Chapter 1

Introduction of Indian Railways

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</tr>
</tbody>
</table>
First Indian Railway:

The first Indian Railway was built between Mumbai and Thane in 1852 and the first passenger train ran between the two stations, covering a distance of 34 km, on April 16, 1853.
Section A:

Introduction of Indian Railways

1.1 Introduction:

The Indian Railways, more than 150 years old, is among one of the largest and oldest railway systems in the world. It has an extensive network, and played an integrating role in the social and economic development of the country. Indian Railways is a principal mode of transportation for long haul freight movement in bulk, long distance passenger traffic, and mass rapid transit in suburban areas. It occupies a unique position in the social economic map of the country and is considered as a vehicle and a barometer of growth.

Indian Railways own and operated under Ministry of Railways (MOR), Govt. of India (GOI). Indian Railways Finances were separated from the general Exchequer in 1924 based on Acworth Committee reports and its annual requirement for funds is voted through a separate budget presented to the Indian parliament.¹

The first train in India was started on a small rail route of 34 Km between Mumbai and Thane on April 16, 1853. At present, the Indian Railways consist of an extensive network spread over 64015 km. comprising Broad Gauge (52808 km), Meter Gauge (8473 km) and Narrow Gauge (2734 km). (Source India 2011) With such a large rail route, the Indian Railways network has become the biggest railway of Asia and the third in the world. Up to the end of March-2009, about 29% of the route km, 42% of running track km, and 42% of total track km, has been electrified. Railways has nearly 14 Lakh employed which is about 41% of the total central govt. employees. Indian Railways has
been contributing to the industrial and economic landscape for over 150 year. Of the two main segments freight and passenger of the Indian Railways, the freight segment account for roughly two third of revenues.

Out of the freight & passenger traffic, the freight segments account for about 70% of revenue. Within the freight segment, bulk traffic accounts for nearly 84% of revenue earning freight traffic (in physical terms), of which about 44% in the coal.

As far as fleet of Indian Railways is concern it currently owns about 8330 locomotives out of which 3443 are electric locomotives, 4843 diesel locomotives and still it owns nearly 45 steam locomotives as its heritage. The units of wagons that Indian Railways have in its fleet are over 2 lakh.

In the Railway Budget for the year 1996-97, the Railway Minister had announced to create 7 new zones. Recently the Union Cabinet approved this decision and created seven new zones which raised the number of Railway zones to 16. East Central Zone of Hazipur and North West Railway Zone of Jaipur have started their functioning since October 1, 2002 while the remaining 5 other newly created zones have started functioning since April 1, 2003.²

1.2 Various Types of Transport:

Various modes of transport exist in India today. They include human transports, animal transports, road transports, tramways, railways, water transport and air transport. Each has a definite sphere of operation and if developed in a scientifically co-ordinate manner, can pay high dividends to the country.³
### 1.2.1 Road Transport:

Roads are the means that connect one place to another on the surface of the land. You must have seen roads in your village, in towns and cities. Not all of them look alike. Some of them are made of sand and some may be of chips and cement or coal tar. You find different vehicles plying on roads like bullock carts, cycles, motorcycles, cars, truck, buses, etc. All of these constitute different means of road transport. The means of road transport may be divided into three types:

1. Man driven;
2. Animal driven; and

You might have seen individuals carrying goods on their head or back, in bicycles or on thelas, move from one place to other. People also ride a bicycle or use rickshaw to travel short distances. We also find animal driven vehicles like carts (drawn by bullocks, camels, horses, donkeys, etc.) used in rural areas to carry crops, straw, fodder and sometimes even people. Sometimes even animals are directly used to carry goods from one place to another. In areas, which are normally covered with snow throughout the year, we find sledges pulled by dogs used to carry both passengers and goods.
Compared with man driven and animal-driven means of road transport, motor driven means of transport have become more important over the years. This is due to their speedy movement and larger carrying capacity. Extensions of roads to every corner of the country have also enhanced the use of motor driven transport. The types of motor vehicles used to carry goods and passengers include auto-rickshaws, scooters, vans, buses, tempos and trucks, etc. In Kolkata, tramway also forms part of road transport for carrying passengers.

**Limitations of Road transport:**

1. Due to limited carrying capacity road transport is not economical for long distance transport of goods.
2. Transportation of heavy goods or goods in bulk by road involves high cost.
3. It is affected by adverse weather conditions. Floods, rain, land sliding etc. sometimes create obstructions to road transport.

**1.2.2 Water Transport:**

Water transport refers to movement of goods and passengers on water ways by using various means like boats, steamers, launches, ships, etc. With the help of these means goods and passengers are carried to different places, both within as well as outside the country. Within the country, rivers and canals facilitate the movement of boats, launches, etc. since the goods and passengers move inside the country, this type of transport is called inland water transport. When the different means of transport are used to carry goods and passengers on the sea route it is
termed as ocean transport. Let us know further about these two types of water transport.

- Inland Water Transport
- Ocean Transport.

**Limitations of Water Transport:**

1. The depth and navigability of rivers and canals vary and thus, affect operations of different transport vessels.
2. It is a slow moving mode of transport and therefore not suitable for transport of perishable goods.
3. It is adversely affected by weather conditions.
4. Sea Transport requires large investment on ships and their maintenance.

1.2.3 Air Transport:

Air services in India which are of recent growth are a national need and the importance of its development was clearly revealed during World War-II. For the defense of the country as well as for quick, transport of men and materials in peace and wartime, air transport to be developed. It may also be used to relieve the distress caused by natural calamities such as earth quakes, floods etc. During the earthquakes and floods in recent year, for example, aero-planes rendered a great service to the people.

