THE WORKING GROUP
REPORT ON

ROAD TRANSPORT

FOR

THE ELEVENTH FIVE YEAR PLAN

Government of India

Planning Commission

New Delhi

Chapter- I: Overview

Recent Trends

1.1 Road transport is vital to the economic development and social integration of the country. Easy accessibility, flexibility of operations, door-to-door service and reliability have earned road transport an increasingly higher share of both passenger and freight traffic vis-à-vis other transport modes. Transport sector accounts for a share of 6.4 per cent in India's Gross Domestic Product (GDP). The composition of various sub-sectors of the transport sector in terms of GDP is given in Table -1.

Table - 1: Share of Different Modes of Transport in GDP

Sector	1999-2000	2000-01	2001-02	2002-03	2003-04	2004-05
	As percentage of GDP (at factor cost and constant prices)					
Transport of which:	5.7	5.8	5.8	6.1	6.2	6.4
Railways	1.1	1.1	1.1	1.1	1.1	1.1
Road Transport	3.8	3.9	3.9	4.1	4.3	4.5
Water Transport	0.2	0.2	0.2	0.2	0.2	0.2
Air Transport	0.2	0.2	0.2	0.2	0.2	0.2
Services *	0.4	0.4	0.5	0.5	0.5	0.4

** Services incidental to transport.*

1.2 However, road transport has emerged as the dominant segment in India's transportation sector with a share of 4.5 per cent in India's GDP in comparison to railways that has a mere 1 per cent share of GDP in 2004-05 as per the revised data on National Accounts released by the Central Statistical Organisation (CSO). It may be noted that the entire increase in percentage share of transport in GDP since 1999-2000 has come from road transport sector only. Second,

over the last five years (2000-01 to 2004-05) for which detailed revised data is available from the CSO, the average annual growth in road sector at around 10 per cent was much higher than the overall GDP growth of 6 per cent. This implies that a higher growth in road transport sector during the Eleventh Plan would be required to sustain 9 % targeted growth in the overall GDP. The modal growth rates have varied with road transport growing at a much higher rate compared to other competing modes like inland water, railways and air transport despite significant barriers to inter-State movement of freight and passenger by road (Table - 2).

Table - 2: Average Annual Growth (%) in Transport Sector GDP*

Sector	**2004-05/2000-01**	**2005-06/2000-01**
Overall GDP	6.0	6.4
Transport	8.7	8.8
Railways	6.0	6.5
Other Transport:	9.3	9.3
Road	9.7	
Water	7.6	
Air	8.1	
Services **	5.1	

** GDP at factor cost in real terms (1999-2000 prices) ;*

*** Services incidental to Transport*

Factors influencing Demand for Road Transport

1.3 The Road Transport Sector has grown significantly during the past five decades. Road Transport has deep linkages with the rest of the economy and a strong multiplier effect. Transport is essentially a derived demand depending upon the size and structure of the economy and the demographic profile of the population. Greater the share of commodity-producing sectors like agriculture and manufacturing, higher is the demand for transport. Slower growth in

population may reduce demand for transport but a higher share of mobile population/labour force in the total population is likely to increase demand for transport. The slower growth in freight traffic during 1999-2000 to 2004-05 as reflected in Table 3 below can be attributed to a deceleration in the growth of manufacturing in particular (measured in terms of the Index of Industrial Production) from more than 7 per cent in 1999-2000 to less than 3 per cent in 2001-02.

Table - 3 : Average Annual Growth (%) in Freight and GDP* (constant prices)

Period	Freight in Billion Tonne Kilometre			GDP*
	Road	Railways	Combined	
2004-05/1992-93	6.5	3.6	5.2	6.2
1998-99/1992-93	7.6	1.7	5.0	6.4
2004-05/1999-2000	5.3	5.8	5.5	5.9

**Based on estimates of GDP at factor cost at 1993-94 prices*
Source: Transport Research Wing, Ministry of Shipping, Road Transport & Highways, Government of India
Data on rail Freight traffic from Ministry of Railways

Modal Split: Roads versus Rail

1.4 Road transport sector has seen higher growth vis-à-vis railways during 1992-93 to 2004-05. Several of the factors leading to the relative high growth in road transport are structural. These include more dispersed industrial and business location patterns and increased need for just in time deliveries. Second, the sector is composed of many small private operators in a highly competitive and dynamic environment. Structurally, railways are confronted with the changing pattern of industrial production and geography away from traditional industries and clusters towards a more dispersed pattern embodying high value and low volume manufactures. This coupled with complex technical, administrative working practices, service quality and inability to respond to changing market conditions have led to erosion in the market share of railways in

freight in particular from more than four fifth in 1950-51 to less than two-fifth as of now.(Table 4)

Table 4: Trends in Rail-Road Modes in Freight & Passenger Traffic				
Year	**Goods(Billion Tonne KM)**		**Passenger(Billion Passenger KM)**	
	Road	**Railways****	**Road**	**Railways****
1950-51	6.0*(13.8)	37.6(86.2)	23.0*(15.4)	66.5 (84.6)
1960-61	14.0(16.2)	72.3(83.8)	80.9(51.0)	77.7(49.0)
1970-71	47.7(30.1)	110.7(69.9)	210.0(64.0)	118.1(36.0)
1980-81	90.9(38.1)	147.7(61.9)	541.8(72.2)	208.6(27.8)
1990-91	145.1(38.1)	235.8(61.9)	767.7(72.2)	295.6(27.8)
1999-2000	467.0(60.5)	305.2(39.5)	1831.6(81.0)	430.7(19.0)
2000-01	494(61.3)	312.4(38.7)	2075.5(82.0)	457.0(18.0)
2001-02	515(60.7)	333.2(39.3)	2413.1(83.1)	490.9(16.9)
2002-03	545(60.7)	353.2(39.3)	2814.7(84.5)	515.0(15.5)
2003-04	595(61.0)	381.2(39.0)	3070.2(85.0)	541.2(15.0)
2004-05(P)	646(61.3)	407.4(38.7)	3469.3(87.1)	515.7(12.9)

Figures in parentheses indicate percentage of modal share (P)- Provisional

Note :

1. Figures for Road Transport from 1960-61 to 1990-91 are estimated based on percentage share of Road Transport and Railways given in the Working Group Report on Road Transport, Tenth Five Year Plan 2002-07

2. Figures for Road Transport from 1999-2000 to 2000-01 have been estimated by Transport Research Wing, Ministry of Shipping, Road Transport & Highways, Government of India

3. Figures for Road Transport from 2001-02 to 2004-05 have been estimated by the Sub Group

*Source : * Tenth Plan Document*

*** Data on rail freight traffic from Ministry of Railways*

Growth in Number of Registered Motor Vehicles

1.5 The growth of vehicular traffic on roads has been far greater than the growth of the highways; as a result the main arteries face capacity saturation. Between 1951 and 2002 the vehicle population grew at a compound annual growth rate (CAGR) of close to 11 per cent compared to CAGR of 4.3 per cent in the total road length with National Highway segment increasing by a mere 2.1 per cent. A noteworthy aspect has been a step-up in the growth of national highway network in recent years which has grown at CAGR of more than 5 per

cent with total vehicle population growing at close to 10 per cent CAGR during 1991-2004 (Table - 5).

Table 5 : Compound Annual Growth Rate (in %) in Vehicles and Road Length

Period	Vehicles					Roads				
	Two - Wheelers	Cars	HVs	Others	Total	NHs	SHs& PWD	Rural	Project	Total
2002/1951	15.5	7.9	7.0	15.5	10.9	2.1	3.2	4.5	-	4.3
1961/1951	12.5	6.9	6.8	26.5	8.1	1.9	4.0	-0.5	-	2.7
1971/1961	20.7	8.2	6.9	15.0	10.9	0.0	2.6	6.0	15.9	5.7
1981/1971	16.3	5.5	5.1	18.1	11.2	2.9	-11.9	11.5	4.3	5.0
1991/1981	18.4	9.8	8.9	10.9	14.8	0.6	21.0	1.9	2.5	4.6
2002/1991	10.3	9.0	7.2	8.4	9.7	5.1	2.8	4.2	1.7	3.4
2004/1991	10.5	9.4	7.9	7.9	9.9					

Note: HVs includes buses & trucks; NHs : National Highways; SHs : State Highways; PWD: Public Works Department

1.6 Composition of vehicle population in India in the year 2004, the latest year for which the data is available, reveals preponderance of two-wheelers with a share of more than 71 per cent in total vehicle population, followed by cars with 13 per cent and other vehicles (a heterogeneous category which includes 3 wheelers, trailers, tractors etc.) with 9.4 per cent. However, the share of buses and trucks in the vehicle population at 1 per cent and 5 per cent respectively is much lower compared to China. With a rising income and inadequate urban public transport system, in particular, the personalized mode of transport is likely to grow in importance in the coming years. Presently the share of cars in the total vehicle population in India is much lower in comparison to Sri Lanka, Malaysia and Chile but equivalent to China.

