CHAPTER I

INTRODUCTORY
In India, the railways in the initial stages, were solely constructed from strategic rather than economic considerations. But since their very inception in 1832, they have been playing a crucial role in shaping the economic destiny of the country. They have rightly been called the 'Iron Horse' on Indian soil, accelerating social change and largely contributing towards the reconstruction and development of the country. With their advent in India most of the difficulties and dangers of travel through this vast land were annihilated. Evils of isolation were removed and overcome, thus bringing the people closer by taking them out of their water-tight compartments.

They removed the dislocations of economic life by providing self-sufficiency and prevalence of local economy; they encouraged mass migration of population from the areas of congestion and a rapid movement of man power; they speeded up large scale production and brought about industrial transformation in this industrially backward country. They were instrumental in bringing about the green revolution, making the villager self-dependent and self-confident. The unremunerative subsistence farming gave place to commercial farming and made farmers much better off than what they had been before.

Railways, however, have not been an unmixed boon to the country. They have led to a certain amount of lopsided economic development, contributing towards the destruction of indigenous
industry and thereby causing unemployment to the village artisan. At many places they have led to the reckless destruction of forests in order to meet their fuel requirements. They brought in foreign capital and foreign investment which had serious repercussions on agriculture, industry and other aspects of economic life.

Most of these adverse effects, however, were not due to railway construction as such but were due to the manner in which they were brought about and the undue haste that was displayed in connection with it. Railways had a chequered career and did not develop on the basis of a well-laid out plan and had to pass through various experimental stages.1

Even in the face of all these adverse effects, railways, by breaking all barriers of time and distance have transformed our social, religious, educational and economic institutions a great deal.

\textbf{NATURE OF RAILWAY INDUSTRY}

Railway industry is unique in nature, firstly, because of its administrative control, its working, its organisation, its capital investment and expenditure, the policy of no-profit motive, and its problems of administration and control are not the same, rather these are quite different from other industries. As they are

1. For details refer to Chapter II.
of the nature of public utility services of a special kind, they are classified under Public Utility Services or Public Utility Undertakings. Due to their unique nature they developed into a big nationalised enterprise under the public sector with a huge fixed capital investment.

Secondly, industries in general are associated with the production of specific materials, rather they are the producing agents. Railways, as a general rule, do not produce anything concrete but offer their services as an agent through which all that is produced is distributed. Consumers and producers would have been helpless without this agent. Railway transport is a common necessity for all persons in all walks of life, as besides offering place utility to the commodities produced in the country, they also stimulate economic activity.

Thirdly, the nature of railway industry is such that their services are indispensable. Being of the nature of public utilities they produce services which are indispensable for the welfare of the community. They are 'affected with a public interest' and are

2. "The transport industries which undertake more than the mere movement of persons and things from one place to another, have constituted one of the most important activities of men in every stage of advanced civilization. Transport is a common need of nearly all persons and nearly all goods" - Marshall, A. 'Industry and Trade' (1918), 2nd Edition, p.243.

public necessity enterprise. Though the demand for railways is not so fundamental as that for food, clothing or shelter, it is yet an indispensable part of culture, the hall-mark of civilization and a de facto barometer of progress.

Fourthly, the nature of railways is such that they do not render free service. Their services are sold at a price subordinating the profit motive to the service motive keeping in mind that it has to run economically on a no-profit-no-loss basis. Railways should be viewed as a 'service' and not as an 'industry', as service is provided to all who need it and not only for those who have the means to pay for it.

Fifthly, the monopolistic nature of railways differentiates them from all other transport undertakings. It is an epitome of all their peculiarities. Competition in this service is ruinous; it is avoided through co-ordination and amalgamation in order to control prices and save it from wastage. Even Sir William Acworth, a great authority on railways, supports this view and believes that railway business is not a fit one for competition. Railways, in his opinion "ought to be a monopoly owned or clearly regulated by the State. Railway competition is always wasteful and against public

4. "If industry relates to the production of utilities under the stimulus and control of an ordinary price system and 'service' to their production independently of such a system then transport is the blend of 'industry' and 'service'" - Bonavia, M.R. 'The Economics of Transport', p.5.
welfare. He advocates Public Control of Railway enterprise. In due course rail transport took the shape of social monopolistic enterprise as this is the dominating feature of public utilities. The object of public control is to ensure that service is economically and efficiently performed and the distribution of resources is favourable to the national dividend. Pigou favours this view. On the basis of organisation and public control the status of rail transport becomes much superior, enjoying full governmental co-operation.