The most obvious advantage of air transport is its speed. Normal air lines cruise at an average speed of 200 miles per hour. High class passenger traffic enjoys the immense advantage of the speed crafts.

There are many limitations to air services. The cost of operation is the highest as compared to sea, road or railway services. The fare of the
air passenger is considerably higher than that of the first class railway passenger. As far as freight traffic is concerned, only very high goods can be carried. Low grade heavy goods can never be carried by airways. A certain amount of unreliability due to adverse weather conditions is one of the greatest drawbacks of air transport.

1.2.4 Rail Transport:

Railways are eminently suitable for quick long distance traffic and for the carriage of heavy and bulky articles, both high as well as low grade, especially when these pass in bulk. Railway’s speed is greater than that of motor or any other mode of transport, though this advantage is somewhat lost due to terminal, transshipment and other delays which are usual features with rail transport. But on a long journey, the greater speed of the railway can do a large extent make up for such delays and consequently journeys can be performed in less time by railway than by mechanical road vehicles.

The advantage of greater speed has enabled the railways to meet road competition especially over long journeys, through both in Great Britain and America, attempts are now being made by mechanical road vehicles even to capture the traffic over long distances, such competition, when offered by road transport, is not due to any inherent merit of that form of transport for that type of traffic, but is mainly due to cheaper charge made by mechanical road vehicles. The railways in many countries are at present making a serious attempt to capture their last traffic from road transport by accelerating their trains and by offering cheaper rates and fares.

Another advantage which rail transport possesses is in regard to the handling of bulk traffic. It is true that inland waterways and coasting
vessels sometimes offer considerable competition in this field and they are also very suitable for carrying certain particular types of low grade traffic where speed is not the primary consideration.

Railways are particularly suitable for dealing with heavy and bulky articles, especially when these pass in quantity and also for heavy passenger traffic. Railways have to spend a large amount of capital and expenditure once incurred is mostly for the traffic as a whole without any means of allocating the same among individual items of traffic. Consequently, the larger volume of traffic, the lesser will be the cost per unit. Hence railways can carry traffic at low charges provide heavy traffic is attracted thereby.6

1.3 Types of Passenger Train Services:

<table>
<thead>
<tr>
<th>Rank</th>
<th>Train</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Duronto Express</td>
<td>These are the non-stop point to point rail services (except for operational stops) state capitals of India and are faster than Rajdhani Express. The Duronto services consist of classes of accommodation namely first AC, two-tier AC, three tiers AC, Ac3 tier economy, sleeper class, general class.</td>
</tr>
<tr>
<td>2</td>
<td>Rajdhani Express</td>
<td>These are all air conditioned train linking major cities to New Delhi. The Rajdhani have high priority and are one of the fastest trains in India, travelling at about 140 Km/h (87 mph). There are only a few stops on a Rajdhani route.</td>
</tr>
<tr>
<td></td>
<td>Type</td>
<td>Description</td>
</tr>
<tr>
<td>---</td>
<td>----------------------</td>
<td>--------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>3</td>
<td>Shatabdi and Jan Shatabdi</td>
<td>The Shatabdi trains are Ac intercity seater-type trains for travel during day. Jan Shatabdi trains consists of both Ac and non-Ac classes.</td>
</tr>
<tr>
<td>4</td>
<td>Garib Rath</td>
<td>Fully air conditioned trains, designed for those who cannot afford to travel in the expensive Shatabdi and Rajdhani Express. Garib Rath means “Chariot of the poor”. The maximum speed is 130 Km/h.</td>
</tr>
<tr>
<td>5</td>
<td>Superfast Mail/Express</td>
<td>These are trains that have an average speed greater than 55 Km/h (34 mph). Tickets for these trains have an additional superfast surcharge.</td>
</tr>
<tr>
<td>6</td>
<td>Mail/Express</td>
<td>These are the most common kind of trains in India. They have more stops than their superfast counter parts, but they stop only at relatively important intermediate stations.</td>
</tr>
<tr>
<td>7</td>
<td>Passenger and Fast Passenger</td>
<td>These are slow trains that stop at most stations along with the route and are the cheapest trains. The trains generally have unreserved seating accommodation but some night trains have sleeper and 3A compartments.</td>
</tr>
<tr>
<td>8</td>
<td>Suburban Trains</td>
<td>These trains operates in urban areas, usually stop at all stations and have unreserved seating accommodation.</td>
</tr>
</tbody>
</table>
1.4 Comparison with World Railways:

A comparison of the essential features of important world railways including those that carry more passenger and freight than Indian Railways is given in the two tables below. The figures of efficiency parameters in the second table are derived figures. In terms of route length, Indian Railways is fourth largest in the world after US Railroads and Russian and Chinese Railways. As regards freight traffic, again it is fourth but substantially behind these three railways systems. In passenger traffic, even though Japan carries more passengers, Indian Railways is the highest in terms of passenger kilometers.
Table No. 1.1 Comparison with World Railways:

