June, 2020

India’s Lifeline in the Times of a Pandemic

Analysis of the Impact of COVID-19 on the Operations of the Indian Railways

The Strategy Boutique

The Strategy Boutique
Honest Consulting

Table of Contents

1. Terminology

1.1 ***IR***:
Indian Railways

1.2 ***Tonnes Originating***:
Used in the context of freight movement, this includes tonnage originating from each gauge, whether it terminates on the gauge itself or on some other gauge of the home line, or on other railways.

1.3 ***Gauge***:
It is the minimum distance between the two tracks on any railway route. There are 4 main types of gauges used in the Indian Railways: (1) Broad Gauge (2) Meter Gauge (3) Narrow Gauge and (4) Standard Gauge. The gauge depends on traffic conditions (routes with heavier traffic intensity will have broader gauge), cost of track (cost of the track is directly proportional to the width) and speed of the train (speed is almost directly proportional to the width of the track hence, if higher speed trains are to be run on a track, a broad gauge will be given priority).

1.4 ***Passenger Reservation System (PRS)***:
The Passenger Reservation System of the Indian Railways allows for pre-booking of tickets through online and offline modes. PRS currently carries out more than 15 lakh transactions daily. The number of transactions is way higher than passengers because these transactions include cancellations and wait listing. Only 4 lakh of these transactions are done through IRCTC, the remaining are done through PRS counters on stations.

1.5 ***Indian Railway Catering and Tourism Corporation (IRCTC)***:
The IRCTC is a subsidiary of the Indian Railways and controls catering, tourism and online PRS/ticketing operations for the IR. The company went public in late 2019.

1.6 ***National Thermal Power Corporation (NTPC)***:
The NTPC is a premium freight customer of the Railways with operations of nearly ₹8,557 crore annually with the transport provider. Usually, it pays through the advance freight scheme.

1.7 ***Premium Freight Customers***:
Customers with freight business of 500 crores or more with the Railways annually.

1.7 ***Gross Earnings***:
True earnings during an accounting period, whether actually realized or not

1.8 ***Working Expenses***:
Expenses incurred on the administration, operation, maintenance and repair of open lines. This includes appropriation to pension fund.

1.9 ***RMSP***:
Raw Materials for Steel Plants

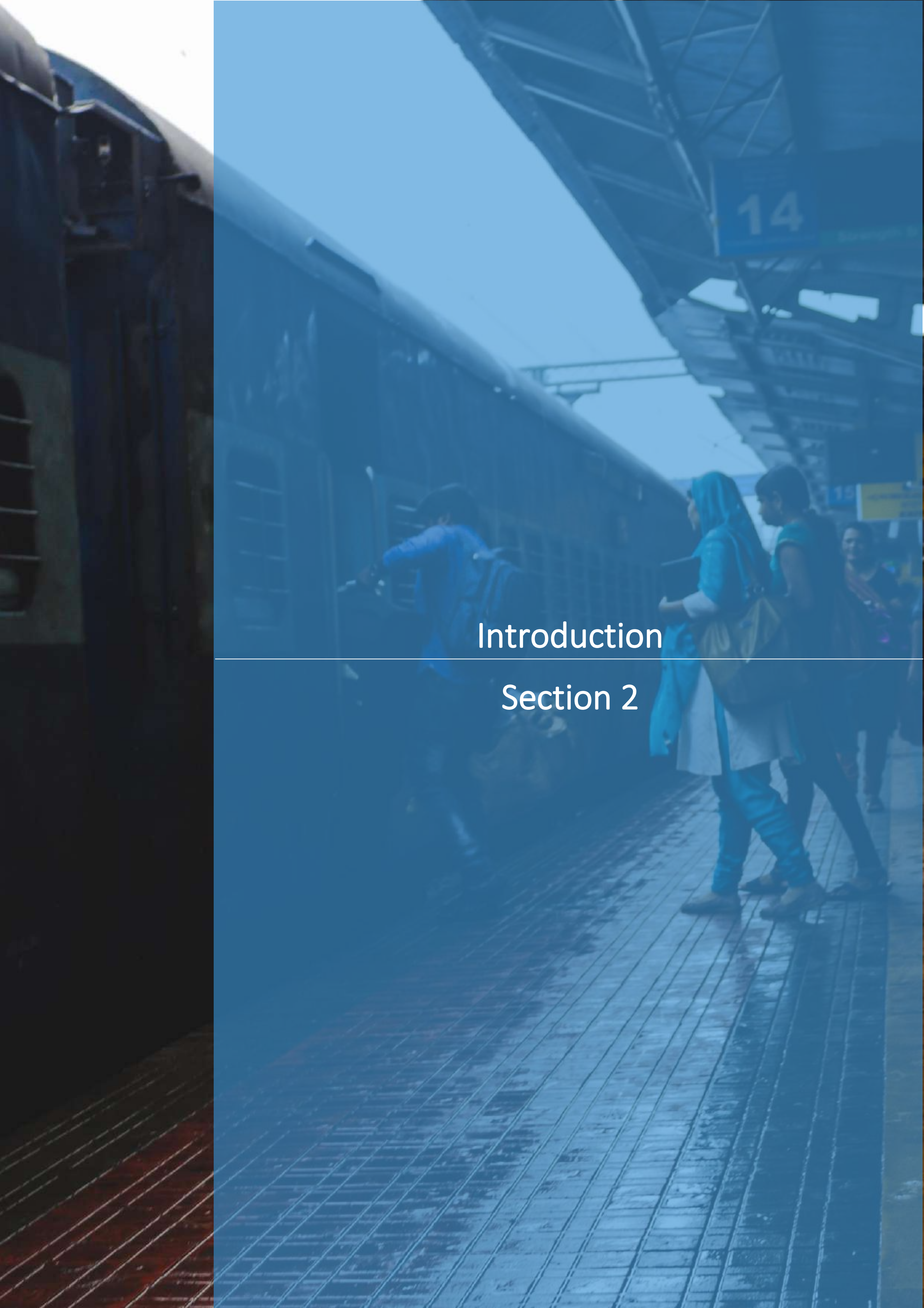
1.10 ***POL***:
Mineral Oil

1.11 ***Suburban Trains***:
Trains that cover up to 150 kilometers of distance. These trains facilitate mobility within cities and suburbs and are provided in seven zonal railways spread across nearly 1,7960 kilometers. The earnings from these trains account for 14% of total earnings from coaching.

1.12 ***Non-Suburban Trains***:
These trains are those which move passengers across cities and cover distances exceeding 150 kilometers. They

make up for the lion's share of earnings from the coaching segment.