Sixthly, the size of railway industry is gigantic in nature in the sense that its area of operation is very wide. The network of its lines extend to the length and breadth of the entire country. Besides, its large capital investment, organisation, income, expenditure, profit and loss are quite different from other enterprises. Not only is the investment heavy but it is of the nature of sunk and immobile capital, unsuitable for any other purpose.

Seventhly, it is an industry of joint production and joint cost. It is capable of performing many functions simultaneously and turning out many by-products with the same plant. They carry all varieties of goods and passengers over great distances. Various allied industries are attached to them. They are the common carriers and carry the goods of others. Certain rates and fares
are prescribed for this service where profit-motive is least. Self-interest is sacrificed for the wider interest of others.

Rightly, railways are a typical industry of decreasing costs, which is due to the complete utilization of plant, its large size and its fixity. Of the operating charges only a part varies with the volume of traffic carried. The proportion of fixed charges being higher, the cost of handling traffic goes on falling until the maximum capacity of the plant is reached.

Railways, however, do not possess an absolute monopoly. The very fact that railway industry is a business of 'decreasing costs', the tendency to compete, with a view to secure greater traffic, is inherent in its very nature. The existence of decreasing costs is an incentive to competition because the profits increase more than proportionately to the enlargement of traffic. They are apt to compete by the offer of better transit facilities; agreements and consolidations do not stop this tendency. This fact puts an important limitation on the monopoly of railways and prevent the industry from being an absolute monopoly.

Lastly, railways are non-transferable in nature in the sense that one unit cannot serve the purpose of another unit. Every unit has its own sphere of activity. Transport service of one market cannot be sold in any other market, as such services have very close relationship with their consumers. Thus there is
non-transferability as the units are fixed. Because of this non-transferability, staying power is the least as the service cannot wait for better chances and opportunities. It is to be consumed at once as soon as the demand arises.

CHARACTERISTICS OF INVESTMENT AND EXPENDITURE

While considering the characteristics of rail-transport, we discuss two aspects - one investment and the other expenditure. The most outstanding feature is that railways require a huge capital investment. This is so because railway capital is invested in four stages, namely, survey work; land purchase; laying of track and construction of railway buildings; and purchasing of rolling stock. All these stages involve huge capital expenditure and investment. This huge expenditure is divisible under two heads - the fixed capital and the working capital. Under these two heads it is proposed to consider the different stages of the extensive investment and expenditure.

5. Fenelon brings out the distinction between fixed and working capital in the following words: "Capital could be compared to the trees in an orchard while income can be compared to the fruits, and just as the trees have to be tended to keep them in good condition, and eventually have to be replaced when they grow too old, so capital has to be maintained and renewed from time to time", K.G. Fenelon - 'The Railway Economics' (1932), p.49.
I. Fixed Capital

(a) Expenses on Survey Work:

Railways are not localised at one place. Their network is spread throughout the length and breadth of the country. Thus the first important step is to decide the routes and for that purpose a careful survey of land is necessary. This survey work is launched by keeping many points in view as the decisions once taken cannot be altered easily afterwards. It would be very expensive to change or reverse them. The lines decided upon should be lucrative, helpful and remunerative. Survey work is not done in a day and it takes years, to decide and finalise any particular route. All such years of survey work naturally involve huge capital expenditure in the very initial stages, so the decisions are to be taken with all heed, precaution and foresight.

(b) Expenses on Land Purchase:

The network of railways require the acquisition of huge plots of land for laying down tracks. Land is also required for the construction of platforms, buildings, etc. These expenses on

6. The Great Indian Peninsula Railway and the East India Railway proposals were put forward in 1843 and 1844 respectively which were finally approved and fulfilled after 10 years. Mr. J.J. Beakley took up the survey work of the G.I.P. Railway in February 1850 and took one full year to complete it - Publication Division - Indian Railways - One Hundred Years (1853-1953), p.2.
land purchase should not have accrued in India, as land was supplied free of any charge, yet the government had estimated the value of such land at £ 200 per mile in the year 1854. 7

(c) Expenses on the construction of Tracks and Buildings:

When the route has been finalised and land purchased, the construction work starts. Many difficulties come in the way of smooth execution of the work as land has to be levelled, mounds have to be cleared, certain low lying areas have to be raised, tunnels have to be made through rocks, bridges constructed over rivers and ravines - all this is a costly affair and involves huge capital expenditure. The construction of platforms, station buildings, quarters and bungalows for the staff further involves the investment of huge sums of money. It was estimated that 80 per cent of the total capital of the British Railways and 53.8 per cent of the total expenditure of Indian Railways has been spent on this item alone.

