

CHAPTER 19

RAILWAYS

19.1 Railways in the World : Statistics from International Union of Railways, UIC members indicate an average overall growth of 4% in freight tonne-km as well as in passenger-km in 2011, confirming economic and trade recovery . There was about 12% increase in Russia's 'extremely dynamic' freight sector, which accounts for almost a quarter of world tonne-km and about 5 % increase in freight tonnes km in Asia Oceania & Middle East whereas the bleak European scenario caused a dip of about 7% in the same. The USA, accounting for more than a quarter (26%) of total tonne-km of freight transport, reported merely 2 % increase in freight tonne-km during 2010-11 and. Five per cent growth in Asia Oceania & Middle East region was largely on account of China which saw a 5% growth during 200-11 and has significant share (27%) in overall freight tonnes km worldwide .China's growth along with similar (5%) growth in Kazakh railways helped to keep the growth in Asia Oceania above world average despite slower growth rate (4%)of India . Africa saw marginal decline in the freight tonne during 2011 compared to previous year.

19.2 Asia Oceania & Middle East carried the bulk of total rail passenger traffic & comprised about three quarters of passenger km world wide. Growth in passenger traffic continued in Asia, particularly India , which saw an 8% increase and carried almost half the traffic in Asia, while China recorded growth of 3 % only. Passenger-km in Africa fell 21%, but grew by 3% in Europe.

19.3 Rail Network, in terms of length of lines, improved significantly in case of Africa with an increase of about 40% from 0.5 lakh km in 2010 to 0.7 lakh km in 2011

International Railway Statistics : Synopsis

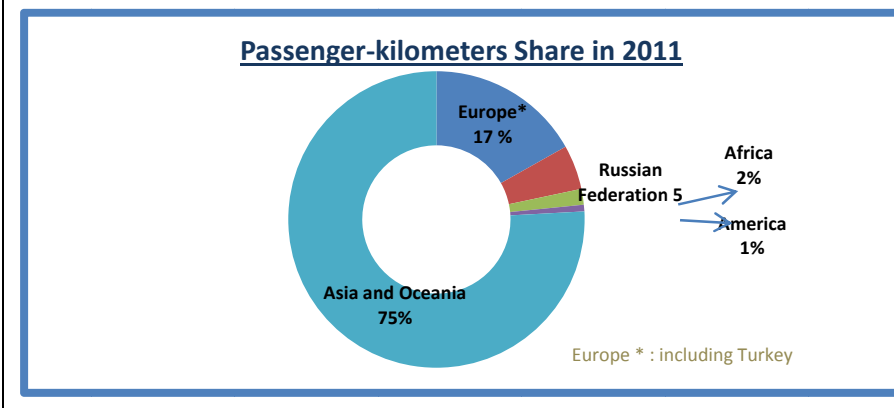
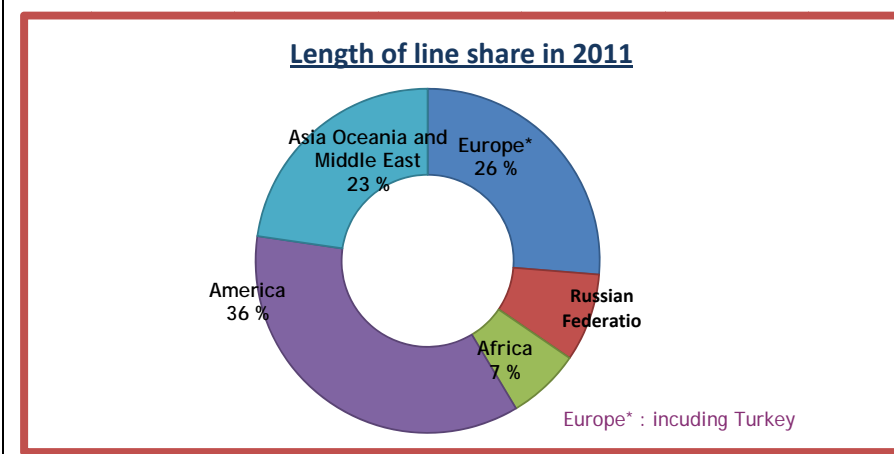
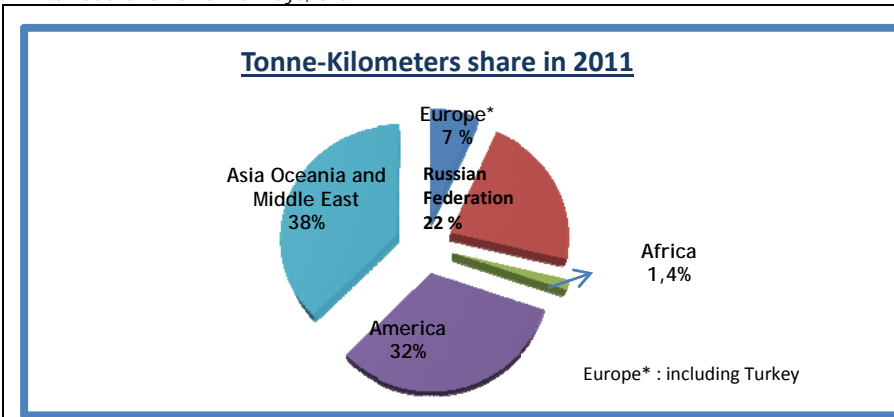
<u>Passenger-kilometres</u>	2006	2007	2008	2009	2010	2011	Δ%
Europe *	464.5	469.2	483.8	470.5	472.8	485.6	0.03
Russian Federation	177.6	173.4	175.9	153.6	139.0	139.8	0.01
Africa	61.5	61.6	62.0	62.2	62.3	49.3	-0.21
America	12.8	13.3	14.0	13.5	12.0	20.8	0.74
Asia Oceania and Middle East	1,646.0	1,788.6	1,950.9	2,012.0	2,079.3	2,187.8	0.05
WORLD <i>estimates</i>	2,362.4	2,506.1	2,686.6	2,711.9	2,765.4	2,883.4	0.04
(All Fig in Billions)							
<u>Tonne-kilometres</u>	2006	2007	2008	2009	2010	2011	Δ%
Europe *	695.8	723.2	986.8	546.0	700.6	648.6	-0.07
Russian Federation	1,950.8	2,090.3	2,116.2	1,865.3	1,903.2	2,127.2	0.12
Africa	142.2	139.2	138.4	137.1	139.2	139.1	-0.001
America	3,519.5	3,540.2	3,513.8	2,973.2	3,076.1	3,132.6	0.02
Asia Oceania and Middle East	2,872.6	3,095.9	3,452.7	3,466.2	3,462.0	3,621.2	0.05
WORLD <i>estimates</i>	9,180.9	9,588.9	10,207.9	8,987.9	9,281.2	9,668.6	0.04
(All Fig in Billions)							

