R.C.C. No . 64

RAILWAY CONVENTION COMMITTEE (1985)

(EIGHTH LOK SABHA)

FOURTEENTH REPORT

ON

ROLLING STOCK PROGRAMME

(AVAILABILITY OF COACHES AND WAGONS)

Presented in Lok Sabha on 18.8.1989

Laid in Rajya Sabha on 18.8.1989

LOK SABHA SECRETARIAT
NEW DELHI

August, 1989/Sravana 1911 (S)

Price : Rs. 9.00

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*PART-II

Minutes of the sittings of the Railway Convention Committee held on 25-1-1988(AN), 30-6-1988(AN), 13-7-1988(AN), 10-8-1988(AN), 25-1-1989(AN), 10-5-1989(AN), 7-6-1989(AN). and 8-8-1989.

*Not printed. One cyclostyled copy laid on the Table of the House and five copies placed in the Parliament Library.

RAILWAY CONVENTION COMMITTEE

(1985)

Shri Subhash Yadav—*Chairman*

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3. Prof. Narain Chand Parashar
4. Shri Vijay N. Patil
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3. Smt. Paramjeet Kaur—*Under Secretary*

£Nominated on 9-2-1989 vice Shri Janardhana Poojary resigned w.e.f. 28-12-1988.

*Nominated on 27-1-86 vice Shri Manvendra Singh resigned w.e.f. 11-12-1985.

**Nominated on 26-12-86 vice Shri Bansi Lal ceased to be a Member of Lok Sabha

***Nominated on 13-7-88 vice Shri Vishwanath Pratap Singh ceased to be a Member of Rajya Sabha w.e.f. 2-4-88.

&Nominated on 25 August 1988 vice the vacancy caused by the resignation of Shri Dipen Ghosh from the membership of the Committee.

@Nominated on 19-6-89 vice Shri Dharni Dhar Basumatari ceased to be a Member of Rajya Sabha w.e.f. 14-6-89.

@@Nominated on 22-11-88 vice the vacancy caused by the resignation of Shri Kalpnath Rai from the membership of the Committee.

INTRODUCTION

I, the Chairman, Railway Convention Committee, as authorised by the Committee, do present on their behalf this Fourteenth Report on Rolling Stock Programme of the Railways.

2. The Railway Convention Committee examined the Rolling Stock Programme of the Railways at their sittings held on 25-1-1988, 30-6-1988, 13-7-1988, 10-8-1988, 25-1-1989, 10-5-1989 and 7-6-1989. The Committee considered and adopted the report at their sitting held on 8 August, 1989. Minutes of the sittings of the Committee form Part II of the Report.

3. In this Report, the Committee have expressed their unhappiness over the fact that the passenger coaches have increased only by 125 per cent since 1950-51 whereas the passenger originating traffic has risen by 195.3 per cent from 1284 millions to 3792.1 millions and the passenger kilometres by 305 per cent *i.e.* from 66517 million kms. to 269389 million kms. during the same period. The sub-urban traffic has also increased significantly by 423.3 per cent over the years. The Chairman, Railway Board admitted during evidence that there is an unsatisfied demand which the Railways have been carrying all along and there is congestion which they have not been able to remove. The Committee have desired that the Ministry of Railways should plan for augmentation of their production capacity in a well planned manner to meet the ever-increasing demand of passenger coaches in the country in a realistic manner, taking into account the future prospects of traffic.

The total number of coaches overaged on 31 March 1985 as well as anticipated risings of stock due for re-placement during the Seventh Plan period is 12002. However, coaches actually condemned during the first three years of the Seventh Plan were 4353. The Committee have urged that the Ministry of Railways should, in consultation with the Planning Commission, plan for replacement of all the overaged coaches in a phased manner.

4. The Committee have also expressed their concern over the fact that there were 23395 overaged wagons with the Railways as on 31 March 1985. The anticipated arisings due for replacement during the Seventh Plan were assessed by the Ministry of Railways

to be 32183.5 wagons. Out of a total of 55578.5 overaged wagons due for replacement, the Ministry of Railways have been able to condemn merely 25982.5 wagons upto 31 March 1988. In view of the rising trend in the originating traffic, the Committee have urged upon the Ministry of Railways to replace the overaged wagons which are plain bearing four-wheeler stock, giving poor output, often not freely loadable and incapable of meeting the pattern of operation. They have recommended that the Railways should make an earnest effort to ensure that this back-log of 19616 overaged wagons is wiped out by the end of the Seventh Plan.

5. From the estimates prepared by the Railway Reforms Committee, the Committee have found that even after executing the replacement of wagons on codal life basis, 54500 four-wheeled wagons on BG and 3300 on MG would remain in service by 2000 A.D. The Committee have, therefore, desired that the Ministry of Railways should draw up a programme for early phasing out of the four-wheeled wagons stock.

6. For facility of reference and convenience, the recommendations of the Committee have been printed in thick type in the body of the Report and have also been reproduced in a consolidated form in Appendix V to the Report.

7. The Committee would like to express their thanks to the Chairman and Members of the Railway Board for the cooperation extended by them in giving information to the Committee.

8. The Committee are also thankful to the Wagon Builders Units for giving their valuable suggestions to the Committee.

NEW DELHI;
August 11, 1989
Sravana 20, 1911 (*S*)

SUBHASH YADAV
Chairman,
Railway Convention Committee.

ROLLING STOCK PROGRAMME OF THE RAILWAYS

CHAPTER I

INTRODUCTORY

1.1 The fleet of rolling stock, consisting of locomotives, coaches and wagons, constitutes a bulwark of the Railways. The adequacy of this fleet, together with its efficient upkeep and optimum serviceability are matters vital to the operation of the system. The efficiency in maintaining the Rolling Stock has become a vital factor affecting transport capacity of the Railways. Under most of the Five Year Plans, 30—40 per cent of the allocation for Railways has been spent on acquisition of rolling stock. The issue pertaining to manufacture and maintenance of rolling stock has, therefore, assumed importance in the Committee's appraisal, investigation and deliberations.

1.2 The Indian Railway system has evolved around a large and varied number of individual railway companies which came into existence with the introduction of Railways in the country. With the take over of increasing number of such companies by Government after 1897, the Indian Railways have inherited a hetrogenous maintenance infrastructure which has resulted in a variety of rolling stock designs. A Central Standards Organisation was, therefore, established in 1930 to overcome problems of insufficient standardisation in the rolling stock. This step was re-inforced with setting up of Research, Designs and Standards Organisation (RDSO) in early 50's.

1.3 The following table brings out the comparative position of rolling stock as at the end of 1950-51 and 1987-88:

Item	Holdings in 1950-51	Holdings in 1987-88
Steam locomotives	8,120	4,427
Diesel locomotives	17	3,298
Electric locomotives	72	1,436
Electrical multiple units	460	2,979
Coventional coaches	13,109	27,495
Other coaching vehicles	6,059	7,275
Wagons in line	2,05,596	3,46,844

1.4 The Committee will now deal with the current and perspective problems relating to production, maintenance and quality assurance etc. of Rolling Stock in the specific chapters on coaches, locomotives, wagons, workshops and Rolling Stock.

AVAILABILITY OF COACHES

(*Holding of Coaching Stock*)

1.5 The holding of overall coaching stock, its zone-wish and gauge-wise split up is indicated in the Appendix-I.

1.6 The requirement of Rolling stock is determined by (i) replacement requirements and (ii) additional stock required to move the anticipated nature and level of traffic. The details of replacement and additional coaches placed on line since 1969-70 are given in Appendix-II.

1.7 The assessment of replacement needs are based on the present position of the averaged stock and the anticipated arisings during the period under review. However, to assess the requirements of additional stock, a detailed exercise is undertaken before the commencement of each Five Year Plan. The anticipated growth in different streams of traffic, *e.g.*, coal, petroleum products, foodgrains, fertilisers, cement, steel etc. is forecast in consultation with the concerned Ministries and the Planning Commission. A similar forecast regarding the growth in passenger traffic is made on the basis of an analysis of the past trends and other factors such as the rate of increase of population, the growing propensity to travel etc.

1.8 Based on the projections of growth in traffic and the utilisation indices for different types of stock, the requirement of rolling stock to meet the traffic demands by the end of each Plan period is assessed. A yearly review is made to assess the actual trends *vis-a-vis* the forecast and to effect mid-course corrections, if necessary.

1.9 The actual acquisition of rolling stock is, however, determined by an interplay of the following three factors:

(i) Need based requirements

(ii) Availability of funds

(iii) Available production capacity

1.10 Railways informed the Committee that the need-based requirements are often more than the numbers that can be built within the financial allocations to the Railways, the capacity of indigenous manufactures and, thus, the additional stock proposed is invariably short of the requirements to meet the anticipated growth in traffic. This in turn results in a time-lag between the generation of requirements and actual availability of stock.

1.11 The need-based requirement of coaches for the Seventh Plan period was assessed at 12,914 consisting of 10,605 on replacement account and 2309 on additional account to meet the growth in traffic. However, with the present allocation of funds the Ministry of Railways would be able to meet merely 54 per cent of this requirement.

1.12 Under the Seventh Plan acquisition of 1390 units, excluding provision for Calcutta Metro and Delhi Ring Railway was envisaged. However, due to resource constraints, the Ministry of Railways have planned to acquire only 950 EMUs during the Seventh Plan period.

1.13 In view of the increasing need for coaches, a Working Group had been appointed by the Planning Commission for the Railway's 6th Plan to assess the need-based requirements of the Indian Railways. The Working Group had assessed the need as about 2100 coaches per year while the total available production capacity in the country (from ICF, BEML and Jessops) was about 1400 coaches per year. Taking note of this gap, Railway Board had appointed a Multi-Disciplinary Committee (MDSC)

(i) to project the future demand for coaches;

(ii) to assess the limits of existing and potential capacities of the coach building units in the country; and

(iii) to make recommendations regarding capacity augmentation.

1.14 The broad findings of the MDSC which submitted its interim report in October 1979, were that there would be a minimum demand of coaches to the extent of 2472 per year (during 1983—88) It was also brought out that ICF would have difficulty in expanding due to space constraints. Even taking into account the expanded capacity of M/s. BEML and Jessops, the total coach manufacturing capacity in the country would not exceed 1700 coaches per annum during 1983-84. The Committee, therefore, recommended that a

new factory should be set up with an initial production capacity of 400 coaches per annum with the scope for further expansion.

1.15 As per the assessment made by Railway Reforms Committee (RRC), the additional coach manufacturing capacity required was 1220 coaches per year. RRC recommended setting up of a new factory to bridge the shortfall. The interim report of RRC was forwarded to the Planning Commission in November 1979 for their clearance. Clearance in principle was communicated in February, 1982.

1.16 Taking all factors into account it was decided to set up the New Rail Coach Factory at Kapurthala in Punjab for an ultimate manufacturing capacity of 1000 coaches per year.

The production build up planned for RCF is as under:

Year	No. of coaches to be manufactured
1987-88 .	1
1988-89 .	299
1989-90 .	500
1990-91	750
1919-92	1000

First coach from RCF has been turned out on 31 March, 1988, as per the target. The outturn for RCF upto March 1989 is 121 coaches.

1.17 The following table shows the capacity, target and actual production of coaches including EMUs/Metres:

	I.C.F.			R.C.F.			JESSOPS			BEML		
	Cap.	Tar.	Act.	Cap.	Tar.	Act.	Cap.	Tar.	Act.	Cap.	Tar.	Act.
1984-85	825	825	825				252	182	133	..	350	350
1985-86	825	825	830				252	192	115		350	326
1986-87	850	850	852			..	252	222	99		350	338
1987-88	900	900	825	1	1	1	252	212	109	..	350	321
1988-89	900	900	900	120	120	120	252	222	153	..	400	400

1.18 For coaches the lead time between sanction and materialisation of rolling stock is about 2 years. Asked to indicate the resultant spill-over from one plan to another and its adjustment, the Ministry of Railways gave the following details of the target and actual materialisation of coaches and EMUs during each Five Year Plan:

	Target	Actual materialisation	Spill over (—) (+)
First Plan	5,674	4,758	916
Second Plan	11,364	7,718	3646
Third Plan	8,601	8,019	582
Inter Plan 1967-69			
1966-67	1,387	1,264	123
1967-68	1,478	1,258	220
1968-69	1,618	1,273	345
Fourth Plan	7,323	6,585	738
Fifth Plan (1974-78)	5,222	4,120	1102
Rolling Plan	N.A.	2,161	
Sixth Plan	6,286	6,033	253
Seventh Plan	7,920		

1.19 In this connection the Ministry of Railways clarified that the requirements for each plan are calculated on the basis of holdings at the beginning of the Plan, traffic estimated to be carried and replacement of estimated overaged arisings during the Plan. The shortfall, if any, from the previous plan is, therefore, automatically adjusted and hence is not required to be carried to the next Plan.

1.20 As the Railway is a capital intensive industry, the Committee desired to know how much of the requirement of coaches was proposed to be met by maximising their use by innovations like increased speed, reduced POH time, reduced terminal lie-over of coaches, reduced percentages of stocks earmarked for POH repairs etc. The Ministry of Railways informed the Committee that the following steps have been taken to increase asset utilisation and avoid straight incremental inputs:

Coaches:

(i) Modernisation of Carriage and wagon repair shops with World Bank aid to reduce POH days.

(ii) Introduction of integrated mechanical and electrical maintenance.

(iii) Change of trough floor material from Corten Steel to Austenitic stainless steel to reduce corrosion.

(iv) Contemplated transfer of technology for manufacture of high speed light weight design coaches.

(v) Proposed modernisation of 22 coaching depots during the Seventh Plan.

(vi) Introduction of mechanised exterior and bath-room washing facilities.

(vii) Amalgamation of rake links, where possible.

1.21 Asked whether the availability of coaches can be increased by providing faster paths leading to quick turn-round of stock, the Ministry of Railways stated as under:—

"There are two issues involved in the matter—one, the overall journey time and second, the detentions at terminals.