(d) Capital invested on the purchase of Rolling Stock:

This is a very heavy item of capital investment. Under this head money has to be spent on the purchase of wagons, coaches and locomotives. In the initial stages India had to spend a huge amount on the purchase of these items as every item had to be imported from abroad. The establishment of our own workshops

7. Ibid., p.18.
reduced this amount considerably. But the increasing demand and
the pressure on railways are making this expenditure heavier and
heavier every year. In India it is estimated that the total capital
invested on this item is 24 per cent of the total outlay.

(e) Miscellaneous Items:

Under these items can be reckoned the workshops, the
coal mines, the hospitals and the schools, the power houses and
other welfare schemes for its employees on which money has to be
invested.

II. Working Capital

Operating expenses are required for conducting the day-to-
day business of the railways which ordinarily include the expenses
on general management, the running of trains for the carriage of
passengers, goods, live-stock, etc.; the maintenance and upkeep of
the line, works, rolling stock etc., and the services connected
therewith. The working expenses are cleared annually and occur
irrespective of the volume of traffic that offers itself for
transit. Railway expenditure is joint in nature. Passengers of
all grades are carried on the same track by the same train; durable
and non-durable commodities, capital and consumers' goods are
transported continually. In providing these services the railways
have to incur some expenses. There are expenses on track renewals,
depreciation charges, expenditure on staff etc., which are
incurred for traffic as a whole. It is rather very difficult to allocate railway working expenses separately for all these different items of traffic.

Railway working expenses can easily be classified into two sections - (i) fixed charges; and (ii) operating expenses. Fixed charges may further be divided into interest on debt, rents on leased property, amortization of discount on funded debt. The fixed charges account for 20 per cent to 30 per cent of the total expenditure. These charges are constant in nature and the changing tendency of the traffic has no effect on this expenditure. When the traffic increases up to the normal carrying capacity of the line, the impact on these charges becomes lighter per unit of traffic with every increase in the entire amount of traffic.

Operating expenses cover the outlays necessary in conducting business.

Douglas Knoop classifies these working expenses under the following heads :-

1) Maintenance and renewals of the permanent way,

9. In U.S.A. the Inter-State Commerce Commission has divided railway expenses into five major heads -
   1) Maintenance of way and structure i.e. fixed plant.
   2) Maintenance of organisation i.e. railway equipment.
   3) Transport Expenses.
   4) Traffic Expenses.
   5) General Charges.
(ii) Repairs of railway stations and other buildings,

(iii) Maintenance of rail-roads, bridges, tunnels, culverts, etc.

(iv) Supervision and general superintendence.

The expenditure on the maintenance of the permanent way and structure increases as traffic increases but at a much lower rate. Experts are of opinion that one-third of these expenses accrue as the result of heavy rains, floods, storms and other climatic changes, and are thus repaired on an annual basis resulting in increasing the maintenance charges.

(a) Maintenance of Railway Equipment:

Repairing expenses are divisible under two heads viz.,

(i) Expenses on wear and tear; (ii) Expenditure on obsolescence.

As there is constant movement of locomotives, passenger coaches and goods wagons, there is bound to be heavy wear and tear. Whether the rolling stock moves with a lighter weight or a heavier one, wear and tear are nearly the same. Continuous technical progress makes the existing rolling stock out-dated, newly designed locomotives and other coaches are to be introduced in order to augment the operational efficiency and to put less strain on the permanent way. When the rolling stock has been fully utilised to its maximum capacity and is replaced when it is obsolete, then the obsolescence charges will be nil. In order to reduce the cost, the wagons should move fully loaded. We have the example of U.S.A.

where the estimated expenditure, according to Sir W. Acworth, on the maintenance of rolling stock, is 10 per cent, of the total working expenses, which is divided as follows:

<table>
<thead>
<tr>
<th>Description</th>
<th>Per Cent</th>
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</thead>
<tbody>
<tr>
<td>(i) Maintenance of locomotives</td>
<td>... 50</td>
</tr>
<tr>
<td>(ii) Maintenance of passenger cars</td>
<td>... 27</td>
</tr>
<tr>
<td>(iii) Maintenance of wagons</td>
<td>... 23.13</td>
</tr>
</tbody>
</table>

(b) Maintenance of organisation:

They are the general charges and include such items as salaries of administrative officers - members of the Railway Board, General Managers, Divisional Superintendents, maintenance of audit, accounts, stores, railway and medical departments, fee for lawyers, contribution towards provident fund, payment of gratuity, overtime allowance and daily allowances.