Approved outlay and expenditure on Road Transport during Xth Five year Plan

1.7 The approved outlay for the Tenth Five year Plan (2002-07) for Central Road Transport Sector was Rs. 210 crore out of which Rs. 153 crore (nearly 73% of total approved outlay) was for Road Safety. The total expenditure incurred on road safety during the first four years of the Tenth Five year Plan (2002-03 to

2005-06) was Rs. 101.63 crore or about 66% of the total approved outlay for the Plan. The total expenditure during the first four years of the Tenth Five year Plan for Pollution Control, National Database network and Model Driving School schemes was Rs. 3.31 crore, Rs. 7.17 crore and 21.13 crore respectively. As a proportion of total approved outlay the total expenditure on Pollution Control, National Database and Model Driving School was 33%, 55% and 88% respectively during the first four years of the Tenth Five year Plan. The total expenditure in central road sector during the first four years on approved schemes was Rs. 133.24 crore or 63% of the approved outlay. (Table 6)

Table 6: Outlay and Expenditure – Road Transport

(Rs.crore)

Sl. No	Scheme	10th Five Year Plan App. Outlay	2002-03		2003-04		2004-05		2005-06		2006-07
			Outlay	Expdr	Outlay	Expdr.	Outlay	Expdr.	Outlay	Expdr.	Outlay
1	Road Safety	153.00	22.00	22.76	29.00	28.24	33.20	27.86	35.55	22.77	37.20
2	Pollution Testing & Control	10.00	1.25	2.10	2.30	0.25	2.00	0.10	1.00	0.86	0.50
3	National Database Network/Engineering	13.00	2.76	1.94	2.60	2.24	2.30	1.74	1.95	1.25	3.00
4	Model Driving Training School	24.00	3.99	2.95	6.10	4.75	6.50	6.50	7.50	6.93	9.80
5	Capital support for Sustainable Public Transport System	10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	**210.00**	**30.00**	**29.75**	**40.00**	**35.48**	**44.00**	**36.20**	**46.00**	**31.81**	**50.00**

Fuel Consumption: Transport Sector

1.8 The total consumption of petroleum products grew at the rate of 5.7% per annum between 1980-81 and 2003-04. However, growth in consumption has moderated to 2.95% per annum over the last four years (2000-01 to 2004-05). Consumption of petrol and diesel grew at 7.3% and 5.8% per annum respectively between 1980-81 and 2004-05. This was the outcome of the growth of personal motorized transport and the rise in share of road haulage. The vehicle population continues to grow at higher than historical rates. However, in the last 5 years growth in consumption of petrol and diesel has been far more moderate at 6.9% and less than 1% respectively. This reflects the improved efficiency of vehicles and better road conditions. In 2004-05, liquid fuel consumption in the transport sector accounted for 28% of our total petroleum products consumption (Source: Integrated Energy Policy, Planning Commission 2006; Page 10).

1.9 Despite better performance of road transport sector Vis-a- Vis other competing modes the sector suffers from public policy shortcomings. One, expansion of road infrastructure has not kept pace with demand. Growing costs of infrastructure and long completion schedules have constrained expansion of road network. Vehicle population increased by 11% between 1952 and 2002 while road network increased by 4.3%. During the same period the number of HCVs increased by 7 %. It is noteworthy that under personalised modes three-wheelers and cars have grown at an annual rate of 10.5 % and 9.4 % respectively during 1991 to 2004. Second is the weak enforcement of existing regulations which have a bearing on safety and environment. Finally, there are significant barriers towards inter state movement of freight and vehicles which impose heavy economic and social costs.

Chapter- II

Passenger and Goods Road Traffic Assessment and Adequacy of Fleet and Data Collection

2.1 With the initiation of the economic reforms in 1992 the transport sector has shown good performance. Transport is basically a derived demand depending upon the size and structure of the economy and the demographic profile of the economy. Over the last five years (2000-01 to 2004-05) in particular, road transport sector GDP grew at an annual average rate of close to 10% compared to an overall annual GDP growth of 6%. Today road transport segment occupies an overwhelming dominance within the transport sector with a share of 4.5% in GDP compared to a meagre 1.1% share GDP in case of railways. Also annual average growth in freight transport at 6.5% for road was much higher compared to railways which clocked a modest annual average increase of 3.6% during the post reforms phase (1992-93 to 2004-05).The Eleventh Five Year Plan has set out a target of 9% annual growth in GDP. To achieve and sustain this target growth would require an assessment of growth in volume of freight and passenger by road and consequent requirement of truck and bus fleet to meet the road freight and road passenger traffic. Accordingly, the Sub Group Passenger and Goods Road Traffic Assessment and Adequacy of Fleet has attempted projection of road freight and passenger by bus mode for the Eleventh Five Year Plan (2007-2012) under following sets of assumptions.

Assumptions common to goods and freight movement

2.2 The Sub Group has adopted 4 alternate growth scenarios of 7%, 8%, 8.5% and 9% in conjunction with respective estimates of elasticities of Tonne KM and Passenger KM with respect to GDP. These Alternative GDP Growth Rates were used to work out stream of volume freight and passenger traffic during the Eleventh Five Year Plan period.

a) The road infrastructure would not be constraint on road freight and passenger movement.
b) The industry would continue to produce all the present types and categories of vehicles and there would be no restrictions, regulations or ban on production or use of such vehicles.
c) The projections are on the present type of vehicles in use, viz. goods carriers and buses. The present individual capacities have been taken as standard units.

Assumptions underlying volume of road passenger movement by bus

2.3 For passenger traffic, the unit to measure the volume of passenger traffic is passenger kilometer i.e. the distance (in Kms) over which the number of passengers are carried.

a) The Sub Group has assumed a “useful life time” of 15 years for all buses. Based on this a time series of buses “in use” was generated for the year 1989-90 to 2003-04 from the data on registered buses.

b) The Billion Passenger Kilometre (BPKM) for the SRTUs is assumed at 0.004 derived from the actual data for latest available 4 years (2001-02 to 2004-05) of reporting SRTUs. The BPKM per private sector bus is assumed to be 0.007 which is the modal value of the better performing SRTUs.

c) The four variables of GDP growth (7%, 8%, 8.5% and 9%) have been used in conjunction with elasticity of BPKM with respect to GDP estimated at 2.2. Besides, an alternate stream of volume of passenger traffic by bus mode has been computed by working out long term elasticity of BPKM with respect to GDP over a longer period (1990-91 to 2004-05) in

conjunction with four variables of GDP growth for the Eleventh Five Year Plan. The long term elasticity of BPKM with respect of GDP works out to 1.5. (This exercise has been added to the Sub Group Report in response to Planning Commission' suggestion).

d) The growth and impact of Mass Transit Rail System in passenger movement.

Assumptions underlying volume of road freight movement by trucks

2.4 For the purpose of estimating the performance of road Freight transport in terms of tonne-kilometres certain assumptions have been made for trucks which are the principal mode of freight transport by road. These are as follows:

a) As per the load carried, trucks were categorized as Light Commercial Vehicles (LCVs), Medium Commercial Vehicles (MCVs), Heavy Commercial Vehicles (HCVs), Multi-Axled Vehicles (MAVs) and Articulated Vehicles. Trucks with a payload of up to 3.5 tonnes were categorized as LCVs. The category of MCVs includes goods carriages above 3.5 tonnes up to 7.5 tonnes. HCVs include all trucks with a payload of 9 tonnes. Rigid-body MAVs include trucks with a payload above 9 tonnes to 15 tonnes. For the purpose of analysis, MCVs, HCVs and rigid body MAVs (up to 15 tonnes) have been clubbed together. Articulated MAVs or Over Dimensional Cargo Vehicles have a higher payload. MAVs with 2-axled trailers attached to the tractor have a payload of 25 tonnes, if it is a flat bed. Some combination vehicles with low body trailers carry a payload of 23.5 tonnes. MAVs with tractors and 3-axled combinations have a payload of 32 tonnes and 30.5 tonnes respectively for flat bed and low-body trailers.

b) The physical performance of trucks depends on the age of the vehicle. Hence, the trucks were grouped into four categories: (a) 0 to 6 years old,

(b) 6 to 10 years old, (c) 10 to 15 years old and (d) 15 to 20 years old. It was assumed that trucks which are more than 20 years old would be scrapped. Yearly age-wise sales figures of goods carriages in terms of tonnage provided by SIAM and ACMA were used to arrive at category-wise truck population.

c) It was observed that LCVs are usually used for local transportation or movement of freight among adjoining States. The lead (average distanced traveled per month) by a road freight carrier is assumed to depend on the age of the vehicle as follows: Vehicle age 0-6 years average distance traveled per month 8000 Km; Vehicle age 6-10 years average distance traveled per month 7000 Km; Vehicle age 10-15 years average distance traveled per month 4000 Km and; Vehicle age more than 15 years average distance traveled per month 2000 Km;

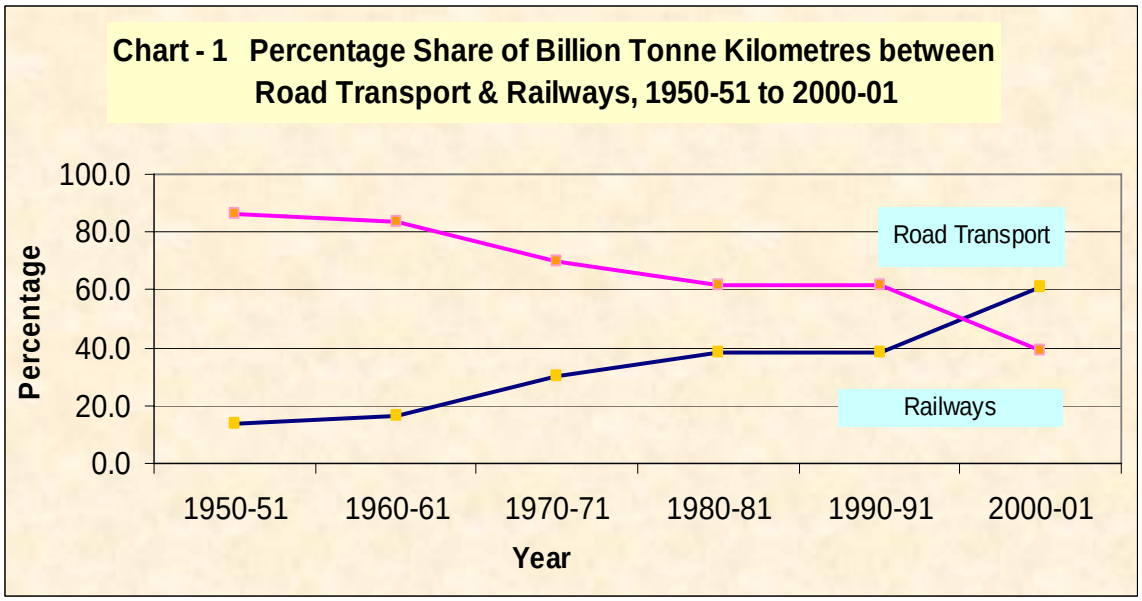
d) Efficiency gains on account of highway improvement is assumed to result in a 10% increase in the distance covered by the younger (0-6 years of age) truck fleet per annum.

e) Composition of the different categories of trucks would remain the same during the Eleventh Plan; i.e. LCVs would constitute 47%, M&HCVs would be 52% and Articulated Vehicles would be 1% of the total truck fleet.