In regard to first aspect, most of the Mail/Express trains are given priority over all other traffic and are thus provided fast paths. The journey time is, however, governed by the maximum permissible/booked speed over the different sections, speed restrictions in force, load of the train, type of traction, suitability of timings at the terminals and important intermediate points, shunting requirements, connections and so on. Effort is always made to keep the above facility as also the target group of users in view while determining train schedules. These are also constantly reviewed to identity scope for appropriate improvements.

As regards the second aspect the main factors for consideration are provision of adequate time for cleaning, washing and maintenance of the train and suitability of train timings for the travelling public. Accordingly most of the long distance trains leave the originating points and

arrive at their destination during the morning or evening hours.

Notwithstanding these constraints, Railways have been making a constant endeavour to improve the turn round of coaching stock over the years. This is reflected in the figures of kms. earned per unit per day which has gone up from 317 in 1981-82 to 370 in 1985-86 on B.G. and 181 to 220 in the case of Metre Gauge. Some of the steps recently taken in this direction are the rationalisation and integration of the various rake links to curtail terminal lie-over and ensure better utilisation of stock, speeding up of trains and setting up of coaching cabinets in all Zonal Headquarters to enable micro-processor based computerised control on the available coaching stock."

Passenger Traffic and availability of coaches

1.22 Passenger traffic expressed in terms of passenger kilometres (pkms.) during the Sixth Plan increased from 198.7 billion pkm in 1979-80 to 226.6 billion pkm in 1984-85 registering an annual growth of 2.8 per cent.

1.23 Given the scarcity of resources and priority to be accorded to freight traffic, the Planning Commission stressed the need to contain the passenger traffic. For the Seventh Plan, therefore, increase in passenger traffic was assumed at 2 per cent per annum only. Accordingly, with actuals of 1985-86 at 240.6 billion pkm and a growth rate of 2 per cent per annum in the remaining four years of the Seventh Plan, the passenger traffic in 1989-90 has been assumed at 260.4 billion passenger kilometres. However, passenger kilometres during 1987-88 have registered an increase of 5 per cent over the previous year's figure of 256.5 billion pkms.

1.24 The table below reflects the long term trends in passenger traffic and passenger carrying capacity:

Year	No. of passengers originating (in millions)	Passenger Kilometers (in millions)	No. of coaches			
			EMU coaches		Conventional coaches	
			No.	capacity	No.	capacity
1	2	3	4	5	6	7
1950-51 . . .	1,284	66,517	460	87,986	13,109	854,678
1955-56 . . .	1,275	62,400	574	101,409	15,984	1,050,811

1	2	3	4	5	6	7
1960-61 . . .	1,594	77,665	846	150,854	20,178	1,280,797
1965-66 .	2,082	96,294	1,355	250,825	22,804	1,426,918
1970-71 . .	2,431	118,120	1,760	340,541	24,676	1,505,047
1975-76 .	2,945	148,761	2,217	429,377	26,309	1,626,096
1980-81 .	3,613	208,558	2,625	500,607	27,478	1,695,127
1981-82 .	3,704	220,787	2,658	512,134	27,244	1,692,229
1982-83 . .	3,655	226,930	2,765	534,256	26,936	1,674,786
1983-84 . . b	3,325	222,935	2,837	544,482	27,343	1,705,158
1984-85 .	3,333	226,582	2,957	585,595	27,825	1,745,622
1985-86 .	3,433	240,614	2,965	574,726	27,769	1,770,881
1986-87 .	3,594	256,535*	2,988	573,518$	27,664	1,773,878$
1987-88 . . .	3,792.1	269,389	2,979	578,329	27,495	1,777,521

*Revised

$Revised

1.25 In reply to a question regarding their estimate about the increase in traffic during Seventh Plan, the Ministry of Railways conceded that "the demands for additional passenger traffic may be somewhat more than 2 per cent allowed for, but in view of the priority to be given for freight traffic it would not be possible to cater for a growth of more than 2 per cent per annum".

1.26 Asked to spell out the assessment made of the total requirement of coaches during the Seventh Plan, the Ministry of Railways replied that 'the passenger traffic is assessed to increase at 2 per cent per annum during the plan period. In order to cater to the level of passenger traffic it is proposed to acquire 6970 passenger coaches and 950 EMUs.'

1.27 As the passenger traffic has actually risen by 167.4 per cent between 1950-51 and 1985-86 against 126 per cent increase in passengers carrying capacity, the Committee desired to know as to when the Ministry of Railways expected to bring both the passenger traffic and the passenger carrying capacity at par so as to avoid strain on passengers and coaches as well. During evidence, the Chairman, Railway Board stated:

"The difference is matched by two reasons. We achieve better utilisation of coaches some times by carrying passengers in some cases resulting in overcrowding, and sometimes in those areas where the traffic was less which has increased now. The average occupation ratio now for suburban and non-suburban traffic has risen by 57 to 90 per cent and 69 to 90 per cent respectively. In Some areas it may be due to overcrowding. The Other is better utilisation of the coach itself. And the type of coaches which we were using in 1950-51 and which we are now using, some of them are of the highest carrying capacity. Earlier there were 20,21.22 people in I Class but now it is being replaced by an AC II tier which carries 44 to 46 passengers. It remains only one coach, but I am able to carry twice the number of people. But we are clear in our mind that there is an unsatisfied demand which we are carrying all along which is available to us in the demand for additional trains and there is congestion and all the things which we are not able to match."

1.28 The Seventh Plan provided for only a modest growth of 2 per cent per annum for non-suburban passenger traffic and to meet this growth it was planned to acquire 6970 coaches and 950 EMUs. Asked whether they would be able to meet 2 per cent rise in passenger traffic by acquiring 6970 coaches by the end of Seventh Plan, the Member (Mechanical) replied:

"That is always the endeavour.....Whatever we do there is always an unsatisfied demand which makes us to be more and more active so that we can come up to the expectations of the travelling public."

1.29 In this connection the Chairman, Railway Board explained:

"The increased traffic has not been 2 per cent only; it has been of the order of 4 per cent. That is why I said that in certain areas through overcrowding and in other areas through rationalisation etc., we are able to do something. We are not able to meet the requirements of the passengers. But certainly anybody would be able to say that we are trying to meet them."

1.30 To a question whether the requirements of the Railways to acquire 6970 coaches would be met by the present coach manufacturing capacity, the Member (Mechanical) replied:

"For the present within the kitty that is available, we have an allocation to make 6970 coaches in this Plan period. We do hope that we will be able to sustain that. Naturally, with the coming up of the Rail Coach Factory, there will be a possibility of production capability being generated, to produce a large number of coaches and this would then have to be reflected in our plans that we would wish to make more coaches to overcome the present position, the increase in passenger traffic. But it would have to be seen in the overall context of resources that are placed at the disposal of the Ministry and allocated in the order or relative priority in the Eighth Plan. So, we do hope that all will be well."

Stabled Coaches for Periodic Overhaul and other reasons

1.30 Repairs are of two types, namely scheduled repairs and out of course repairs. The scheduled repairs which are either time based or kilometrage based can be forecast accurately. Thus, each railway is in a position to work out the arisings for such scheduled repairs like Periodical Overhaul (POH), Routine Overhaul (ROH) and other schedules. Taking also into account any arrears in Schedules, the overall requirements of scheduled repairs for every year is assessed by each Railway and proper programme is drawn out for undertaking those repairs to the maximum extent possible.

1.31 The Ministry of Railways have informed the Committee that there are, however, the constraints in this regard: (i) the capacities available on various railways for scheduled repairs have not been adequate for many of the schedules, including POH and ROH (ii) at certain times, non-availability of adequate funds also becomes a constraint. However, all efforts are made to utilise the available capacities to the maximum possible extent subject to the constraints imposed by available funds.

1.32 Regarding non-scheduled repairs, no such forecast of the arising can be made except on the basis of statistical averages taking into account the arisings in the previous years and the changes in stock holdings and maintenance conditions etc.

1.33 The extent of sickness of rolling stock is assessed by the ineffective percentages computed daily on all railways and averaged out every month. One of the indices to measure utilisation of coach stock is "Vehicle Kms per vehicle day". The trend indicated by some of these indices is briefly given below:

Ineffective percentage of passenger carrying vehicle

Year	B.G.	M.G.
1982-83	15.10	10.99
1983-84	13.84	12.04
1984-85	13.45	11.65
1985-86	12.67	11.64
1986-87	10.42	9.55
1987-88	9.22	9.56

Utilisation of passenger carrying vehicles

	Vehicle Kms. per Vehicle day (PCVS)	
	B.G.	M.G.
1982-83	342	190
1983-84	354	204
1984-85	354	207
1985-86	370	220
1986-87	373	235
1987-88	388	248

1.34 No data are being maintained regarding the frequency of sickness. However, for the ineffective coaches which are withdrawn for scheduled repairs like periodical overhaul, routine overhaul, various schedules of maintenance etc., the periodical basis on which these schedules are to be done have been laid down. These periods are mostly on a time basis even though some schedules are on the basis of kilometres earned by the stock. The intervals for such scheduled repairs for various type of stock are given in Appendix III.

1.35 Apart from the above schedules repairs, out of course repairs are also executed on these coaches on noticing specific defects during service in between two schedules or during the schedules. However, all the coaches may not need such repairs in between schedules and only a percentage of them need attention in this manner. No records are maintained regarding the frequency with which the coaches are made sick for out of course repairs.

1.36 The codal life, after which coaches are deemed to be over-aged and replaceable, is given below:

Steel bodied	25 years
Wooden bodied	30 years
Restaurant cars	25 years
Light utilisation coaches	40 years

1.37 The following table indicates the number of coaches which were overaged on 31-3-1985 as well as the anticipated arisings of stock due for replacement during the Seventh Five Year Plan period:

Overaged stock as on	BG	MG	NG
31-3-1985	2255	1986	519
1985-86	716	515	47
1986-87	599	509	33
1987-88	975	528	43
1988-89	816	796	30
1989-90	712	880	43
Total	6073	5214	715

1.38 However actual condemnation of coaches during the first three years of the Seventh Plan is as under:

Year	BG	MG	NG
1985-86	899	442	87
1986-87	1090	417	55
1987-88	953	446	24
Total	2942	1305	166

The Ministry of Railways have stated in this regard that they will try to liquidate the arrears of stock due replacement. This however will be subject to availability of funds.

1.39 Asked to intimate the actual position of overaged coaches in terms of Mid-term appraisal of the Seventh Plan, the Member (Mechanical), during evidence, gave the following figures for 31 March 1987:

"The passenger carrying vehicles are 1231 in number on Broad gauge which means 7.12 per cent on our total holding are in service. Other than the coach vehicles, the number is 1042 and percentage-wise, it is 23 per cent. The total comes to 2323 for the broad-gauge and the percentage is 10.33.

For the meter-gauge, the figures for passenger carrying vehicle is 1683 which is 20 per cent. Other than the coach vehicles, the number is 878 which is 32.66 per cent. The total being 2561, the percentage being 23.05.

We have narrow gauge system also. The passenger carrying vehicle is 389 and it is 32.7 per cent. Other than the coaching vehicle, the number is 99 which is 63 per cent. The total comes to 488 and percentage-wise it is 36 per cent."

1.40 The Chairman, Railway Board clarified that the figures given above were based on the codal life of coaches. In reply to another question the Member (Mechanical) stated that the coaches are condemned on conditional basis and not on the basis of their codal life. He explained:

"As regards coaches or any other rolling stock which gets older and which requires more and more effort both in terms of money and material to keep it in shape, it becomes an uneconomic burden on the railways if we try to keep too many over-aged rolling stocks in service. We decide about the codal-age of a rolling stocks based on our experience here and elsewhere. But for constraints of funds to replace, we are compelled to keep some of these coaches and other rolling stock in service till such time we are able to make good the deficiency."

1.41 When the Committee desired to know the programme of the Railways on retirement of the entire over-aged coaches, the Financial Commissioner stated:

"The point to be kept in mind is the totality of railway requirement of capital funds, what we are asking from the Planning Commission and what the Planning Commission after taking the over all view of the total governmental resources allot funds to us. After we got that, we have to decide what are our inter-se priorities between the construction of new lines, gauge, conversion, line capacity work, electrification, track renewals etc. ..... Secondly even if the funds are available, we are handicapped because there is a constraint on the production capacity."

1.42 To a question whether the over-aged coaches are safe, the Chairman, Railway Board stated:

"....about over-aged coaches I would like to say that they are not unsafe. Our cost of maintaining them is going up. We would like that old thing should go away because our maintenance costs are high but I would like to assure the Committee that everytime a coach runs, it is safe. It may not be comfortable but from the safety point of view it is safe to run."

1.43 When one of the Members pointed it out that these over-aged coaches are used in the trains which serve the rural people, he replied:

"These are used on the branch lines because there the stress and strain is less. On these branch lines the trains stops at every station."

1.44 When the Committee drew the attention of witness to the fact that the percentage of over-aged coaches was very high and that the Railways also kept the condemned coaches on these lines, the Member (Mechanical) stated:

"....We have a constraint both of capacity and of finance—a mixture of both....We have recognised that the metre-gauge stock is kept at a percentage relatively higher in terms of overage. And a correction in the production/manufacturing plan has already been made. The Integral Coach Factory at Perumbur has been revitalised for increased metre gauge manufacture. And order has been increased substantially from the next programme onwards."

1.45 He gave the following projected figures for production of metre gauge coaches as under:

During	1986-87	50
	1987-88	250
	1988-89	400
	1989-90	550

1.46 Asked whether attention was also being paid to replace over-aged coaches on narrow-gauge section, he stated:

> "The programme on the narrow-gauge has also been pushed up. As a matter of fact, there was slow-down in the manufacture, which we have taken note of. But in the matter of narrow-gauge, we also have the other side of the operation being uneconomical on almost all the sections."

