CHAPTER - I

HISTORICAL PERSPECTIVE.

The Indian Railways today are Asia's biggest and world's fourth largest but among state-owned railways, are second to Russia alone. This huge octopus, as usual, had humble beginnings.

1.2 In 1843, George Clark, Chief Engineer of Bombay, had a brilliant idea of linking Bombay with Thana and Kalyan, a small distance of about hundred miles. The seed thought was born. However, it was only in 1853, the first train had its maiden journey from Bombay to Thana, a distance of 34 Kms. It must have been a great event in the history of Indian transport. It is not so very well known that George Stevenson, the first British designer of steam engine, was one of the founder directors of the Great India Peninsula Company which operated the first railway line in India. Let us now briefly review the growth of Indian Railways.

1.3 The development of Indian Railways can be broadly divided into 5 distinct periods viz. Old Guarantee System (1844-69), State Construction (1869-79), New Guarantee System (1879-1900), Nationalisation (1900-47) and since Independence (1947 and after). The present analysis is concerned with the last period.

1.4 The characteristic feature of the first three periods is the guarantee that was given for a specific return on capital irrespective of the actual performance. This was necessary since risk capital was not sufficiently forthcoming. From 1900 onwards the government guarantee was deemed unnecessary. In the earlier 3 periods upto 1900, apart from the guarantee, the government gave free land to the companies in the first period (1844-'69) as an additional incentive and during second and third periods, the government themselves were constructing the track and giving to companies for operation. Apart from the incentives, it is suggested sometimes that during 1869-79, political factors like threatened invasion from Russia[1] played an important role in the expansion of the route length. In the first phase, (1844-'69), about 7000 KMs of track was laid and during the second period (1869-'79) the tracck laid roughly doubled but about one half of the expansion was undertaken by the Government themselves. Due to the political reasons mentioned above, during the second period government laid metre-gauge track to expand as quickly as possible (during the first period only broad-gauge was laid). The existence of tracks with different gauges is one of the important bottlenecks in the Indian Railway system at the present moment.

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1. S.K.Srivatsava, Railway Transport, S.Chand, Delhi, 1964, p.104.

1.5 Regarding the management, a peculiar dual system was in vogue for a very long time. Though technically the government had an option to take over the railways and run them, they did not do it for a very long time. They allowed the private companies registered in Britain to operate the railways. From 1900 onwards new trends appeared in the management. The guaranteed return on capital outlay was withdrawn as mentioned earlier. The government established a Railway Board in 1905 and put it under the control of the Department of Commerce and Industries. In 1907 all the main lines were taken over by the government but the British private companies were appointed as managing agents. By 1920 government owned 73% of total track but it operated only 21%.[2]

Pre-Independence Period (1900-47):

1.6 After the First World War, public attention was focussed on two important features of railway policy—private management of railways and the practice of clubbing railway finances with general finances. There were about 175 railway companies serving 14 different regions. Public opinion was in favour of state ownership and management of railways. The urge for nationalisation was mainly the result of a larger political movement which was taking shape in India. Thus the demand for nationalisation of the Railways (since British companies managed the operations) was a

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2. Indian Railways-One Hundred years, Government of India, Delhi, 1953, p.25.

reflection of Indian nationalism and not based on any socialistic ideology.[3] In view of the public opinion being in favour of direct State management, the question was referred to a committee set up in 1920 with Sir William Acworth as its chairman. Its main recommendations were; State management of the railways and separation of railway finances from general finances. Government accepted these recommendations. From 1925 the process of taking over the management of companies commenced and by 1944 most of the private lines came under the management of government. From 1924 onwards railway finances were separated from the General Budget with the proviso that the Railways should contribute about 1% on capital-at-charge, 20% of the surplus profits to the General Budget, but the loss incurred on the strategic lines or interest on them would be deducted.

1.7 Beginnings of technical change were witnessed since 1925 with the introduction of electric trains in the areas of Bombay and Madras. However, this change did not have wide ramification. Steam continued to be the main tractive power.

1.8 The world-wide depression of 1930s adversely affected the Indian Railways. Since the railways incurred heavy losses in 1931-32, government suspended railway's contribution to General Revenues. However, from 1936, a period of recovery

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3. A.Nagaraj, Nationalised Road Transport in Hyderabad State, unpublished Ph.D. thesis, Osmania University, 1967.

started. The Second World War placed a great strain on the Railways but the revenues started looking up. Capital equipment was not replaced as quickly as it should be and in the post-war period reconstruction occupied an important place with heavy imports since locomotives and other items used to be imported prior to Indepedence.