1.13 ***Sundry Earnings***:
Besides earnings from freight and passenger movement, the Indian Railways also earns revenue from other sources which are unclassified receipts. These include earnings from the organization's land and other resources.



Introduction

Section 2

2. Introduction

It was 3:35 pm on 16th April, 1853 when the first passenger train in the Indian subcontinent left the Bori Bunder Station[1] in Maharashtra with 400 passengers to reach Tanna[2]. Today, the Indian Railways carries nearly 23 million passengers on the daily. This is equivalent to the population of Australia. Being the largest rail network in Asia, the IR has over 7,321 stations spread across a network of 115,000 kilometers of track.

In a very literal sense, the rail network of any country knits it together and aims to connect all regions. This is even more pertinent in the subcontinent. Since its inception during the colonial period, the transport provider has connected areas through the length and breadth of the country, right from the Indo Gangetic planes to the flooded deltas; from the far north east through the Northern Frontier (NF) Zone to metropolitans like Delhi, Mumbai and Bangalore. The network has managed to do so by expanding to 18 zones spanning over 73 divisions.

Passenger movement is one pillar of the organization's operations. Freight movement is the second pillar and, the one holding up the Indian Railways' books of accounts. The carrier moves nearly 7,400 freight trains carrying 3 million tonnes of goods every day. Annually, this traffic sums up more than a billion tonnes.

Evidently, it is safe to say that the Indian Railways has evolved over its 167 years of operations to become the lifeline of the country and economy.

2.1 The Lifeline in Times of Corona

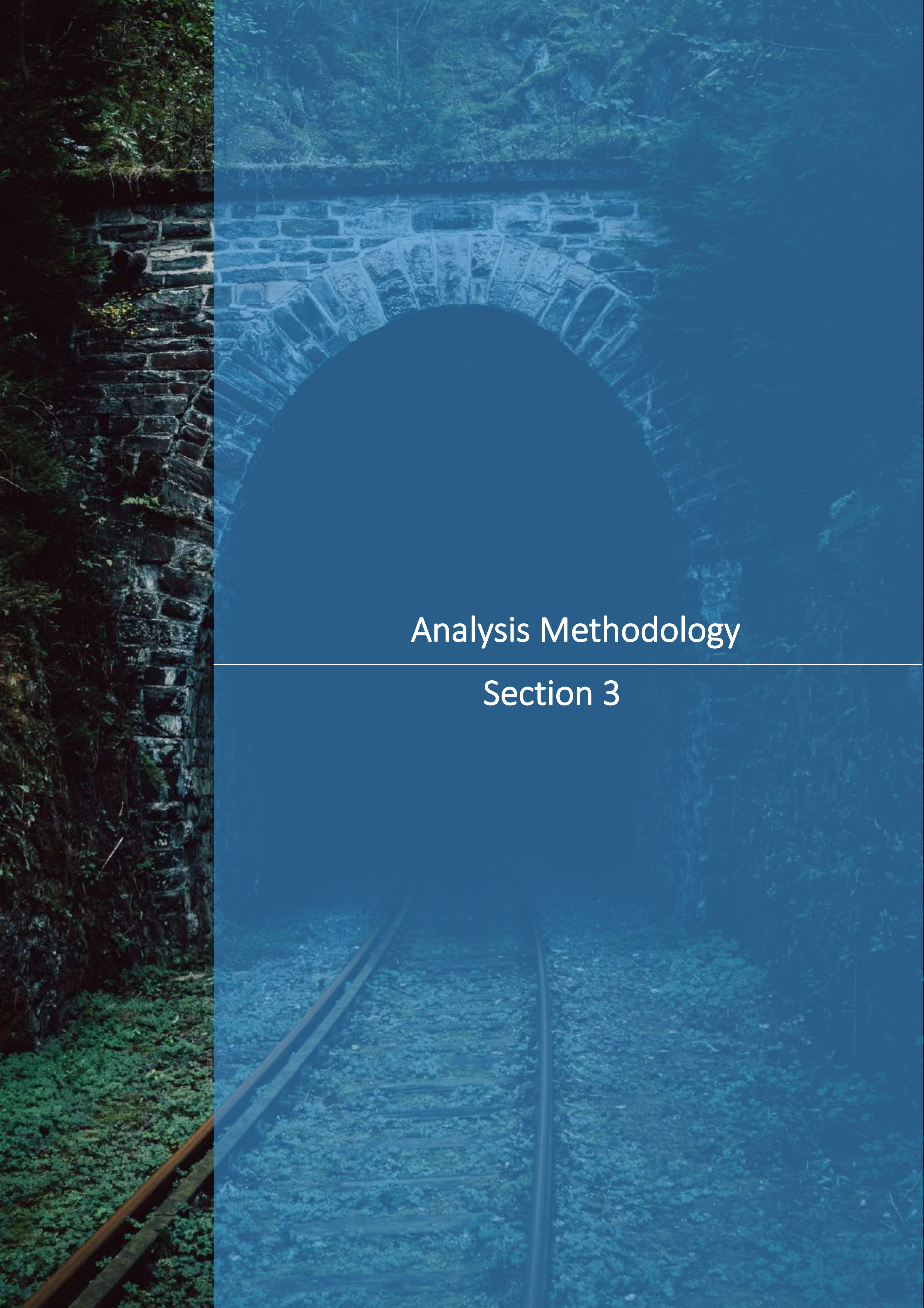
For the first time since its departure from the Bori Bunder Station back in 1853, the Indian Railways is not ferrying any passengers. The greatest humanitarian crisis perhaps since the World War II, has brought the lifeline of the country to a screeching halt. The ongoing coronavirus pandemic has put the brakes on passenger transportation services and reduced freight movement by more than half.

On 25th March, 2020 all passenger movement by the Railways was suspended with no fixed date of resuming services, to aid the national lockdown. Added to the mix was a significant drop in the movement of the network's profitable operations, freight, across the country due to the economic slowdown triggered by the lockdown. The organization's operations and finances have been hit hard by this and the after effects are anticipated to drag on through this year.

Freight, while not restricted at an official capacity under the nationwide lockdown, has fallen to nearly 50% of its previously moved tonnage due to closed industrial activity, reduced consumption demand and a general downturn in the economy. Lack of on ground labour to load and unload goods has also further aggravated this.

This report aims to analyse the financial impact of the coronavirus pandemic on the operations and finances of the Indian Railways and what the coming few months hold in store for Asia's largest rail network.