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13. In India Ordinary Working Expenses come to 700.99 crores of rupees in 1970-71, out of this, a sum of 259.39 crores of rupees is estimated to be spent on repairs and maintenance.
14. In 1968-69, Indian Government spent 8,990.7 millions of rupees on General Expenses, out of this 711.1 millions of rupees was spent on administration, 343.3 millions of rupees on other departments and 226.6 millions of rupees on labour welfare. All these expenses came to about 14.3 per cent of the total expenditure - Indian Railways, 1968-69, p.88.
(c) Running or Transport Expenses:

They are the most variable expenses as they are directly related to the actual movement of traffic. These charges include wages of train crews, station employees and the cost of fuel which is consumed by the entire railways. There should be economy in fuel consumption as these form an important item in the total expenditure involved.

(d) Traffic Expenses:

These cover the maintenance of booking offices, stationery, printing of tickets and forms, compensation paid on the lost consignments, labour welfare activities, advertisements, etc. These are incurred irrespective of the volume of traffic. 15

On a careful analysis of the investment and capital employed, it becomes clear that most of this investment is fixed and immobile. The capital is sunk and cannot be used for any other purpose. In case of other means of transport, the expenditure is not thus tied down. If buses, aeroplanes or ships are not remunerative on certain particular routes, it is not difficult for them to find alternate routes. But in the case of railways if certain routes for which tracks had already been laid have to be discontinued, the result

15. India spent 84,24,71 thousands of rupees on Staff Welfare alone in 1969-70.
will be a sheer waste of money.

The second feature is the capital turn-over. In all forms of railway transport the capital equipment is to be used to the maximum extent possible. The permanent way, the locomotives, carriages, wagons and the stations should be utilized in a better way as this reduces the cost per unit. In the beginning the expenditure on rolling stock is heavy but as the traffic increases, the expenditure per unit declines. It begins to give a better turn-over on capital.

Thirdly, external conditions also affect the investment of capital. The geography of the country leads to greater investment e.g. the configuration of soil and climatic conditions combined together give a special feature to the nature of investment. When rails are laid on plains, it is easier and the cost too is much less, but when tunnels are to be dug, bridges are to be constructed and damp-soil is to be made hard, then the expenditure involved

16. As Sir Aeworth points out: 'If the railway that results from all such expenditure is not useful as a railway, it is useful for nothing else. It represents sheer waste of capital, a well sunk without finding water, a ship built and fitted that will not float. The embankments and cuttings, the tunnels and viaducts, the bridges and platforms, the culverts and ballast, all are fixed to the spot for ever. If the railway is a failure, they can never serve any other purpose where they are nor be taken up and employed elsewhere. Even the very buildings are of too special a nature to be adaptable to other "uses". 'Elements of Railway Economics, W.E. Aeworth, p.15.
becomes very heavy. In our country, with so much of diversity of climate and differences in soil, investment takes a different turn. The rates of capital expenditure are not uniform over the entire country. At some places the burden of expenditure is too heavy while at others it is comparatively lighter.

Fourthly, in railway industry fixed capital is durable, lasting and indestructible. It is in the form of station buildings, platforms, permanent way, cabins, goods-sheds, workshops, bridges, power houses, etc. Circulating capital is variable and is according to the strength of traffic. It is in the form of raw-materials and other requisites of the enterprise e.g., coal, diesel, electricity, etc. All this involves an annual expenditure. Thus as compared to fixed capital it is variable and changing. According to Sir Acworth, "on the whole a common and probably roughly accurate estimate is to say that 'half of the total expenses is fixed, half varies with traffic'." The American authorities on this subject estimate that one-half to two-thirds of the total working expenditure is constant and the rest variable.

But it should be noted that the expenses remain constant only in the short period, while in the long period most of the operating expenses become variable.