1.9 With the partition of the country and the integration of about 600 small and big princely states in the federal system, the whole organisation system underwent a radical change. The zonal system came into existence.

1.10 With the birth of Pakistan in 1947, the North-Western Railway and the Bengal-Assam Railway were divided. More than 11000 KMs of track was transferred to Pakistan.

Apart from the Railways that were operated in British India, some of the princely states were permitted to run their own State Railways. We shall now present a brief report of these railways.

Indian State Railways:

1.11 In the former princely States, a considerable length of track was constructed either through agencies or the companies or by governments themselves. Generally, these lines belonged to the respective states with the exception of the Nizam's State Railways. Even this railway also was taken over by the then Nizam's government in 1930. By 1949-50, the total kilometres of track owned by the former princely states was about 11265

Table 1.1

ROUTE KILOMETRAGE AND GROSS EARNINGS OF

GOVT. AND NON-GOVT. RAILWAYS

Years	ROUTE KILOMETRES (000s)			GROSS EARNINGS (Rs.Crores)		
	Govt. Rail-ways:	Non-Govt. Rail-ways:	Total	Govt. Rail-ways:	Non-Govt. Rail-ways:	Total
	1	2	3	4	5	6
1951-52	537 (97.7)	12.6 (2.3)	549 (100)	292 (99.3)	2.29 (0.7)	294 (100)
-57	552 (98.7)	7.3 (1.3)	559 (100)	368 (99.5)	1.66 (0.5)	370 (100)
-62	564 (98.8)	7.2 (1.2)	571 (100)	539 (99.6)	1.81 (0.4)	541 (100)
-67	585 (99.0)	6.1 (1.0)	591 (100)	329 (99.7)	1.94 (0.3)	331 (100)
-72	601 (99.7)	2.1 (0.3)	603 (100)	1167 (99.9)	1.06 (0.1)	1168 (100)

Source: Supplements.

Notes : 1. Col.4 includes imputed earnings of non-Revenue Traffic.

2. Figures in parentheses represent percentages.

3. Figures are rounded off to the nearest crore.

(in a total of about 55000 KMs), out of which about 1000 KMs were worked by the States themselves. The problem of taking over the State Railways was resolved due to the rapid integration of the Indian States taking shape in 1949-50, since railways came under the Central List. By 1st April, 1950, all the State Railways came under the direct management of Federal Government of India.

Reorganisation and Regrouping:

1.12 With the separation of Pakistan and the integration of State Railways, the need for reorganisation had become inevitable. On considerations of political, operational efficiency and economic interdependence of contiguous areas, the different government railways were regrouped into Zonal Administrative Units.

During 1951 and 1952, the various railway systems were reorganised into 6 Zones. Later in 1955, 1958 and 1966 due to administrative and political reasons three more zones were created. Thus in all there are 9 zones viz. Southern Railway, Central Railway, Western Railway, Northern Railway, Eastern Railway, North-Eastern Railway, South-Eastern Railway, North-East-Frontier Railway and South-Central Railway. The present analysis is an aggregate study of all the Zones.

Government and Non-Government Railways:

1.13 The non-government railways occupy an insignificant part in the total railway transportation - vide Table 1.1. Out of 15 non-government lines operating in 1951-52 with 1249

route KMs (2.3% in total route Kilometrage), now only 3 lines are operated by private companies with 207 route KMs (0.3% in total route KMs). Their gross earnings diminished from Rs. 2.29 crores to Rs. 1.06 crores (0.7% to 0.1% in the total gross earnings). These tiny lines are unremunerative and owned and operated by branch line companies under contract and receive a guaranteed rate of interest on capital or a subsidy. Since they are not viable, they are not nationalized. The analytical chapters that follow are concerned with government railways only.

1.14 We have seen (para 1.8) that in the pre-Independence era most of the technical items were imported from Britain or the western democracies. With the advent of Independence, the concept of self-sufficiency occupied an important role in policy matters. Thus a number of supporting manufacturing units were started by the railways themselves, though private organisations like Tatas, Jessops and public sector units like Hindusthan Aeronautics Ltd. have been supplying locomotives, wagons, etc.