[1] Now the Chhatrapati Shivaji Mahraj Terminus
[2] Now Thane



Analysis Methodology

Section 3

3. Analysis Methodology

In this report, to assess the impact of the Coronavirus pandemic on the Indian Railways, multiple scenarios have been considered. The scenarios assume that the provider will resume passenger services at full capacity once the national lockdown is lifted. They also factor in industrial activity and recovery since freight movement is directly dependent on how industries are performing. Projections have been based off data from government sources.

3.1 Scenarios

With the lockdown still in place in India and cases rising on the daily, there is not much certainty regarding when the economy will open up entirely. Factoring this in, TSB developed models on the basis of three scenarios:

3.1.1 Scenario I

The first scenario assumes that the national lockdown will be lifted in the beginning of the second week of June, 2020. Factoring in the stimulus package of ₹20 lakh crore announced on 12th May, it is assumed that if the economy does open according to the above-mentioned timeline, no additional stimulus will be announced. TSB estimates that it will take 3-4 months for the economy's value chain to return to pre-COVID levels in this scenario. This case also assumes that there will be no problems regarding availability of labour due to reverse migration. This is assumed because labour will not want to return to their home cities now if industries resume operations in full capacity by early June. Hence, the ongoing reverse migration will come to a stall.

3.1.2 Scenario II

The second scenario assumes that the economy will reopen completely in the second or third week of June, 2020. Additionally, a new stimulus package will be announced to boost industries, corporations and banks. Here, normal economic activity is anticipated to return to pre-COVID levels only by January or February, 2021. Unlike in Scenario I, in this case, there will be issues regarding shortage of labour due to reverse migration. If there are no signs of factories to resume work at normal capacity, migrant labour will continue to return back to their home states. The recently opened Shramik trains will further facilitate this reverse migration. The lack of labour will aggravate the economic slowdown and prolong the period of recovery.

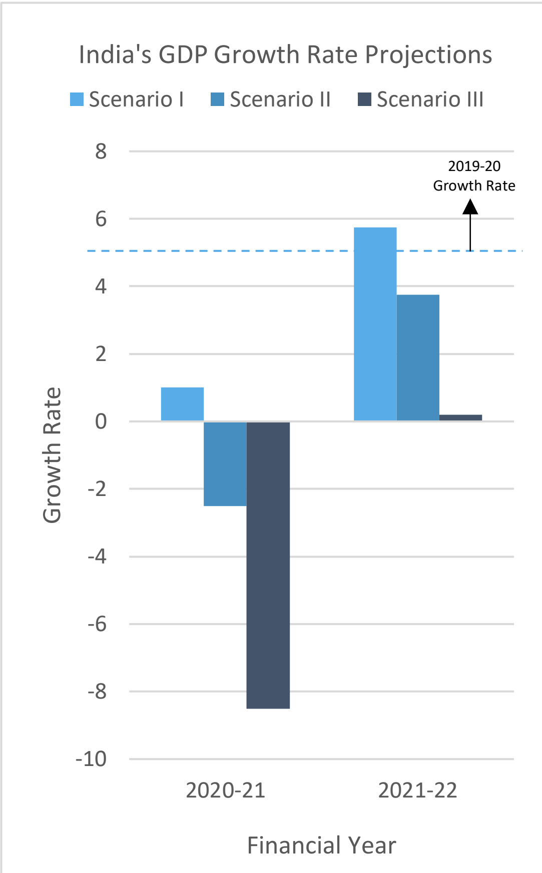
3.1.3 Scenario III

Scenario III assumes that lockdown will be lifted in the second or third week of July, 2020. In this case, TSB anticipates an even larger stimulus package (in comparison to the one in Scenario II) to be announced to attempt to get the economy back on its feet. Availability of labour will be a major crisis in this Scenario due to heavy reverse migration. A national lockdown lasting for almost 4 months inherently will lead to most migrant labour returning to their home states. Given this, resuming industrial activity will be a challenge.

3.1.4 GDP Projections

Each of the scenarios have different economic consequences and impacts on the GDP growth rate.

It is essential to understand the impact of the ongoing pandemic on the economy as a whole to analyze its impact on any sector. TSB's analysis projects a fall in growth rates in the FY 20-21 and a strong recovery in the FY 21-22. The projections for all three scenarios are depicted in the chart below. These projections have been made after factoring in trends from March and April, 2020 and also taking into consideration estimates made by international institutions and multilateral development banks.



3.2 Financial Impact Analysis

To analyze the financial impact of the pandemic on the operations of the Indian Railways it is essential to factor in the multitude of segments in the IR's operations and their specifics. The broad segmentation of the operations is freight and coaching, however there are various aspects within them. Assumptions used in the analysis:

- *'Lockdown lifted'* refers to the complete opening up of the economy.
- Government estimates from the months of March and April have been used as a base for the projections.
- Earnings from both goods and sundry movement has been factored in and projected in the freight earnings.
- Earnings from coaching have been aggregated after projecting traffic from Suburban Railways and non-Suburban Railways. Non-Suburban Railways has been further segmented into PRS and non-PRS traffic.
- The working earnings of the IR's core operations have been projected. It excludes earnings from NTPC, IRCTC and PSUs. However, unclassified earnings have been factored in by projecting 'sundry' earnings.
- The working expenses of the IR's core operations have been projected. It excludes depreciation, miscellaneous expenses, dividend paid, payment to states in lieu of tax on passenger trains and proportion of receipts to capital-at-charge.
- The working surplus/shortfall has been estimated in tandem with the specific mentioned above.
- It is assumed that once the Railways resumes activity it will be in full capacity. This is in line with other forms of transportation services in the country operating at full capacity, airlines being a prime example. However, the number of coaches per train will be lower than pre-Covid levels.
- Nearly 65% of costs incurred by the Indian Railways are fixed costs, majorly

gone towards salaries and wages. These have to be paid, whether trains are moving or not. This fixed cost component is largely responsible for the pandemic being causing a financial burden to the organization. If not for these fixed costs, the Railways would have actually left the pandemic more profitable than before. They only way the Railways can be profitable under the given circumstances is by moving 150% freight. But the demand for freight has also been hit hard and hence it isn't possible.

- Expenses of the IR to combat the virus has been ignored while analyzing the financial impact initiatives, which are being partly funded by the Centre.
- Announcements made in the first week of June have not been factored in since they have not been executed yet.
- Expenses on migrant trains are ignored as they are being borne by State governments.

Operational Overview

Section 4

4. Operational Overview

The Railways comes under the Union List and hence, is under the Central Government's mandate. It is governed by the Ministry of Railways and headed by the Railway Board.

Spread across 18 zones (the latest being South Coast Railway Zone in mid 2019), the organization's earnings stem from mainly two segments – (1) freight and (2) coaching/passenger traffic. Nearly 65% of its working expenses for both the freight and caching segment are expenses on human resources. The IR is one of the largest employers in the world with a force of nearly 14 million.