1.47 The number of coaches condemned from 1981-82 to 1985-86 is given below:

Year	B.G.	M.G.	N.G.
1981-82	868	345	45
1982-83	971	600	49
1983-84	557	479	35
1984-85	639	447	59
1985-86	899	442	87

Future requirements of coaches and their design

1.48 Growth of passenger traffic is linked with growth of urban population. Total population projections based on 1981 census data range from 959 million to 1052.5 million in 2000 A.D. Urban population, as a percentage of total population, has been steadily increasing. The Planning Commission's projections indicate this to be 30.6 per cent by 2000 A.D. as compared to 23.7 per cent in 1981.

1.49 Growth of passenger traffic on Railways has been examined by various expert Committees viz. National Transport Policy Committee (NTPC), Rail Traffic Enquiry Committee (RTEC) and Railway Reforms Committee (RRC). Traffic projections for 1999-2000,

in billion passenger kilometre (BPKM) given by these Committees are as under:

(a) *Non-suburban traffic*	
NTPC	300
RTEC	320
RRC . . .	280
Actual traffic in 1984-85	182
(b) *Suburban traffic*	
NTPC	126-162
RTEC	168
RRC . . .	120
Actual traffic in 1984-85 .	44.3

1.50 As per the Corporate Plan (1985-2000) of Railways, the total requirement of coaches & EMUs, both for meeting replacement and additional needs, for the next 15 years is estimated to range between 35000—37000 vehicles. This requirement assumes a substantial improvement in productivity of these assets. Out of this, the requirement of EMUs and Electric train set is estimated to range between 5000-6000 vehicles. Railways also recognize the need for more air-conditioned coaches *i.e.* IInd A.C: sleeper and A:C: chair cars: It is also proposed to introduce diesel rail cars on branch lines both on BG and MG.

1.51 The following table gives the projected requirements of additional production capacity for coaches, as recommended by Railway Reforms Committee:

	Holding on 31-3-1982	Projected requirements by 2000 AD	Estimated No. requiring replacements by 2000 AD including arrears	Total Production required by 2000 AD	Annual Capacity required	Present annual Capacity	Addl. Capacity required
BG	20697	37060	15155	44357	2464	1500	1534
MG .	13541	14625	11755				
EMU . .	2650	8325	2000	10325	570		

1.52 In this connection the Member (Mechanical) said during evidence:

> ".....So far as coaches are concerned, we have produced already 5360 coaches upto the end of 1988-89. This is a composite figure. We are hoping to produce about 1800 coaches this year ....., so far as the manufacture of coaches is concerned, there has been a ceiling on production capacity. Adding to that, Jessops have had a consistent shortfall in production. Last year they have produced almost 50 per cent more than the production a year ago and we are hoping that very next year they will complete the target of 225 coaches. So, we will reach a figure of about 7200 coaches.

1.53 In reply to a question as to why the production capacity of Bharat Earth Movers Ltd. was not being utilised fully, he stated:

> "As far as Bharat Earth Movers are concerned, they have been very good suppliers. We have no complaint or apprehension about their ability to make coaches. As a matter of fact, last year while taking advantage of their ability and looking into our resources position, we were able to raise our order from 350 to 400 numbers. I am glad to say that they were able to respond. They had delivered 400 coaches last year. We have placed orders for similar quantity this year also. It has been increased from 350 to 400. It is a balance between our requirements, also availability of annual plan out-lay and their ability to supply."

Explaining further, the Chairman, Railway Board said:

> ".....Their cost of production is more than the cost of production of our coach. I discussed with them why do they require such high cost of production. There are certain extra costs; they have to pay sales tax; they want to make some profit. But it does not require 60 per cent increase. I had told them to re-examine the issue. Certainly as and when we need, we will certainly place our orders."

1.54 Elaborating the point further, the Member (Mechnical) stated:

> "We have progressively increased coaches in our own factory in Kapurthala. This year, it is 300, next year it will be at

least 500. We would not like to encourage outside agency to give us 200 or 300 more coaches in one or two years and then suddenly ask them to slow down their production. Looking at their capability and our ability to absorb, we have raised it to 400."

1.55 As M/s. Jessops were not supplying according to the orders placed on them and BEML were complaining about non-utilisation of their production capacity, the Committee desired to know why orders could not be diverted from Jessops to BEML. The Member (Mechanical) clarified:

"The types of stocks which are made at Jessops, and at BEML are quite different. The BEML is making coaches which are run with locomotives or trains for the broad-gauge system. The Jessops produce metre-gauge coaches and DC EMU for which there is a completely different design. So, the change of orders from Jessops to BEML would present certain technical difficulties."

1.56 Regarding prodution coaches in Jessops, the Financial Commissioner stated:

"Jessops is failing us badly both in coaches as well as EMUs. For the year 1985-86 we had given them an order for 79 whereas they supplied only 59. In 1986-87 we ordered for 120 and they supplied 31. In 1987-88 we ordered for 140 and they supplied only 76".

The Member (Mechnical) added in this regard:

"This year we have also ordered for 150 and in the first three months their output is half the proportionate output that should have been."

1.57 Asked as to how long they would bear with this situation, he said:

"They being a public sector undertaking we have to give them this consideration. We are constantly pressurising them. We had a series of meetings at the highest level. They are always re-assuring us. This time we have started month by month monitoring."

He added:

"..... With some encouragement, Jessops may reach their production capacity around 200-72 EMUs, about 130-140 Metre-Gauge Coaches per year during the course of this year. We are in constant touch with them and they are quite hopeful that they would achieve this. Last year's production has given us some hope because the year before it was 100. Last year it is 155. We are now hoping to achieve our target."

Standardisation of coaches

1.58 When the Committee desired to know the steps taken to have uniformity in production of coaches, the Member (Mechanical) stated:

"Standardisation is a very important aspect because it improves productivity and brings down the cost of manufacture and maintenance. We are minimising the types of coaches.

Internally for different classes we have to furnish the coaches to different standards. Externally it may be the same. By and large, in so far as broad-gauge coaches are concerned, we used to have Indian Railway standard prior to 1950 and then we acquired two types of designs in the 50s—one was Schlerion design of Switzerland; for manufacture of integrated coaches we got another type MAN type from Germany. They were manufactured by the Hindustan Aeronautics at Bangalore which is now known as BEML in Bangalore. After some years we felt that we should do more standardisation and we have now asked BEML also to fall in line with the ICF type so that there is more commonality in the type of rolling stock.

In so far as RCF is concerned, we have taken advantage of the setting up of a new workshop also to upgrade the Schlerion technology which was borrowed in 1955. A lot of improvements have taken place in the type of equipment which keep running for larger kilometres. We are hopeful that the new technology is also absorbed by the BEML. The intention is to reduce the number of types of coaches to the minimum."

1.59 Asked whether they were planning to eliminate I class coaches by introducing AC II Tier coaches, the Member (Traffic) stated:

"That was the decision taken a few years ago. Later on there was a rethinking on this because some sections of the society wanted I class to continue. However we have reduced the manufacturing of the I Class bogies. Mostly in the long distance trains I Class coaches are being replaced by AC II tier coaches."

1.60 When the attention of the witness was drawn to the miserable condition of these I Class Coaches, the Member (Mechanical) stated:

".....Certain coaches were made some fifteen years ago. In addition to POH, we have embarked on a programme of rehabilitation of these first class coaches to the extent possible and about 600 coaches have already been rehabilitated."

1.61 Asked about the experiment of introducing double decker coaches, the Member (Mechanical) stated:

"Some double decker coaches are being run at present. It has generally been noticed that atmosphere in our area is more dusty and therefore if double decker coaches are to be run, then we have to air-condition them. In fact in single decker coach, seats are provided a little up and the dust comes down and do not create trouble for the passengers. But in double decker coach, since seats are provided a little down, dust comes inside the coach and passengers are troubled. Therefore, if we have to run double decker coaches, then we have to air-condition them. We have attached double decker coaches on Bombay-Pune section and this type of train is also running at Dhanbad Section. But we are giving a second thought to it. Since the air-conditioning of these double decker coaches is necessary and our factory can produce air-conditioned coaches in a limited number, we are therefore finding it difficult to produce coaches for Rajdhani and other trains. We have not so far developed the capacity for double decker coaches. But we are paying attention to it and trying to see that maximum passengers are carried in a coach."

1.62 In this connection, Chairman, Railway Board stated:

"As its lower level is a little down, the level of window has further gone down. Dust does not come at the level of

other coaches in train but because of its level being low dust comes inside. It will also require change in our social habits. Passengers normally carry more luggage with them and when they take seat in the upper deck they have to bring down all their luggage before the arrival of their station otherwise they will not be able to get down at the station quickly. This creates more problems for passengers. However, we are looking into it. On Bombay-Pune route where these double decker coaches are being run, people usually carry brief-case as their luggage, therefore it does not create difficulties."

Passenger amenities

1.63 Passenger amenities are provided at various Railway Stations in accordance with the scale laid down by the Catering and Passenger Amenities Committee, 1967. In accordance with the recommendation of the Railway Convention Committee (1954), a provision of Rs. 3 crores was made under this head upto 1965. The provision was raised to Rs. 4 crores as recommended by the Railway Convention Committee (1965). In the Budget speech of February 1978, it was announced by the Minister of Railways that he was considering the question of increasing the annual allotment for Passenger Amenities from Rs. 4 crores to Rs. 5 crores (para 37 of the Budget Speech). And this increase was effected in the Budget estimates for the next year 1979-80; simultaneously, the Plan-head "Amenities for passenger and other Railway users" was bifurcated between "(i) passenger amenities" and (ii) other Railway users Amenities."

1.64 The following provisions have been made under the Plan-head (i) Passenger amenities and (ii) other Railway users Amenities for the year 1985-86 to 1989-90:

(in crores of Rs.)

Year	Passenger Amenities	Other Railway users amenities	Total
1985-86	5.85	0.15	6.00
1986-87	8.90	0.10	9.00
1987-88	11.83	0.17	12.00
1988-89	17.75	0.25	18.00
1989-90	24.83	0.17	25.00

1.65 Details of amenities covered by Passenger Amenities and Other Railway Users' Amenities are given in Appendix IV.

Catering Services

1.66 So far as the Catering Services are concerned, the Indian Railways have provided catering facilities at about three thousand stations and 88 pairs of trains. At 72 stations and 61 pairs of trains, catering is done departmentally by the Railway and at 46 stations partly by the Railways and partly by the contractors. The sales turn-over of departmental catering units during 1984-85 was Rs. 40.49 crores. With a view to providing better catering service to the passengers, steps taken/proposed to be taken by the Railways include introduction of meals and breakfast from pantry cars in-disposable aluminium cesseroles, revision of menu in consultation with experts of Indian Tourism Development Corporation, frequent inspection by officers and Inspectors, modernisation of kitchens, training of staff in Catering Institutes and introducing qualified cooks in the catering Department.

1.67 The Committee find that a Working Group was appointed by the Planning Commission for the Railway's Sixth Plan to assess the need based requirements of the Indian Railways. The Working Group assessed the need to about 2100 coaches per year as against the then available production capacity in the country of about 1400 coaches per year. Taking note of this, Railway Board had appointed a Multi Disciplinary Committee to project the future demand for coaches, assess the limits of existing and potential capacities of the coach building units in the country and to make recommendations regarding capacity augmentation. This Committee had come to the conclusion that there would be a minimum demand of 2472 coaches per year. However, as per the assessment made by the Railway Reforms Committee the additional coach manufacturing capacity required was 1220 coaches per year. Taking all factors into account the Railway Board decided in 1986 to set up a new rail coach factory at Kapurthala for an ultimate manufacturing capacity of 1000 coaches per year.

1.68 The present production capacity of Indian Coach Factory and Bharat Earth Movers Ltd. is 900 and 400 respectively. The production capacity of M/s. Jessops is 252. However, it supplied only 99 to 153 coaches per annum during the last five years. On the other hand BEML had been complaining of short orders. This had led not only to non-procurement of desperately needed coaches but discouraged BEML for making investments for further expansion. The Railway

Coach Factory at Kapurthala has also been able to produce only 121 coaches against 300 coaches to be manufactured by 1988-89. During evidence, the Financial Commissioner and Member Mechanical complained that they have a constraint both of funds and production capacity. The Committee feel that if the Railways are to provide the nation with adequate passenger transport, especially, commuter services and long distance travel, for which there are no other suitable modes, the present paucity of funds will have to be overcome.

1.69 The Committee observe that there has been an impressive increase in the volume of passenger traffic both in terms of passenger originating and passenger kilometres. Passenger originating traffic has risen by 195.3 per cent since 1950-51 i.e. from 1284 millions to 3792.1 millions and the passenger kilometres by 305 per cent i.e. from 66517 million kms. to 269389 kms. Sub urban traffic also increased significantly over the years and in 1987-88, the same was 423.3 per cent more as compared to 1950-51 in terms of passengers originating and 690.1 per cent increase in terms of passenger kilometres. However during this period the increase in the passenger fleet has been only of the order of 125 per cent. What is more disturbing to the Committee is the fact that whereas by 1987-88 there has been a marginal increase of 4.5 per cent in the number of conventional coaches i.e. from 26309 in 1975-76 to 27495 in 1987-88, the number of passengers originating during the same period increased by 28.76 per cent i.e. from 2945 million to 3792 million. It is, therefore evident that the increase in the number of coaches has not matched the increase in passenger traffic over the years which has resulted in overcrowding in the trains.