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Country</th>
<th>Network length (Kms)</th>
<th>No. of Employees</th>
<th>Passengers Carried (Millions)</th>
<th>Passengers (Kms) (Millions)</th>
<th>Freight Tonne Carried (Millions)</th>
<th>Tonne (Kms) (Millions)</th>
<th>No. of Locos</th>
<th>No. of Coaches</th>
<th>No. of Wagon</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>France</td>
<td>29488</td>
<td>166000</td>
<td>1097</td>
<td>83299</td>
<td>106</td>
<td>42435</td>
<td>4289</td>
<td>15973</td>
<td>33238</td>
</tr>
<tr>
<td>2</td>
<td>Germany</td>
<td>33897</td>
<td>231000</td>
<td>1835</td>
<td>74740</td>
<td>273</td>
<td>91013</td>
<td>4128</td>
<td>17537</td>
<td>95595</td>
</tr>
<tr>
<td>3</td>
<td>Russia</td>
<td>84158</td>
<td>1128000</td>
<td>1280</td>
<td>173411</td>
<td>1344</td>
<td>2090337</td>
<td>12063</td>
<td>33955</td>
<td>566802</td>
</tr>
<tr>
<td>4</td>
<td>USA**</td>
<td>226706</td>
<td>187000</td>
<td>26</td>
<td>9059</td>
<td>1775</td>
<td>2820061</td>
<td>23990</td>
<td>1186</td>
<td>475416</td>
</tr>
<tr>
<td>5</td>
<td>Canada</td>
<td>57042</td>
<td>34000</td>
<td>4</td>
<td>1451</td>
<td>313</td>
<td>353227</td>
<td>2947</td>
<td>595</td>
<td>97836</td>
</tr>
<tr>
<td>6</td>
<td>South A.</td>
<td>24487</td>
<td>36000</td>
<td>533</td>
<td>14856</td>
<td>181</td>
<td>108513</td>
<td>3301</td>
<td>1723</td>
<td>112417</td>
</tr>
<tr>
<td>7</td>
<td>Australia</td>
<td>9639</td>
<td>13000</td>
<td>54</td>
<td>1309</td>
<td>177</td>
<td>46036</td>
<td>509</td>
<td>663</td>
<td>10889</td>
</tr>
<tr>
<td>8</td>
<td>India</td>
<td>63327</td>
<td>1406000</td>
<td>6219</td>
<td>694764</td>
<td>728</td>
<td>480993</td>
<td>8110</td>
<td>43124</td>
<td>207719</td>
</tr>
<tr>
<td>9</td>
<td>China</td>
<td>63637</td>
<td>2067000</td>
<td>1287</td>
<td>689618</td>
<td>2624</td>
<td>2211246</td>
<td>17222</td>
<td>42471</td>
<td>571078</td>
</tr>
<tr>
<td>10</td>
<td>Japan</td>
<td>20050</td>
<td>132000</td>
<td>8907</td>
<td>252579</td>
<td>36</td>
<td>23145</td>
<td>1170</td>
<td>25227</td>
<td>9067</td>
</tr>
</tbody>
</table>

* Source: UIC 2007  **AAR Class I and Amtrack
Table No. 1.2 World Railways Efficiency Parameters:

<table>
<thead>
<tr>
<th>Country</th>
<th>Freight Lead (Km)</th>
<th>Passenger Lead (Km)</th>
<th>NTKM/Employee (millions)</th>
<th>PKM/Employee (millions)</th>
<th>(NTKM + PKM)/Employee (millions)</th>
<th>NTKM/route length (millions)</th>
<th>PKM/route length (millions)</th>
<th>(NTKM + PKM)/route length (millions)</th>
<th>NTKM/wagon/day (millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>France</td>
<td>400</td>
<td>76</td>
<td>0.26</td>
<td>0.5</td>
<td>0.76</td>
<td>1.44</td>
<td>2.82</td>
<td>4.26</td>
<td>3498</td>
</tr>
<tr>
<td>Germany</td>
<td>333</td>
<td>41</td>
<td>0.39</td>
<td>0.32</td>
<td>0.72</td>
<td>2.68</td>
<td>2.20</td>
<td>4.89</td>
<td>2608</td>
</tr>
<tr>
<td>Russia</td>
<td>1555</td>
<td>135</td>
<td>1.85</td>
<td>0.15</td>
<td>2.01</td>
<td>24.84</td>
<td>2.06</td>
<td>26.90</td>
<td>10104</td>
</tr>
<tr>
<td>USA</td>
<td>1589</td>
<td>348</td>
<td>15.08</td>
<td>0.05</td>
<td>15.13</td>
<td>12.44</td>
<td>0.04</td>
<td>12.48</td>
<td>16251</td>
</tr>
<tr>
<td>Canada</td>
<td>1129</td>
<td>363</td>
<td>10.39</td>
<td>0.04</td>
<td>10.43</td>
<td>6.19</td>
<td>0.03</td>
<td>6.22</td>
<td>9892</td>
</tr>
<tr>
<td>South A.</td>
<td>600</td>
<td>28</td>
<td>3.01</td>
<td>0.41</td>
<td>3.43</td>
<td>4.43</td>
<td>0.61</td>
<td>5.04</td>
<td>2645</td>
</tr>
<tr>
<td>Australia</td>
<td>260</td>
<td>24</td>
<td>3.54</td>
<td>0.10</td>
<td>3.64</td>
<td>4.78</td>
<td>0.14</td>
<td>4.91</td>
<td>11583</td>
</tr>
<tr>
<td>India</td>
<td>661</td>
<td>112</td>
<td>0.34</td>
<td>0.49</td>
<td>0.84</td>
<td>7.60</td>
<td>10.97</td>
<td>18.57</td>
<td>6344</td>
</tr>
<tr>
<td>China</td>
<td>843</td>
<td>536</td>
<td>1.07</td>
<td>0.33</td>
<td>1.40</td>
<td>34.75</td>
<td>10.84</td>
<td>45.58</td>
<td>10608</td>
</tr>
<tr>
<td>Japan</td>
<td>643</td>
<td>28</td>
<td>0.18</td>
<td>1.91</td>
<td>2.09</td>
<td>1.15</td>
<td>12.60</td>
<td>13.75</td>
<td>6994</td>
</tr>
</tbody>
</table>

* Derived from UIC 2007 data.
The efficiency and productivity figures reveal that:

Leads in freight are substantially higher on Us Railroads, Russian Railways and Canadian Railways Compared to Indian Railways. The average lead on Chinese Railway is 843 against Indian Railways 661. The Net Tonnes Kilometers (NTKM) / route kilometer of Russian, USA and Chinese railways are much higher than that of Indian Railways.