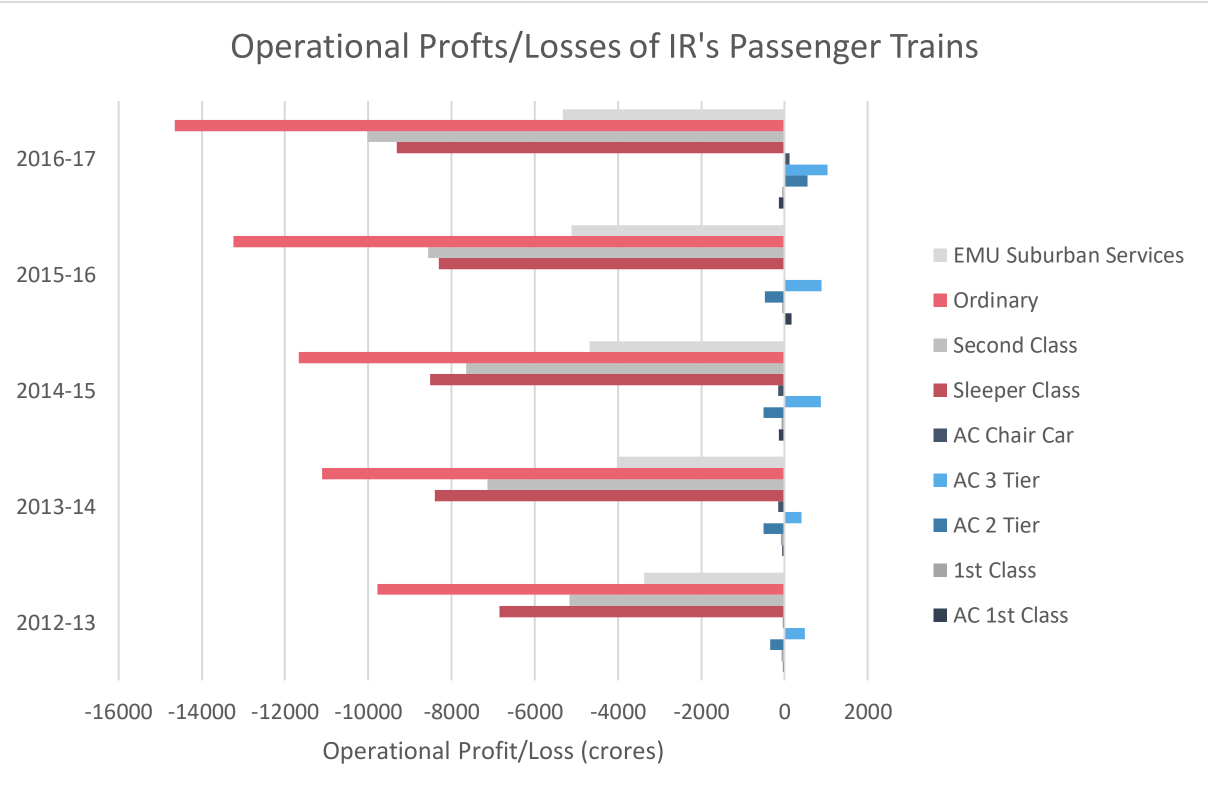
4.1 Coaching/Passenger Movement

Contrary to popular opinions, at a net level, the Indian Railways is not a loss-making organization.

However, its passenger segment is loss making and has been so historically. This is because passenger fares are heavily subsidized in an attempt to make the mode of public transport truly 'public' by making it affordable and thus accessible to all. Fares in the passenger space have also been a politically sensitive point. Hence, the Indian Railways has one of the lowest passenger fares across the world.

Most of the passenger trains rack up heavy losses annually. AC Tier 3 trains have been the only exception to this with a positive cash flow year on year. However, this too is marginal and significantly lower than the losses from the other tiers.

The ongoing pandemic has completely halted passenger trains and even resulted in negative earnings for a March and April due to refunding of cancelled trains on part of the IR.