1.70 The Committee also observe that the passenger traffic in terms of passenger kilometres (pkms), the product of number of passengers carried and the average distance traversed, during the Sixth Plan increased from 198.7 billion pkm. in 1979-80 to 226.6 billion pkm. in 1984-85 registering an annual growth of 2.8 per cent. The Seventh Plan provided for modest annual growth of 2 per cent per annum for non-suburban traffic. Accordingly, with actuals of 1985-86 at 240.6 billion pkm. and a growth rate of 2 per cent per annum in the remaining four years of the Seventh Plan, the passenger traffic in 1989-90 has been assumed at 260.4 billion passenger kms. However, the Committee find that the passenger kms. was 269.4 billion in 1987-88 as against 256.5 billion in 1986-87, registering an increase of 5 per cent. It, therefore, needs to be explained as to how annual growth rate of 2 per cent per annum was assumed by Railways during the Seventh Plan particularly when it was 2.8 per cent during the Sixth Plan itself.

1.71 The need based requirement of coaches for the Seventh Plan period was assessed at 12914 coaches consisting of 10605 on replacement account and 2309 on additional account to meet the growth in traffic. Similarly, acquisition of 1390 EMUs was envisaged during the plan. However, the Ministry of Railways have planned to acquire only 6970 coaches and 950 EMUs with the present resources available during the Seventh Plan period. The Committee note that the total number of coaches on BG and MG taken together has actually come down from 34165 (22167 BG plus 11998 MG) in 1984-85 to 33758 (22507 BG plus 10851 MG) in 1987-88.

1.72 During the evidence, the Chairman, Railway Board informed the Committee that the difference between the passenger traffic and the passenger carrying capacity is matched by them by better utilisation of coaches and by carrying more passengers in some cases which no doubt resulted in over crowding etc. He admitted that there is an unsatisfied demand which the Railways have been carrying all along and there is congestion which they are not able to remove. The Committee cannot but express their unhappiness over such a situation. They desire that the Ministry of Railways should augment their production capacity in a well planned manner to meet the ever increasing demand of passenger coaches in the country in a realistic manner, taking into account the future prospects of traffic.

1.73 The Committee find that the total population projections based on 1981 census data range from 959 million to 1052.5 million in 2000 A.D. Growth of passenger traffic is linked with growth of urban population. Urban population, as a percentage of total population has been steadily increasing. The Planning Commission have projected this to be 30.6 per cent by the end of this century as compared to 23.7 per cent in 1981. Growth of passenger traffic on Railways has been examined by various expert Committees *viz.* National Transport Policy Committee, Rail Traffic Enquiry Committee and Railway Reforms Committee. Traffic projections by these expert committees for 1999-2000 range from 280 to 320 billion passenger kilometres for non suburban traffic and from 120 to 168 billion passenger kilometres for Suburban traffic. The Committee desire that the Railways should now take a hard look at this profile of growth in passenger traffic in order to develop an appropriate strategy for catering to the transport-needs of the country in an integrated and well-planned maner.

1.74 The Committee note that the Railways undertake two types of repairs, namely scheduled repairs and out of course repairs. The scheduled repairs like Periodical Overhaul (POH), Routine Overhaul (ROH) can be worked out at the same are either time based or kilometreage based. The Ministry of Railways have admitted that the capacity available with them for scheduled repairs have not been adequate and at certain times non-availability of adequate funds also becomes a constraint. The extent of sickness of rolling stock is assessed by the ineffective percentanges computed daily on all railways and averaged out for every month. The ineffective percentage of passenger carrying vehicles has come down from 15.10 to 9.22 on BG and from 10.99 to 9.56 on MG between 1982-83 and 1986-87. These figures are on a high side as compared to the 1962-63 figures when the ineffective percentage was 7.68 for coaches on BG and 7.78 for coaches on MG. The Committee regret that in spite of acute shortage of coaches, the Ministry of Railways have failed to keep up the level of efficiency achieved earlier and desire that effective steps should be taken to bring the ineffective percentage to the bare minimum.

1.75 The Committee furthter observe that the codal life after which coaches are deemed to be overaged is 25 years for steel bodied coaches and 30 years for wooden bodied coaches. In this connection, the Chairman, Railway Board clarified that the coaches are condemned on conditional basis and not on the basis of their codal life. The Committee find that the total number of coaches which were overaged on 31 March 1985 as well as anticipated arisings of stock due for replacement during the Seventh Plan period is 12002 (6073 for BG, 5214 for MG and 715 for narrow gauge). However, coaches actually condemned during the first three years of Seventh Plan were 4353 (2942 on BG, 1305 on MG and 106 on narrow gauge). During evidence the Member (Mechanical) informed the Committee that 2323 overaged coaches (10.33 per cent) on BG, 2561 coaches (23.05 per cent) on MG and 488 coaches (36.00 per cent) on Narrow Gauge were in service as on 31 March 1987. The Committee feel that such a large number of overaged coaches is bound to reflect adversely on the efficiency of passenger services and safety of passengers apart from huge cost involved in the maintenance of these coaches. In Committee's view, this is not a happy situation. The Committee would therefore urge that the Ministry of Railways should, in consulation with the Planning Commission, plan for replacement of all the overaged coaches in a phased manner.

1.76 The Committee are particularly concerned to learn that most of these overaged coaches are being used in the trains which serve the rural people. The Committee hope that safety of passengers is not being compromised by putting overaged coaches on Branch lines. This has been the common experience that most of these coaches are being run without proper windows and electrical fittings etc. The Committee desire that intermediate examination of these coaches should be done after every six months so as to fully ensure that the passengers in the trains have complete safety and are provided with normal comforts.

1.77 The Committee find from the Corporate Plan that the total requirement of coaches and EMUs both for meeting replacement and additional needs for the period 1985-2000 would be between 35000-37000 coaches. Out of this, the requirement of EMUs is estimated to range between 5000-6000 vehicles. The Railway Reforms Committee had examined this aspect and concluded that about 3034 coaches annually would be required to meet the future demand of the country. They estimated the annual capacity available in the country at 1500 coaches and therefore, recommended that an additional capacity of 1534 coaches might be created in the country. The Committee desire the Ministry of Railways and the Plannng Commission to consider the whole matter seriously and draw up both short-term and long-term, schemes in this regard. They therefore stress that additional resources have got to be provided for augmenting the production capacity of coaches in the country.

1.78 The Committee note that the Railways have introduced double decker coaches which are being run on Bombay-Pune and Dhandbad sections. These double deckers are not being introduced on other sections because dust comes inside the lower deck of these coaches on account of windows and seats being little lower. The Committee, therefore, recommend that the Ministry of Railways should consider air conditioning the lower deck of these coaches so that the double decker coaches could be provided on other sections also.

1.79 After scrutiny of the planning process, the Committee feel that the apportionment of resources has, by and large, weighed in favour of freight transport. They would like that the passenger transport is given more attention than what has been given to it so far. In the opinion of the Committee, it is desirable that the Railways adopt a balanced policy in regard to passenger as well as freight transport.

1.80 The Committee would also like to stress the imperative need for stepping up the allocations to the Railways during the Eighth Plan so as to enable them to execute the necessary schemes regarding augmentation of the production of coaches, maintenance facilities, terminal and line capacities etc. The Committee would expect the Railways to take all necessary measures in this regard by generating additional resources out of their own revenues by efficient utilisation of existing assets, both human and material, and by cutting down all wasteful expenditure.

1.81 The passenger amenities are provided at various railway stations in accordance with the scale laid down by the Catering and Passenger Amenities Committee 1967. In accordance with the recommendation of the Railway Convention Committee (1954) annual provision of Rs. 3 crores was made under this head upto 1965. However, provision for Rs. 70 crores was made under this head during the Seventh Plan and there has been a substantial increase in the annual allocation from Rs. 6 crores in 1985-86 to Rs. 25 crores in 1989-90. The Committee strongly feel that the amenities provided at various railway station and abroad the trains are far from satisfactory and need greater attention.

The Committee need hardly emphasise that there cannot be better way to project the image of the railways than to provide proper service and amenities to the travelling public, whose number is more than one crore every day. The Committee hope that the Railways will spare no efforts in delivering a high quality package of passenger amenities.

CHAPTER II

AVAILABILITY OF WAGONS

2.1 The wagon fleet on the Indian Railways as on 31st March, 1988, comprised 177,648 covered, 98,824 open high sided, 11,967 open low sided, 46,772 special type and 11,633 departmental wagons. To be able to cope with the pattern of traffic offering, the proportion of the special type of stock has been increased over the years as may be seen from the following figures:

Year	Total wagons on line	Percentage of total number of wagons					
		Covered	Open high sided	Open low sided	Special (BOX, BOBS etc.)	Depart-mental	Total
1950-51 .	1205,596	58.9	25.5	3.4	7.2	5.0	100
1955-56	240,756	58.1	24·7	4.2	8.7	4.3	100
1960-61 .	307,907	53.1	25.5	2.5	10.6	4.1	100
1965-66 .	370,019	53.1	27.2	2.1	13.3	4.3	100
1970-71 .	383,990	53.4	25.6	1.8	13.0	4.2	100
1975-76 .	395,250	25.4	28.0	3.0	11.5	3.5	100
1980-81 .	400,946	53.3	28.3	3.2	11.8	3.4	100
1981-82 .	392,062	52.7	28.3	3.2	12.5	3.3	100
1982-83 .	374,756	52.2	28.1	3.2	13.2	3.3	100
1983-84 .	374,757	52.2	28.1	3.2	13.2	3.3	100
1984-85 .	365,392	52.1	27.8	3.4	13.4	3.3	100
1985-86 .	359,617	51.9	28.0	3.4	13.4	3.3	100
1986-87 .	354,041*	51.7	28.2*	3.4*	13.4	3.3	100
1987-88 .	346,844*	51.2	28.5	3.4	13.5	3.4	100*

*Revised

2.2 Till the middle of the century, practically all the goods traffic was being carried in general purpose—the covered, open high sided and open low sided-wagons. The standard wagon on

Broad Gauge was evolved as a 10.31 tonne tare 4-wheeler with a maximum loading capacity of 22.19 tonnes. The standard on the Metro Gauge was 5.69 tonne tare wagon with 18.69 tonnes carrying capacity.

2.3 Now, a number of new bogie wagons with emphasise on higher payload and facility for loading and unloading special type of traffic, have been put into service. These include BOX, BCX, BOBX, BOY, BOXN, CRT, etc. It has now been decided by the Ministry to go in for bogie tipe wagons only, as the 4-wheeler wagon is not amenable to bulk movement of commodities in an effective manner. Accordingly 4-wheeler wagons are being progressively retired from service and are being replaced by bogie wagons having a higher axle load and speed potential.

2.4 During the year 1987-88, 3,452 BOX'N' wagons were put into service. Introduction of this new design has enabled Indian Railways to increase the trailing load on most of the important routes from 3,600 tonnes to 4,500 tonnes. The table below shows some of the important special type wagons and their number at the year ending 1987-88:—

Special type of Wagon Fleet

Type of Wagon	Stock at the B.G.	Year and M.G.	Brief description
BOX	50,564		High sided open bogie wagons with side discharge arrangement for transport of coal and other bulk traffic.
BOY	815		Low sided open bogie wagons to carry iron ore etc.
CA/BCA	3,780	1,247	Wagon designed for the transportation of cattle.
BRH	7,702		Flat wagons for rails , steel-bars, etc.
BFU	414	131	Well wagons for over dimensional and heavy consignments.
Tank	31,141	4,437	Tank wagons for liquid consignments like petroleum products, molasses, vegetable oils etc.

1	2	3	4
Container Flat	322	8	Flat wagons to carry container for door-to-door service.
BCX	18,935		Water tight covered wagons for food-grains, cement etc.
BOBSB/OBX	2,324		Open Hopper wagons with bottom discharge arrangements to carry ballast, ore etc.
CRT	20,524		Water-tight 4-wheeler covered wagons having higher capacity for general goods.
BOXN	17,560		High sided bogie open wagons with improved components like cast steel bogies, high cartidge taper roller bearing, air brakes etc. for enabling greater trailing loads for movenement of bulk commodities like coal, iron ore etc.

2.5 The average carrying capacity of a wagon has increased on both BG and MG in a bid to absorb, to a certain extent, the growth in traffic without increasing the line capacity which is costly and time consuming. The table below indicates the total number of wagons and the carrying capacity for some selected years:—

Year	ALL GAUGES		BROAD GAUGE		METRE GAUGE	
	Total Number of wagons (000)	Total capacity (Million *tonnes)	Number* (000)	Average capacity (Tonnes)	Number* (000)	Average capacity (Tonnes)
1	2	3	4	5	6	7
1950—51	195	4.14	149	22.6	43	17.1
1955—56	230	4.87	161	22.6	64	18.0
1960—61	295	6.30	207	23.1	83	18.0
1965—66	354	8.52	257	26.4	91	18.0
1970—71	368	9.35	271	27.8	91	19.1
1975—76	382	13.37	291	29.3	86	20.9
1980—81	387	11.14	299	30.6	83	23.0
1981—82	379	10.95	294	31.1	80	21.5

1	2	3	4	5	6	7
1982-83	371	10.92	290	31.7	77	21.7
1983-84	362	10.95	284	32.5	74	22.0
1984-85	353	10.89	279	33.1	70	22.4
1985-86	348	10.96	276	33.9	68	22.3
1986-87	342	10.88£	275	34.3	64	22.4
1987-88	335	10.77	272	34.5	60	22.4

* Excludes departmental service wagons and brake vans.

£ Revised.

2.6 The Ministry of Railways have stated that the increase in average carrying capacity per wagon since 1955-56 has been possible mainly due to the introduction of high capacity bogie wagons. The aggregate capacity of today's wagon fleet is 161.8 per cent more in comparison with 1950-51, while the number of wagons increased by only 72 per cent (excluding departmental service wagons).