Passenger leads are much higher on Russian Railways, Us Railroads and Chinese Railways. The Passenger Kilometers (PKMs) /route kilometer of Indian Railway compares well with the other railways like the Chinese and Japanese Railways.

The productivity figure of NTKM/employee is much higher in case if US Railroads, Canadian Railways, South African and Australian Railways, which carry heavy, haul traffic and have much less number of employees. The figures of Chinese Railways and Russian Railways make a better comparison with Indian Railways performance they have comparably high staff strengths (Russian Railways= 11.28lakh, Chinese Railways=20.67, Indian Railways=14.06 lakh). Indian Railway should in to reach the NTKM productivity figure of these two Railways.

Indian Railways (IR’s) productivity figures of PKM/employee are second only to Japan which, however, has very less number of employees. Compare to Railways like Chinese Railway and Russian Railways. Indian Railways figures are much higher.

NTKM/wagon day figures of Indian Railways are much lesser than that of US Railroads, Russian Railways, Canadian,
Australian and Chinese Railways. Indian Railway should aim to achieve the figure of Russian and Chinese Railways.

An analysis of the comparative figure reveals that in respect of rout kilometers, no. of employees and fright traffic, Indian Railways should aim to achieve the figures of Russian Railways (84158kms, 11.28lakh employees and 1344 million tonnes). For passenger traffic, Indian Railways figure are not strictly comparable since it does not have high speed passenger services in Japan, China and the European railways.⁸
1.5 Importance of Subject:

India is a vast sub-continent with an area of 3287263 sq.km and a population of over 120 crore. The country has 638365 villages and 5161 towns and cities with varying social customs, languages, geographical environments and economy. To surmount these social and geographical barriers and to bring producers in distant and in accessible areas into closer contact with the various consuming centers in India, an efficient system of rail transport is of paramount importance.

India is a nation which ranks second in the world with the population point of view. The Indian population is very divers, and has many sources of income for them. The company employing highest number of people in India is the Indian Railways. It is governed by central government.

The network of Indian Railways is increasing day by day which fulfils the demand of transportation and employment of growing Indian population.

India is facing biggest problem of unemployment, however Indian Railways provides some help to solve this problem. The Railways Ministry of India is in focus this day because of efficient administration of past Railway Minister Mr. Lalu Prasad Yadav. His decision taking capacity, planning and strategies have developed Indian Railways. As a result of this the Indian Railways become a part of every man’s life as well as it has contributed a lot in the revenue of Indian Economy.
1.6 Selection of Topic:

This Subject is so vast that a lot of study can be done on it. Recently the increase in the budget of Indian Railways is found to be more attractive. Indian Railways are concerned with every class of Indian people from lower to higher class. The most fascinating point of study is that Railways Budget of financial year 2007-08 has touched the figure of nearly 25000 crore.

The study can lead people to understand the importance of Indian Railways budget for them. The relevant study will help to Indian people to understand the possible improvements in future of the Indian Railways.

1.7 Objectives of Research:

i. To study the history of Indian Railways.
ii. To study the sources of revenue of Indian Railways.
iii. To Study the revenue trend of Indian Railways.
iv. To study the various schemes of Indian Railways.
v. To analyze the expenditure trend of Indian Railways.
vi. To Suggest Recommendations.

1.8 Hypothesis:

i. Rapid increase in total expenditure of Indian Railways.
ii. Increase in revenue of Indian Railways is more than its total expenditure.
1.9 Limitations:

1) The concerned study is limited to the period from 1992-93 to 2007-08
2) The concerned study is mainly based on secondary data.

1.10 Research Methodology:

The concern study is based on secondary data, which is mainly published by Railways Ministry of India. In this study, the reports published by Railway Ministry or Central Government, and reports of experts are used. Railway budgets, Reference Book, periodicals, internet etc. are also referred. The statistical tools such as Averages, Standard deviations, Coefficient of variations graphs etc. are used.

*In this study we have been used following Statistical Techniques:*

1) Average : \( \bar{X} = \frac{\Sigma x}{n} \)

2) Standard Deviation : \( \sigma = \sqrt{\frac{\Sigma fd^2}{N} - \left(\frac{\Sigma fd}{N}\right)^2} \)

\( d = (X - A) \)

\( A = \) Assumed mean
3) Co-efficient of Variation: \( \frac{S.D}{x} \times 100 \)

4) Correlation (r): \( \frac{n\Sigma dx dy - \Sigma dx \Sigma dy}{\sqrt{n\Sigma dx^2 - (\Sigma dx)^2} \sqrt{n\Sigma dy^2 - (\Sigma dy)^2}} \)

\( r = \) correlation

\( n = \) No. of Observation

\( dx = x - \) Assumed mean (A)

\( dy = y - \) Assumed mean (B)

5) Growth Rate: \( \frac{\text{Current Year Value} - \text{Base Year Value}}{\text{Base Year Value}} \times 100 \)
1.11 Chapter Scheme:

The present study has been divided into five chapters.

Chapter I:

Section A: Introduction

First chapter has given introduction of research work, types of transport, types of passenger train services, comparison of world railways, importance of subject, selection of topics, objectives of research, hypothesis, limitations, research methodology and chapter scheme.

Section B: Review of Literature.

Chapter II:

Section A:- Historical Review of Indian Railways

The second chapter contains historical review of Indian Railways, pre-railway period, history of Indian Railways, first railway in the world, definition of railways, review of various committees on Indian Railways.

Section B: Present status of Indian Railways.