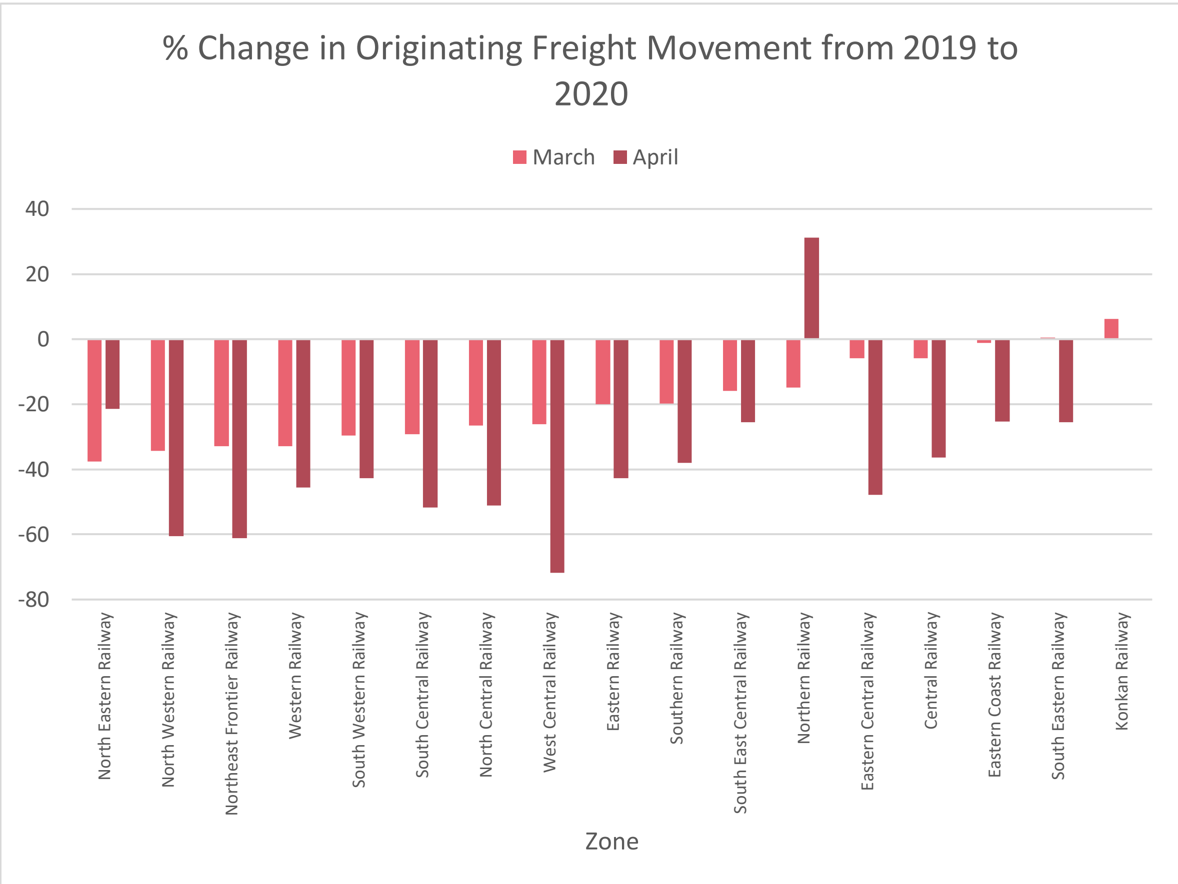
4.2 Freight Movement

With passenger trains racking up crores and crores of losses yearly, freight trains yield a positive cash flow for the organization every year and ensure that the organisation doesn't end up making losses at a net level.

The Indian Railways carries an enormous amount of freight on the daily. Being one of the four railway networks globally to carry over one billion tonnes of freight annually, the service accounts for close to $2/3^{rd}$ of IR's earnings. Although the ongoing lockdown hasn't restricted freight movement formally, it has drastically reduced the demand for it. Before the national lockdown was declared, the organisation was on its way to exceeding the previous year's earnings from freight and load carried.

However, the lockdown has completely changed that situation and reduced goods movement across the country. This is because the freight system is directly linked to the performance of various industries across the country. There is a fall in consumption demand from various industries due to the ongoing national lockdown, and lower staff availability on ground to load and unload goods has also impacted freight traffic. In April there was a drop in earnings from freight movement of 42.14% with close to only half the amount of load being carried.

The worst hit zones in terms of fall in originating freight movement have a higher proportion of districts classified as 'Red' and 'Orange' zones by the Centre.



However, this does not hold true for all zones. There are exceptions to it. The freight movement is also largely dependent on the commodities in demand and which zone they originate from. The Southern Railway Zone is a prime example of this. Despite having over 90% of its districts classified as red or orange zones, the freight movement is significantly better from the region. This is because the zone carries a large volume of POL and coal. Both these commodities have a higher demand currently compared to commodities like fertilizers and cement. Their demand is also inelastic to a certain extent as they are essential goods. Fertilizer and cement movement has been the worst hit with a drop in demand of nearly 30%. The drop in volume of commodities carried is depicted in the chart below.

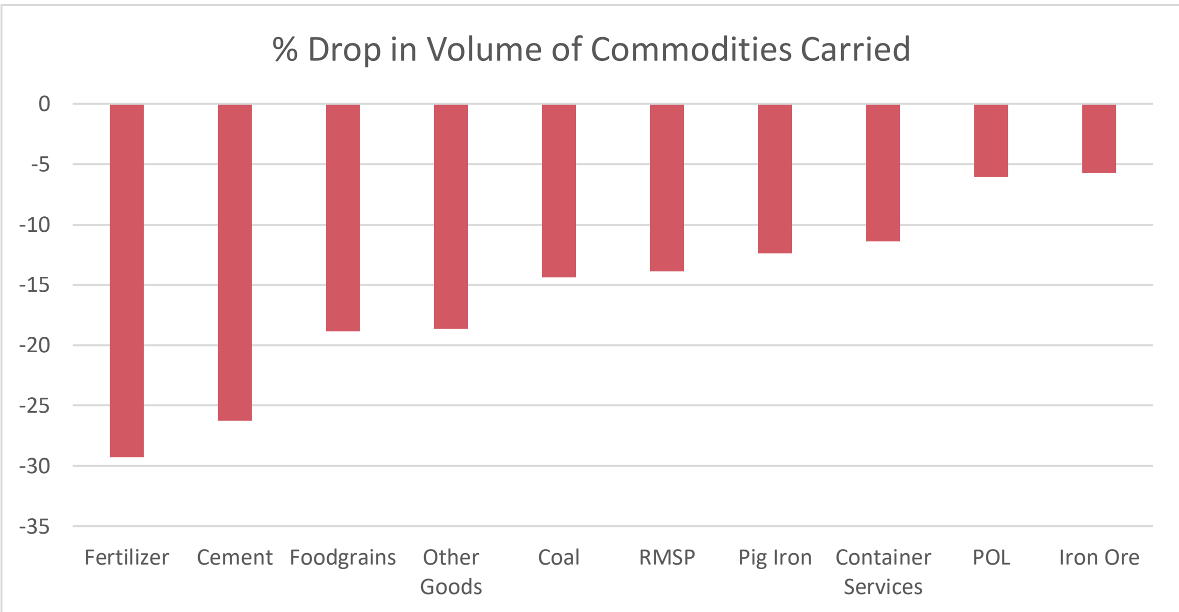
4.3 Cross Subsidizing

With heavy losses from its passenger segment and profits from freight movement, the Indian Railways has depended on a system of cross subsidising to maintain profitability at a net level, however marginal that might be. The service provider has some of the lowest passenger fares in the world and some of the highest fares for goods movement. Through this, it has depended on its freight earnings to subsidize passenger movement across the county.

While its gross earnings from passenger movement account for only 25-30% of its total revenue, freight brings in nearly 60% of it.

Segment	2019 (billion)	% of Total
Passenger non-suburban	482.54	25
Suburban	28.128	1
Freight	1221.48	64
Other coaching	44.745	2
Sundry	69.962	4
Total	**1899.700**	**100**

To further improve its books of accounts, the organization also deploys an advance freight scheme for its premium freight customers. It offers these customers priority in rake allocations and tariff certainty of the make advance payments. In the FY 2018-19 the organization made an additional revenue of ₹18,000 crores by way of this advance payment scheme.



Financial Impact During Covid-19

Section 5

5. Financial Impact During Covid-19

To analyze the financial impact on the running expenses of the Indian Railways' freight and coaching systems of the ongoing pandemic on the network, three scenarios have been considered. ***For specifics regarding the analysis methodology refer to Section 3.***

5.1 Scenario I

In the first scenario, assuming the lockdown will end in the beginning of the second week of June, the Indian Railways will be looking at losses mounting up to approximately ₹13,730 crores from the month of March, 2020 to August, 2020.

Freight movement in March and April was down by 38.6% and 43.5% respectively as compared to the previous year. In May, factoring in the likelihood of a few days with the lockdown lifted, TSB's analysis projects the downturn in freight movement to see a slight revival and fall by 36% as compared to 45% in the previous month.
The months of June, July and August will continue to see this number improving as the economy gradually oils back to its normal functioning and August will see a fall of just 3.1% over the previous year.