Length of lines (kilometres)

	2006	2007	2008	2009	2010	2011	Δ%
Europe *	264,204.9	264,630.4	263,805.8	268,465.9	285,408.3	270,341.9	0.05
Russian Federation	85,253.0	84,158.0	85,194.0	85,281.0	85,292.0	85,167.0	0.00
Africa	52,159.0	52,400.0	52,482.0	52,299.0	50,274.5	70,505.1	0.40
America	385,272.2	389,862.8	386,772.8	383,079.2	375,773.6	369,222.0	0.02
Asia Oceania and Middle East	221,788.0	222,644.5	221,827.0	224,151.0	224,204.9	233,570.4	0.04
WORLD <i>estimates</i>	1,008,677.1	1,013,695.7	1,010,081.6	1,013,276.1	1,020,953.2	1,028,806.4	0.01

* including Turkey

Source : International Union of Railways, UIC



19.4 Indian Railways : Indian Railways have a history and rich heritage spanning over 150 years. IR is a state owned public utility of Government of India under the Ministry of Railways. As a national common carrier transporting passenger and goods over vast network of 64,460 kms route lengths, it has played a key role in India's social and economic development. It is a cheap and affordable means of transportation for millions of passengers. As a carrier of bulk freight namely ores and minerals, iron and steel, Cement, mineral oils, food grains and fertilizers etc, the importance of Indian Railways for development of Agriculture, Industry and for the benefit of common men is well recognized.

19.5 For Administrative purposes Indian Railways is divided into 17 zones which include Metro Railway, Kolkata. These zones are further subsidized into 68 operating Division. IR has 1,31,205 bridges out of which 10,738 are major and 1,19,800 are minor bridges.

19.6 Presently, Indian Railways are engaged in a most challenging work at constructing a new broad gauge 240 km long Kashmir rail link, in the mountainous Himalayan terrain having 37 tunnels including the largest tunnel of 11 km and 69 bridges upto 105 meter long.