Freight Forecast and Truck Requirements

2.5 During the post reform period (1992-93 to 2004-05) volume of freight (billion tonne km) carried by road grew at an annual average rate of 6.5% compared with a growth of 3.6% in rail freight. Over the years the modal split in freight movement between rail and road has skewed in favour of road. The share of road transport in freight movement which was around 14% in 1950-51

has increased to around 61% while that of railways has fallen from more than four-fifth to less than two-fifth over the same period.



Projection of Freight Movement during Eleventh Plan

2.6 The elasticity of tonne kilometres by road transport with respect to GDP is found to be a little above unity (1.1). Using an elasticity of 1.1 of BTKM (Billion Tonne Kilometres) with respect to GDP, four alternative scenarios for BTKM over the Eleventh Five Year Plan have been projected, for alternative GDP growth rates of 7, 8, 8.5 and 9 per cent as given in the Approach Paper to Eleventh Plan. The projected BTKM made by the Sub Group for alternative growth scenario may be seen at Table 7.

Table 7 : Eleventh Five Year Plan Projections for Freight (2007-08 to 2011-12)					
Year	**BTKMs**	**Projections (BTKMs)**			
2005-06	**706***				
2006-07	**768#**				
		(Assumption of GDP target rate of growth)			
11th Plan		**7%**	**8%**	**8.5%**	**9%**
2007-08		827	835	840	844
2008-09		891	909	918	927
2009-10		959	989	1004	1019
2010-11		1033	1076	1098	1120
2011-12		1113	1171	1200	1231
** For the year 2005-06 Revised Estimate of GDP growth rate of 8.4 per cent given by CSO has been taken to estimate BTKM.* *# Estimate for 2006-07 has been worked out based on a GDP target growth rate of 8 per cent assumed in the Tenth Plan*					

2.7 The number of different categories of goods vehicles required under the alternative growth scenarios in the first year (2007-08) and terminal year (2011-12) of the 11th Plan are given in the Tables 8, 9 & 10 below.

Table 8 : Number of LCVs required during Eleventh Five Year Plan				
Year	**(Assumption of GDP target rate of growth)**			
	7%	**8%**	**8.5%**	**9%**
2007-08	1943241	1963088	1973012	1982936
2011-12	2614505	2750777	2821012	2892674

Table 9 : Number of M&HCVs required during Eleventh Five Year Plan				
Year	**(Assumption of GDP target rate of growth)**			
	7%	**8%**	**8.5%**	**9%**
2007-08	2149969	2171928	2182907	2193886
2011-12	2892644	3043413	3121119	3200405

Table 10: Number of Articulated Vehicles required during Eleventh Five Year Plan				
Year	**(Assumption of GDP target rate of growth)**			
	7%	**8%**	**8.5%**	**9%**
2007-08	41346	41768	41979	42190
2011-12	55628	58527	60022	61546

2.8 The Sub-Group also looked at an alternative scenario wherein efficiency gains in terms of distance covered by younger fleet (0-6 years) was accounted for. It needs to be noted that in India the average annual utilization of a truck varies from about 25,000 Kilometres to about 90,000 Kilometres per annum depending on the age of vehicle. In contrast, the average vehicle utilization is of the order 400,000 Kilometres in the USA. Improvement in road network under the various NHDP phases would enable speedier movement of trucks and hence require lesser number of trucks to carry road freight. This scenario arising out of efficiency gains for the trucking industry for the terminal year of the 11th Five Year Plan shows that requirement of LCVs would be lower in the range 1.2 to 1.4 million; that of M&HCVs would be lower in the range 1.3 to 1.5 million and that of multi- axled trucks 25,000 to 29,000 depending on the GDP growth trajectory.

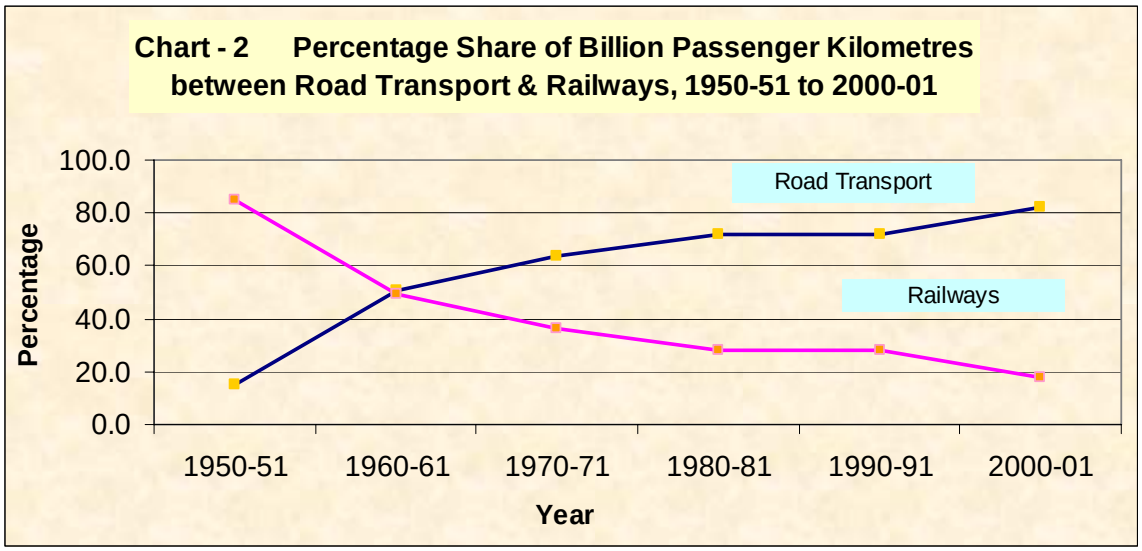
2.9 From the data available and assuming a useful life of 20 years for a truck, it is projected that during the Eleventh Five Year Plan on an average 47,000 LCVs, 51,000 M&HCVs and another 400 MAVs will require replacement every year.

Bus Passenger Forecast and Bus Requirements

Analysis of Past Trends

2.10 Passenger transport services are provided both by the State Road Transport Undertakings (SRTUs) and private operators. Following liberalization, the share of SRTUs has declined with the entry of private operators to meet the incremental passenger traffic demand. The share of the private sector in the total number of buses has increased from 57 per cent in 1980-81 to 85 per cent in 2003-04. Over the years the modal split in passenger movement between rail and road (by bus mode) has skewed in favour of the latter. The share of bus transport in passenger movement which was around 15% in 1950-51 has increased to around 87% while that of railways has fallen from around 85 % to barely 13 % over the same period. Taking into account the traffic carried by

other commercial vehicles, the share of the private sector in total passenger traffic is estimated at about 85 per cent.



2.11 For the purpose of projection of BPKM (Billion Passenger Kilometres) over the Eleventh Five Year Plan (2007-12), elasticity of BPKM with respect to GDP has been used, which is estimated at 2.2. There are 4 versions assumed regarding the rate of growth of GDP in the Approach Paper of the Eleventh Five Year Plan; viz 7, 8, 8.5 and 9 per cent. Projecting on the basis of the elasticity of BPKM with respect to GDP, BPKMs have been generated for 4 alternate growth scenarios as indicated in the Table 11.

Table 11 : BPKMs Projected with respect to GDP Growth					
Year	**BPKMs**	**Projections (BPKMs)**			
10th Five Year Plan					
2005-06	4110 *				
2006-07	4833 #				
		(Assumption of GDP target)			
11th Five Year Plan		**7%**	**8%**	**8.50%**	**9%**
2007-08		5578	5684	5737	5790
2008-09		6437	6685	6810	6937
2009-10		7428	7861	8084	8310
2010-11		8572	9245	9595	9956
2011-12		9892	10872	11390	11927
** For the year 2005-06 Revised Estimate of GDP growth rate of 8.4% given by CSO has been taken to estimate BPKM* *# Estimate for 2006-07 has been worked out based on a target GDP growth rate of 8% assumed in the Tenth Plan.*					

2.12 The number of buses required for the four alternative growth scenarios during the first year and the terminal year of the 11th Five Year Plan are given below. For the purpose of projecting the number of buses required during the Eleventh Five Year Plan under the four alternative scenarios, a weighted average of 0.006 BPKMs of public and private sector buses has been used. This approximately translates into 55 passengers carried over 300 kilometers per bus per day.

Table 12 : Number of Buses required during Eleventh Five Year Plan				
Year	**(Assumption of GDP target rate of growth)**			
	7%	**8%**	**8.5%**	**9%**
2007-08	871530	888145	896453	904760
2011-12	1545631	1698687	1779632	1863635

From the data available and making an assumption of 15 years as the useful life of a bus, it is projected that during the Eleventh Plan on an average 26,000 buses will require replacement every year.