Railway Gauge in India, components of Indian Railways, various zones of Indian Railways, organization of Indian Railways, List of Railway Ministers.

Chapter III:

Third chapter covers various schemes of Indian Railways. The schemes are categorized are below, schemes of medical, schemes for senior citizens, schemes for student, schemes for
widows, schemes for farmers, schemes for youths, schemes for volunteers, professionals. Citizen character of passenger services of Indian Railways and schemes for goods. Special facilities for foreign tourist by Indian Railways. Citizens character on passenger services of Indian Railways, Tatkal scheme and Social service obligation.

Chapter IV:

The fourth chapter studies the zone wise revenue and expenditure pattern of Indian Railways.

Chapter V:

The last chapter covers summery, conclusions and recommendations.
Section B:

1.12 Review of Literature

1) Trade Union Movement in Indian Railways. (1969)

Mahesh Kumar Mast has written a book titled as ‘Trade Union Movement in Indian Railways’

The present study attempts a quantitative and qualitative study of the labour movement engineered by this organized labour force.

The study of the labour movement in Indian Railways becomes all the more important because of the following reasons;

Firstly, the labour movement in the Indian Railways has been the backbone of the Indian labour movement. Indian Railways represent the biggest public sector in the economy and the labour movement in this sector is expected to guide the labour movements in other sector.

Secondly, Industrial peace in Railways is highly essential at the present juncture of the country’s growing economy. It should not be gainsaid cannot be attained and industrial peace be maintained. It is for the labour movement to make suitable arrangements for speedy settlement of disputes. A trade union making such arrangements will be rendering service to the employers, employees and the country.

Finally, the railway labour-force occupies the key position in Indian economy. The role of this labour force is socially and economically most vital to maintain modern Indian society. This
has rendered the social specific weight to the railway labour movement out of the proportion with its numerical strength.\(^9\)

**2) Indian Railways Problems & Prospects (1962)**

K.K. Saxena has written a book titled as ‘Indian Railways Problems and Prospects’ A study in the management and working of Indian Railways.

Saxena has discussed the problems of organization and management, personal administration. Some of these problems are discussed below,

It is expected that the services which the railways provide are not only be safe but also comfortable. The Indian Railways have paid but little attention to these two major problems relating to users of railway services. Though there has been some reduction in the number of accidents but no such improvement is noticeable in the total figures for casualties. The magnitude of the problem can be judged from the fact that there has taken place a tremendous increase in the cost of damage due to accidents. It has been estimated that during that last ten years it has increased by about four times. The number of accidents can be brought down by adoption of suggested measures on administrative technological, supervisory and safety fronts. Research if conducted properly for each accident from analytical point of view would also remain helpful for solving the problem. Obviously, there is an urgent need for safety measures. Regarding the question of comfortable travel, it may be said that it has been the most neglected side of railways in India.\(^{10}\)
3) Development of Indian Railways (1930)

Nalinaksha Sanyal has written a book titled as ‘Development of Indian Railways’. He discussed the following point in the books.

Indian Railways development is a most interesting and fascinating study, connected as it is with the history and the prospects of agricultural and industrial life in the country. Unfortunately the problems of railway transport have been altogether disregarded by economists in India.

At attempt has been made in the book to give a connected account of the rise and development had to satisfy in the pre-industrial era, as well as the type of ownership and management which facilitated a rapid construction. Emphasis has been laid throughout to present in sequence the various problems which Indian Railways development had to face and the study has been conducted by periods and not by subject. The division of the periods of study has been determined chiefly by consideration of changes in railway policy and financial administration, and this has sometimes necessitated a departure from a rigid survey by periods of certain problems.

It can be hardly said that such problems like those of policy and management, rates and fares financial administration and results have been solved finally. These have had a history in the past and are still awaiting solution.

It has been discussed these are other kindred problems like railway law, gauge and alignments, and working and traffic results in the light of the larger economic interests of the country.11
4) Railway Budget 1997-98 : (May 1997)

Amit Vardhan discusses Railway Budget 1997-98 : in the article published in Kurkshetra. He discussed the following points in the article.

At the very outset he emphasized the importance of budget. According to him budgets are not merely statements of finance and expenditure; they are expressions of a philosophy. Lest this philosophy be lost in a maze of fact and figures, the Railway budget 1997-98 makes it very clear at the outset itself, by stating that Railways should function not only as a ‘commercial institution’ but also as a public welfare organization for the development of backward regions.

He had taken a survey of last year’s major happenings as below:

i. A target of loading 410 million tonnes of revenue earning traffic was fixed for 1996-97 which is going to be achieved.

ii. Two unreserved 2nd class coaches have been attached to several mail/express trains, for the benefit of unreserved passengers, as also to check overcrowding in sleeper coaches.

iii. During 1996-97, 82 new trains were introduced, 62 trains were extended and frequency of 22 trains was increased. Also, more than 1200 special trains were run on 30 routes during summer vacations and marriage seasons.

iv. Doubling of several lines in being done on some of the most saturated section, in order to ease traffic flows.

He reviewed the budgetary measures for the year 1997-98
i. Passenger fares for sleeper class (in mail/express ordinary trains) are to go up by 5%. As upper class travel, the increase is of the order 10%.

ii. A surcharge of 20% has been levied on parcel and luggage carried by superfast trains.

iii. Freight rates on all but 15 mass consumption commodities (eg. Food grains & pulses, salt, oil) are to go up by 12%.