Manufacturing Units:

1.15 Indian Railways own a number of work-shops attached to the Zonal Railways. Though their main activity is concerned with repairs and maintenance, they also undertake the production of certain components of railway equipment. Apart from the workshops, the Railways own 3 independent manufacturing units,

Table 1.2

SHARE OF IMPORTS IN TOTAL PURCHASES

(Rs.Crores)

Years	Indi-genous	Imported	Total Pur-chases	Col.2 as % to Col.3
	1	2	3	4
1950-51	63.2	18.4	81.6	22.5
-56	93.7	32.6	126.3	25.3
-61	158.1	19.8	177.9	11.2
-66	279.3	50.0	329.3	15.2
-72	373.5	40.1	413.6	9.7

Source: Indian Railways 1971-72, p.49.

Ministry of Railways.

namely, Chittaranjan Locomotive Works established in 1947, Integral Coach Factory established in 1948 and Diesel Locomotive Works established in 1961.

The Railways made a significant contribution to the economy as a whole by striking advances in import substitution. All the three Manufacturing Units started using indigeneous materials, components and know-how to certain extent and thereby conserved valuable foreign exchange. In 1971-72, the percentage of import content at DLW and CLW varied between 13% to 22% for main-line diesel and electric locomotives while at ICF due to import substitution about Rs. 1.5 crore of foreign exchange was saved annually.[4] Table 1.2 gives the proportion of import content in total purchases of the Railways. It is evident from the table that during the two decades, the import content has been reduced from about 23% to 10%.

Present Administrative Set-up of the Railways:

1.16 The Railway Board which was constituted in 1905 was reorganised from time to time. The Board is responsible for the management and administration of the Railways. The Union Cabinet Minister for Railways decides policy matters. The Board is responsible for planning, construction and operation of the railways. It acts in consultation with the Planning Commission and other Ministries for a planned and coordinated development of the country. It consists of a Chairman, a

4. Central Facts and Major Problems, Ministry of Railways, Government of India, 1973, p.45.

Financial Commissioner and 3 other members, all of whom are ex-officio Secretaries to Government of India in the Ministry of Railways, the Chairman being the principal secretary. The Board is assisted by additional members one each for Civil Engineering, Commercial, Electrical Engineering, Finance, Mechanical Engineering and Staff. The establishment of the Board is organised as functional Directorates, each under a Director who is responsible for the disposal of day-to-day affairs. The Research, Designs and Standards Organisation at Lucknow is an attached office of the Board and is under the control of a Director General. Each of the 9 Zonal Railways, referred to under para 1.12 above, is headed by a General Manager who is responsible to the Board for operation and financial position of his zone.

1.17 We have so far discussed briefly the managerial and ownership changes, the structural variations since 1853 and the present administrative set-up. Regarding the recent past (1951-72) with which the present analysis is concerned, it may be useful to present a broad overview.

THE OVERVIEW.

Route Kilometres:

1.18 Today the Indian Railways is the biggest enterprise of the country with capital-at-charge exceeding Rs. 3500 crores (book value). Its route length is about 60000 KMs of which about one half is BG, a little less than one half (40%) is MG

Table 1.3

PASSENGERS ORIGINATING AND PASSENGER KMs

	PASSENGERS ORIGINATING (Millions)			PASSENGER KILOMETRES (Billions)		
	Suburban	Non-Suburban	Total	Suburban	Non-Suburban	Total
	1	2	3	4	5	6
1950-51	417 (32.5)	867 (67.5)	1284 (100)	6.60 (9.9)	59.9 (90.1)	66.5 (100)
-56	499 (39.1)	776 (60.9)	1275 (100)	8.17 (13.1)	54.2 (86.9)	62.4 (100)
-61	685 (43)	909 (57)	1594 (100)	11.8 (15.2)	65.9 (84.8)	77.7 (100)
-66	1025 (49)	1057 (51)	2082 (100)	17.2 (17.9)	79.1 (82.1)	96.3 (100)
-72	1284 (50.6)	1252 (49.4)	2536 (100)	24.3 (19.4)	101.0 (80.6)	125.3 (100)

Source: 'Indian Railways 1971-72', p.16. Ministry of Railways.