The BPKM - GDP elasticity of 2.2 used in the foregoing analysis has been arrived at by using the data pertaining to the years 1999-2000 to 2004-2005. However, Planning Commission suggested taking a longer time frame to estimate the BPKM-GDP elasticity. Accordingly, a long term BPKM-GDP elasticity covering the period 1990-91 to 2004-2005 was estimated and found to be 1.51. Retaining the other assumptions, as above, the requirements of number of buses for the Eleventh Five year Plan was estimated. The requirement was found to be in the range of 9.97 Lakh to 10.87 Lakh. The detailed calculations and requirements of additional/new buses required have also been carried out and may be seen at the Addendum to the Sub Group Report. {Annexure H (a)}

Capacity Requirements

2.13 The Sub-Group felt that delicensing of investment, lifting of quantitative restrictions (QRs) on imports and reduction in peak custom duty rate to 12.5 per cent and their further likelihood of reduction to levels comparable to East Asian countries (as reiterated in earlier Budget announcements), would provide option to users (both bus and freight operators by road) to choose between imports and domestically produced motorized vehicles to meet projected freight and passenger traffic scenario. Under these conditions it would not be proper to recommend creation of domestic capacities in buses and trucks to meet the freight and passenger traffic requirements during the course of Eleventh Plan. However, a detailed exercise has been undertaken to estimate the additional buses/freight carriers to haul the passengers/goods by road keeping in view the alternative growth scenarios.

Broad Conclusions

2.14 Despite good performance of the road transport sector it is beset with slow technological development, low energy efficiency, pollution and slow movement of freight and passenger traffic. The step-up in freight and passenger road traffic during the Eleventh Plan in consonance with alternate growth paths provides an opportunity for technological up gradation, capacity augmentation and replacement of over aged rolling stock.

2.15 Keeping in view the alternate GDP growth paths (7 per cent, 8 per cent, 8.5 per cent and 9 per cent) in conjunction with respective freight and passenger elasticities with respect to GDP of 1.1 and 2.2 respectively, volume of freight and passenger movement by road during the Eleventh Five Year Plan has been projected as under:

Table 13 : Eleventh Plan (2007-2012):Projections of BTKM & BPKM

	Alternative Scenarios of GDP Growth			
	7%	**8%**	**8.5%**	**9%**
Average Annual Freight and Passenger Movement				
BTKM	965	996	**1012**	1028
BPKM	7581	8069	**8323**	8584
Average Annual Vehicle Fleet Requirement				
Buses	1184581	1260807	**1300504**	1341287
Without Efficiency Gains				
LCVs	2266444	2340358	**2378105**	2416389
M&HCVs	2507555	2589332	**2631095**	2673451
MAVs	48222	49795	**50598**	51413
With Efficiency Gains (10% increase in lead per year during the Eleventh Five Year Plan)				
LCVs	1561604	1635038	**1662468**	1599445
M&HCVs	1727733	1808978	**1839327**	1769599
MAVs	33225	34788	**35372**	34031
***Note**: Approach Paper to the Eleventh Five Year Plan brought out by the Planning Commission has proposed a target growth of 9 per cent per annum in GDP during the 11th Five Year Plan*				

2.16 The Sub-Group is of the view that in a liberalized economic environment marked by absence of investment/capacity licensing, no quantitative restrictions on imports except on grounds of environment, safety and national security and low and falling customs tariffs; users would have the option (both bus and freight operators by road) to choose between imports and domestically produced motorized vehicles to meet projected freight and passenger traffic demand. Under these circumstances the Sub-Group felt that it would not be proper to recommend creation of domestic capacities to meet the additional freight and passenger traffic requirements. However, a detailed exercise has been undertaken to estimate the additional buses/freight carriers to haul the passengers/goods by road transport keeping in view the alternative growth scenarios. The requirements of number of buses for the Eleventh Five year Plan is estimated to be in the range of 9.97 Lakh to 10.87 Lakh.

Review of existing arrangements for data collection for road traffic taxes/fees

2.17 Motor Vehicles Act provides for maintenance of State registers of motor vehicles. The system of vehicle registration in the country needs to be modernized. The present system of vehicle registration is characterized by:

a) Decentralised nature of vehicle registration through around 760 Regional Transport Officers (RTOs)

b) Different systems and standards for compilation of vehicle registration across the country. Presently a little more than one-sixth (about 125 RTOs) of the total 760 RTOs in the country has been computerized.

c) No centralized data warehouse/agency and related parameters. Timely access and retrieval of information on vehicles registration difficult due to lack of centralized data system.

2.18 Worldwide the data of motor vehicles is in terms of “Vehicles in use” rather than the number of registered motor vehicles as is the practice in India. There is complete lack of regular and reliable data on freight movement, passenger movement on private buses, trucking industry; transaction costs involved in inter state movement of goods and passengers etc.

Suggestions for data improvement

2.19 To overcome the data infirmities following are suggested.

a) Make vehicle registration system IT based; create centralized registry/depository of all motor vehicle registrations in terms of unique identity (similar to PAN) detailing vehicle characteristics, details of permit, etc to facilitate quick retrieval and policy analysis.
b) State Transport Authorities need to collect information on motor vehicles in terms of tax paying and non tax paying so as to generate motorized ‘Vehicle in Use’.
c) Carry out quinquennium surveys under the aegis of NSSO covering following dimensions :

    i. **Freight movement by Road**: origin, destination, size, type of freight and its movement by type of vehicle and age.

    ii. **Passenger movement by Road**: Passenger movement and related parameters by private bus operators need to be captured.

    iii. **Trucking Industry**: survey of domestic trucking fleet covering operating cost, financing, vehicle technology, vintage, turnaround time, utilization etc.

    iv. **Time Motion Surveys**: To assess time spent on various activities related to document compliance/clearances at barriers to ascertain transaction costs faced by road freight/passenger industry.

Chapter- III

Policy Issues

3.1 Both freight and passenger movement by road is expected to rapidly expand in the coming years. In particular, freight movement by road transport is expected to show robust growth over the medium term due to a number of factors, viz, substantial investment in improvement in national highway network which will facilitate speedy, reliable, door to door services, rising volumes of exports and imports. Despite good performance of the road transport sector it is beset with slow technological development, low energy efficiency, pollution and slow movement of freight and passenger traffic. Sustaining an annual overall growth in the GDP of 9% during the Eleventh Five Year Plan would require growth in both passenger and freight road transport of much higher order. Such an endeavour would need a conducive policy environment in the road transport sector during the Eleventh Five Year Plan period.

Barriers to Road Transport

3.2 Barrier free movement of passenger and freight by road across the country is vital for promoting efficient economic development and growth. A goods vehicle in India is answerable to all the checkpoints and traverses under conditions which are not ideal, leading to lower speeds and low utilization of rolling stock. This makes seamless flow of freight traffic across the India difficult.

3.3 A typical truck operator has to normally face seven different agencies for either obtaining clearances for carrying goods or paying certain charges at the check post. These agencies are mainly: 1. Sales Tax 2. Regional Transport Officer (RTO) 3. Excise 4. Forest 5. Regulated Market Committee 6. Civil Supplies (for check on the movement of essential commodities, black marketing, weights and measures, food adulteration) and 7. Geology and Mining. These

checks are generally conducted by respective agencies at separate points, resulting in more than one detention. Detention of vehicles causes lower speed, loss of time, high fuel consumption and idling of vehicles, leading to under-utilization of transport capacity and adversely affecting their operational viability. Besides, it imposes economy wide costs which are not easy to assess. Better roads and faster speeds may be offset by Inter State Check Posts (ISCPs). The system in vogue hinders rather than facilitates smooth flow of freight and passenger movement across the country and has thwarted the formation of single common market.

3.4 Further Road transport sector is subject to myriad of levies/taxes (both Centre and State) with no provision of set-offs in case of many taxes/levies, leading to cost and price escalation which erodes competitiveness of domestically produced manufactures. Replacement of State Sales tax by State VAT has not reduced or removed the need for border check posts. Under State VAT regime, documentation checking is more important than the physical check. Major drawbacks in State VAT are (i)It does not provide tax credit for the inter state movement of good; (ii)Document compliance at the check post is no different from the past;(iii)Institution of check posts remains and (iv) octroi is not dispensed with.

3.5 The time consumed at check posts under the current regime might be the same as that observed under the previous sales tax regime unless documentation procedures are simplified and instead of manual verification electronic checking is undertaken. Key to successful administration of State VAT lies in setting up of a national level IT architecture for tax payer identification, creating and maintaining data base of dealers and their transactions. The system of levy of penalty and collection remains the same as in the earlier sales tax regime. In a situation where CST is dispensed with in a phased manner over the medium term the requirement for a Sales Tax Check Post would be greatly reduced.

3.6 Essentially the checks made at border posts aim to ensure that (a)Taxes in the state of destination have been paid on the goods being carried ;(b)Trucks are not overloaded ;(c)Trucks are being operated safely and (d)Trucks are carrying valid papers. The impact of various laws governing inters state movement of goods/passenger is accentuated by existing system marked by manual and segregated sales tax administration, vehicle registration and driving license records and regulatory and inspection functions still fully carried out by Government agencies.

Multiplicity of Laws

3.7 Multiple laws and agencies governing inter-state movement of goods and vehicles are major impediments. Following is the list of applicable Laws governing movement of vehicles and freight across the country:

3.7.1 Laws Governing Access Control to National Highways: (i) National Highways Act, 1956;(ii)National Highways Rules, 1957; (iii)The National Highways Authority of India, 1988;(iv)National Highways (Land and Traffic) Act, 2002 and (v)Highways Administration Rules, 2003.

3.7.2 Laws Governing Inter-state movement of goods(i)Central Sales Tax Act, 1956 ;(ii)Various State Sales Act/State VAT and (iii)Various Local/Municipal Acts governing Octroi and Entry Tax

3.7.3 Laws Governing Inter-state movement of Vehicles (i) The Motor Vehicle Act (MVA), 1988 ;(ii)The Central Motor Vehicle Rules (CMVR), 1989 (Amended in 1994, 2000 and in 2002) and;(iii)Various State Motor Vehicles Act, 1989. The various sections/provisions of MVA relate to regulation of safety/quality, axle load, emissions, etc.