19.7 The world's highest railway bridge-five times the height of Qutub Minar and 35 meters taller than Eiffel Tower-will come up over the Chenab river on the under construction rail link to the Kashmir Valley. The bridge will rise 359 meters over the Chenab, 65 km from Katra, on the 73-km Katra-Dharam section of the ambitious Udhampur-Srinagar-Baramulla Rail Link Project. The 1,315-metre bridge will use up to 25,000 million tones of steel and will be an engineering marvel and work is going on in full swing. The world's tallest rail bridge is France's Tarn river when completed, the Chenab bridge will be the highest in the world.

19.8 Four sites of Indian Railways have been declared as "World Heritage site" by the UNESCO. These are Darjeeling, Himalayan Railway inscribed in 1999, Mumbai CST Building inscribed in 2004, Neelgiri Mountain Railways inscribed in 2005 and Kalka-Shimla Railways inscribed in 2008.

19.9 At present 5 luxury tourist trains are run by Indian Railways which are "Palace on Wheels" in a circuit covering Rajasthan, Delhi and Agra, "Royal Rajasthan on Wheels" in a circuit covering Rajasthan, Delhi, Agra, Khujrao and Varanasi, "Deccan Odyssey", "Golden Chariot and "Maharajas"s Express covering various tourist destinations spread across the country. Besides, Indian Railways also operate "Fairy Queen" the Heritage Steam Train between

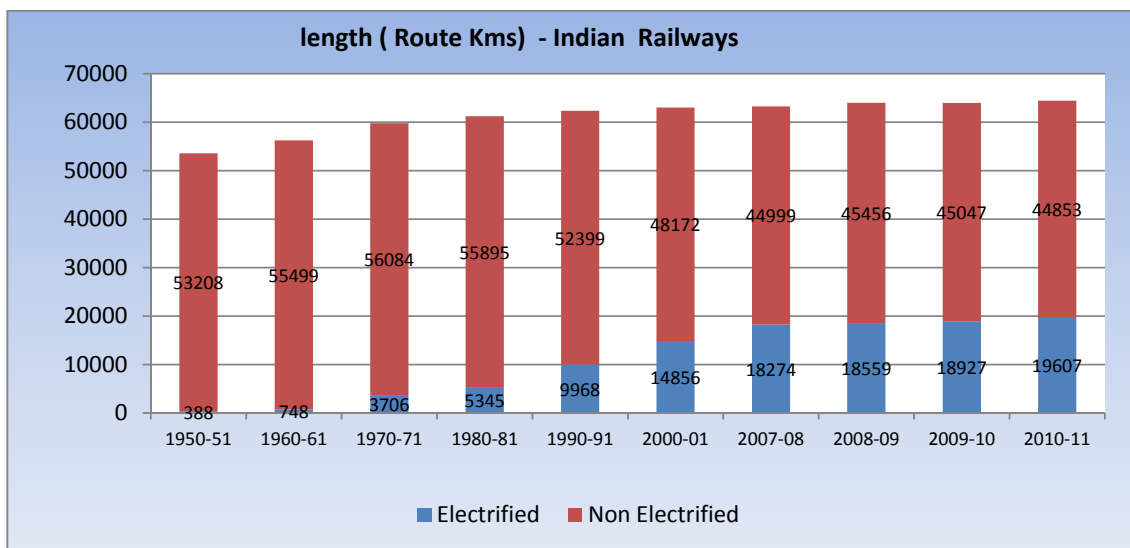
Delhi and Alwar offering weekend package to Buddhist special train in the popular Buddhist circuit and "Bharat Darshan" trains for the common man.

19.10 The Indian Railways are also classified by Gauges as Broad (1.676m.), Meter (1.000m) and Narrow (0.762m. & 0.610m) according to the minimum distance between two rails in meters mentioned in brackets.

Performance of Indian Railways :

19.11 **Rail Network :** As on 31.03.2011, the route length of Indian Railways covered 64,460 kms. with running track length of 87,040 kms. The total trackage including yards, sidings etc. stood at 113,993 kms.

19.12 During 2010-11, 709 kms. of new lines were constructed, 837 kms. of track has been converted from MG/NG to BG , 769 kms. of track has been doubled from single line to double line and 3,465 kms. of track renewal was carried out.