Before we emphasise on the need for railway development in a developing economy, it would be better to have a glance at the following statistics which give in a nut shell the railway development over the last 20 years:

**TABLE NO. 1.**

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</thead>
<tbody>
<tr>
<td>1. Capital-at-Charge (Millions of Rupees)</td>
<td>8,270</td>
<td>9,690</td>
<td>15,809</td>
<td>26,803</td>
<td>31,013</td>
</tr>
<tr>
<td>2. Route (kilometres)</td>
<td>53,596</td>
<td>55,011</td>
<td>56,247</td>
<td>58,399</td>
<td>59,553</td>
</tr>
<tr>
<td>3. Rolling Stock (Total)</td>
<td>233,346</td>
<td>273,120</td>
<td>346,854</td>
<td>414,594</td>
<td>487,705</td>
</tr>
<tr>
<td>4. Number of employees (thousands)</td>
<td>914</td>
<td>1,025</td>
<td>1,157</td>
<td>1,352</td>
<td>1,354</td>
</tr>
<tr>
<td>5. Vehicle and wagon kilometres (excluding departmental and Brake Vans)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Vehicle kilometres (millions)</td>
<td>2,802</td>
<td>3,200</td>
<td>3,799</td>
<td>4,547</td>
<td>4,716</td>
</tr>
<tr>
<td>b) Wagon kilometres (millions)</td>
<td>4,370</td>
<td>5,564</td>
<td>7,507</td>
<td>9,960</td>
<td>10,857</td>
</tr>
<tr>
<td>6. Train kilometres (excluding Departmental)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Passenger and proportion of mixed (Millions)</td>
<td>163.4</td>
<td>186.3</td>
<td>205.1</td>
<td>231.4</td>
<td>241.5</td>
</tr>
</tbody>
</table>

### Goods and proportion of mixed (millions)

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<tr>
<th>(1)</th>
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<tr>
<td>111.5</td>
<td>133.0</td>
<td>161.2</td>
<td>192.5</td>
<td>201.1</td>
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</tr>
</tbody>
</table>

### Volume of Traffic (Millions)

<table>
<thead>
<tr>
<th></th>
<th>a) Passenger originating</th>
<th>1,284</th>
<th>1,815</th>
<th>1,594</th>
<th>2,032</th>
<th>2,213</th>
</tr>
</thead>
<tbody>
<tr>
<td>b) Passenger kilometres</td>
<td>66,517</td>
<td>62,400</td>
<td>77,665</td>
<td>96,294</td>
<td>106,940</td>
<td></td>
</tr>
<tr>
<td>c) Tonnes originating</td>
<td>93.0</td>
<td>115.9</td>
<td>156.8</td>
<td>203.0</td>
<td>204.0</td>
<td></td>
</tr>
<tr>
<td>d) Net Tonne kilometres</td>
<td>44,117</td>
<td>59,576</td>
<td>87,680</td>
<td>116,936</td>
<td>125,140</td>
<td></td>
</tr>
</tbody>
</table>

### Operating Revenue and Expenditure (millions of rupees)

<table>
<thead>
<tr>
<th></th>
<th>a) Revenue - Gross receipts</th>
<th>2,633.0</th>
<th>3,163.3</th>
<th>4,604.8</th>
<th>5,337.6</th>
<th>8,990.7</th>
</tr>
</thead>
<tbody>
<tr>
<td>b) Working expenses including depreciation, etc. and miscellaneous expenses</td>
<td>2,157.4</td>
<td>2,659.9</td>
<td>3,725.5</td>
<td>5,989.8</td>
<td>7,562.6</td>
<td></td>
</tr>
<tr>
<td>c) Net revenue receipts</td>
<td>475.6</td>
<td>503.4</td>
<td>878.7</td>
<td>1,348.4</td>
<td>1,428.1</td>
<td></td>
</tr>
<tr>
<td>d) Percentage of net revenue receipts to the Capital-at-Charge</td>
<td>5.75</td>
<td>5.20</td>
<td>5.77</td>
<td>5.03</td>
<td>4.60</td>
<td></td>
</tr>
<tr>
<td>e) Operating ratio</td>
<td>80.0</td>
<td>81.6</td>
<td>78.4</td>
<td>79.5</td>
<td>82.5</td>
<td></td>
</tr>
<tr>
<td>f) (1) Dividend to General Revenues</td>
<td>325.1</td>
<td>361.8</td>
<td>558.6</td>
<td>1,057.8</td>
<td>1,506.7</td>
<td></td>
</tr>
</tbody>
</table>
The analysis of the above table reveals that capital-at-charge has been increasing over the plan periods. It has increased by 73.3 per cent since the pre-plan year, 1950-51. Looking to the rising figures one can easily conclude that the industry has been gaining momentum over the years and is being speeded up in response to the rising tempo in the volume of traffic. The volume of traffic including passengers originating has been rising and by 1968-69 it has nearly doubled itself. Passenger kilometres also recorded a steady improvement during the three five year plans and the growth of freight traffic has generally kept pace with the growth of the national economy. All this indicates that the performance of passenger and goods services has improved since 1950-51. The increase in the net tonne kilometres from 44,117 to 125,140 is a true index of work load of the railways which has been gradually rising according to the rising demand in the country.