Barriers to Inter-State Freight Movement

Regulatory Regime for Goods

3.8 The regulatory regime for goods is more complex than regulating trucking operations. The regulatory regime for goods is commodity and location specific. In the event of any missing link in the multiple commodity carriers, detention of the carrier is inevitable. The Centre, along with State Governments, is empowered to enact laws pertaining to goods. Some of the regulations governing movement of goods across States are: Essential Commodities Act, 1955 with its emphasis on distribution rather than facilitating supplies; Indian Forests Act, 1927 which empowers the Union and State Governments to make laws and regulations to regulate transit of timber and other forest produce; cumbersome dispute resolution and both transport-specific and commodity-specific fiscal regime.

Cost of Check posts on inter state trade

3.9 Check Posts imposes the following economic costs: (a)Surveillance and enforcement costs (operational cost); (b)Cost of Compliance (time related VOC and cargo holding costs) and (c)Cost of Externalities (congestion at check posts imposes cost on other vehicular traffic leading to loss of time distance related VOC and value of Travel Time on the passenger vehicles).

3.10 The enormous economic cost imposed by the check post system has been vividly brought out in Grand Trunk Road Improvement Project (GTRIP, 2006). It shows that the present check post system leads to delays in road freight movement. The economic cost of such delay is estimated at a minimum of Rs. 3,200 Crore and a maximum of Rs. 4,300 Crore for the year 2004 which progressively goes up to Rs 60,168 crore by 2017. With one Billion people in

India, annual economic loss on account of the check post system is Rs. 32 per capita, at the minimum in 2004.

3.11 Suggestions and Recommendations towards barrier free freight and Passenger movement

(I) Measures to promote seamless freight and passenger movement across states

a) Integrate Tax Administration with inter state road freight and passenger movement through online communication network system at national, regional and local level.

b) Adopt concept of “Green Channel” for single destination container cargo. Initially high value freight and sensitive commodities could be brought under its ambit.

c) Adopt “Single Window Clearance System” for all authorized charges/clearances both at origin and at check post.

d) Abolish requirement of a transit pass.

e) Abolish octroi/entry tax.

(II) Suggestions Relating to Movement of Goods Vehicles

a) The color of truck number plate of inter state vehicles should be different from the intra state vehicles. This will help segregate goods vehicle and reduce the intermediate checking of inter state freight movement.

b) For enhancing inter state road transport efficiency following amendments to existing MV Act are suggested. (1) Rule 88 of the MV Rules, 1989, Sub rule (2) for encouraging the use of MAV upto 20 years. 2. Repealing Section 158 of MVA for limiting police powers for checking vehicle documents without the preliminary requirement at Commission of any offence.

c) Introduce National permit system which does not require any endorsement by States. The revenue can be shared by all concerned states.

(III) Suggestions relating to taxation of inter state freight movement

a) Replace various road transport related taxes/levies (road tax, goods tax, passenger tax) etc. by a single composite tax. These will both reduce collection cost and compliance cost of vehicle owners/operators;

b) Phase out Central Sales Tax;

c) Provide tax credit for the inter-state movement of goods under State VAT.

Motor Vehicle Taxation

3.12 Taxation of road transport has two purposes: to charge users for the costs they impose on the road system and on other users (marginal costs) and to raise revenues for the government (pure taxation).

The existing tax structure for commercial vehicles shows wide variations among States. There are different bases for computation and different rates, leading to differing incidence of taxes per vehicle in different States. In fact, it is difficult to make comparisons of rates levied on different types of vehicles across States due:(i) different classification principles for the taxation of vehicles in different States;(ii) variations in the application of 'lifetime' and annual tax rates to vehicle categories(iii) use of specific and ad valorem rates and;(iv) multiplicity of rates. Inter-State comparisons are thus somewhat difficult.

3.13 Revenue significance of Motor Vehicle Taxes and Check Posts

- The share of Motor Vehicle Tax (MVT) in total tax revenue of the States has risen from 3.8 per cent in 1993-94 to 4.5 per cent in 2003-04.

- During the decade (1993-94 to 2003-04) MVT has grown at a faster compound annual growth rate of 14.7 percent compared to 13.4 per cent and 11 per cent growth in sales tax and passenger and goods tax respectively.

- According to study carried out by GTRIP (Grand Trunk Road Improvement Project) Sales Tax Departments' check posts accounted for less than 1% of the revenues of the States in 2002-03.

- Check posts of the Transport Department accounted for about 5% of the revenue of State in 2002-03.

Despite its low contribution towards tax generation and the economic costs it imposes, the institution of check posts has remained firm. There is need to consider the necessity of check posts from a larger perspective of national cost benefit rather than narrow consideration of revenue generation.

Motor Vehicle Taxation: Suggestions and Recommendations

3.14 Suggestions Relating To Improvement of Motor Vehicle Taxation

1. It would be desirable to move towards advalorem taxation for motor vehicles in the interest of administrative simplicity, revenue buoyancy and in incidence. However, this may result in higher burden on MAV that ought to be taxed lightly vis-à-vis two axle trucks. This impact could be cushioned by according a concessional excise duty structure for MAV and articulated vehicles.
2. Keeping in view the road damage factor there is need to move vehicle taxation of goods vehicles in particular from gross vehicle weight to axle loads. The latter bears a close relation with road damage and will also encourage use of MAV.
3. Adopt simple motor vehicle taxation structure for stage carriages as per the seating capacity.

4. To facilitate free movement across states of personalized vehicles which are on “lifetime tax”, those which have paid taxes in one state could be treated as tax exempt by others.
5. Tax benefits should be extended only to vehicles specifically put to use for charitable purposes and not on ownership basis.

Emission/Pollution Control

3.15 Suggestions for Emission/Pollution Control

Keeping in view the proposed introduction of BS-IV emission norms there is need for clear and long term road map for facilitating smooth transition to higher emission norms. This calls for:

a) Well defined road map of transition to alternative fuels to facilitate technology up gradation;
b) Appropriate time lag between each successive stage of emission norms;
c) Modernize pollution control so as to reduce manual intervention, facilitate storage and retrieval of data for policy analysis and;
d) Make inspection and certification mandatory of all motor vehicles and compulsory retirement of vehicles which do not obtain road worthiness certificate.

Research & Development to improve vehicle efficiency

3.16 Suggestions for R&D to improve vehicle efficiency

R&D efforts should focus on following aspects:

a) Futuristic Bus Body Design with emphasis on energy conservation and eco friendly material;
b) Propulsion technology for use of hybrid cells, bio fuels, alternate energy;
c) Development of appropriate transmission systems suitable for urban driving condition and;

d) Create a fund with a provision of Rs. 100 crore dedicated for R&D effort in the Road Transport Sector during the 11th Plan.

Fleet Modernisation

3.17 Suggestions to promote fleet modernisation

Urgent need to modernize vehicles (mainly goods carriages) in use in the interest of environmental protection, fuel economy, safety and lower running costs. This would require putting in place a mechanism to encourage owners of over aged vehicles (beyond a certain cut off date) to surrender their vehicles in exchange for new or younger vehicles. To facilitate this process, a Special Purpose Vehicle with fixed life need to be created to provide wherewithal along with a package of fiscal incentives to incentivise the process.

Chapter- IV

Recommendations of the Sub-Group on Overloading & Implementation of Inspection & Maintenance Systems (Interim Report)

4.1 In India, road pavements are designed as per IRC: 37-2001. One of the key factors in this design is standard axle load repetition during the design life of the pavement. Equivalency factor in terms of damages to the pavement varies approximately with fourth power of standard axle load. For example if axle load is twice that of standard axle load, the equivalency factors is 16. As the overloading increases, damages to road increase exponentially.

4.2 The Vehicle Damage Factor (VDF) is a multiplier to convert the number of commercial vehicles of different axle loads and axle configuration to the number of standard axle repetitions. The equivalent axle load factor (EALF) defines the damage per pass to a pavement relative to the damage caused by a standard axle load (8.16 tonne). The Subgroup has recommended following indicative values of VDF to be used.

Initial traffic volume in terms of number of commercial vehicles per day	Rolling/Plain Terrain	Hilly Terrain
0-150	1.5	0.5
150-1500	3.5	1.5
More than 1500	4.5	2.5

Even if the load carried by the various commercial vehicles is within the permissible limits, the VDF would be 0.59 for LCV, 2.67 for Trucks/buses and 2.77 for multi-axle vehicle (with front single axle of 6 tonne and rear tandem axle of 19 tonne).Overloading results in higher VDF and thicker pavement

Even when, the pavement has been designed as per actual load survey, if overloading is checked, the longevity of the pavement will increase and requirement for maintenance will reduce.

Overloading has detrimental effect on service life of the pavement and results in increased maintenance It also results in higher road user cost, besides increase in pollution level. It is also a potential hazard not only from safety consideration but may lead to accidents. The amount of damage caused due to overloading to the road infrastructure and the life expectancy of the road far outweighs any short term again.

Overloading of trucks to the extent of 200-300% in goods vehicles is often reported. Almost every stake holder in sector of road transport except consignors is against such overloading and yet the practice is rampant. The general perception of the vehicle operators is that they would not be inconvenienced in case the existing limits of permissible axle loads and GVWs(Gross Vehicle Weight) are not enhanced. Generally, the operators/contractors of transport vehicles mobilize the vehicles from third party, who are the owners of the vehicle. Therefore, such Contractors per-se cannot be considered as a stakeholder, because eventually the vehicle owner is held responsible in cases of overloading. The Truck Owners associations generally feel that overloading increases their vehicle operating cost and reduces demand for trucks. Some of them also feel that it is they who have to bear the brunt and penal consequences of plying of overloaded vehicle, which is although done at the behest of Consignors.

Invoking their power of compounding under Section 200 of MV Act, many States notified graded fines for compounding the offence of overloading. However, such fines are much lesser than that prescribed under section 194 of MV Act. In the process of earning revenue in such manner there is very little concern for the damage caused to the road infrastructure. The Centre, however,

maintained all the while that off-loading of overloaded cargo was pre-requisite even for compounding the fine. Some deterrent actions taken in this regard, such as temporary suspension of Centre's grant to concerned states etc. were also resorted to.