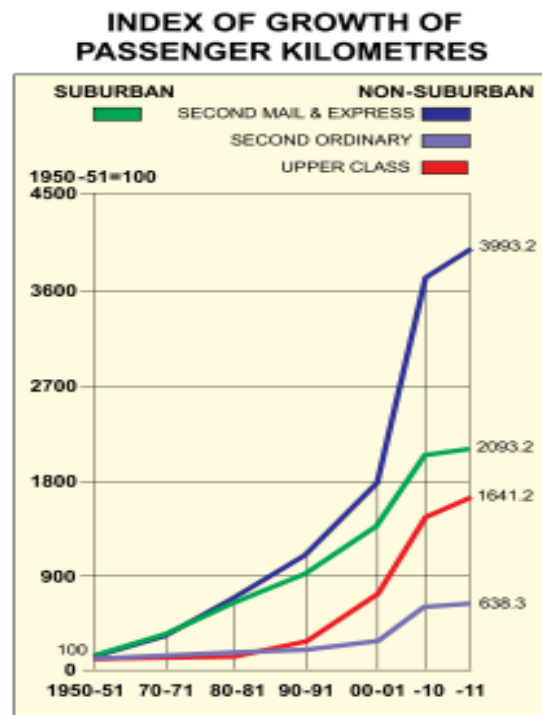
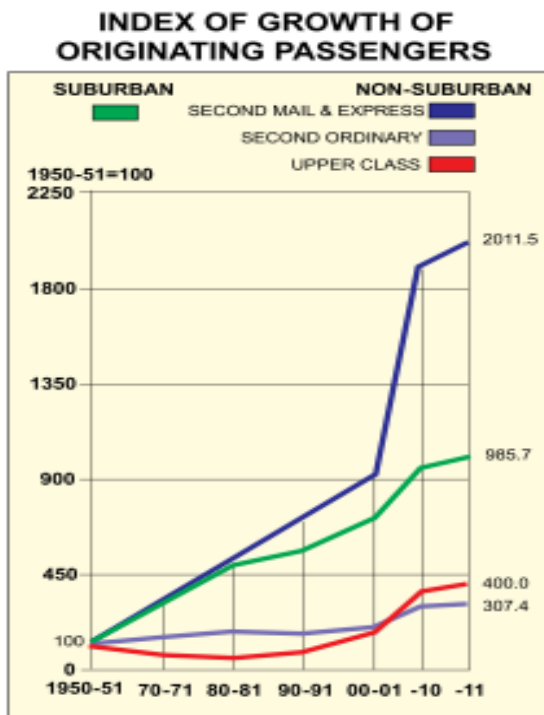
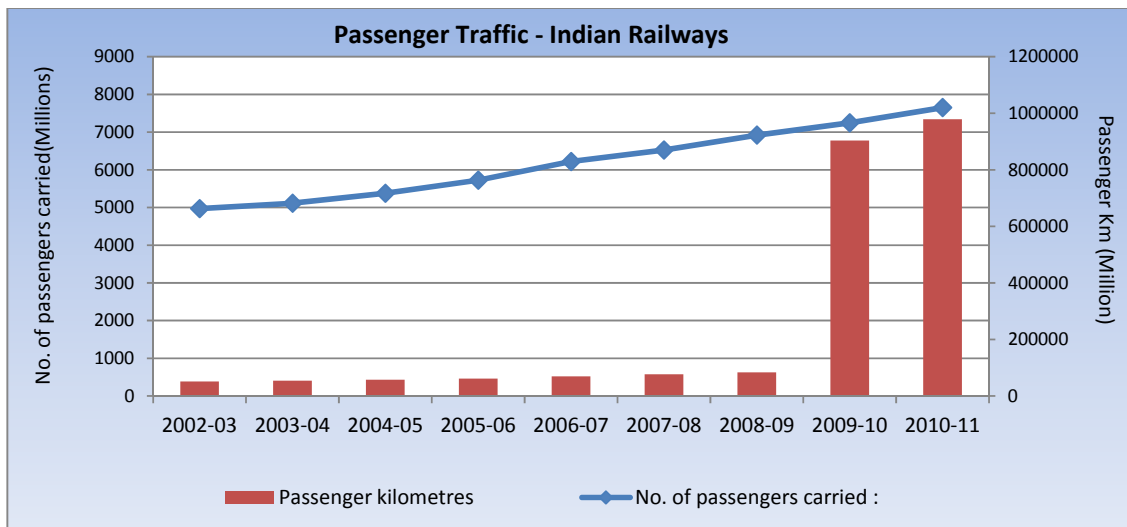


