated from each other.

The Committee also observed that Railways' monopoly discourages private sector entry into the market. Schemes for private sector participation are not prepared with the involvement of stakeholders. Further, the schemes are designed such that the risks lie mostly with the private parties.

In order to create a level playing field for private players in the sector, the Committee recommended setting up an independent regulator, the Railways Regulatory Authority. The regulator must be a statutory body, with an independent budget and independent of the Ministry. While it must not determine tariff, it should monitor whether the tariff is market determined and competitive. Powers of the authority must include regulation of: (i) tariff, (ii) safety, (iii) access to railway infrastructure for private operators, (iv) service standards, and (v) technical standards.

In May 2017, the Ministry of Railways set up the Rail Development Authority, with the approval of the Union Cabinet, through a notification. The RDA will help achieve objectives including: (i) pricing of services, (ii) suggesting measures for enhancement of non-fare revenue, (iii) encouraging market development and participation of stakeholders in the rail sector, and ensuring a fair deal to them, (iv) protecting consumer interests, and (v) benchmarking of service standards against international norms.

¹ Report of the Committee for Mobilization of Resources for Major Railway Projects and Restructuring of Railway Ministry and Railway Board, Ministry of Railways, June 2015, http://www.indianrailways.gov.in/railwayboard/uploads/directorate/HLSRC/FINAL_FILE_Final.pdf.

² Railways Budget documents for the years 2009-2015.

³ “13th Report: Demands for Grants (2017-18)”, Standing Committee on Railways, March 10, 2017, http://164.100.47.193/lsscommittee/Railways/16_Railways_13.pdf.

⁴ Report of the Committee for Mobilization of Resources for Major Railway Projects and Restructuring of Railway Ministry and Railway Board, Ministry of Railways, June 2015, http://www.indianrailways.gov.in/railwayboard/uploads/directorate/HLSRC/FINAL_FILE_Final.pdf.

⁵ “4th Report: Demands for Grants (2015-16)”, Standing Committee on Railways, April 20, 2015, http://164.100.47.134/lsscommittee/Railways/16_Railways_4.pdf.

⁶ “Introduction of Flexi Fare system for Rajdhani/Duronto and Shatabdi trains”, Press Information Bureau, Ministry of Railways, September 7, 2016.

⁷ Report No. 5 of 2018: Union Government (Railways), Compliance Audit, For the year ended March 2017, Report of the Comptroller and Auditor General of India, https://cag.gov.in/sites/default/files/audit_report_files/Report_No_5_of_2018_-_Compliance_Audit_on_Union_Government_%28Railways%29_year_ended_March_2017.pdf.

⁸ “Report of the Kelkar Committee on Revisiting & Revitalizing the PPP Model of Infrastructure Development Submitted to the Finance Minister”, Ministry of Finance, November 19, 2015, <http://finmin.nic.in/reports/ReportRevisitingRevitalisingPPPModel.pdf>.

⁹ “Cabinet approves formation of Joint Venture Companies with various State Governments for rail infrastructure projects”, Press Information Bureau, Ministry of Railways, December 30, 2015.

¹⁰ “Policy for Private Investment in Rail Infrastructure through Domestic and Foreign Direct Investment”, Press Information Bureau, Ministry of Commerce and Industry, August 27, 2014; Press Note No.8 (2014 Series), Ministry of Commerce and Industry <http://pib.nic.in/archieve/others/2014/aug/d2014082702.pdf>.

¹¹ “Foreign Direct Investment (FDI) inflow in Indian Railways”, Press Information Bureau, Ministry of Railways, April 10, 2018, <http://pib.nic.in/newsite/PrintRelease.aspx?relid=178552>.

¹² Statistical Summary – Indian Railways, for the year 2016-17, Ministry of Railways, http://www.indianrailways.gov.in/railwayboard/uploads/directorate/stat_econ/TRSP_2016-17/Annual_Report_Accounts_Eng/Statistical_Summary.pdf.

¹³ “Cabinet approves Productivity Linked Bonus to railway employees”, Press Information Bureau, Ministry of Railways, September 28, 2016.

¹⁴ “19th Report: Demands for Grants (2018-19)”, Standing Committee on Railways, March 6, 2018, http://164.100.47.193/lsscommittee/Railways/16_Railways_19.pdf.