The Railways have been gradually extending their route kilometrage keeping in line with the developing economy. The increase indicates that they have been occupying a unique
position in the transport system of the country.

The rise in rolling stock during the plan periods is an indication of the total production and its utilisation. The increase in the net tonne kilometrage indicates the efficiency of utilisation of locomotives, coaching vehicles and wagons. However, the rate of increase in physical assets has been comparatively lower than the rate of growth of the volume of traffic.

The number of employees in the industry have shown a gradual increase over the plan years, from 914 thousands they have increased to 1,354 thousands. All this shows the rate of expansion and rise in the working capacity of the railways.

With reference to vehicle kilometres and wagon kilometres one finds that they have more than doubled between the years 1950-51 and 1968-69, showing the efficiency in the performance of the railways.

The financial position of the railways has been quite satisfactory. Gross traffic receipts registered an increase of 6,357.7 millions of rupees in 1968-69 over the pre-plan year. Working expenses too have shown a gradual rise, which was mostly due to the rise in the general price level. Comparing the figures of gross traffic receipts and working expenses, one can conclude that the rise in working expenses is much less over the years with the result that the net revenue receipts have shown a gradual improvement and are about three times over the year 1950-51. The
Indian Railways have so far been one of the selected nationalised railway systems in the world which have been fully covering their costs including dividend liabilities. They have been giving a rising percentage of receipts to capital-at-charge at the end of First and Second Five Year Plans. There was a slight set back by the end of the Third Plan. The position deteriorated still further in 1968-69 when the percentage fell to 4.60. The set-back in these figures was mostly due to the economic recession in the country.

The railways had been enjoying a surplus. It had more than doubled itself after the end of Second Five Year Plan i.e. in 1960-61. By the end of the Third Plan there was a decline and the figures came down to Rs 1,85.6 millions from Rs 3,220.1 millions. It was all due to the economic set-back in the country. After paying Rs 1,506.7 millions to General Revenues (including payment to States in lieu of the tax on passenger fares) and meeting other miscellaneous expenditure, there was a shortfall of Rs 78.6 millions, in 1968-69 which the Railways intend to make up in the coming years by the rationalisation of rates and fares.

The operating ratio, which shows the efficiency of the railway working, had been gradually going down, from 81.6 per cent at the end of the First Five Year Plan, it had come down to 78.4 per cent by the end of the Second Plan; there was a slight rise (79.5 per cent) after the Third Plan. There was a further rise
of 3.0 per cent in 1968-69. This was all due to the rise in the working expenses of the railways. The increase was mainly due to enhancement in the rate of dearness allowance, more expenditure on rolling stock including repairs, maintenance and electrical charges.

Thus the given figures give a clear estimate of the achievements of this nationalised industry where there is a gradual growth in traffic including goods and passengers every year, and how the railways through their developmental plans are striving hard to cope with this increasing demand.

**ROLE OF RAIL TRANSPORT IN NATIONAL ECONOMY**

How rail transport has kept pace with the growth of population and the national economy is indicated by the table below:

**TABLE NO.1.2**

<table>
<thead>
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</thead>
<tbody>
<tr>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
<td>(6)</td>
</tr>
<tr>
<td>Mid-year population (in millions).</td>
<td>358.3</td>
<td>391.7</td>
<td>432.7</td>
<td>487.0</td>
<td>511.3</td>
</tr>
<tr>
<td>(100)</td>
<td>(108.9)</td>
<td>(120.8)</td>
<td>(135.9)</td>
<td>(142.7)</td>
<td>(146.3)</td>
</tr>
<tr>
<td>National Income at current prices (in millions of rupees).</td>
<td>95,300</td>
<td>99,800</td>
<td>133,080</td>
<td>205,860</td>
<td>279,280</td>
</tr>
<tr>
<td>(100)</td>
<td>(104.7)</td>
<td>(139.6)</td>
<td>(216.0)</td>
<td>(293.0)</td>
<td>N.A.</td>
</tr>
</tbody>
</table>