2.7 The following table indicates the targets fixed and actual materialisation of wagons since First Five Year Plan:

1	Target 2	Actual Materialisation 3	Spill over 4
Ist Plan (1951—56)	49143 (4 wheel)	61254	(+) 1211
IInd Plan. (1956—61)	107247 (4 wheel)	97954	(—) 9283
IIIrd Plan (1961—66)	157131	144789	(—) 12344
Inter Plan :			
1966-67	26018	21207	(—) 44811
1967-68	26166	17637	(—) 8529
1968-69	21166	16476	(—) 4690
VIth Plan (1969—74)	68776	57608	(—) 11168

1	2	3	4
Vth Plan (1974—78)	54337	47283	(—) 7054
Rolling Plan (1978—80)	25475	22883	(—) 2592
VIth Plan (1980—85)	80000	73028	(—) 6972

2.8 However, the Ministry of Railways clarified that the actual requirement of wagons as approved by the Planning Commission for the 6th Plan was 100,000. This was later reduced to 78000 due to revised traffic projections in the midterm review for the VI Plan. The revised targets and actual procurement year by year is given below:

Year	Target	Annual Production
1980-81	13,000	12064.5
1981-82	18,000	17362.0
1982-83	17,580	14088.5
1983-84	16,602	17141.5
1984-85	12,642	12371.5
Total :	77,824 say 78,000	73028.0

2.9 Asked for the reasons for cutting short the order/short supply, the Ministry stated:

> "It was necessary to reduce the procurement of wagons due to reduced materialisation of traffic. As against the original VI Plan target of 309 million tonnes of originating traffic for which a provision of 1,00,000 wagons was made, due to a lower demand from programmed commodity sectors, the projections were reduced to 282 million tonnes in the mid-term review of the VIth Plan. Correspondingly, the procurement of wagons was also scaled down from 1,00,000 to 78,000. Actual materialisation of

a lesser number of 73,028 was due to failure on the part of manufacturers."

2.10 When the Committee desired to know the total expenditure on procurement of wagons and its ratio to their total expenditure on rolling stock during each of the years of the Sixth Five Year Plan, the Ministry stated:

(Rs in crores)

Year	Total expenditure of Rolling stock	Expenditure on wagons	%age of Col. 3 to Col. 2
1	2	3	4
1980-81	329.07	112.42	34.16
1981-82	433.17	211.53	48.8
1982-83	492.32	242.31	49.2
1983-84	543.53	242.31	44.6
1984-85	533.11	237.44	44.5
Total :	2331.20	1046.01	44.9

2.11 To cater to a target of 340 million tonnes of originating freight traffic as approved by the Planing Commission for the terminal year of the Seventh Plan acquisition of 96000 wagons (in 4 wheeler units) was sanctioned.

2.12 Asked about their estimates about the increase in freight traffic during Seventh Plan, the Ministry of Railways stated:

"The approved target for Seventh Plan is 340 million tonnes of originating freight traffic at an average lead of 680 kms. which gives a total transportation out-put of 231.2 BTKMs. The present trends however indicate that the originating traffic in the terminal year of 7th Plan may lisse much above the original estimate to 355 million tonnes originating traffic with an average lead of 750 kms."

2.13 When the Committee desired to know as to how these estimates compare with the freight traffic achievement in Sixth Plan, the Ministry stated:

"Originating freight traffic during the VIth Plan increased from 217.8 million tonnes/156 billion tonnes Kms. in

1979-80 to 264.8 million tonnes/182.8 billion tonne kms. in 1984-85 registering a growth rate of 4.3 per cent (tonnes) and 3.4 per cent (tonne kilometres), per annum.

The target set by the Planning Commission for the terminal year of the VIIth Plan is 340 mt./231.2 btkms. which means an annual growth rate of 5.7 per cent (tonnes) and 5.4 per cent (tonne kms.)"

2.14 The Railways is a capital intensive industry. The Committee, therefore, wanted to know as to how much of the requirement of wagons was proposed to be met by maximising their use by increasing speed, reducing POH time etc., the Ministry of Railways stated that they have taken the following steps:

"(i) Modernisation of 21 wagon depots during the Seventh Plan period.

(ii) Introduction of new design of BOTN/BCN Wagons with cast steel bogies, cartridge bearings and air brakes permitting longer intervals between POHs and reduced train examination points resulting in higher mobility.

(iii) Development of bogie freight stock maintenance depots equipped with wheel turning and modern material handling facilities.

(iv) Provision of adequate number of unit spare assemblies."

Overaged wagons/stabled wagons

2.15 The codal life after which wagons are deemed to be overaged and replacement is planned is 35 years for Bogie and Wheeler and 45 years for tank wagons. However, the general policy followed for condemnation of wagons is that they shall be condemned on age-cum-condition basis. In this connection the Ministry of Railways stated:

"An asset is scrapped, condemned or abandoned without replacement when the service rendered by it is no longer required. If the service rendered by it is still necessary and it is proposed to make other arrangements for such service, it should be definitely established that it is more economical to scrap, condemn or abandon the existing asset and obtain the required service from the new

arrangement than to continue to obtain the required service from the existing asset. Here also, the relative economics of the two proposals is assessed on the basis of annual average cost of service or the average cost per unit of service, as the case may be."

2.16 Asked about the number of wagons which was overaged on 31-3-1985 as well as anticipated arisings due for replacement during the Seventh Plan period, the Ministry of Railways furnished the following details:

	BG	MG	NG
Overaged as on 31-3-1985	16769	3944	2682
1985-86	1448	440	
1986-87	1177.5	1013	..
1987-88	3154	7075	138
1988-89	5721	1162	578
1989-90	6509	3651	1117
TOTAL	34778.5	17285	3515

2.17 The Railways have assured that they will try to liquidate the arrears of stock due for replacement. This however, will be subject to the availability of funds.

2.18 The following table indicates the number of wagons (in terms of 4 wheelers) condemned from 1985-86 to 1987-88:—

Year	Wagons (In terms of 4 wheelers)		
	BG	MG	NG
1985-86	9306.0	3514	537
1986-87	5835.0	4679	272
1987-88	6897.5	4680	242
	22038.5	12873	1051

2.19 The requirement of Rolling Stock come under two categories viz. (i) Replacement account, and (ii) Additional account. The stock provided on replacement account is meant to replace the stock already condemned and removed from service or those which will get overaged and will be condemned in the course of the Plan period. It is stated that it is not desirable to replace stock on like to like basis. Thus advantage can be taken of continuous improvement in design and technology. When the Committee desired to know the percentage of rolling stock in regard to wagons which could be said to have improved in quality, the Ministry of Railways stated:

Acquisitions during (1981-82 *to* 1985-86)

BG Wagons (*in* 4 *wheelers*)

1. BOX, BCX, BRH, BOXN, BOY, BOI, BOBX and BOBS	51754.5
2. C.R.T. .	1813
3. BFK/BFKI	316.5
4. Tanks (TORX, TOHT & TORH) .	4660
5. Total (1 to 4)	58544.0
6. Others	3656

2.20 In this connection the Ministry added that the percentage of new stock has been increasing significantly over the years as indicated below:

Wagons	31-3-82	31-3-83	31-3-84	31-3-85	31-3-86
1. BOX, BCX, BRH, BOXN, BOY, BOI, BOBX & BOBS .	177404	195484.5	211053.5	220130.5	230654.5
2. CRT . . .	19303	20710	20838	20618	20683
3. BFK/BFKI	636	692	782	884	1234
4. Tanks (TORX, TOHT, TORH)	99	1264	1751	1903	1902
5. Total . .	197442	218150.5	234424.5	243535.5	254473.5
6. Others . .	226100	205466.5	192772.5	183529.5	175072.5
7. Grand Total. . .	423542	423617	427197	427065	429546
8. Percentage of 5 to 7 .	46.62%	51.50%	54.87%	57.02%	59.24%

2.21 The Ministry have informed the Committee that the results of some of the steps taken can be seen from the following tables:

Wagon Ineffectives

Year	B.G.	M.G.
1982-83	7.36	7.75
1983-84	6.55	5.84
1984-85	5.85	6.08
1985-86	5.38	5.76
1986-87	4.58	5.34
1987-88	4.56	4.53

NTKMs per wagon day

Year	B.G.	M.G.
1982-83	1123	576
1983-84	1112	577
1984-85	1150	565
1985-86	1296	677
1986-87	1420	703
1987-88	1449	731

STABLED WAGONS

2.22 During evidence the Chairman, Railway Board informed the Committee that there were 3500 stabled wagons as on 31 March 1986. The Committee therefore desired to know the estimate of loss to Indian Railways due to stabled wagons. The Member (Mechanical) stated:

"The net income is Rs. 1,77,000 per wagon per year."

2.23 When one of Members remarked that the Railway were losing about Rs. 150—200 crores due to these stabled wagons, he stated:

> ".....There were 7000 wagons stabled for want of spares during this year. We had arranged for the spare parts on a priority basis and we had put on rails about 4000 wagons by the end of December 1987. We would be able to put the remaining 3000 wagons in service soon."

Turn round time and time taken in POH

2.24 The turn-round time of wagons which represents the average time lag between two successive loadings of a wagon, is given below:

Year	Wagon turn-round (days)	
	B.G.	M.G.
1950-51	11.0	N.A.
1955-56	10.5	N.A.
1960-61	11.2	7.2
1965-66	11.8	8.4
1970-71	13.3	10.1
1975-76	13.5	11.6
1980-81	15.2	15.3
1981-82	13.3	14.2
1982-83	12.8	13.8
1983-84	13.0	14.2
1984-85	12.8	14.8
1985-86	12.0	14.3
1986-87	11.6	12.7
1987-88	11.6	12.3

2.25 When the Committee enquired about the number of wagons that could be spared by reducing one day in the turn round time of wagons, the Ministry stated:

> "An improvement in turn round will surely bring forth better availability of wagons. It is, however, difficult to quantify additional availability in absolute terms since multifarious factors like extent of loading, lead of traffic pattern of empty running, design of wagons, terminal facilities and line capacity etc. play a significant role in determining the turn round of wagons."

2.26 Asked whether faster paths would lead to quick turn-round and thus reduce the requirement of wagons, the Ministry replied:

> "The number and nature of paths that become available for freight trains is determined by the pattern of passenger services obtaining on any section. Consequently, freight trains have necessarily to run on both fast and slow paths to ensure the required throughput of freight traffic. The speed of freight trains on any section in turn depends on various factors like maximum speed permitted on the section, type of rolling stock on the train, track parameters, signalling system, trailing loads etc. Within these parameters, speeds of train vary from train to train depending upon the knocks that a particular train received on the run on account of precedence, regulation due to unforeseen failure, and other constraints.
>
> As passenger services are distributed over the twenty four hour period, limited number of fast paths only become available. They do contribute to improvement in turn round of wagons but play a small role, for other factors take a heavier toll of wagon movement. Firstly, design of freight wagons is such that they run at a much lower speed than coaching stock with the result freight trains have to give precedence to faster passenger trains. The delays for precedence account for substantial portion of running time of freight train.
>
> Another factor, and perhaps, more important of the two is the detention at terminals/yards. These detentions occur for loading, unloading, passage, shortage of locomotive etc."

2.27 While undoubtedly the turn round of wagons will improve if freight train can always be run to faster paths, it is not the determining factor. The other factors viz.,

> "(a) differential in speed between passenger and freight trains necessitating precedence to passenger carrying trains over freight trains resulting in delays to wagons,
>
> (b) regulation of freight trains due to incidence of failure of equipment enroute, and
>
> (c) detention at terminals;

play a more significant role in determining the turn-round of wagons.

2.28 The Committee also wanted to know the average period required for Periodic Overhaul (POH) of a wagon. The Member, (Mechanical) informed the Committee as under:

> "It depends on the amount of input that is required. As soon as a wagon arrives in a workshop, we have an Inspector who does an inspection of the amount of work that is likely to be done on it.....The average period in most workshops would be between four and five working days."

However, the Ministry of Railways have informed that the average time taken in POH for wagons was 7.05 days on BG and 7.49 days on MG in the year 1986-87.

2.29 Asked whether the time taken for POH could be reduced by increasing the number of workshops or by modernising the workshops or by expanding their capacity, the Chairman, Railway Board stated:

> "The fact is that the target can ultimately be reached to 4 per cent and that is what we are trying to improve, to expand our capacity through modern methods and process so that we can achieve our target. In case of metre-gauge, we have already reached the figure of 3.4 per cent and in the case of broad-gauge we have reached 4.5 per cent. We have yet to reach the targetted figure of 4 per cent within four or five years. With the built-up capacity and with improvement, this would be possible."

2.30 The following table indicates the period after which wagons are due for periodical overhaul:

		BG		MG	
		Ist POH	Subsequent POH	Ist POH	Subsequent POH
(a)	All wagons, incld. tank wagons and CRT except those listed below	4 years	3½ years	4 years	3½ years
(b)	Bogie well wagons . .	4 years	4 years	5 years	5 years
(c)	Other bogie wagons with plain bearing and BOI/BRS	4 years	4 years		
	(i) BOBX (Open Hopper wagons) .	3 years	3 years		
	(ii) BOY (Open ore wagon with straight CBC).	3 years	3 years		
	(iii) BOX 'N' . .	6 years	Not yet fixed		
(d)	BOX, BCX and BRH etc. UIO bogies	4½ years	4½ years	..	..
(e)	Cattle wagons .	2½ years	2½ years	4 years	3½ years
(f)	Brake vans . .	2 years	2 years	4 years	3 years
(g)	TX/TCL/THA type tank wagons. .	2 years	2 years	2 years	2 years
(h)	TF/ATAL type tank wagons .	2½ years	2½ years	2½ years	2½ years
(i)	Departmental stock .	4 years	4 years	4 years	4 years
(j)	Containers .	1½ years	1 year	1½ years	1 years

2.31 The Ministry of Railways had informed the Committee that arrears in periodical overhaul of wagons during 1984-85 was 14.5 per cent on BG and 16.05 per cent on MG and that this was due to inadequate capacity of the workshops. However, the number of wagons overdue for POH as on 31 March 1989 was 9.63 per cent on BG and 8.49 per cent on MG. In this connection, the Ministry of Railways have stated that 29 workshops out of 52 workshops are engaged in repair of wagons and with modernisation of workshops and the reduction in POH cycle time and consequent increase in the capacity, further improvement is expected in this regard.