Year	Route kms.		Running track kms.		Total track kms.#	
	Electrified	Total	Electrified	Total	Electrified	Total
1950-51	388	53,596	937	59,315	1,253	77,609
1960-61	748	56,247	1,752	63,602	2,259	83,706
1970-71	3,706	59,790	7,447	71,669	9,586	98,546
1980-81	5,345	61,240	10,474	75,860	13,448	104,480
1990-91	9,968	62,367	18,954	78,607	25,305	108,858
2000-01	14,856	63,028	27,937	81,865	36,950	108,706
2007-08	18,274	63,273	34,700	85,158	47,296	111,599
2008-09	18,559	64,015	35,471	86,937	47,862	113,115
2009-10	18,927	63,974	35,811	87,087	48,639	113,617
2010-11	19,607	64,460	36,000	87,040	49,489	113,993

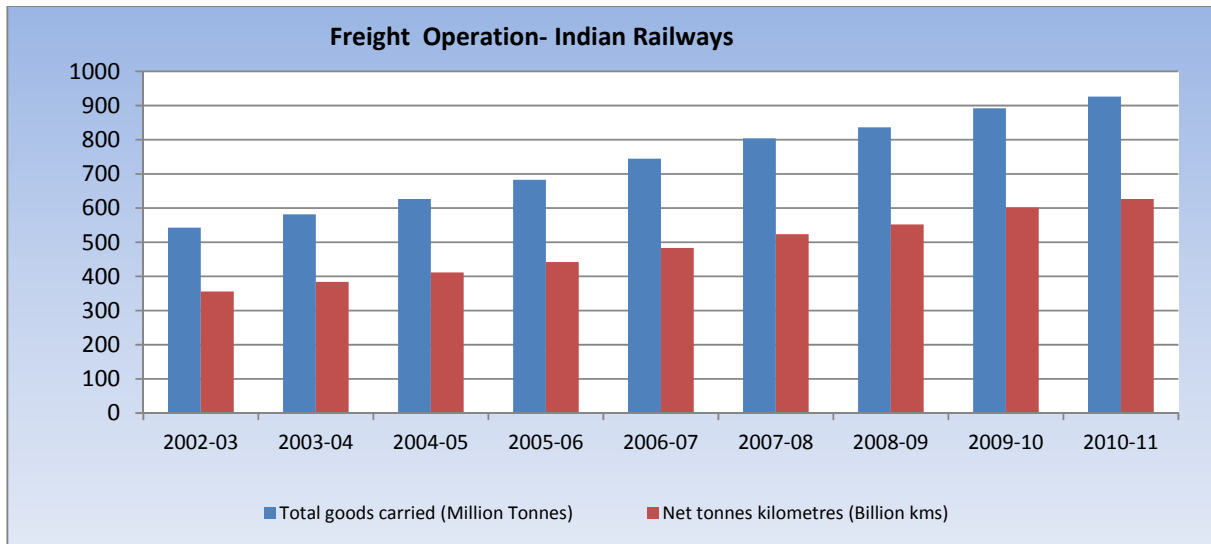
Includes track in yards, sidings, crossings at stations, etc.

Rail Transport :

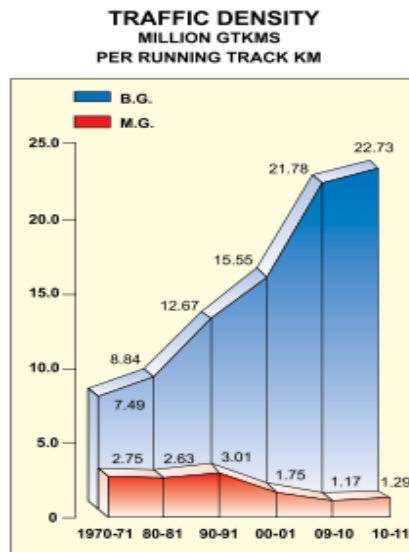
19.13 **Passenger Business:** Indian Railways is a commonly used mode of public transportation in the country. During 2010-11, it carried 7,651 million passengers as against 7,246 million in 2009-10 thus registering a volume growth of 5.6%. Passenger kilometres, which calculated by multiplying the number of journeys by mean kilometric distance was 979 billion, up by 8.3% from 903 billion in the previous year. Passenger earnings also increased by Rs 2,291.2 crore (9.8%) in comparison with 2009-10.