The Sub-group is of the firm opinion that any increase in permissible axle load limits and GVWs should be discouraged keeping in view its overall resultant demerits, which is likely to far outweigh the small savings in transportation cost.

Since road design parameters and load bearing capacity limit the safe axle weight, there is a need to encourage use of multi-axle vehicles. The existing rules permit GVW up to 25 tons for a 3 axle rigid vehicle and 49 tons for tractor-trailer combination of a 3 axle tractor and 3 axle trailers. It is necessary to modernize the commercial vehicle fleet by switching over to progressive use of multi-axle vehicles.

4.3 Measures to Control Overloading

- Increase in permissible axle load and GVWs should be discouraged
- Discourage modification in design (tyre size, no. of springs etc.) to suit overloading by incorporating essential features in Registration Certificate
- Install weigh in motion (WIM) at select points on National Highways, Inter State Check Posts, industrial areas etc on a selective basis installation of 100 WIM costing Rs. 150 crore is recommended in Eleventh Plan Put in place electronic network for filing bill of loadings. This will generate information for monitoring
- Need for enforcement at source of loading [ports, industrial areas etc.]
- Repeated lapses under Section 199 of MVA should attract deregistration of such offending companies
- With a view to implement Supreme Court directions on overloading following measures are suggested(a) Measures for offloading & handling

excess load; (b) Infrastructure for its implementation and; (c) Financing & implementation of the policy

Inspection & Certification (I&C)

4.4 Existing system provides for fitness certificate. As per CMV Rule No. 62 all transport vehicles should carry a fitness certificate, which is to be renewed every year. However, Vehicle inspection system is inadequate due to large number of vehicles & few inspection units; centralised nature of inspection and; largely unorganized Vehicle maintenance & repairs

4.5 Suggestion for improving Inspection & Certification

a) I&C regime should cover both safety & emission norms and combine visual & automated tests and
b) Govt. should act as a regulator for I&C:(a) I&C may be run by the private sector;
c) Central Government may frame a regulatory structure specifying lists of tests to be conducted, items to be inspected, frequency of specified tests, vehicle inspection fees defining criterion for selecting of private vehicle inspection centres; (b) Subject I&C centres to performance audit and (c) Link registration/insurance of vehicles to I&C
d) Selection of cities for I&C should be in conformity with Auto Fuel Policy. To begin with I&C may be introduced in 11 cities with focus on commercial vehicles (Delhi/NCR, Kolkotta, Bangalore, Ahmedabad, Pune, Kanpur, Mumbai, Chennai, Hyderabad, Surat and Agra)
e) Subject vehicle repair workshops to certification (Chap VI Section E p15)
f) To begin with only transport vehicles of more than 9 yrs old in 6 metros be brought under automated I&C system

The Subgroup has indicated total Fund requirement of operating I&C Centres in six metros at Rs. 272 crore during 11th Five Year Plan. These centres may be built on BOT basis. A Budget provision of Rs. 100 crore for 11th Five Year Plan is suggested.

Chapter- V

Recommendations of the Sub-Group on Human Resource Development

5.1 Motor driver is the most vital human resource from the point of view of safety, fuel economy and operational efficiency. The total manpower requirement related to road transport sector is estimated to grow from 12.83 million in 2007 to 17.64 million in 2012 as indicated in the Table below. It is noteworthy that almost 82% of the requirement consists of drivers with almost four-fifth being absorbed in Goods Vehicles category.

Table 14: Estimates of Manpower Requirement during Eleventh Five Year Plan (2007- 2012)

Year	Bus								Goods Vehicles		
	Public Sector				Private Sector				HCV/LCV		
	Drivers	Conductors	Others	Total	Drivers	Conductors	Others	Total	Drivers	Others	Total
2007	297992	297992	37590	**953574**	1651130	825565	1651133	**4127824**	8552086	4276043	**12828129**
2008	303074	303074	363689	**969838**	1780041	890021	1780041	**4450103**	9115018	4557509	**13672528**
2009	308244	308244	369892	**986380**	1919094	959547	1919094	**479736**	9715005	4857503	**14572508**
2010	313501	313501	376201	**1003204**	2069030	1034515	2069030	**5172576**	10354486	5177243	**15531729**
2011	318848	318848	382618	**1020314**	2230722	1115361	2230722	**5576804**	11036060	5518030	**16554090**
2012	324286	324286	389144	**1037717**	2405090	1202545	2405090	**6012726**	11762497	5881249	**17643746**
Note: Basis of estimation-Public sector-2.5 Nos. of drivers, 2.5 Nos. of conductors and 3 Nos of other staff per bus; in case of private sector requirement is placed at 2 nos. of drivers, 1 no of conductor and 2 nos. of other staff per bus											

The existing provision of MVA regarding driver training schools neither prescribe the infrastructure, equipments etc. nor provide provision for inspection and supervision for quality control. With a view to enhance the quality of driving following initiatives have been recommended by the Sub-Group

5.2 Recommendations of the Sub-Group

a) Provide requisite driver training infrastructure across the country. A three tier structure for driver training schools/institutions is suggested: Tier A: Premier driving training institution having training and evaluation tracks simulators etc. One for each State and two in bigger States based on vehicular population, area, etc. Besides, these institutions would be authorized for evaluation of applicants and compliance of standards. Tier B: These would have essential evaluation tracks, be set up over 5 acres of land and assist local RTO. Tier C: Motor Driver Training School which do not come under 'A' and 'B' category. Such schools would be given time to upgrade their facilities to conform to revised norms

b) The MVA need to be amended to provide for inspection of motor driving training schools and ensure compliance with prescribed standards

c) A committee comprising of Transport Secretaries and eminent experts need to be set up to reexamine and recommend the norms for staffing and manning transport department. The Committee could also be asked list out activities where public private participation can be introduced or activities which could be fully outsourced

d) Identify and finance Industrial Training Institutions (ITIs) for imparting motor driving training as 'trade' so as to create a pool of competent driver training instructors

e) Earmark 2-3 per cent of the revenue earned from transport sector for up gradation and training of the skills of their personnel

Chapter- VI

Recommendations of the Sub-Group of Development of Road Transport in North Eastern Region

6.1 The North East Region (NER) of India consists of the states of Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura. The region has international border with China in the north, Myanmar in the east, Bangladesh in the south-west and Bhutan in the north-west. The region is connected to rest of the country through a narrow land corridor having an approximate width of 33 km on the eastern side and 21 km on the western side popularly known as the “chicken neck” or the “Siliguri neck”.

6.2 Road transportation provides the arterial network for transportation in the North Eastern region of India in the absence of viable alternate mode of transport and hilly terrain. However, road transportation is constrained both by inadequate quality and magnitude of the road network. The average road length at 32 km/100 sq km for the North Eastern region is one third of road length per 100 sq km for India. Also a little less than one third of the roads are black topped and almost 69% of the roads are graveled. (Table 15).

Table 15: Length of Roads in North-East India (in Kms)

State	Blacktopped	Graveled	Total	Length/100 sq km
Arunachal Pradesh	5.550 (37.1)	9,400 (62.9)	14,950	17.85
Assam	5,534 (15.8)	29,595 (84.2)	35,129	44.79
Manipur	4,110 (69.9)	1,768 (30.1)	5,878	26.33
Meghalaya	3,110 (55.3)	2,514 (44.7)	5,624	25.07
Mizoram	1,760 (36.3)	3,090 (63.7)	4,850	22.99
Nagaland	1,984 (22.9)	6,708 (77.5)	8,656	52.29
Sikkim	NA	NA	2,873	40.48
Tripura	3,693 (53.7)	3,180 (46.3)	6,873	65.46
Total	**25,705 (31.4)**	**56,255 (68.6)**	**81,960**	**32.3**

All India average of road length per 100 sq km area is-100 km per 100 sq km.
Source: Basic Statistics of North Eastern Region (2005), NEC, Shillong

6.3 The region accounts for 3.75 percent of India's population and has population density (persons/sq.km) of 149 which is less than half of India's population density of 313. Besides, it has low degree of urbanisation (12% compared to 25 for all India). Also proportion of persons living below poverty line in the NER at 34.3 % is much higher compared to national figure of 26.1%. Roads constitute the principal modes of transport and connectivity. Even the State capitals/ towns are not connected by two-lane roads. Passenger road transport is mainly provided by State Road Transport Undertaking and goods transport is generally carried by light commercial vehicles. However, there is general lack of bus infrastructure. The available strength of buses with SRTUs is inadequate. This has resulted in rapid increase in personalized forms of transport.

Recommendations to Improve Transport Connectivity in NER

6.4 With a view to Improve intra-regional transport connectivity in the NE region following measures are suggested:

a) Identify and prepare data points where traffic congestion/disruption occur frequently.

b) Strengthen bus mode by: making subsidized loans or alternatively Providing concession.

c) Identify and create transshipment centres. The locations may be identified by a Task Force. Subgroup has identified nine locations/centres which include Guwahati, Tinsukhiya, Dibrugarh, Jorhat, Silchar, Dimapur, Agartala, Tezpur and Shillong.

d) Simplify procedures at check posts which are gateway to North East.

e) Driver Trainings Schools need to be created (a) At least 2 for each NE States and;(b) 5 in case of Assam.

f) Strict enforcement of loads given the hilly terrain.

g) To check emission levels of vehicles, Vehicular Smoke Testing Machine need to be provided at important locations.

h) Interlink regional & District Transport Authorities through computer network.

i) Restrict use of bus horns/sirens.

j) Provide liberal grant to buy equipment for speedy evacuation of victims & vehicles in the NE region.

k) Need for setting up a Regional Transport Authority to encourage hassle free inter-state movement of vehicles.

l) Complement Road Transport by waterways.