At the last he has made some suggestions regarding the financial position of the railways.

i. Railways all over the world are heavily subsidized by the state and even in the developed French and German Railways, subsides account for 50% of rail revenues. This budget sees a refreshing, change in that budgetary support has been enhanced by 30% over previous year’s level but more needs to be done;

ii. Rationalization of concessions, and bringing them down to the minimum level possible;

iii. Increasing the marketing effort, so as to recapture lost traffic. In short he concluded as:

Resources are getting scarce and costlier, while there are increasing pressures on the system to expand and to deliver more efficiently. Despite this, important work of line expansion (with an emphasis on backward areas), electrification, Gauge conversion, increasing passenger amenities, computerization etc. are proceeding at a rate as fact as resources permit. However, some serious steps would be required to turn around the financial health of the Railways, so that it can act as facilitator of, rather
than an impediment to, a higher growth trajectory of the Indian economy.  

5) The Economics of Indian Rail Transport: (1963)

J. Johnson has written a book titled as ‘The Economics of Indian Rail Transport’

The object of the present study is to trace and record the various changes in the organization, management and working of Indian Railways, from the beginning to modern times, as well as in the framework of the country’s present economic planning and development.

Without Railways, would it be possible for us to “discover” this vast sprawling land of ours and to realize the essential unity of India? In the course of the last hundred years or so, railways have proved to be one of the greatest cementing forces which the people of this ancient land have experienced since the dawn of their long history. During more than century of their existence, Indian Railways have been one of the most potent factors in bringing about greater economic inter-dependence, social upliftment and political consolidation.

The problems of railway traffic in India, both passenger and goods, and the contribution of Railways to India’s economic growth have been fully discussed, Provision of efficient and economic rail transport facilities depends upon the extent of Railway mileage and modernization, efficiency of organizational set up and personnel management, its financial stability, the suitability of its rates policy, its successful co-ordination with other
modes of transport, and maintenance of happy public relations. I have endeavored in this study to survey as comprehensively and exhaustively as possible all these important aspects of railway economics.

His investigations are broadly divided into three parts, namely,

i. A review of the history of Indian Railways to know the trends of their development during the regime of the British whose principal aim in developing them was radically different from what we have now before us;

ii. A study of the present organization and working of Indian Railways to find out to what extent the railways have been instrumental in moulding the socio-economic life of the country; and

iii. A prospective organization and working in order to make Indian Railways services effective, economical and helpful in the development of agriculture industry and commerce in the context of the present and subsequent five year plans.  

6) Indian Railway Finance : (1956)

V.V. Ramanadhan has written a book titled as ‘Indian Railway Finance’

This is an enquiry into the nature of Indian Railway Finance the beginning of the present century. It runs in three stages firstly, the secular and cyclical changes in the prosperity of Indian Railways are analyzed and explained in the light of economic conditions prevailing from time to time. Secondly, the
cost behavior of Railways is examined, with particular reference to boom and depression; for it is during such periods of fluctuation that policy seems to be far from clear at the outset. The analysis is devoted to an investigation into the policy of railway profits and its relationship with rates. This is, in fact, the central theme of the enquiry. It has been concentrated on the rate level rather than on the rates structure, as the former is the more fundamental issue. 14

7) Financial Management of Indian Railways:

Bhishan Narayan Asthana has written a book titled ‘Financial Management of Indian Railways.’ Indian Railways constitute the largest nationalized undertaking in the country, with a total capital investment of over Rs. 3376 crores. They comprise one of the few railway systems of the world with a net earning power adequate to meet all fixed charges and provide substantial sums for development of the Indian Railways amount to over Rs. 1070 crores and Rs. 905 crores respectively. The principle cause of this imposing picture of railway finances is to be found in the high level of railway traffic earnings and the rationalization of rates and fares brought about gradually, from time to time, since 1948.

Railway Finance in India has had a chequered career. Its course was often charged and modified to suit the needs of time. Thus, it grew up in the first time an effort was made to put the railway finances on a sound and definite footing prior to that attempts were made by a number of committees to assign an
independent role to India’s Railway finances, but with no results. The reference here is to the appointment of the Acworth Committee in 1921. Railway finance was one of the terms of reference of the committee. The appointment of the committee, in a way, coincided with political unrest and agitation in the country and economic crisis abroad, which made its own contribution to the prevailing financial uncertainties in India. It was recognized that it was necessary to keep the railways, a commercial enterprise, free from the uncertainties of the general budget.

After a careful examination of the various Railway convention resolutions adopted from time to time, the conclusions arrived at indicated that the railways contributions to the general revenues have not been on the higher side. Whatever the nation gets under the present arrangement today is in keeping with the principle of ‘fair return’ on the investment. Under more favorable circumstances the general tax-pair, whose status is that of the sole shareholder in the Railway undertaking, should expect a larger share consistent with the maintenance of the railways rehabilitation and development programmers. There is nothing ethically or financially wrong in using the railways, nationalized public utility undertaking as a tax-media. 

8) A study in Public Utility Administration: (1960)

This book is mainly an attempt to study the Indian Railways administration and its history of Indian Railways. The starting point 1921 is a landmark in this history, because the Acworth Committee reported in that year. The whole period may
conveniently be divided into two parts, with the year 1947 forming the dividing line, but the various aspects of administration are treated as part of a continuous process of growth during the period as a whole so as to derive instructive lessons from the point of view of policy.

The history is presented in the light of the sound principles of public utility administration and with a view to studying the record of performance of various systems of management which prevailed in India during the period, especially state management and company management, and of the administration as a whole. While evaluating the performance, care has been taken to keep to the historical sense. Taking into consideration the lessons of the past history of railway administration in India, its presents requirements and possible future developments, the kind of reorganization needed has been suggested. The study is thus a two-fold attempt at analysis of the different phases of organization and operation & also interpretation.