Production of wagons

2.32 There are 11 wagon building units, of which 4 companies (controlling 6 units) are in the Public Sector and the remaining

5 companies are in the Private Sector. The latter includes one unit presently taken over by a new management after a long period of closure. The annual licensed capacity of the units is given below:

Public Sector	*Capacity (FW Units)*
1. Bharat Wagon & Engg. Co.	
(a) Muzaffarpur Unit	1000
(b) Mokameh Unit	1500
2. Burn Standard Co. Ltd.	
(a) Burnpur Unit .	3911
(b) Howrah Unit .	4750
3. Braithwaite & Co. Ltd.	3000
4. Jessop & Co. Ltd.	3279
Private Sector	
1. Cimmco Ltd., Bharatpur	2600
2. Hindustan General Industries, Nagloi, Delhi.	1600
3. Modern Industries, GT Road, Sahibabad, UP	2000
4. Texmaco, Calcutta	4800
5. Gerald Engg., Calcutta	N.A.

In this connection, the Chairman, Railway Board added:

> "Last year when we plapced an order with some of the public sector units, we experienced a lot of difficulties as they were not able to reach their capacity."

2.33 Asked whether the Ministry of Railways advanced money to these public sector units, the Financial Commissioner stated during evidence:

> "We were not giving any advance in the past. There are only certain free supply components and they fabricate. Based on the fabrication, they send a bill to us and we make payment based on the bill. The Cost Accountant's Branch of Government of India finalises the price. This pricing is final price. As and when the bill is received.

we make the payment provisionally. From this current year 1988-89 advance is also being provided to the manufacturers."

2.34 When the Committee desired to know the sources of procurement of raw material, the quantum of imported materials and the problems being faced by the Industry, the Ministry of Railways stated:

"The raw material like steel, free supply items like wheelsets, bearings, couplers, bogies, air brake, L.B. Springs etc. were procured mostly indigenously. The 22.9 tonne of wheelsets, and cartridge bearings for BOXN wagons and certain sections of steel were procured through imports. The main problem faced by the Industry during the VIth Plan was perhaps under-utilisation of their capacity, due to funds constraints with the Railways. Although, it may be mentioned that in addition to orders for manufacture of wagons for Railways, the Ministry of Railways are also placing wagon orders on behalf of the Ministry of Defence. Wagon building units are also getting orders for manufacturing wagons from public sector undertakings, and other private users of wagons. Further, through Project and Equipment Corporation Ltd., wagon building units are getting orders for manufacture of wagons for export to foreign countries. All these measures ensure better utilisation of wagon building capacity of these units."

2.35 In this connection, the Committee called for memoranda both from the units in public sector and private sector. From the memoranda submitted by these companies, the following points have *inter-alia* emerged:

"Almost all the companies have complained about their existing capacity remaining grossly under-utilised for sheer inadequacy of workload. In this connection, it has been mentioned that the Railway Board fixes the annual production quota every year in consultation with the Wagon India Ltd. However, owing to resource constraints, Railway Board has had to repeatedly cut back on its target for annual off-take. In this connection, they mentioned that during the Sixth Plan period, a target of 1 lakh wagons was set at originally and it was re-affirmed at a high power inter-ministerial meeting in New Delhi in

October 1981, in consultation with the Planning Commission. This target had to be scaled out to 78,000 in 1983 and eventually, even that reduced target could not be sustained and the Indian Railways off-take during the Sixth Plan aggregated only to 67871 wagons. Similarly, they stated that the Indian Railway projected the requirement of 1,54,057 wagons for the Seventh Plan but could have a procurement plan for only 1,20,000 wagons owing to fund constraints. While 20,000 wagons were programmed during the first year of the Plan, the procurement dropped only to 5,000 wagons which was subsequently enhanced to 12,000 wagons in the later part of the year on the representation from the wagon Building Industries. They have, therefore, stressed the need for the planning on a more stable basis for at least three to five years so that they could get firm orders from the Railways in time.

The procurement of free supply items is planned by Railway Board keeping in view the annual off-take of wagons depending on fund allocation at the beginning of the financial year. However, if additional funds are subsequently made available to Railway Board for enhancing the off-take level during the currency of that financial year, the Board is hard put to procure the additional free supply items due to longer lead time in procurement. This results in shortage of the required inputs. At a number of times, these units had also to undertake imports to meet shortfalls in these supplies. It has, therefore been suggested that proper planning is required on a sustained basis at the beginning of the Five Year Plan so that the Railway Board could place orders for these free supply items well in time."

2.36 In regard to procurement of wagons during the Seventh Plan, the Member (Mechanical) stated during evidence:

". . . the plan documents calls for the manufacture of 96,000 wagons during the Seventh Plan. But we took a review. There is a spectacular net tonne increase per kilo metre for hauling more traffic per wagon. We said that instead of 96,000 we will do 90,000. We have done upto this time 66,000 . . . with our combined efforts we had produced a total of more than 21,504 wheels in 1988-89 which is the highest number during the last four years. This year we are hoping that we will do even more than this. Our

desire is to increase our wagons production by 21,000 to 24,000. It all depends on our resource situation. We think we will come very close to 90,000. I must again point out that this 90,000 may be scaled down because there has been increase in their wagon utilisation in the last two years. But we have taken note of it and we propose to go through this manufacturing programme, because the wagon industry is now geared up for manufacturing this much quantity of wagons. We would like to encourage them to increase the tempo of production scenario during the Eighth Plan.

2.37 In its memoranda, M/s. Texmaco Ltd. informed the Committee that wagons are manufactured as per the design and process laid down by RDSO, Lucknow and as such there is no choice of changing the design, process, technology etc. This company stated that there is a possibility of still greater improved technology through further automation. This firm had also supplied wagons with a speed of 100 kms. per hour to Yugoslavia.

Production of Wheels and Axles

2.38 The Railways' requirement of 22.9 tonnes axle load roller bearing wheelsheets, such as those used on BOXN wagons, is being met by Wheel and Axle Plant, Bangalore to the extent of its installed capacity in respect of assembled wheelsets of 23,000 numbers per annum. This capacity was planned on the basis of wagon production of about 12,000 four-wheelers. However, during the Seventh Plan period the annual production of wagons has been raised to 20,000 four-wheelers requiring a larger number of wheelsets. Durgapur Steel Plant is, therefore, also developing 22.9 tonnes axle load roller bearing wheelsets to meet the enhanced requirement.

Due to technical and capacity constraints with the indigenous suppliers the entire requirement of wheels and axles is not met from indigenous production. The Railways' requirement of wheels and axles for Diesel and Electric Locos, EMUs, DC EMUs and BWTA wagons etc. is, therefore, being met through imports. However, the rationalisation of the available indigenous capacity is a matter for regular review and, before resorting to imports, it is fully utilised and only the residual requirements of all such items, including wheelsets, are being met through imports.

2.39 As regards imports of wheels and axles, the Member (Mechanical) stated during evidence:

> "We are importing the balancing materials which are not readily available in the country. So far as wheel and axle item is concerned, we take a review of all the requirements that are to be produced as also our maintenance requirements. Then, we have a meeting. The wheelsets are there. The wheel and axle plant which is run by the Railways is also producing the sets in Durgapur Steel Plant. There the meetings are held by them, their capacities are taken into account and as a result of that as much as the shortfall is established, is then covered by the import of wheel sets."

2.40 Giving the total requirement of wheels and axles, the Financial Commissioner stated:

> "For 1988-89, our requirement would be 40,500 assembled wheelsets, 54,000 loose wheels and 24,200 loose wheel axles making a ground take of 66,700 equivalent wheel sets. Against this figure of 66,700 equivalent wheelsets required in 1988-89, 45,700 equivalent wheelsets will be manufactured within the country."

In this connection, he added that

> "We will be producing 26,600 at Bangalore, 21,000 at TISCO and 17,000 at Durgapur."

2.41 Asked whether there was any proposal to increase the capacity in the country or to have a new production unit, the Member (Mechanical) replied:

> "The matter regarding the requirements and their indigenous manufacture is under discussion with the Ministry of Steel, we have had a series of meetings with the Ministry of Steel in the very recent past where we have advised them of the respective requirements in the next ten years or so and the Ministry of Steel have had under consideration a programme of expansion of their facilities in the Durgapur Steel Plant to go up to 50,000 wheels per year capacity."

2.42 In reply to a question as to by when this production target would be achieved, he stated:

> "This is an investment decision which is required to be taken by the Ministry of Steel. We have interacted with

them only to the extent of advising them of our perspective requirements to enable them to see the quantum of output that will be necessary if we are to indigenise totally and on that basis we hope that they would be taking an investment decision."

2.43 When the Committee desired to know the countries from where wheels and axles were being imported, the witness stated:

"...We are getting Wheel & Axle, some of them, from countries like Romania, Poland, Japan, South Korea on a case to case basis gauge to gauge variation, on the most attractive price."

2.44 During their tour to Wheel & Axle Plant, Bangalore in February 1989, the General Manager informed the Committee:

"The Project Report had conceived an annual production of 70,000 wheels and 23,000 axles. Taking into consideration the capacity for molten metal, Wheel and Axle Plant had worked out 56,700 BOXN wheels as equivalent of projected capacity for the casting of wheels."

2.45 Asked about the production in the plant, the General Manager told that they had been meeting the targets fixed by the Railway Board. The production had also increased from 23.000 BOXN wheel sets in 1986-87 to 50,000 BOXN wheel sets in 1987-88 and was likely to reach the level of 56,700 by 1989-90. He, further, informed the Committee that the rejections of wheel sets had gone down from about 51 per cent to less than 10 per cent.

2.46 As regard the proposal for increasing the capacity of the plant, the General Manager informed the Committee that they proposed to add one more furnace in the present Plan and with that the production capacity would be increased to 68,650 wheel sets. In reply to a question about total requirement of wheels by the Indian Railways, he stated that against the total requirement of 1,60,000 wheel sets by the end of Eighth Plan, the country would be producing about 82,700 wheel sets and the balance of 77,300 wheel sets would be met through imports. Imports were mostly from Korea, Japan, Polland, Brazil and Rumania.

2.47 The Wheel & Alxe Plan, Bangalore is a major consumer of scrap. Asked whether the Ministry of Railways had arrangements

on regular basis to feed that plant with scrap from units|workshops which are near Bangalore, the Member (Mechanical) stated:

> "...there is no problem regarding supply of scrap to Wheel and Axle Plant. There is sufficient scrap generated on the Indian Railways to supply them which is mainly in the form of wheel sets because, that is a good steel for the manufacture of this item. We have regular ongoing arrangements. The requirements of wheel and axle are identified and instructions are given for movement of this scrap to the Wheel and Axle Plant, including the units from the Southern and South Central Railways."

2.48 To a questiond whether scrap was also being imported through Metal Scrap Trading Corporation, the witness replied:

> "The technical arrangements required to start the working of the plant have been made. The demand is placed with the Metal Scrap Trading Corporation and after exhausing the local sources some quantities of this scrap are required to be imported."

2.49 When the Committee wanted to know whether the plant was producing wheels only for BOXN wagons and not for other types of wagons, he clarified as under:

> "As a matter of rationalisation and improving the productivity of the plant, we have decided that they will produce only one type of wheel sets. Therefore, for the time being, we are stressing them to the manufacture of BOXN wheel sets which are required in very large quantities. Their rated capacity is 23,000 numbers per year and it depends on the wagon order and the requirements for change which have not yet come up because the BOXN wagon is just six years old. The total annual requirement has been established."

BOXN Wagons

2.50 To, meet the growth of bulk traffic in coal, ore cement foodgrains, etc. by increasing the throughput (i.e., increased unit loads per train and higher average speed of goods trains) the Railway Board directed the Research, Designs and Standards Organisation (RDSO), in September 1972, to design a new wagon with 20.3 tonne axle load which would have features similar to existing BOX wagons but should be of shorter length and, utilising the advantage of height should be able to give maximum possible pay

load for coal handling and increase the throughput with the existing track structure and loop lengths. Accordingly, in September 1974 the RDSO evolved a new design of bogie open wagon designated as BOXN wagon. The design of the wagon was expected to increase the throughput within the existing standard loop length of broad gauge track, loading density and other infrastructure without the necessity of additional investment on these. The wagons were expected to permit hauling of heavier freight trains of 4500 tonnes and later of 7500 tonnes from the existing freight level of 2500 to 3210 tonnes at higher speeds. However, the Committee find that in January 1978 while providing the manufacture of prototype wagons, the Railway Board had decided that a study of the behaviour of prototype wagons and techno-economic study should be undertaken before commencement of series production. No such study was, however, undertaken and the Railway Board placed bulk orders for manufacture of BOXN wagons even before conducting the trials required and before the new design had been evaluated for technical and commercial acceptance.