In this scenario, TSB's analysis expects freight movement to get back to the previous year's trends from September'2020.
Freight operations however, will continue to be the cash cow for the IR. At no point are the running earnings from freight expected to even near zero, leave alone dipping into the red. This because of majorly two reasons: (1) freight movement is continuing under the lockdown and (2) high freight rates.

Coaching is the worst hit in the Railways operations by the pandemic and this trend will continue for months to come.
With the national lockdown, all trains were halted. To make matters worse for the IR, the organization had to refund advance ticket receipts from PRS which has reflected in the statements of accounts by negative gross earnings, particularly in the months of April and May. In this case, passenger movement is expected to resume in the first week of June. Here, it is essential to remember that even though trains are anticipated to move at full capacity, many passengers will be hesitant to travel in compact spaces like train coaches unless absolutely essential.

Service	Specifics (In ₹ Crores)	March'20	April'20	May'20	June'20	July'20	August'20
Freight & Sundry	Earnings	10,696	5,682	5,850	9,068	9,560	9,181
	Fixed Working Expenses	4,569	3,616	3,836	3,816	3,702	3,378
	Variable Working Expenses	2,460	1,090	1,342	1,726	1,874	1,764
	Running Shortfall/ Surplus	**3,667**	**976**	**672**	**3,526**	**3,984**	**4,039**
Coaching	Earnings	2,181	(452)	(859)	2,065	3,863	4,088
	Fixed Working Expenses	6,721	5,319	5,642	5,613	5,445	4,968
	Variable Working Expenses	3,619	0	0	1,254	2,268	2,372
	Running Shortfall/ Surplus	**(8,159)**	**(5,771)**	**(6,501)**	**(4,802)**	**(3,850)**	**(3,252)**
Gross Running Shortfall/Surplus		**(4,492)**	**(4,795)**	**(4,091)**	**(5,829)**	**134**	**787**

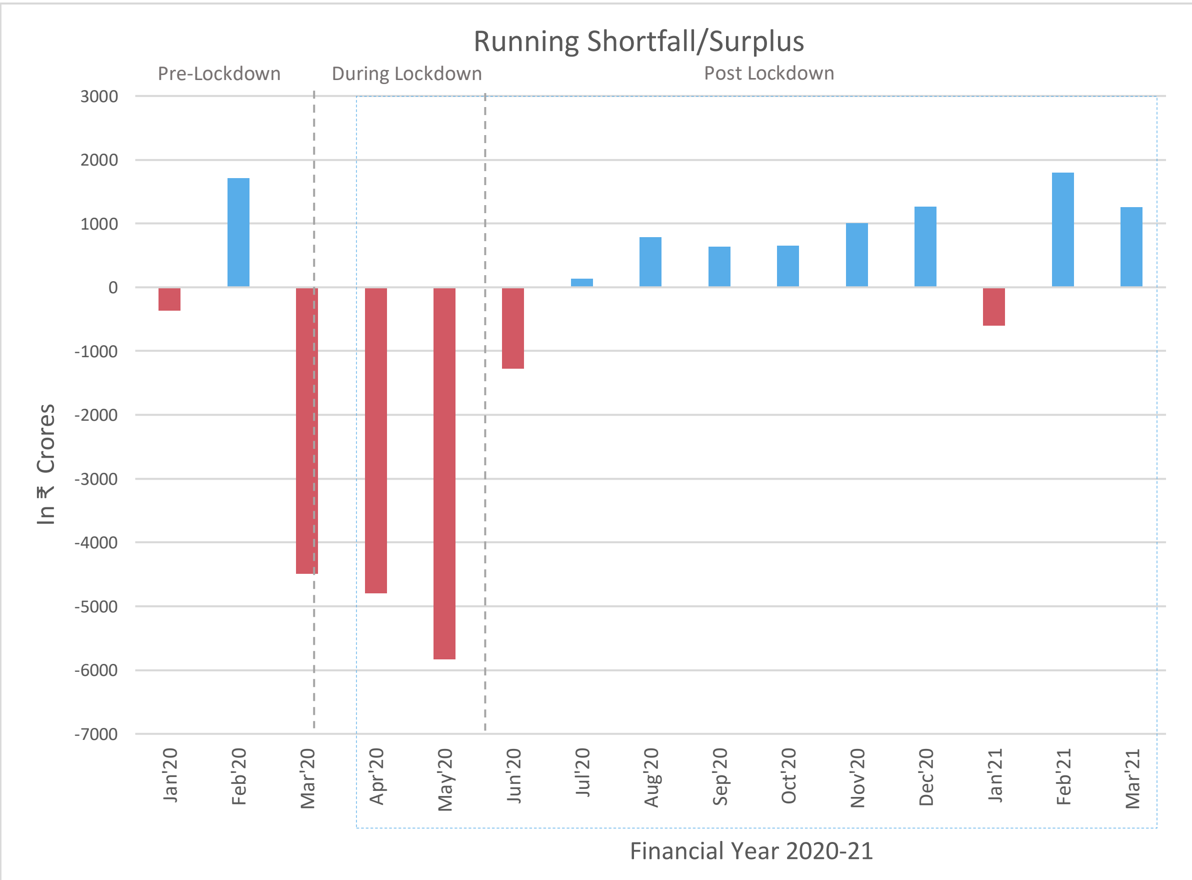
The passenger segment of the IR historically has been loss yielding. But, the impact of the pandemic on the passenger segment cash flows will be a financial burden of a magnitude the IR has never faced before. TSB projects over ₹32,00 crores in losses stemming from the coaching business alone of the organization.

5.1.1 Impact on Annual Performance

Assuming the months following August will see traffic similar to the trends of those from the last 3 years, the organization is looking at an annual loss of ₹4,970 crores for the financial year 2020-21.

With freight earnings drained and heavy losses from passenger movement, the organization will be looking at a heavy deficit for the year.

The post lockdown period will see a revival of earnings. However, this will be gradual shift, especially in the passenger segment.



5.2 Scenario II

The second scenario assumes that the lockdown will be lifted in late June. The transport provider here will be looking at heavy losses of approximately ₹22,688 crores from the month of March, 2020 to August, 2020. This is nearly ₹ 9,000 higher than the losses projected in Scenario I. This gap is attributed to not just the earlier lifting of the lockdown in the first scenario.