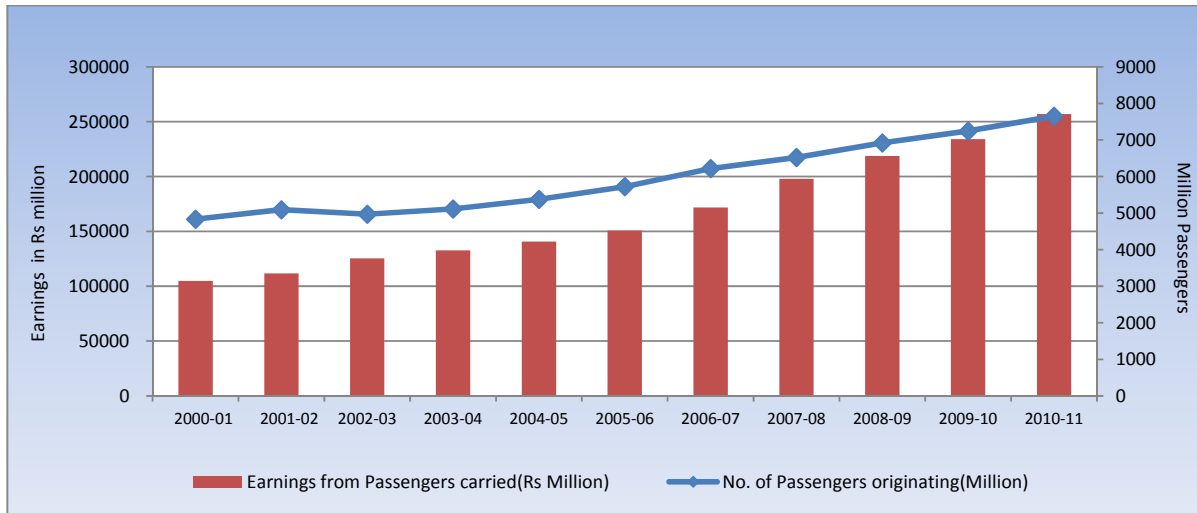
19.14 **Freight :** Revenue earning freight traffic handled during 2010-11 was 921.73 million tonnes. NTKMs (net tonne kms) earned during the year were 625.72 billion. Total loading and freight output, inclusive of non-revenue traffic, were 926.43 million tonnes and 626.47 billion NTKMs respectively. Both in terms of volume (tonnes) and NTKMs there was an increase of 4% over the previous year.



19.15 **Traffic Density:** Huge increase in traffic , both passenger & freight, has been observed in case of Indian Railways .Growth in traffic has outpaced the growth in infrastructure , resulting in increased traffic density. Railways has been converting more & more Narrow gauge and Meter Gauge lines into Broad Gauge increasing its share from about 72 %in 2002-03 to 86% in 2010-11.Between 1950-51 and 2010-11, traffic density (million GTKMs. per running track km.) increased from 4.29 to 22.73 on Broad Gauge. Broad gauge, though forming 85.6% of the route, generated 99.9% of the freight output (NTKMs) and 97.9 % of the passenger output (PKMs).



19.16 **Earnings:** There was an increase of about 10 & 7 % respectively in earnings from passenger & freight traffic though the No. Of originating passengers increased by 6% and load of goods carried increased by 4%. Earnings from goods (Rs 606 billion) was about 2.4 times that from the passengers (Rs 257 billion) .



19.17 Average rate charged per tonne km in case of freight has increased by 2 % over the previous year and over 30% since 2002-03 . In case of Passenger charges (average rate charged per passenger per km), different categories (AC/First Class/ Sleeper Class/ Second Class) have seen different movements. The changes have also depended on type of trains - express/mail and ordinary. Compared to 2009- 10 , while most categories saw marginal increase and first class recorded significant increase (49%), sleeper class and second class in express/mail trains saw decrease of about 2% .First class average charges per passenger km in ordinary trains remained unchanged.