It is an excellent analysis of financial & operating results. The present work differs from it in respect of the period covered and emphasis. Whereas Mr. Natesan’s survey stops at the year 1937, the present study covers the period from 1921 up to date. More emphasis is laid in this work on consumer interest and welfare of labour, within the restricted field of his study, Mr. Natesan naturally did not pay any attention to employer-labour relations. In this book the roles of the legislature and the consumer committees have been fully discussed, while Mr. Natesan has only briefly touched upon them. The present work,
therefore, claims to break new ground on the subject of railway administration.  

9) Thesis P.H. Gawali (March 1988)

P.H. Gawali his study ‘A study of Railway Administration’ (A case of Purna, Junction) present study of Purna Railway Junction which comes under the south Central Railway Zone of the Hyderabad Meter gauge Division is taken up with a view to highlight its functioning from the technical, economical and personnel administration.

In this study there are some objectives these are following:

- To review technical and engineering aspects of Railway Administration, with special reference to Purna Railway Junction.
- To analyses the commercial aspects of Railway management with special reference to Purna Railway Junction.
- To highlight economic and finance year aspects of railway administration with special reference to Purna railway junction.
- To problem into the personnel administration of Railway’s and to identify the problems of Railway Employees with special reference to Purna Railway Junction.

He conclude that

- The town area is situated to the north side where as the station building and booking office is towards the South Side, hence, it becomes difficult for the people from the town to cross the bridge to get tickets. Therefore, it is suggested that a separate booking window needs be opened to the town side.
- The area between platform number one and two is slippery due to continuous water flow from the taps and many times, it becomes
problem for the passenger and Railway servants for carrying out the work.

Hence, it is suggested that a cement pavement may be laid to facilitate the drainage of flowing the water.

- The steam engines are run on coal and water. Naturally the coal transaction and the steam creating machinery in the locomotives produce more smoke which pollutes surrounding area. The people staying around the locoshed and the station area are affected by the smoke. Polluted air which adversely affects their health.

- There is a shortage Railways quarters since the exciting Railway staff strength of employees at Purna. The total strength of the staff is 1773, where as the quarters provided by the Railway Department is 714.

- There is frequent light failure. The generator available provides lighting only to station area & important places.

Hence, it is suggested that one more generator may be made available to provide lights for the complete Railway colony.\(^\text{17}\)

10) Thesis : July 1989

P.G. Kulkarni in his M.Phil work on the topic of ‘Pricing And Costing of Railway services’ He concluded that along with India’s planned development, the Indian Railways also progressed and have passed through 3 main stages. The first stage confined the first two plans, the railways were mainly concerned with rehabilitation and replacement of assets. During this period, the foundation was laid for achieving self sufficiency in rolling stock and other equipment by setting up factories. The
rehabilitation and modernization of railways assets was undertaken with a view to increase the line capacity and rolling stock so as to meet the growing demand for rail transport arising as a result of planned investment in core industries such as coal, iron, steel, cement, fertilizers etc. The second stage beginning with the third plan was marked by an emphasis on the development of sufficient capacity to support the expanding industrial and agricultural activities. In this stage, a beginning was also made in the modernization of traction through dieselization, electrification and improvement in signaling. Since then in third stage i.e. in the corporate plan from 1975-85 the main thrust has been to increase the capacity of goods traffic by improved utilization of existing assets and achieving better performance. Though these efforts have let to considerable growth of the railways by way of expansion of the rolling stock modernization of operational techniques, there by leading to increase in traffic, the supply of railways services has been lagging moreover, there is also a widespread felling that the railways have not enlarged their network to take care of increased regional specialization i.e. taking place and the need to development alternative routes to the more congested ones.

It is widely recognized that Railway traffic has been presently kept low. The corporate plan (1985-2000) for the Indian Railways admits that this has resulted ‘in a severe resources shortage for financing an accelerated programmes of replacement of average assets and simultaneously building up transport capacity to meet the increasing traffic; The plan, while emphasizing the necessity to follow a programmatic pricing policy which includes policy of rating based on cost of service,
also contradicts this idea in pointing out the need to ensure that contribution to total revenue is related to what the service can bear.\textsuperscript{18}

11) **Should Indian Railways be privatized? : (1995)**

M.Q. Dalvi in his articles on “Should Indian Railways be privatized?” found that The Indian Government has adopted a liberal approach in its economy and industrial policies. Liberalization implies deregulation of industrial structures and abolition of all forms of licensing and restriction on the entry and exit of firms in every sector of the economic. It does not necessarily mean denationalization or privatization of public enterprises. In fact, public and private enterprises can coexist and compete with each other in a deregulated economy and there can be competition between different public corporation themselves in a given industry without any involvement of the private sector.

But where public corporation are not performing satisfactory and there is a hard empirical evidence that the private sector can do better, there may be a good economic case for handing over such corporations to the private ownership and management.

A number of activities in Indians Transports sector may fall in this last category. For example there is no economic justification for reserving intercity road passenger transport exclusively for the public sector.\textsuperscript{19}
12) G. Alivelu: (April 2010):

‘Salient Aspects of the Growth story of Indian Railways 1981-82 through 2007-08’

This paper makes an attempt to provide a broad overview of the salient aspects of the growth story of Indian Railways since Independence more specifically, the study aims to analyze the trends of output and employs for the period of 1981-82 through 2007-08. The entire study period is divided into three sub periods. Period I (1981-82 to 1991-92); Period II (1992-93 to 2002-03); Period III (2003-04 to 2007-08) In addition, the study also looks at the ‘turnaround’ story of Indian Railways.

The output of Indian Railways is categorized as freight (NTKM) and passenger (PKM) outputs, labour is divided into 3 categorized as skilled management personnel (group A&B), semi-skilled employees (group C) and unskilled employees (group D). The data on freight output reveal that while the average annual growth rates of NTKM declined in the second period over the first period, high average annual growth rates of freight output were registered in the third period. The rate of growth of PKMs increased over the study period across Indian Railways.