The longer the lockdown is dragged, the worst hit the Railways and all the economy as a whole will be hit. A large reason for this will be the impact of reverse migration. Reverse migration will slow down industrial recovery and hence freight movement of the IR

Freight movement in March and April will remain the same as in the previous scenario. May will see a further dip in freight movement despite the measures of partial reopening by the GoI. June will also face a drop of nearly 37%. An upturn will be observed in July and August due to the lifting of the lockdown with a lower fall at 18.7%. and 7.8% respectively.

In this scenario, freight will continue to be the cash making segment of operations for the IR but it will be significantly lower than the cash flows in Scenario I (a difference of approximately ₹6,556 crores).

Passenger movement in this scenario will not resume until the last week of June. Coaching gross earnings will keep falling until June, with May being the worst hit (losses amounting to ₹6,501 crores).

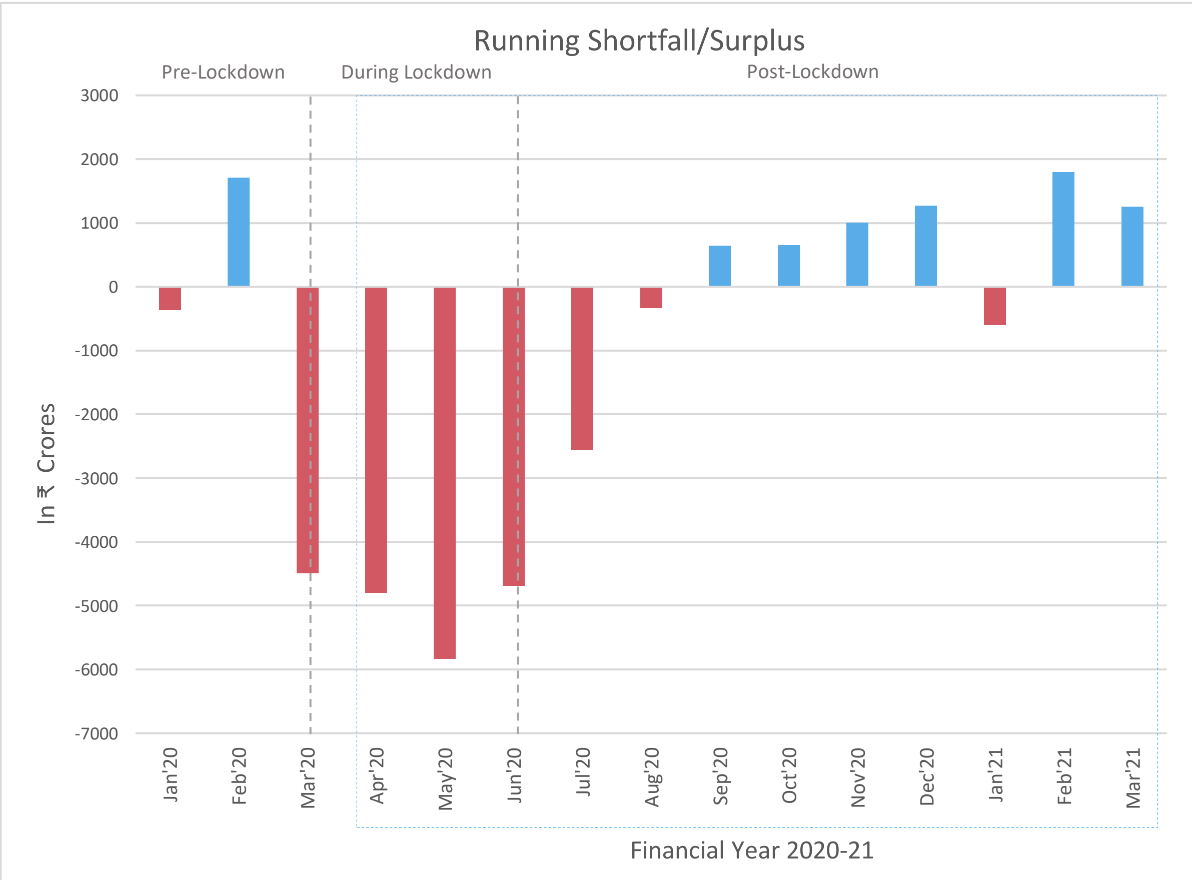
Earnings during April and May will again be negative due to cancellation refunds the IR has to service. Bookings for April and May done in advance through PRS were cancelled due to the national. And, variable working expenses corresponding to these months will be nil due to no movement of trains during these months.

Service	Specifics (In ₹ Crores)	March'20	April'20	May'20	June'20	July'20	August'20
Freight & Sundry	Earnings	10,696	5,682	5,850	6,103	7,394	8,020
	Fixed Working Expenses	4,569	3,616	3,836	3,816	3,702	3,378
	Variable Working Expenses	2,460	1,090	1,342	1,459	1,774	1,673
	Running Shortfall/ Surplus	**3,667**	**976**	**672**	**828**	**1,918**	**2,969**
Coaching	Earnings	2,181	(452)	(859)	249	2,174	3,750
	Fixed Working Expenses	6,721	5,319	5,642	5,613	5,445	4,968
	Variable Working Expenses	3,619	0	0	149	1,200	2,085
	Running Shortfall/ Surplus	**(8,159)**	**(5,771)**	**(6,501)**	**(5,513)**	**(4,471)**	**(3,303)**
Gross Running Shortfall/Surplus		**(4,492)**	**(4,795)**	**(5,829)**	**(4,685)**	**(2,553)**	**(334)**

The Strategy Boutique
Honest Consulting

5.2.1 Impact on Annual Performance

The organization is looking at yearly losses of nearly ₹12,188 crores. This is assuming traffic hits levels from before Covid-19 in November,2020. These losses if incurred will weigh down the organization immensely and urgent assistance from the Centre will be required to revive it



5.3 Scenario III

In the third scenario, assuming the lockdown will end in the middle of July, the Indian Railways will be looking at heavy losses raking up to approximately ₹25,881 crores from the month of March, 2020 to August, 2020.

Same as Scenario I and II, goods movement in March and April was down by 38.6% and 43.5% respectively as compared to the previous year. In May, TSB's analysis projects the downturn in freight movement to be in a similar range as April, close to a fall of 43/42%. June will see a further dip as the lockdown is stretched out for a longer time. Freight movement will fall by nearly 57% in this case.

There will be a recovery from July onwards. Considering half of July to be open, the fall will reduce significantly and reach 35%. This will keep reducing until October when the segment starts generating positive earnings again.

The coaching segment is expected to generate losses of ₹35,509 crores from March'2020 to August'2020 according to TSB's analysis of this scenario. April, May and June will face negative earnings due to the cancellation refunds from the IR.