Chapter-VII

Recommendations of the Sub-Group on Non Motorised Transport (NMT)

7.1 Non motorized transport (NMT) is heterogeneous in character comprising pedestrian, bicycles, cycle rickshaws, animal drawn vehicles, push carts etc. However, no reliable all India data is available to make an accurate assessment of Non Motorised Transport. Traffic flow data on Non Motorised Transport which is available is fragmentary and dated. Further users of NMT belong to lower income groups and are exposed to relatively higher accident risk.

7.2 No regular data is available on freight/passenger traffic by non motorized road transport. The Traffic and Transportation flow study carried out by CRRI (1986) in Delhi and in other important 14 cities had revealed that the share of (a) non motorized vehicle (animal drawn) varied from 1 to 1.6%;(b) cycle rickshaws from 10 % (Chandigarh) to 22% (Moradabad & Varanasi) ;(c) proportion of cycles plying on roads vary from a low of 10% (Mangalore) to 53% (Lucknow). On an average slow moving vehicles in most of the Indian cities were found to be in the range of 20 to 30 percent of the total traffic. Besides, the share of non-motorised vehicles on rural highway also constituted a substantial proportion comprising 15 to 30% particularly in the peripheral areas of town and cities.

7.3 The RITES Report (Final Report, Traffic & Transportation Policies and Strategies in Urban Areas in India, Ministry of Urban Affairs and Employment, Government of India, 1998) provided data on share of walk trips in intra city transport in 21 sample cities. It showed that walk trips formed a significant part of total trips and fell in the range 12 % (Gurvayur and Kolkotta) to 50% (Shimla) across all cities. Hilly urban areas have even higher share of walk trips.

7.4 The recommendation of the Subgroup are as follows

a) Bias in favour of motorized transport need to be corrected. Allocate 25% of Road budget for Non Motorised Transport.
b) Need for study to assess status of Non Motorised Transport.
c) Innovative approaches for separating pedestrians from road traffic should be developed.
d) Public should be made aware of benefits of Non Motorised Transport, viz, bicycling and walking.
e) Promote R&D for Non Motorised Transport at Central and State level. A Bicycle Master Plan for Metros with a Rs. 30 Crore Budget for design & development is suggested.
f) Make users of Non Motorised Transport visible through use of reflectors, lamps, colours etc.
g) Enact safety code for Non Motorised Transport.
h) Promote road design/layout which has a beneficial impact on the road users. A case in point is segregation of motorized and Non Motorised Transport traffic as in Bangladesh

Chapter- VIII

Recommendations of the Sub-Group on Road Safety

8.1 Occurrence of accidents and road fatalities is an outcome of interplay of a number of factors which among others include length of road network, vehicle population, human population and adherence/enforcement of road safety regulations. Road users in India are heterogeneous in nature, ranging from pedestrians, animal driven carts, cycles, to multi-axle commercial vehicles etc. Higher exposure to road accident risk may be mitigated by behavioural standards (adherence to road safety regulations) and policy intervention (enforcement). Accidents carry high economic and social costs which are not easy to measure. The cost of road accidents is estimated in the range 1 to 3 per cent of GDP as per the various studies.

Growth in accidents, injuries, fatalities, motor vehicles & road network

8.2 Between 1970 and 2004 the number of accidents has quadrupled (1.1 lakh in 1970 to 4.3 lakh in 2004) with more than 6 fold increase in injuries (70,100 in 1970 to 4, 64,521 in 2004) and fatalities (14,500 in 1970 to 92,618 in 2004). National Highways which constitute less than 2 percent of total road network account for 30.3 percent of total road accidents and 37.5 percent of total fatalities occurring on Indian roads in 2004.

Table 16: Growth in Select Accident Related Parameters: Compound Annual Growth Rate (CAGR) in per cent

Period	Total number				In Kilometre
	Accidents	Injuries	Fatalities	Registered vehicles	Road Length
1980/1970	3.0	4.5	5.2	12.4	2.3
1990/1980	6.3	8.4	8.5	15.5	2.9
2000/1990	3.3	5.0	3.8	9.8	5.3
2004/1990	3.0	4.7	3.9	10.1*	4.6@

Note:*- refers to CAGR period 2003/1990; @ refers to 2002/1990.

The CAGR (Compound annual growth rate) in number of accidents, injuries, fatalities and motor vehicles (registered) have moderated during 1990s (1990-2000 and 1990-2004) after a spurt during the 1980s (1980 to 1990) as reflected in Table: 16. Moderation in the growth of accidents, fatalities and injuries during 1990s has taken place in the backdrop of lower growth in the number of registered vehicles and step up in the growth of road network.

Profile of road accidents

8.3 The total number of accidents reported by all the States/ Union Territories (UTs) in the year 2004 was 4, 29, 910 of which 79357 or 18.5% of total accidents were fatal; the number of persons killed in the accidents were 92618 (i.e. an average of one fatality per 4.6 accidents) and the number of persons injured at 464521 exceeded total number of accidents (4, 29,910) in 2004. The total number of road accidents, injuries and deaths increased at an annual average rate of 2.4 %, 4.1 % and 3.9 % respectively during the years 2001 and 2004.The proportion of fatal accidents in the total accidents has increased since 2001 as Table 17 reflects.

Table 17: Number of Accidents and Number of Persons Involved, 2001 to 2004

YEAR	Number of Accidents		Number of Persons	
	Total	Fatal	Killed	Injured
2001	405637	71219 (17.6)	80888	405216
2002	407497	73650 (18.1)	84674	408711
2003	406726	73589 (18.1)	85998	435122
2004 (P)	429910	79357 (18.5)	92618	464521

(P): Provisional; Source: Information supplied by States/UTs; figures within parenthesis indicate share of fatal accidents (i.e. involving death) to total accidents.

The Tables(18 & 19) below constructed from the available data shows that though the road length of National Highways is around 2% of the total road length of the country, the persons killed on National Highways were about two-fifth of the total No of Persons Killed. Similarly the State Highway road length is only about 5.5% of the total road length in the country but the persons killed in the road accidents were more than a quarter of total road deaths. Thus about two-thirds of the persons are killed in these high capacity National Highways and

State Highways constituting only about 7% of the total road length in the country (Table18).

Table 18 : Number of Fatalities as per the Categorisation of Roads			
	2002	**2003**	**2004**
No. of Persons Killed on National & Express Highways	33621	33153	34723*
No. of Persons Killed on State Highways	23001	24246	24926*
No. of Persons Killed on Other Roads	28052	28599	32969*
Total No of persons Killed in All Roads	84674	85998	92618*
Total Length of National/Express Highways	58,112 km	57,737 km*	52,010 km *
Total Length of State Highways	1,37,711 km	1,37,217 km *	1,34,106 km *
Total Length of other Roads	22,56,753 km	22,66,340 km *	23,01,093 km *
Total Length of Roads in India	24,52,576 km	24,61,294 km *	24,87,209 km *
Note:* denotes provisional			

Table 19 : *Share of various categories of Roads in Total Fatalities and in Total Road Length*

Sl.No	*Type of Road*	*2003*	*2004*	**2005**
1.	% killed on NH	39.7	38.5	37.5
	% of NH to total Road length	2.37	2.34	2.09
2.	% killed on SH	27.1	28.2	27
	% of SH to total Road length	5.61	5.57	5.39
3.	% killed on NH &SH	66.8	66.7	64.4
	% of NH &SH to total Road length	7.98	7.92	7.48
4.	% killed on other Roads	33.1		
	% of other roads to total Road length	92.00	33.2 92.07	35.6 92.51

The cause-wise number of persons killed in road accidents indicates that almost three-fourths of the accidents were due to driver's fault during the period

in 2004 for the reporting States/UTs. Accidents attributed to mechanical fault were only 2% amongst the causes. The pedestrian's fault works out to 1 to 2. The number of persons killed in the road accidents cause-wise are given in the table 20

Table 20 : No of Persons Killed in Road Accidents in India (Cause-wise)

Sl.No.	Cause	2002	2003	2004*
1	Fault of Driver	62830 (74)	58961 (69)	69631 (75)
2	Fault of Cyclist	1361 (2)	1193 (1)	979 (1)
3	Fault of Pedestrian	1875 (2)	1451 (2)	1363 (1)
4	Mechanical Defect	1909 (2)	1967 (2)	2015 (2)
5	Bad Road	936 (1)	1224 (1)	1506 (2)
6	Other Causes	15763 (19)	21202 (25)	17124 (19)
7	Total	84755 (100)	85998 (100)	92618 (100)

Note: Figures within parenthesis indicate the percentage share attributed to the relevant cause; P-Provisional

The data on accidents and fatalities in road accidents across major metros the data reveals that Kolkata, Delhi, Chennai and Mumbai accounted for more than 50 % of total road accidents and about 40% in total number of persons killed in during 2002, 2003 and 2004. However, the share of these four metros in total accidents has declined from 62% in 2001 to 53% in 2004. Similarly, the share of these four metros in total number of persons killed in road accidents has also fallen from 51% in 2001 to 40% in 2004. It is noteworthy that Delhi accounted for more than 1/5th of total number of persons killed in metros. However, its share has fallen from 26.6 % in 2001 to 22 .1 in 2004.