2.51 When the Committee desired to know the reasons for not conducting the trials and evaluation of the BOXN WAGONS, the Member (Mechanical) stated during evidence:

> "For each design of wagon, there are various parameters which have to be looked into. There is the procedure of first identifying the parameters; then there are discussions with appropriate agencies, the design agency, the manufacturing agencies, the user agencies, the commercial and transportation Directorates in the Ministry, so that an optimum design can be evolved. A Study for this wagon within the parameters that were enunciated and the procedure that are generally followed was done..... One of the parameters was that because the box wagon was too long, we were not able to take full advantage of what is technically known as the trailing density on the track. This was one of the criteria which prompted us to evolve a new design of wagon in the Seventies. The box wagon had the density of less than six tonnes per metre against our allowable density of 7.6 tonnes per metre. So, the wagon had to be made shorter. The height had to be optimised. It should not be too high so that the man cannot shovel; and it should not be too low because the capacity would go down. All these considerations were taken into account and a wagon which came up to the trailing density that was permitted was evolved. So the procedure of evaluation was

in fact carried out. So far as trials are concerned, I would like to submit that the most important trial for clearing a wagon for use gives an indication of lateral movement, lateral force, the vertical force when there are irregularities in the track. There we have certain limiting criteria of this value on the basis of their quantum acceleration at various speeds and the data is investigated, analysed and speed potential is recognised and generally a technical design and the ability of the wagon to perform satisfactorily is set up. Such a test for the BOXN Wagon was carried out. And it was as a result of satisfactory behaviour of the wagon during these tests and in view of our everincreasing demand to cater to the increasing demands of traffic there was an immediate necessity for making such a type of wagon which would give us a higher reliability. The most important test was carried out and the instructions with manufacture of wagons was only given after the design office and the relevant technical directorates had satisfied themselves with this wagon..... As a matter of fact, it is, perhaps as a result of the availability of this wagon that we were able to improve our speed, that we were able to improve the through-put per train and we were able to move from 3,600 tonnes to 4,500 tonnes..... I would only submit that the design and concept of the wagon level of testing, the level of manufacture should be viewed in the light of reliability and the improvement in operation that we have been able to achieve with the use of this wagon. I would submit that the decision to manufacture this wagon could not have come much later without seriously affecting the demands and aspirations in so far as transport of bulk commodities is concerned."

2.51 The Report of the Comptroller and Auditor General of India for the year 1984-85. Union Government (Railways) states that the in-service experience of BOXN wagons had shown that the expectations in regard to technical superiority of the design had been belied and the economic viability was doubtful. The higher speed (90 Kms. per hour) was not achieved and the trailing load increased marginally. When the Committee enquired about the average speed of BOXN Wagon, the Chairman, Railway Board replied:

"The average speed of all goods trains in comparison to the BOXN is 50 per cent less. In regard to BOXN it is in

the range of about 35 Kms. per hour as against about 23 Kms. average speed of other trains."

Asked whether it was due to the track conditions or it was because of the design of the wagon, the witness stated:—

"When the BOXN wagon was conceived, we tried to reach 90 Kms. per hour maximum speed. It is not necessary for any organisation that unless the ideal is achieved, whatever effort has been made should not be put to use. The wagon produced by us achieved only a maximum speed of 75 Kms. per hour. The average comes to about 35 Kms. per hour."

2.53. Enquired whether the achievement of increase in speed was not on account of giving precedence to goods trains over the passenger trains, he replied:

'|....about goods trains getting precedence over passenger trains is sometimes true, not always. Only in exceptional cases we allow that."

Clarifying the position further, he said:

"When a new product is developed you go with a concept that I would like to have a product like this, You start using that product very much earlier in a commercial manner while you are still continuing your research in that area. There has been a feeling that because we started using it at 75 Kms. per hour maximum speed instead of waiting for the design to develop for 90 Kms. per hour maximum speed, we have done something wrong. If we had not attempted to take that BOXN wagon out at that time when the country was facing a shortage, everyone would have said that the Railways are not able to move the essential commodities for the country. That is why such a decision was taken and it was a very right decision. We could have waited and waited for the ideal design to come. It is not necessary that every research effort must lead to success. We made an attempt and we are continuing to make an attempt to improve that 75 Kms. speed to 90 Kms. speed. It is not related to track or sleeper condition. We are continuing our work."

2.54 As the design and the trial run were done in the year 1973, the Committee desired to know the reasons for taking 5 years

to arrive at the decision. The Member (Mechanical) stated:

> "As I explained earlier the evaluation of a new design has to take care of proper and scientific evaluation of the parametres within the requirements which generate out of these parametres so far as design and user considerations are concerned. It would be perhaps hasty if we were to give a short time span or give a contract with a new design of wagon in six months. .....There was constant dialogue with the users.

2.55. Elaborating the point further, the Chairman, Railway Board stated during evidence:

> ".....There were a number of reservations about this wagon all along within the Railways and outside the Railways. Then, a stage came when neither the external factors could wait for a decision nor the internal factors. Therefore, a decision was taken at that point of time, as has been the rightly pointed out, when some minor details and complete experimentation were not done. Even after the adoption of this wagon, those factors lingered on for quite some time. Even now some of those points are not resolved. Now we find about 99 per cent of the needs from the users' point of view and others have been accepted. Due to reservations, they kept on ultimately avoiding a faster decision. Beyond that, I would not be able to explain because there were reservations."

2.56. The Committee have also found that the incidence of defects in bogies, air brakes, wheels, etc., was very high on account of design deficiencies (Bogies), poor quality supplies etc. As the design of the bogies had thrown up serious problems which did not lend itself for a simple solution, the Railway Board decided to import six thousand bogies for trials thereby indicating that it was not prudent on the part of the Railway Board to have ordered bulk production of BOXN wagons without knowing the results of originally contemplated extensive trials with the new design. Asked whether the above problems had been overcome, the Member (Mechnical) stated:

> ".....the wagon has given us good service. But like all new equipments, there are always some teething troubles when a new piece of equipment and a composite piece of equipment is to be on line. For instance, a mention has been made of the air-brake. We had some problem with the air-brake. Air brakes are fitted on all the BOXN

wagons. But it was a departure from our original use. Previously, we were using vacuum-brake system. But as a measure of modernisation and improvement and efficiency—the compressed air brake equipment also weighs a little less—the carrying capacity can be correspondingly increased. Keeping all these considerations in view, a decision was taken to use the air-brake.

He added in this connection:

"The equipments, which are to be used on the BOXN wagons are, as far as possible, produced indigenously. So, a programme was given to the suppliers of brake equipment that we would be interested in using your brake equipment on the BOXN wagons. They responded quite well. Indigenous manufacture was started but there was a problem that the rubber diaphragm was not satisfactory. As far as air brake is concerned, there is a thing called air distributor valve. That comes when a brake has to be put on or a brake has to be released which is by moving a spindle. The quality of the rubber which is used in the diaphragm valve is therefore of great importance. But when we decided to develop this item indigenously, there were some difficulties with the suppliers. It is not intentional but it is a part of their developmental activity because they were not used to specific requirements and therefore some mismanipulation of the brakes occurred in the first wagons for the first few months of service. The areas of defect was identified. The manufacturers were advised that the quality of their distributor valves and rubber quality needs to be improved. They took the necessary action and the trouble has now disappeared. I only gave details of one of the equipments to illustrate the type of difficulty that would develop in a new equipment or a set of equipments which is put into a wagon and its improvements. The liability of the improvements put together as a whole is a constant effort and a constant process. We have now by and large been able to overcome most of these difficulties which occurred in the first few months or the first period of the introduction of this new design of wagon."

2.57. When the Committee desired to know the reasons for importing wagons, the witness stated:

> "In our quest for getting 90 kms and further possibilities of speed, we felt that we should take advantage of the development in the 3-piece bogies and other bogies of different technical philosophy all over the world which had speed potentials of the order of 90—100 Kmph or more. We made a survey of the bogies that were available and we found that there had been a lot of development in the matter of bogies specially in their potential and reliability, practically in all the developed countries. In order to take advantage of that it was decided to carry out a trial on some of these bogies to find out for ourselves which of these types would give the best or optimum advantage in operation under the Indian Railways conditions considering the track conditions, level of technical input etc."

2.58. In reply to a question as to how many bogies were imported, he stated:

> "We had floated a global tender and that was technically evaluated. We came to a short list of nine types of bogies which showed us promise of being suited to us. In order to reduce the burden of imports, we reduced the number for the test to 19 only, for each type. We imported only 133 numbers."

2.59. According to the Audit Report mentioned above, the running cost of 4500 tonne trains for moving 5.4 million tonnes of coal annually, would result in additional operating expenditure of Rs. 17 lakhs as compared to cost of running of BOXN wagons. When the Committee desired the Ministry of Railways to justify the additional expenditure, the Chairman, Railway Board stated:

> "We have made an analysis of the audit cost comparison. There are certain differences in the assumptions and the parameters that have been adopted by Audit and which we feel are not realistic. So taking the realistic parameters, for instance the turn round has been taken as 3 days whereas it is perhaps a little less for the BOXN wagon. So, we have made some realistic assumptions and according to the calculations that have been redone the average cost per tonne is Rs. 133.92 for movement by BOXN wagon and Rs. 129.59 for movement by the BOXN wagon. So, you

will notice that per tonne it is about 3 per cent less than the cost of per tonne of movement by the use of boxn wagon."

Freight Traffic and future Projection

2.60 The total freight loading in the year 1987-88 was 318.51 million tonnes consisting 290.21 million tonnes of revenue and 28.30 million tonnes of non-revenue traffic.

The total transport effort measured in terms of net tonne kilometres has increased from 182.16 billion in 1984-85 (last year of the 6th Plan) to 231.24 billion in 1987-88 which is an increase of 26.94 per cent.

The following table gives certain pertinent particulars of freight traffic over the years:

1. *Revenue earning freight traffic*

Year	Tonnes (Million)	Index	Net Tonne Kms. (Million)	Index	Lead (Kms.)	Index
1950-51	73.2	100.0	37,565	100.0	513	100.0
1955-56	92.2	126.0	50,435	134.3	541	105.5
1960-61	119.8	163.7	72,333	192.6	603	117.6
1965-66	162.0	221.3	98,978	263.5	611	119.1
1970-71	167.9	229.4	110,696	294.7	659	128.5
1975-76	196.8	268.9	134,874	359.0	684	133.5
1980-81	195.9	267.6	147,652	393.1	754	147.0
1981-82	221.2	302.2	164,253	437.2	743	144.8
1982-83	228.8	312.6	167,781	446.6	733	142.9
1983-84	230.1	314.3	168,849	449.5	734	143.1
1984-85	236.4	322.9	172,632	459.6	730	142.3
1985-86	258.5	353.1	196,600	523.4	760	148.1
1986-87	277.8	379.5	214,096	569.9	771	150.3
1987-88	290.2	396.4	222,528	592.4	767	149.5

2.61. The following table shows the freight train kilometres for some selected years since 1950-51.

Year	Freight train Kms.		Wagon Kilometres (in terms of 4-wheelers)	
	Total (Million)	Per running track km. per day	Total (Million)	Percentage of loaded to total
1950-51 .	112	5.2	4,370	70.7
1955-56 .	133	6.0	5,564	73.2
1960-61 .	161	6.9	7,507	70.5
1965-66 .	193	7.7	9,960	69.3
1970-71 .	202	7.7	10,999	69.7
1975-76 .	215	7.9	12,184	68.3
1980-81 .	199	7.2	12,165	69.5
1981-82 .	210	7.6	13,416	69.2
1982-83 .	216	7.8	13,907	68.1
1983-84 .	216	7.7	14,342	66.0
1984-85 .	214	7.6	14,570	66.7
1985-86 .	225	8.0	15,788	68.3
1986-87 .	238	8.4	77,104	67.8
1987-88 .	240	8.4	17,800	66.0

2.62. Revenue freight traffic on the Railways has two main components i.e., bulk commodities and other goods'. Bulk commodities viz., coal, fertilisers, iron and steel, iron ore and other ores, cement, mineral oil, foodgrains, limestone and dolomite and stones other than marble, constitute about 90 per cent of the total revenue originating tonnage. 'Other goods' traffic consisting of all other commodities, accounts for the balance 10% of the revenue originating traffic. Out of this, 22 commodities account for 6% while all the remaining commodities account for the balance 4%. Whereas the proportion of bulk commodities has been steadily increasing over the years, the volume of 'other goods' traffic has been steadily declining.

'Smalls' traffic is estimated at 1.4% of the total traffic with an average lead of 952 km. As a proportion of the revenue originating tonnes, this component has also been declining.

Non-revenue traffic, which includes coal, diesel oil, ballast and other goods and materials for the Railways' own use, constitutes about 11% of the total originating tonnes. With increasing dieselisation and electrification, the amount of coal used as fuel has been declining. However, with increasing traffic, there has been an increase in consumption of diesel oil, stone ballast and other goods and materials. The average lead for non-revenue traffic has declined sharply.

Economics of freight movement by rail

Both NTPC and RTEC have evaluated the comparative economics of freight movement by railways and roadways. For most commodities, there is a break-even distance above for which movement by rail is more economical. Based on this analysis, NTPC had recommended that the Railways should plan to carry about 72 per cent of the total freight traffic by 2000 A.D.

2.63 The break-even point varies from commodity to commodity. For some bulk commodities, like coal, movement over almost all distance is more economical by rail. Movement of piecemeal wagonload traffic, over medium & long distance is also more economical by rail. However, movement of 'smalls' traffic by railways may not be economical over most distances.

Future projections

2.64 According to the Corporate Plan (1985—2000), the total land freight traffic for the future can be projected on the basis of its correlation with GDP. The Planning Commission has set a target of 5% per annum rate of growth for GDP upto 2000 A.D. against 3.76% long-term rate of growth in the past. The actual rate of growth may be any where between these two figures. Three alternative scenaries for 4%, 4.5% and 5 per cent rate of growth of GDP have been worked out. On the basis of trend analysis, TK_M per unit of GDP for 1999—2000 comes to 0.498. A figure of 0.500 has been assured.

2.65 The Railways' share of total freight traffic has been declining. However in view of the national economic and energy efficiency consideration, there is a clear case for the Railways to increase their share of the total freight traffic. Here again, three alternative scenarios have been worked out, based on 60%, 65% and

70% share for the Railways. Details of this analysis are given in Table below:—

Freight Traffic Projections for 1999-2000

	Scenario-1	Scenario-2	Scenario-3
GDP growth rate p.a. . . .	4%	4.5%	5%
GDP at factor cost base 1970-71 (Rs. in crores) .	110709	118968	127798
TKM per unit of GDP .	0.500	0.500	0.500
Rail traffic (billion NTKM) with rail share at			
(i) 60%	332	357	383
(ii) 65%	360	387	415
(iii) 70%	388	416	447

The Railways' freight traffic may, therefore, range between 330 to 450 billion NTKM depending upon the rate of growth of the economy and success the Railways achieve in increasing their share of the total land freight traffic.