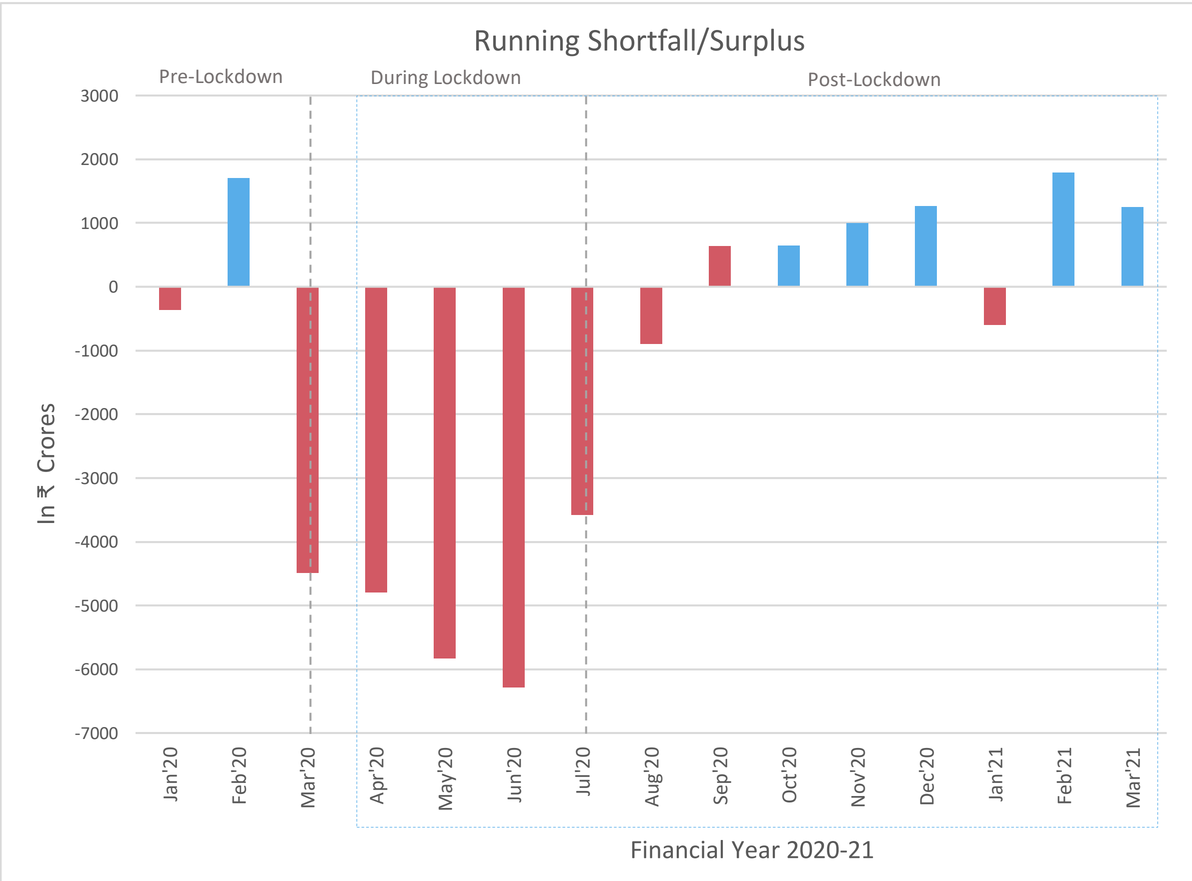
There will be a positive flow in coaching from July onwards and this trend will continue throughout the year from then.

Service	Specifics (In ₹ Crores)	March'20	April'20	May'20	June'20	July'20	August'20
Freight & Sundry	Earnings	10,696	5,682	5,850	4,785	6,334	7,683
	Fixed Working Expenses	4,569	3,616	3,836	3,816	3,702	3,378
	Variable Working Expenses	2,460	1,090	1,342	884	1,236	1,473
	Running Shortfall/ Surplus	**3,667**	**976**	**672**	**85**	**1,396**	**2,832**
Coaching	Earnings	2,181	(452)	(859)	(760)	1,143	2,928
	Fixed Working Expenses	6,721	5,319	5,642	5,613	5,445	4,968
	Variable Working Expenses	3,619	0	0	0	671	1,692
	Running Shortfall/ Surplus	**(8,159)**	**(5,771)**	**(6,501)**	**(6,373)**	**(4,973)**	**(3,732)**
Gross Running Shortfall/Surplus		**(4,492)**	**(4,795)**	**(5,829)**	**(6,288)**	**(3,577)**	**(900)**

5.3.1 Impact on Annual Performance

The Indian Railways will be tackling losses worth ₹15,380 crores at the end of the financial year 2020-21.

Revenue streams are expected to reach normal levels from January’2021 onwards.



5.4 Key Takeaways

Be it scenario I, II or II the Indian Railways is looking at an uphill task in the coming few months financially. Historically, it has never tackled losses at a net level. For the first time in its 167 years of operations it will be facing losses in ranging from ₹4,974to ₹15,300 crores at the end of this financial year. This magnitude of losses can’t be simply written off from the books of accounts. They have to be dealt with in a structured manner and assistance from the Centre will be absolutely essential to ensure the lifeline of the country doesn’t drown in these losses.

Road Ahead

Section 6

6. Road Ahead

For the first time in their history, the Indian Railways will be facing working losses ranging from nearly ₹5,000 to ₹15,000 crores at the end of the financial year 2020-21. Added to these losses will be spending during these unprecedented times to aid the country's battle against the coronavirus. With raising passenger fares completely out of the picture, the organization cannot resort to any of its existing segments to come out of this crisis standing on its own feet.

The organization has been facing issues regarding revenue streams since before this crisis. The network's freight operations have been declining over the last few years as connectivity grows. With more effective and efficient routes, many built by the Railways themselves, the total kilometers tonnage is moved over is reducing year on year.

This is leading to declining freight revenue. Many customers are also switching to road transport due to provision of reliable last mile connectivity in that mode. And, this trend is unlikely to change in the future. This coupled with the loss-making coaching segment has created an alarming situation for the service provider. The ongoing pandemic has further aggravated this exponentially.

There is an immediate need for the organization to reinvent and develop other modes of earnings to sustain. At the worst case, the nation might be looking at another Air India debacle.

The Strategy Boutique
Honest Consulting

The Strategy Boutique
2nd Floor - First India Place, Sushant Lok-I, Phase 1,
Block-B, MG Road, Gurgaon – 122002, India (+91) 98 1000
1413 www.thestrategyboutique.com
consult@thestrategyboutique.com