3. Index of agricultural production
(1950 = 100). 95.6 116.8 142.8 132.1 161.0 158.7

4. Index of industrial production
(1960 = 100). 54.8 72.7 100.0 153.7 151.4 161.1

5. Passengers originating (in millions).
   (100) (99.3) (124.1) (162.1) (175.3) (172.4)

   (100) (93.8) (116.9) (144.8) (161.1) (160.8)

7. Freight tonnes originating (in millions).
   (100) (124.6) (156.0) (203.0) (196.6) (204.0)

8. Freight tonne kilometres (in millions).
   (100) (135.0) (198.7) (265.1) (269.4) (283.7)

(Figures in brackets are indices with the base 1950-51 = 100).

COMPARATIVE ADVANTAGES OF RAILWAYS OVER OTHER MEANS OF TRANSPORT

The very genesis of rail transport marks its superiority over other means of transport. No doubt railways came quite late in the history of human development, yet through a gradual process they began to occupy a unique position in the transport system of a country. The various types of means of transport have a definite place in the general transport system, but the railways stand out and become unique on the basis of the various facilities that they
offer. By offering easy and convenient means of transport, railways have beaten down the sphere of activity of road, water and air. These means are not cheap, suitable and convenient for long and heavy traffic; every type of traffic cannot move through them. While the waterways and the roadways lack in speed, the airways are susceptible to weather conditions and their cost of fuel is more. As such they are not suitable for all times and for all purposes.

So far as the transport of commodities over longer distances, and at a higher speed, is concerned, railways have demonstrated their superiority over other agencies of inland transport - river, canal or road - and have thereby become the sole inland carriers of certain classes of traffic. They are the best general carriers of everything from a pin to a heavy machinery, from a commodity to the mass migration of population. In these days of severe competition, the railways through their manifold services to mankind have been able to attract more and more traffic in goods and passengers, beating down other agencies.

They are rapid and flexible means of transport and occupy an important place in the transportation system of every industrially advanced country. They are unable to offer door-to-

21. The introduction of container service on railways has resulted into door-to-door service for the consumer to some extent.
door service to the extent of road transport, still everybody of any class, may be businessman, an industrialist, an agriculturist or a serviceman - can avail of the services of railways to one's entire satisfaction. They are safe, regular, cheap and convenient, hence superior to other agencies. The trains and wagons run on exclusive tracts, hence can maintain a high average speed even upto 80 - 100 kilometres or so per hour. The speed of road vehicle is limited to 30 - 35 kilometres per hour as the safety of other vehicles and passengers by using the road would otherwise be endangered, the carrying capacity of a railway is very large and adequate to meet the demands of heavy and intensive traffic.

The challenge of air transport to the railways over long distances is only confined to high class passenger and goods traffic otherwise railways are most suitable for all types of goods and passengers of all standards on land, thus possessing a virtual monopoly in the field of their activity.

More than any other carrier, they have mitigated the horrors and severities of famines and droughts by rushing vast food supplies from areas of plenty and abundance. They have stimulated the growth of large scale enterprise. The process of specialisation in production and the steady transformation of the country is their contribution.
Comparatively again as the biggest single employer of men, railways provide employment in various branches to hundreds of thousands of people and thus establish their premier position over other modes of transport. Their vast net-work throughout the length and breadth of a country is a clear indication that it is capable of meeting the ever increasing traffic which no other carrier can claim to cater. By following a constructive policy of economic development, railways can completely revolutionise the methods of production, distribution and consumption.

In order to establish their superiority over other agencies specially road transport, railways have taken up a very hostile attitude towards them. We have glaring instances where the railways are straining their utmost to capture the entire field of transport and communication. They are determined to exterminate their rivals; all this conflict is of recent origin as railways and roadways run parallel to each other specially in our country.

For hauling articles low in value in proportion to their weight and bulk, water transport is more economical than rail transport. But railways have practically ruined the river transport specially in India by offering lower rates and safe transit.

Railways, in India, by playing an important role in the national economy, have conclusively proved their superiority over other agencies and they will continue to be the most vital agents
NEED FOR RAILWAY DEVELOPMENT IN A DEVELOPING ECONOMY

In spite of the above progress the economy of the country lags behind as compared to advanced economies. There is much that the railways can achieve in this direction. They have to open up the vast country, help in the monetisation of the rural economy and develop the country as a whole by serving as its arteries and veins. In a developing economy, the role of different modes of transport, particularly that of railway transport is obvious for infra-structural as well as supra-structural developments.