2.66 The Railways have 10,128 locomotives of all types, 35594 passenger coaches, 2957 EMUs and 3,65,390 wagons as on 31st March, 1985. Total investment in these assets is of the order of Rs. 3,461 crores, which is about 34% of the total investment in the Railway system.

2.67 Improved productivity of these assets is the key to improving the Railways' performance. Productivity has improved in recent years. However, there is considerable scope for further improvement. Technology has been changing rapidly and more efficient designs both in end-use and in operation and maintenance have become available. However, unit cost of these assets has also been increasing sharply. There is, therefore, an urgent need to achieve a quantum jump in productivity of these assets.

2.68 With improvement in infrastructural facilities and changes in operating strategies, some improvement in productivity of motive power and rolling stock would be feasible. However, performance potential, availability and reliability can also be improved by adopting new designs and new technology. The objectives of modernisation of motive power and rolling stock would be

— Higher availability

— Improved reliability
— Higher speed potential
— Improved fuel efficiency
— Reduced maintenance cost through improved designs and materials and built in facilities for productive maintenance
— Easy maintainability through use of modular designs
— Improved end-use efficiency.

In addition to the above general objectives, specific objectives for wagons would be as follows:

— Special-purpose wagons for bulk commodities with features for mechanised loading and unloading
— Modern freight bogie and heavy duty coupler
— Air brakes
— Higher pay load to tare ratio
— More efficient utilisation of maximum moving dimensions i.e. wider and higher wagons.
— Corrosion resistance.

2.69 With substantial improvement in wagon utilisation, over the next 15 years (1985—2000) total replacement and additional requirement for wagons of all types is estimated in the Corporate Plan, to be around 20,000 4-wheeler units per year.

2.70 The Committee note that till the middle of the Century, practically all the goods traffic was being carried in general purpose wagons—the covered, open high sided and open low sided wagons. The standard wagon was evolved on Broad Gauge (BG) as a 10.31 tonne tare 4-wheeler with a maximum loading capacity of 22.19 tonnes and on Metre Gauge (MG) as a 5.69 tonne tare wagon with 18.69 tonnes carrying capacity. The total number of wagons on line were 205596 in 1950-51 with a total carrying capacity of 4.14 million tonnes. The total number of wagons increased to 400946 in 1980-81 with a carrying capacity of 11.14 million tonnes and then continued to decrease and the number came down to 346844 in 1987-88 with a carrying capacity of 10.77 million tonnes. The wagon fleet on the Indian Railways as on 31st March 1988 comprised 177,648 covered, 98824 open sided, 11,967 open low sided, 46772 special type and 11663 departmental wagons.

2.71 The Committee are concerned to note that the Ministry of Railways have never been able to achieve the targets fixed for acquisition of wagons except during the First Plan. In spite of the Planning Commission's approval for one lakh wagons for the Sixth Plan, the Ministry of Railways had reduced their target to 78000 wagons and actual procurement was 73028 wagons. Similarly, the Railways projected the requirement of 154057 wagons for the Seventh Plan but had a procurement plan for only 1,20,000 wagons owing to fund constraints. Ultimately the Planning Commission approved acquisition of 96000 wagons to cater to a target of 340 million tonnes of originating freight traffic against which the Ministry of Railways would be able to procure 90000 wagons only by the end of Seventh Plan.

2.72 Originating freight traffic during the Sixth Plan increased from 217.8 million tonnes in 1979-80 to 264.8 million tonnes in 1984-85 registering a growth rate of 4.3 per cent. The target set by the Planning Commission for the terminal year of the Seventh Plan is 340 million tonnes or originating freight traffic at an average lead of 680 kms. which means an annual growth rate of 5.7 per cent. The total freight loading in the year 1987-88 was 318.51 million tonnes and a total transport effort measuring in terms of net tonne kms. increased from 182.16 billion in 1984-85 to 231.24 billion in 1987-88. In this connection, the Ministry of Railways have informed the Committee that the present trend indicates that the originating traffic in the terminal year of the Seventh Plan may rise much above the original estimate of 340 million tonnes to 355 million tonnes originating traffic with an average lead of 750 kms.

2.73 The Committee note that the codal life after which wagons are deemed to be overaged and replacement is planned is 35 years for bogies and wheeler and 45 years for tank wagons. However, the Railways, as a general policy, condemn wagons on age-cum-condition basis. The Committee are distressed to find that there were 23395 overaged wagons with the Railways as on 31 March, 1985. The anticipated arisings due for replacement during the Seventh Plan would be 32183.5 wagons. Out of a total of 55578.5 overaged wagons due for replacement, the Ministry of Railways have been able to condemn 35962.5 wagons upto 31 March 1988, and thus leaving a balance of 19616 overaged wagons to be replaced/condemned during the remaining two years of the Seventh Plan.

2.74 In view of the rising trend in the originating traffic, the Committee are of the view that there is an urgent need for replacement of wagons and more especially so when the wagons to be

condemned are of plain bearing four-wheeler stock, giving poor output, often not freely loadable and incapable of meeting the pattern of operation that is going to dominate in the near future. Keeping above in view, the Committee recommend that the Railways should make an earnest effort to ensure that this backlog of 19616 overaged wagons is wiped out by the end of the Seventh Plan.

2.75 According to the estimates prepared by the Railway Reforms Committee, even after executing the replacement on codal life basis, 54500 four-wheeled wagons on BG and 3300 on MG would remain in service by 2000 A.D. Hence, replacement by itself on the basis of codal life would not be enough. The Committee, therefore, desire that the Ministry of Railways should draw up a programme for early phasing out of the four-wheeled wagons' stock much of which is in a state of bad repair and impose inherent restrictions on speed etc.

2.76 During evidence the Chairman, Railway Board informed the Committee that there were 3,500 stabled wagons as on 31st March 1986. By the end of December 1987, there were 3000 wagons stabled for want of spare parts. The net income per wagon per year is Rs. 1,77,000. As the loss to the Railways on account of these stabled wagons must be substantial, the Committee desire that the Ministry of Railways should ensure that wagons are not stabled for want of spare parts.

2.77 The Committee find from the Report of the Railway Reforms Committee that the ineffective percentage of wagons was 3.19 in 1961-62 on Broad Gauge. It rose to 7.36 in 1982-83 and again came down to 4.56 in 1987-88. The Committee would desire to know as to why the effeciency achieved in the year 1961-62 could not be maintained in the later years. Rise in ineffective percentage has resulted not only in revenue loss to the Railways but the country has also been deprived of the use of these wagons for haulage of traffic. The Committee would like the Ministry of Railways to examine the matter in depth particularly the defects in the system which contributed to this decline in efficiency in the previous years and take adequate measures to effect improvement in their working on a long term basis.

2.78 The Committee are constrained to point out that the turnround time of wagons which represents the average time lag between two successive loadings of a wagon increased from 1.5 days on BG in 1955-56 and 7.2 days on MG in 1960-61 to 11.6 days on BG and 12.3 days on MG in 1987-88.

The Committee feel that a reduction in the time spend by a wagon in its turn round trip at the terminals or in marshalling yards or reduction in the number of marshalling (i.e. by block rake movement), quicker marshalling through mechanisation of hump and reducing hold up of wagons enroute could reduce the turn round time. The Ministry too admitted during the course of the evidence that an improvement in turn round would surely bring forth better availability of wagons. The Committee therefore recommend that the Railways should keep a strict watch on the detention of wagons in yards and terminals, take corrective steps so as to reduce-turn-round time of wagons and prepare an annual report in this regard.

2.79 The Committee are concerned to find that 9.63 per cent wagons on BG and 8.49 per cent on MG were overdue for Periodical Overhaul (POH) as on 31st March 1985. The average time taken in POH for wagons was 7.05 days on BG and 7.49 days on MG in the year 1986-87. During evidence, the Chairman, Railway Board stated that the target which could ultimately be achieved is 4 days and for that the Railways were trying to improve their capacity through modern methods and processes and they hoped that with built up capacity and modernization of workshops, an improvement would be possible.

It seems to the Committee that the practice of taking wagons in for POH on the basis of due dates is not being followed strictly. The Committee would like to urge upon the Ministry of Railways to take corrective measures so that the stock due for POH could be cleared without any further delay.

2.80 The Committee note that there are 11 Wagon Building Units, of which six are in public sector and the remaining five are in the private sector. The annual licensed capacity of units in Public and Private Sectors is 17440 and 11000 Four-Wheeler respectively. In order to examine the difficulties faced by these units, the Committee called for memoranda both from the units in Public Sector and Private Sector. From the memoranda submitted to the Committee, they find that there had been idle capacity in almost all the Wagon Building Units prior to 1988-89. These Wagon Building Units manufacture wagons as per the design and process laid down by RDSO, Lucknow and as such there was no choice for them to change the design process and technology in manufacturing the wagons. However, one of the companies, M/s. Texmaco Ltd. stated that "there is a possibility of still greater improved technology through further

automation." The Committee would like the Ministry of Railways to have a dialogue with that company and find out as to what improvements could be made in the design and technology.

2.81 The Committee are disturbed to note that almost all the companies have complained about their existing capacity remaining grossly under-uilised for sheer inadequacy of workload. In this connection, it has been mentioned that the Railway Board fixes the annual production quota every year in consultation with the Wagon India Ltd. However, owing to resource constraints, the Railway Board has had to repeatedly cut back at its target for annual off-take. Since the Ministry of Railways comes to know of the funds to be allocated to them at the beginning of the Plan itself, the Committee recommend that the Ministry should place firm orders for the whole plan so that the Wagon Building Units could arrange their production programme on a sustained basis.

2.82 The Committee observe that the Procurement of free supply items is planned by the Railway Board keeping in view the annual off-take of wagons depending upon the fund allocation at the beginning of the financial year. However, if the additional funds are subsequently made available to Railway Board for enhancing the off-take level during the currency of that financial year, the Board is hard put to procure the additional free supply items due to longer lead time in procurement. This results in shortage of the required inputs. At a number of times, it also becomes necessary to undertake imports to meet the shortfalls in these supply items. The Committee desire that the Railway Board should consider placing adequate orders for these free supply items as well at the beginning of the Five Year Plan.

2.83 The Committee note that the Railway's requirement of 22.9 tonne axle load roller bearing wheel sets, used on BOXN wagons, is being met by the Wheel and Axle Plant, Bangalore to the extent of assembled 23,000 wheelsets per annum. The requirement of Railways for the year 1988-89 was 40,500 assembled wheel sets and 54,500 loose wheels and 24,200 loose wheel axles making a ground take of 66,700 equivalent wheel sets against which 45.700 equivalent wheel sets were manufactured within the country and the balance requirement was met through imports. The Financial Commissioner, Railway Board, informed the Committee during evidence that the production capacity within the country is 26,000 at Bangalore, 21,000 at TISCO and 17,000 at Durgapur. During their visit to Wheel and Axle Plant, Bangalore, the Committee were informed that the production

was likely to reach the level of 56,700 wheel sets by 1989-90. It was proposed to add one more furnace in the Seventh Plan and with that the production capacity would be increased to 68,650 wheel sets. The General Manager, Wheel and Axle Plant informed the Committee that against the total requirement of 1,60,000 wheel sets at the end of Eighth Plan, the country would be producing about 82,700 wheel sets and the remaining 77,300 wheel sets would have to be imported from Korea, Japan, Polland, Brazil and Romania. Keeping in view the above facts the Committee feel that there is an urgent need for setting up of another Wheel and Axle Plant in the country. The Committee would therefore like the Ministry of Railways to take up this matter with the Planning Commission and the Ministry of Steel on an urgent basis so that huge foreign exchange spent on import of Wheel Sets could be saved.

2.84 From the Report of the Comptroller and Auditor General of India for the year 1984-85, Union Government (Railways), the Committee find that the Research, Designs and Standards Organisation (RDSO) evolved a BOXN wagon. These wagons were expected to permit hauling of heavier freight trains of 4500 tonnes and later to 7500 tonnes from the existing freight level of 2500 to 3210 tonnes at higher speed of 90 kms. per hour. However, the Committee find that the bulk orders for manufacture of BOXN wagons were placed by the Railway Board without conducting the required trials and technical evaluation of the new design. The Chairman, Railway Board admitted during the evidence that the BOXN wagon could achieve only a maximum speed of 75 kms. per hour and that the average speed comes to about 35 kms. per hour only. The Committee also find that there were design deficiencies at the initial stages due to poor quality supplies, defects in bogies, air brakes, wheels etc. In this connection, the Member (Mechanical), Railway Board stated that there are always some teething troubles with a new piece of equipment.' The areas of defects were identified and these have now been removed after taking the corrective measures.

2.85 From one of the memoranda submitted to them the Committee have come to know that M/s. Texmaco had exported wagons having a speed of 100 kms. per hour to Yugoslavia. The Committee cannot but express their unhappiness over the fact that the Ministry of Railways had, after floating a global tender, imported 133 wagons in their quest for procuring wagons having a speed of 90 kms. per

hour without fully exploring the possibility of getting such wagons indigenously.

2.86 From the Corporate Plan (1985-2000) the Committee find that the Planning Commission has set a target of 5% per annum rate of growth for GDP up to 2000 A.D. against 3.76 per cent long term rate of growth in the past. However, the actual rate of growth might be anywhere between these two figures. According to that, the Railways freight traffic may range between 332—450 billion net tonne kilometre depending upon the rate of growth of the economy and the success the Railways achieved in increasing their share of the total land freight traffic. With substantial improvement in wagon utilisation, the total replacement and additional requirement for wagons of all types is estimated in the Corporate Plan to be around 20000 four-wheeler units per year. The Committee would desire that the Ministry of Railways should take suitable steps with a view to achieve the objectives as laid down in the Corporate Plan.

NEW DELHI;
August 11, 1989
Sravana 20, 1911 (*S*)

SUBHASH YADAV,
Chairman,
Railway Convention Committee.