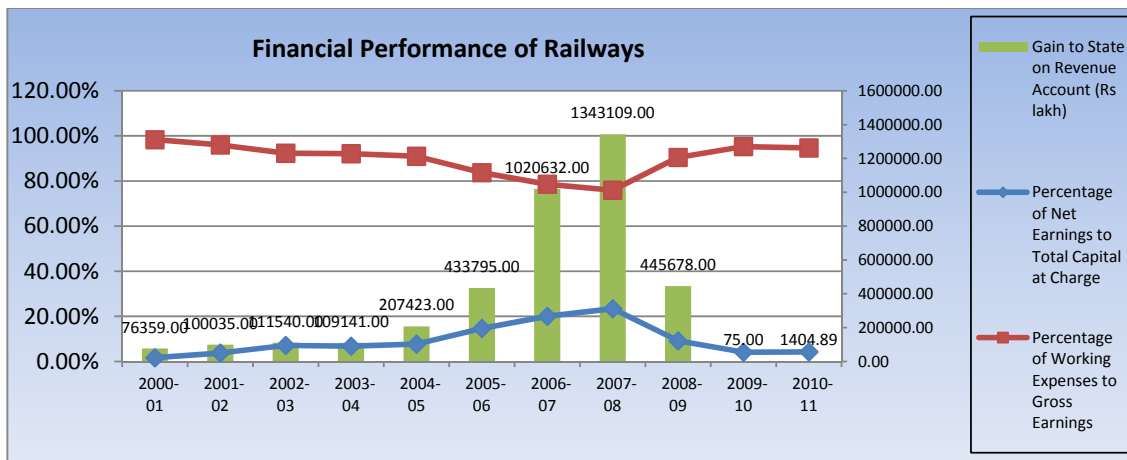
Performance Parameters

19.18 **Productivity:** The following table shows the indices of growth of traffic output vis-à-vis inputs:

Year	Traffic Output Indices		Investment Input Indices				
	Freight traffic (NTKms) (Rev+ Non rev.)	Passenger traffic capacity (Non-suburban passenger kms.)	Wagon	Passenger coaches	Route kms	Running track kms	Tractive effort of locos
1950-51	100	100	100	100	100	100	100
1960-61	199	110	152	154	105	107	144
1970-71	289	159	226	188	112	121	178
1980-81	359	279	269	210	114	128	201
1990-91	550	394	278	219	116	133	192
2000-01	715	614	246	254	118	138	233
2007-08	1,185	1,084	247	311	118	144	292
2008-09	1,251	1,189	283	321	119	147	310
2009-10	1,363	1,288	278*	332	119	147	322
2010-11	1,420	1,403	294	344	120	147	343

*revised

19.19 **Financial Performance :** Various parameters like percentage of Net Earnings to Total Capital at Charge, Percentage of Working Expenses to Gross Earnings & Gain to State on Revenue Account indicated an improvement during 2004-05 to 2007-08 and a decline thereafter



19.20 **Terms & Definitions:**

- **Capital at Charge:** Book value of the capital assets of Railways.
- **Route Kilometers:** This represents the length of the railway routes open for traffic at the end of each year. In calculating the length of the route, double or more than double lines are counted only once.
- **Gross Earnings and Working Expenses:** This represents total earnings and expenses of Railways in an accounting period irrespective of whether or not the earnings have been realised or expenses paid. Gross earnings include all earnings from passenger traffic, goods traffic, parcels, luggage and other miscellaneous sources of revenue, while working expenses include all expenses incurred for maintenance of structural works, supply of loco power, carriage and wagon stock, ferry steamers and harbors as well as the expenses of traffic departments, general electric service departments and other miscellaneous expenses.
- **Train Kilometers:** This represents the kilometers run by trains carrying passengers or goods or both as well as the kilometers run by empty trains. No deduction is made for departmental trains.
- **Number of Passengers and Metric Tonne carried:** The figures represent the number of passengers and weight in metric tonne of goods, originating on all Railways, treating passengers traveling or goods carried over two or more Railways as single journey.
- **Passenger Kilometers and Net Tonne Kilometers:** These figures represent the real indices of the volume of passengers and goods traffic handled. These are arrived at by multiplying the total number of passengers carried and the total tonnage of goods carried by the respective number of kilometers, over which they are moved.

19.21 **Source of Railway Statistics :** Indian Railway is a state owned public utility of Government of India under the Ministry of Railways. The Ministry brings out various publications including the Indian Railways Year Book which contains information on railway network- zone wise and all India, railway infrastructure & expenditure thereon -track & bridges, electrification, signal & telecom, rolling stock, traction etc , passenger business & freight operations, asset utilization etc.

References:

- International Union of Railways, UIC Website.
- Indian railways Year Book 2010-11