Note: Figs. in parentheses represent percentages.

and the rest 10% is NG. The total length of track laid including double and multiple lines, commercial and transportation sidings, works out to about 100000 KMs. BG accounts for 72% of passenger traffic in terms of passenger KMs and about 84% of freight traffic in terms of tonne KMs.[5] The share of MG is 26% inpassenger traffic and 16% in freight traffic. The balance of traffic (about 1% of passenger and less than 1% of freight traffic) is carried by NG system. Thus, for analytical purpose, the most important are BG and MG systems.

Traffic Carried:

1.19 The Railways run about 11000 trains each day connecting more than 7000 stations in the sub-continent. These trains carry about 7 million passengers every day (about 1.25% of India's population) and 5.5 lakh tonnes of goods daily. It employs about 1.7 million workersincluding casual, construction and the labour employed in the manufacturing units compared to about 11.2 million labour employed in the entire public sector in India.[6]

Passenger Traffic:

1.20 The growth of passenger traffic, suburban and non-suburban and their proportions are presented in Table 1.3. The total passengers originating has grown by 100% (1284 to 2536) while suburban traffic has increased by 200% (417 to 1284) and the non-suburban by 50% (867 to 1252) only. The

5. Ibid., p.1
6. Pocket Book of Labour Statistics, Labour Bureau, Government of India, Simla, 1973, p.9.

Table 1.4

PROPORTION OF DIFFERENT CLASSES OF

PASSENGER SERVICE

(KMs - Crores)

Years	A.C. Class	I Class	II Class	III Class	Total
	1	2	3	4	5
1951-52	1.9 (Neg)	134 (2.13)	218 (3.47)	5929 (94.4)	6283 (100)
-57	8.8 (0.15)	137 (2.03)	202 (3.00)	6392 (94.8)	6740 (100)
-62	12 (0.15)	211 (2.53)	181 (2.21)	7735 (95.1)	8139 (100)
-67	15 (0.17)	314 (3.07)	179 (1.75)	9708 (95.0)	10216 (100)
-72	17 (0.17)	373 (2.98)	183 (1.46)	11962 (95.4)	12535 (100)

Source: Supplements.

Notes :

1. In computing the table no distinction is made between suburban and non-suburban and mail and ordinary services.
2. Col.2 includes Pre II Class existing upto 1954-55.
3. Col.3 includes pre-April 1955 Inter Class.
4. Col.4 includes III A.C. Chair Car.
5. Figs. in perentheses denote percentages.
6. Neg = Negligible.

phenomenal growth in the suburban traffic is due to heavy urbanisation with a close cluster around cities. About 50% of traffic originate in the suburban areas of Bombay, Calcutta, Madras and Secunderabad. The growth of total passenger traffic in terms of passenger KMs is about 90% (6283 to 12535). The suburban traffic accounts for about 19% of the total since the lead is small in suburban traffic.

1.21. Broadly, there are 4 classes of passenger services viz. Air conditioned, I, II and III Classes. From October 1956, vestibuled fully air-conditioned trains having III Class accommodation were also introduced. Table 1.4 gives the classwise passenger KMs. During the 21 year period, the proportion of air-conditioned class in the total passenger KMs was less than 0.2% while that of First Class about 2-3% and II Class 2-4%. Thus nearly 95% passenger KMs are accounted by class III service alone. The III class air-conditioned service accounts for negligible proportion (about 0.3%) in the total III class passenger services. Hence, for analytical purpose, distinction among various classes of passenger services may be ignored since nearly 95% of total passenger KMs are performed by III class service. The II Class traffic has shown a decline even in absolute terms, due to policy decision. The Railways always wanted to have only two classes. This decision has been fully implemented in 1974.

Freight Traffic:

1.22 The principal factor in the growth of traffic has been

Table 1.5

GROWTH OF FREIGHT TRAFFIC

Years	Tonnes Originating (Million)	Tonne KMs (Billion)	Index of Col.1	Index of Col.2
	1	2	3	4
1950-51	93	44	100	100
-56	116	60	125	135
-61	156	88	168	199
-66	203	117	218	265
-72	198	133	213	302

Source: Indian Railways 1971-72, p.21, Ministry of Railways.

and will continue to be the movement of commodities. The carriage of goods constitutes the major source of revenue (about 2/3rds of total revenue) and the passenger transport occupies a secondary place. It is significant to note that by far the Railways continue to be the main carriers of the bulk of production of the basic and heavy industries like coal, ores, cement, iron and steel. 90% of coal moves by rail, the steel industry depends almost entirely on rail transport for movement of its raw materials and finished products and the traffic in exportable iron-ore is largely rail borne.[7]

The growth of freight traffic in terms of tonnes originating and tonne KMs is presented in Table 1.5. The freight traffic in terms of tonne KMs trebled and slightly more than doubled in terms of tonnes originating. This suggests that the lead has increased by about 50%, very natural in a developing country where coal-steel, belt is is located in specific areas.