¹⁵ “The Separation Convention”, Ministry of Railways, http://www.indianrailways.gov.in/railwayboard/uploads/codesmanual/ADMIN_FINANCE/AdminFinanceCh7_Data.htm.

¹⁶ Report No. 1 of 2018: Railways Finances, Financial Audit, For the year ended March 2017, Report of the Comptroller and Auditor General of India, https://cag.gov.in/sites/default/files/audit_report_files/Report_No.1_of_2018_-_Finance_Audit_on_Railways_Finances_in_Indian_Railways_Union_Government.pdf.

¹⁷ NITI Aayog report - http://niti.gov.in/writereaddata/files/document_publication/Social-Costs.pdf.

¹⁸ Amendment to the Central Road Fund Act, 2000, Clause 206, Finance Act, 2018, March 29, 2018, <http://egazette.nic.in/writereaddata/2018/184302.pdf>.

¹⁹ Report of High Level Safety review Committee, Ministry of Railways, February 2012, <http://www.indianrailways.gov.in/FINAL-BOOK-HLSRC%20latest.pdf>.

-
- ²⁰ Report of the Expert Group for Modernization of Indian Railways, Ministry of Railways, February 25, 2012, http://www.indianrailways.gov.in/railwayboard/uploads/directorate/infra/downloads/Main_Report_Vol_I.pdf.
- ²¹ “India Transport Report: Moving India to 2032: Volume II, National Transport Development Policy Committee 2013, June 17, 2014. [http://planningcommission.gov.in/sectors/index.php?sectors=National%20Transport%20Development%20Policy%20Committee%20\(NTDPC\)](http://planningcommission.gov.in/sectors/index.php?sectors=National%20Transport%20Development%20Policy%20Committee%20(NTDPC)).
- ²² Indian Railways Vision 2020, Ministry of Railways, December 2009.
- ²³ Lok Sabha Questions, Unstarred Question no: 1357, Ministry of Railways, Answered on July 25, 2018, <http://164.100.47.194/Loksabha/Questions/QResult15.aspx?qref=70075&lsno=16>.
- ²⁴ “Minister of Railways, Shri Piyush Goyal briefs Media about this High Speed Train Project”, Press Information Bureau, Ministry of Railways, September 11, 2017, <http://pib.nic.in/newsite/PrintRelease.aspx?relid=170676>.
- ²⁵ 1st Annual Report 2016-17, National High Speed Rail Corporation Limited, December 4, 2017, https://www.nhsrcl.in/annual_report_files/Final-Book-NHSRCL-English-Website.pdf.
- ²⁶ About Us, National High Speed Rail Corporation of India Limited, <https://www.nhsrcl.in/about-nhsrcl>, last accessed on September 1, 2018.
- ²⁷ “12th Report: Safety and security in Railways”, Standing Committee on Railways, December 14, 2016, http://164.100.47.193/lsscommittee/Railways/16_Railways_12.pdf.
- ²⁸ Railways Annual Report 2016-17 Ministry of Railways.
- ²⁹ Lok Sabha Questions, Unstarred Question no: 710, Ministry of Railways, Answered on December 20, 2017, <http://164.100.47.190/loksabhaquestions/annex/13/AU710.pdf>.
- ³⁰ Lok Sabha Questions, Starred Question no: 174, Ministry of Railways, Answered on March 7, 2018, <http://164.100.47.190/loksabhaquestions/annex/14/AS174.pdf>.
- ³¹ Outcome and Performance Budget of Railways for 2014-15, Ministry of Railways, July 8, 2014, http://www.indianrailways.gov.in/railwayboard/uploads/directorate/finance_budget/Budget_2014-15/Outcome_Engl_2014-15.pdf.
- ³² “Evolution – About Indian Railways”, Ministry of Railways, http://www.indianrailways.gov.in/railwayboard/view_section.jsp?lang=0&id=0.1.261.

DISCLAIMER: This document is being furnished to you for your information. You may choose to reproduce or redistribute this report for non-commercial purposes in part or in full to any other person with due acknowledgement of PRS Legislative Research (“PRS”). The opinions expressed herein are entirely those of the author(s). PRS makes every effort to use reliable and comprehensive information, but PRS does not represent that the contents of the report are accurate or complete. PRS is an independent, not-for-profit group. This document has been prepared without regard to the objectives or opinions of those who may receive it.