This will have to be achieved through streamlining of its administrative set-up and activating the personnel. The financial results have to move with the rationalised rate-freight structure on the one hand and working expenses on the other. They have to meet the new challenges of the projected economic growth through assisting in the development of trade, industry and commerce, mobility of population, urbanization, etc., on the one hand and solve the growing problems of over-crowding and congestion, of accidents, of passenger amenities and of rolling stock, traction, etc., on the other.

Side by side the railways will have to work in co-ordination with other modes of transport which have their own assigned
sphere in a developing economy. Competition is welcome so long as it provides cheaper services and better facilities to the users but for a planned economy like ours it would be desirable if railway development proceeds in co-operation with other modes of transport.

India is on the threshold of a forward march which is not very far off. The railways will have to prepare themselves in matters of punctuality, operating efficiency capacity and in research, design and standardization so as to cope with the expected loads. These would require proper planning and development of the rolling stock and other traffic requirements on the one hand and efficient personnel, motivated by proper incentives and working techniques on the other. Proper role will have to be assigned to humanisation in respect of personnel relations. Our progress since independence has been commendable but it does not compare favourably with similar developments in other countries. Speed, passenger amenities and even rates and fares are better there than here. The railways as such have to travel a long way in their march towards their objectives. An attempt has been made here through these pages to re-organise the working of Indian Railways towards this target.

AN APPROACH TO THE SUBJECT

Since the study of railway development has been taken up after independence, it is but essential to trace the historical
development of this transport in our country. This has been taken up in Chapter II which traces the historical retrospect in four stages starting from 1844-1947.

Chapter III is devoted to recent developments in railway transport particularly over the plan period. The chapter traces out the efforts which the railways performed at meeting the challenge created by the partition of the country, the integration of Indian states with the Union and political upheavals on the eve of independence. Statistical analysis of operating efficiency including expansion of capacity, utilisation of rolling stock, engines, wagons, tracks, etc., has been taken up in this chapter in particular.

As a measure of operational efficiency the question of regrouping of railways which had been engaging the attention of the authorities for the last three decades has been taken up for study in Chapter IV. The study reveals how the zonal system is working in the country since 1958. Attempt has been made here to give a micro-conception of the nine zones into which the Indian Railways have been regrouped, including gross traffic receipts, total expenditure and appropriations, net railway revenue, dividends, surpluses, operating ratio, etc., on the basis of 1970-71 budget estimates.

Chapter V studies the problems of competition and co-ordination. The first portion of this chapter has been devoted to
competition as it existed between companies for the construction of railways, e.g., competition between gauges and lines, etc. The discussion is followed by competition with other modes of transport particularly rail-road competition. The second portion of the chapter is devoted to the study of co-ordination.

Fixation of rates and fares forms an important as well as complicated affair in any undertaking, particularly in railways. A study of various theories of fixation of rates and fares, analysis of the rate as well as the freight structure, considerations for a rationalised rate-freight structure etc. has been made in Chapter VI.

Administrative organisation and management forms an important hinge over which the efficiency of an undertaking rests to a great extent. Chapter VII firstly traces the organisational set up as it existed prior to independence and then proceeds to study the present set up. The role of various committees on different levels along with the controversy between Railway Board versus Autonomous Corporation and a Transport Board has been taken up here. The last portion of this chapter deals with the study of railway personnel.

Chapter VIII has been devoted to the study of railway finances - Railway Separation Conventions, particularly after independence, analysis of receipts and expenditure, the composition of various funds, capital development programme in railways and
general problems connected with railway finance form the subject matter of this chapter. The last portion of this chapter deals with trends and general observations relating to finances particularly during the decade 1960-61 to 1970-71.

Railway development has a great impact on the national economy particularly in a developing country. Their development is vital for the balanced industrialisation, agricultural reconstruction, price stability and users, etc. Chapter IX deals with the impact of railways on Indian economy during the last two decades of our study period. How particular railways have been instrumental in developing a particular zone has also been studied in this chapter.

Chapter X highlights the main problems of railway transport development. Problems of gauge, of traction, of accidents, of ticketless travelling and of over-crowding, etc., have been taken up in particular. Measures taken for solving the particular problems have also been discussed along with it.

The last chapter, of course, gives in a nut-shell the main conclusions of the study and makes an humble attempt at advancing suggestions for making the railway transport in India efficient, so that they are well fitted to contribute even more effectively to the country's social progress and continued economic growth.