The employment scenario across Indian Railways shows that the percentage share of the skilled management personal (group A&B) remained more or less the same over the entire study period, while the percentage share of the semi-skilled labour (group C) increased from around 51% in the first period to nearly 63% in the third period. The percentage share of the unskilled labour (group D) registered a decline from the first period to the third period (from nearly 49% to 36% respectively)
the rate of growth of labour productivity registered an increase in all the three periods over Indian Railways. The contribution made by the skilled management personnel to output is more when compared to the semi-skilled labour. The turnaround story tells us that the high growth rates of output and earnings on Indian Railways were made possible through the implementation of various strategies already in place.

Finally on the basis of his entire study on Indian Railways ‘Salient Aspects of the growth story of Indian Railways 1981-82 through 2007-08 he suggested some policies and expect to best possible mix of budgetary and extra budgetary resources. Further, for efficient project execution, there is a necessity for optimum use of resources & complete the projects within the targeted time and cost.20

13) G. Raghuram, Rachna Gangwar : July 2008

This study covers issues and strategies related to financial and physical aspects of revenue generating freight and passenger traffic from 1987-2007. The study also covers the development in the parcel, catering and advertising sector.

The objectives of this paper are,

- Strategic assessment of rail sub-sector from 1987 to the present.
- Focus on the trends in sub-sector performance and key issues for the period, including consideration of changing public and private roles.

Following recommendation are made by the writer

- For Indian Railways to survive over the next 20 years and beyond, it has to adopt a “strategic perspective” where it rekindles high growth in both the passenger and freight segments.
The committee has constructed three possible investment strategies for Indian Railway over the next fifteen years. The first two scenarios, “Low Growth” and “Medium Growth” are constructed in a “Business as Usual” framework, whereas the third substantial focused remunerative investment and corresponding organizational restructuring of Indian Railways internally and in its relationship with Government, including Corporatization.

Indian Railways should take steps to recover its market share through a combination of tariff re-balancing and quality enhancement measures, and to increase its share of the transportation of “other commodities”.

14) Ankit Gupta, Vidya Bhat (May 1, 2007)

This is a Case study on Indian Railways focused on multiple facets. Detailed analysis of the turnaround, critical Appraisal of these strategies, sustenance of this growth, and role of Organization structure of Indian Railways etc. worked is out in this article. In this case study they looked at only certain aspects of Indian Railways due to the constraints such as limited time. They firstly took brief diagnosis of the strategies that were behind the turnaround of Indian Railways. This is a very well studied and documented area so Ankit Gupta and Vidya Bhat moved on further to probe two particular questions pertaining to Indian Railways. First, they studied marketing strategy of the Indian Railways, among the masses so as to counter threats like low cost airlines. Secondly they focused on the major question of privatization of Indian Railways which has been lingering around for quite a while now. This study was a comparative case study
with the privatization of British Railways and then justifies the model of privatization that is slowly being adopted now for Indian Railways.

The conclusion of the study is given below,

In this case study they looked at the growth achieved by the Indian Railways in the past few years and major strategies responsible for them. These include capacity enhancement, better utilization of the current capacity and also scheme to increase the exiting sources of revenue. Today, Indian Railways is facing serious threats from the low cost airlines which offer a much quicker journey at comparable cost.

Thus there is a need to position the railways brand higher in the mind of the Indian passengers.

They analyzed possible strategies that could be used to lure different segments and ultimately increase the volume of the passenger revenue. Another question that has been lingering around for quite a while now is regarding the privatization. They does a comparative study with the British railways and come to a conclusion that complete brake up into smaller enterprises will not prove to be good. Due to the critical role played by the railways in India, total control of Indian Railways should not be transferred into private hands. Focus should be on commercialization rather than privatization where various smaller tasks are outsourced to private hands or are done in public-private partnerships. Steps are being taken to do such a restructuring of the operations today. **22**
15) **Turnaround of Indian Railways (Feb 2007)**

This paper attempts to diagnosis of the ‘Turnaround’, beginning with the question as to whether it really was a ‘turnaround’. This paper then carried out and analysis of the various determinants of the ‘turnaround’ related to goods, passenger and other operations. This is followed by critical assessment of the strategies and key process being the ‘turnaround’. Finally the sustainability of the turnaround is explored.

Indian Railways which was declared to be heading towards bankruptcy as per the Expert Group on Indian Railways in 2001 is today the second largest profit making public sector undertaking after ONGC. The total investment being planning for the eight year time frame (2007-2015) is tentatively in the order of Rs.350.000 cores. This confidence is not also due to the rising trend of performance, but also due to the significant growth in the past two years. This two year coincided with Mr. Lalu Prasad being at the helm of affairs of the Indian Railways, having moved into his positions on 23rd May, 2004. Railway officials called this as the ‘turnarounds’ of the Indian Railway’.

His recommendation is as follows.

- Indian Railways will have to compete even harder with other modes to sustain its traffic volumes, let alone accelerate growth. Thus a significant change is needed in Indian Railways strategy towards its freight services.

- If Indian railway is to survive as an ongoing transportation, organization it has to modernize and expand its capacity to serve the emerging needs of a growing economy. This will require
substantial investment on a regular basis for the foreseeable future.

- The expert groups focus on root causes has highlighted three priority areas; institutional separation of roles; clear differentiation between social obligations and performance imperatives; and the need to create a leadership team committed to and capable of redefining the status quo.

- Tenures of general managers, members and chairman of the Board should be for a minimum of 3 years. The general managers and members may be made equal in salary so that they do not have to move simply for the sake of increased salaries. Similar tenures are suggested for additional general managers in the new structure.  

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