1.23 In 1971-72 the share of non-revenue traffic was 12% in the total freight tonne KMs. The low rated freight traffic like food grains, coal, ores, fodder constituted 78% of total revenue earnings traffic but contributed only 48% of earnings from goods carried.[8] To attract high rated traffic

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7. B.S.D. Baliga, Indian Railways in the Post Independence Era, Indian Railways, Government of India, Vol.17, No.8, Nov.1972.

8. A Review of Performance of the Indian Railways, Ministry of Railways, Government of India, 1973, p.21.

Table 1.6

GROWTH OF PASSENGER COACHES AND WAGONS

(000s)

Years	Passenger Coaches (4 Wheelers)	Wagons	Indices of Col.1	Indices of Col.2
	1	2	3	4
1951-52	314	2057	100	100
-56	359	2352	114	114
-61	463	3007	148	146
-66	547	3953	174	192
-72	596	4424	190	215

Source: Supplements.

Note : Col.1 includes E.M.U.Stock.

Table 1.7

LOCOMOTIVES IN SERVICE

Years	Steam	Diesel	Electric	Total
	1	2	3	4
1950-51	8120	17	72	8209
-56	9026	67	79	9172
-61	10312	181	131	10624
-66	10613	727	403	11743
-72	9222	1288	639	11149

Source: Central Facts and Major Problems, Ministry of Rlys. 1973, p.7.

to rail, container services were introduced from 1966 on certain routes. Various other measures such as freight forwarding schemes, quick transit and super goods express trains, running of block trains were introduced to augment the revenues.

Coaches and Wagons:

1.24 To handle increasing volume of traffic, the Railways pressed into service more and more passenger coaches and wagons vide Table 1.6. Passenger coaches nearly doubled while wagons increased more than two times. A significant feature in the use of wagons is that since Second Five Year Plan (1956), higher capacity wagons were put on line in increasing members. The bulk of the loading wagons consists of coal. Daily more than 8200 wagons are loaded with coal.

Rolling Stock and Traction:

1.25 For moving the traffic, the Railways maintain about 9200 steam, 1300 diesel and 640 electric locomotives and 4.4 lakh wagons, and 60,000 passenger coaches (in terms of 4 wheelers). With progressive dieselisation and electrification, the steam locomotive fleet is gradually being depleted vide Table 1.7. Till 1957, electric traction was mainly confined to the suburban sections of Bombay and Madras and a short main line section on the routes out of Bombay. To cope up with the rapid traffic needs of the country, large scale electrification was undertaken towards the end of Second Five Year Plan (1961). By 1972 about 4000 route KMs (in a total of 60,000) as against about 400 route

Kilometres in 1950-51 were electrified. Diesel locomotives are operating over 26000 route KMs. In 1971-72, the combined share of diesel and electric traction accounted for 56% in total gross tonne KMs of passenger and freight services. But in terms of net tonne KMs of freight service alone, their combined share was 72% (51% diesel and 21% electric) as against 2% electric and 98% steam traction in 1950-51.[9] As a result of the introduction of superior modes of traction, there was a reduction in the total number of locomotives during 1965-72 eventhough more traffic was handled.

Signalling and Telecommunication:

1.26 Since the last decade, modernisation and improvement of signalling and telecommunication systems have been in progress. These schemes require relatively less amount of investment, enable safer and more efficient handling of trains and increase the throughput of traffic. The highest standards of signalling (standard III) has been installed at more than 50% of block stations. Other modernisation programmes include centralised traffic control at 49 stations, block working with tokenless instruments at 307 single line stations, automatic block signalling, colour light signals, electric track circuiting etc. Each year 150 stations are being equipped with the safety device of electrical track circuiting. To achieve, long distance reliable communication, micro-wave systems have been commissioned over 4550 KMs. Work on another 10,000 KMs micro-wave systems

9. Central Facts and Major Problems, op.cit, p.8.

is in progress. In the last chapter, we shall be incorporating some of these results of paras 1.18 to 1.26 to analyse technical change.