Table 21: Road Accidents in Four major Metropolitan Cities of India										
Year	**No. of Road Accidents/% Share of all metros**					**No. of Persons Killed in road accidents / % share of all metros**				
	C	**D**	**K**	**M**	**Total No. of Road Accidents in All Metro Cities**	**C**	**D**	**K**	**M**	**Total No. of persons killed in Road Accidents in All Metro Cities**
2001	5280 (6.4)	9344 (11.3)	10555 (12.7)	26329 (31.7)	3012***** (100)	708 (10.2)	1842 (26.6)	440 (6.4)	543 (7.8)	6927***** (100)
2002	3682 (4.4)	8699 (10.3)	8592 (10.2)	25470 (30.1)	84569**$** (100)	500 (6.3)	1696 (21.5)	457 (5.8)	475 (6.0)	7877**$** (100)
2003	4243 (4.9)	8864 (10.2)	8737 (10.1)	25162 (29.1)	86611**$** (100)	567 (6.9)	1801 (21.9)	442 (5.4)	394 (4.8)	8225**$** (100)
2004	4890 (6.0)	9087 (11.1)	3751 (4.6)	25677 (31.3)	82013# (100)	605 (7.0)	1907 (22.1)	420 (4.9)	534 (6.2)	8623 # (100)
2005	4499 (7.1)	9351 (14.7)	NA	NA	63450**€** (100)	493 (7.7)	1862 (29.1)	NA	NA	6399**€** (100)
Note:C for Chennai; D for Delhi; K for Kolkotta and M for Mumbai * Reporting Cities 17; $ Reporting Cities 22; #Reporting Cities 21; € Reporting Cities 16										

No. of Deaths and Injuries: Estimates

8.4 Sub Group Report on Road Safety is of the view that the actual number of injuries could be 15 to 20 times the number of deaths. It has estimated the number of deaths, serious and minor injuries projected in the year 2005 and 2015 are as under:

Year	No. of Deaths	No. of Serious Injuries	No. of Minor Injuries
2005	1,10,300	22,06,000	77,21,000
2015	1,54,600	30,92,000	1,08,22,000

The Subgroup has concluded that approximately 110,000 deaths, 2.2 million hospitalizations and 7.7 million minor injuries would have occurred during the year 2005 in India, meaning thereby that everyday 342 persons would have died and 6900 injured persons would have been hospitalized in India.

Managing Road Safety – Institutional Arrangement

8.5 The existing Road Safety institutional set up is Multi-tier. At Centre there are 3 agencies (i) MOSRTH – Apex Ministry guiding road safety; (ii) National Road Safety Council (NRSC) apex body for road safety and (iii) Transport Development Council. It is a forum for the determination of common policies for the development of road sector. At the State level there is (i) State Transport Department and (ii) State Road Safety Council (SRSC) – provided for in MV Act. Besides, there are host of organizations and agencies involved which include the Police, IRC, CRRI, CIRT, NGOs and academic institutes.

8.6 Enforcement of traffic rules on roads at the State level is the responsibility of police authorities or in some cases that of the Transport Department. Accident victims need immediate transfer to the nearest medical aid centre for administering first-aid and the accident site needs to be quickly cleared for traffic. This calls for efficient coordination amongst the Health Department, Police Department and Transport Department. Similarly, road design has also an impact on road safety. At present, development and maintenance of roads is generally looked after in States by State PWDs (Department of Road Transport & Highways/National Highway Authority of India in case of National Highways). Any strategy to improve road safety situation, therefore, has to be necessarily a multi-pronged programme broadly encompassing Education, Medical care, Engineering and Enforcement aspects. Thus, the coordinated efforts of various agencies involved in transport, traffic management, road engineering, road development and maintenance, accident care (trauma care/rescue) are needed to reduce accidents and mortality. Ideally, there should be one single agency to take care of all these aspects for effective reduction in accidents/fatalities.

8.7 Recommendations of Subgroup on Road Safety

a) Treat road accidents and fatalities as public health issue
b) The Subgroup on Road Safety has endorsed the decision of the Government to set up National Road Safety Board (NRSB). Such a body should be multidisciplinary with sufficient autonomy and funds
c) States to set up State Road Safety (SRSB) on similar lines with appropriate coordination mechanism with NRSB
d) Create position for road safety professionals in organizations such as Road Construction Departments, Municipalities, police etc.
e) Establish Regional Centres of Excellence in various aspects of road safety
f) Train students in technological institutions on all aspects of road safety
g) Review enforcement of traffic rules and regulations
h) Review and strengthen mechanism for accident data collection, analysis and dissemination of information

8.8 Recommendations to achieve reduction in road Accidents

With a view to reduce accidents, injuries and deaths during the 11th Five year Plan following additional measures has been recommended by the Subgroup on Road Safety.

a) Contracts for construction/maintenance of National Highways and State Highways must include road safety audits as compulsory activity
b) Facilities must be provided for vulnerable road users on all urban arterial roads and traffic calming techniques on all roads
c) All urban and rural roadside furniture standards must be updated according to international best practice
d) Compulsory use of seat belts by motor vehicle occupants, helmet and day time running light by motorized two-wheeler riders

e) Extend ambit of vehicle safety regulation to vehicles not covered under it and adopt realistic safety standards within reasonable time frame
f) Road design and traffic management along with specifications need to be reviewed to follow the best practices in the world

8.9 In addition, the Sub Group on Policy has also suggested measures to reduce number of fatalities to during the course of 11th Five Year Plan which amongst others include.

1. Road Safety Audit: The road safety audit on all National Highways should be made mandatory at different stages of the projects such as feasibility stage, preliminary design stage, detailed engineering stage, pre and post opening stage of the road facility. The deficiencies identified at different stages should be rectified in that stage only.
2. Highway patrolling system along the entire National Highways should be made mandatory in order to enhance safety on roads.
3. Establishment of Trauma Care Centre: Substantial number of fatalities can be reduced if victims are attended within the reasonable time immediately after the accident. It is therefore essential to establish trauma care centers at appropriate locations all along the National Highway network.
4. Sensitization workshops for road users should be held regularly to educate them about the importance of road safety.
5. All accident prone spots along the National Highways network should be identified and proper engineering measures in terms of improvement of road geometrics etc. should be taken.
6. At least 50 % of the fees generated by way of fines on account of traffic rule violations be earmarked for road safety.

Chapter- IX

Report of the Sub-Group on State Road Transport Undertakings (SRTUs)

Snap view of State Road Transport Undertakings (SRTUs)

9.1 At present there are 53 State Road Transport Undertakings (SRTUS) having a total number of 1.13 lakh buses of varying fleet size. The reporting SRTUs carried more than 6 crore passengers per day and performed about 449 billion passenger Kms. As at the end of fiscal year 2003-04, the country had about 73 million registered automobiles of which two wheelers and cars constituted over 81 per cent of the vehicles in the country. The share of buses in total registered vehicles has declined from 11.1 % in 1951 to 1.1 percent even though they accounted for about 50% of all journeys performed by road. The erosion in the role of buses in public transport system is also reflected in the fact that while the vehicle population grew at a compound annual growth rate (CAGR) of close to 10 % number of buses grew by less than 7 per cent and buses owned by the SRTUs by less than 1 per cent during 1991 to 2004. As a result there has been a rapid erosion of share of SRTUs buses in the total number of buses from more than 45 % in 1976 to around 20 % in 2005. The proliferation in the personalized mode of transport has led to enormous problems of traffic congestion and pollution. While rail based public transport can be a solution to metro cities in the long run, bus transport alone offers a viable cost effective alternative.

Need for support for the Public Transport (Bus Mode)

9.2 There are sound economic and environmental factors which make it imperative to support the bus transport system to meet the rapidly growing demand for passenger transport services. On an average, energy consumption per passenger km by bus is the least and that by car highest amongst road based modes of passenger transport. Bus transport makes the

most optimum use of the available road space and fossil fuel by transporting the maximum number of people per unit of road space and passenger Kms/litre. On an average, a car consumes nearly 6 times more energy than an average bus, while two wheelers consume about 2.5 times and three-wheelers 4.7 times more energy in terms of per passenger km.

9.3 Given the positive externalities (lower vehicle congestion and pollution vis-à-vis personalized motor transport) associated with Public Bus Road Transport System it would be imperative to have a policy regime conducive towards financial viability of SRTUs. This needs to be complemented by use price based instruments like higher parking fees, higher excise on personalized vehicles etc which discourage use of personalized transport and increase tax on personalised vehicles.

Finances of SRTUs

9.4 The unsatisfactory state of finances of SRTUS as reflected in Table: 22 is the outcome of a number of factors which are both endogenous (internal to the SRTUs and can be rectified by the decisions of SRTUs) and exogenous (outside the control of SRTUs which are either policy induced (high MVT, excise, rise in petrol/diesel prices).

Table 22 : Consolidated Finances of State Road Transport Undertakings (SRTUs) (in Rs Crore)						
	2000-01	**2001-02**	**2002-03**	**2003-04**	**2004-05**	**2005-06**
1. Total Revenue	14413	14741	16618	18112	19509	17073
2. Total Cost	17272	18233	18143	19582	21395	19733
Net cost due to Concessions *	(666)	(685)	(895)	(617)	(268)	NA
Accident Compensation	(164)	(168)	(233)	(236)	(253)	NA
3. Surplus before tax	-326	-557	116	341	-41	-929
4. Profit/loss (net)	-1946	-2193	-1525	-1470	-1887	-2660
5.Total capital Investment	8200	9489	9196	10464	11021	NA
Source: Central Institute of Road Transport;* Data coverage about 82 %; Net cost due concessions is burden due to concessions minus subsidy/reimbursement from Government.						

9.5 The aggregate financial performance of SRTUs in terms of their operational domain rural versus urban are given in Tables 23, 24 & 25 respectively. It may be noted that at an aggregate level there has been more than two fold increase in the net losses incurred by the reporting SRTUs from Rs. 658 crore in 1992-93 to Rs. 1470 crore in 2003-04. At an aggregate level, these mounting losses reflect the fact that while revenues rose by a factor of 2.6, operational costs which constitute more than four-fifth of the total cost rose almost three fold between 1992-93 to 2003-04. The cost structure reveals an element of rigidity with manpower costs accounting for around two-fifth of the total costs and material costs (mainly fuel and spares) a little more than one-third of the total costs.

Table 23 : Cost Structure of SRTUs (Rs Crore)					
Revenue/Cost	1992-93	1995-96	2000-01	2002-03	2003-04
Revenue	6,968(91.37)	9,499(89.96)	15325.26(88.73)	16618.35(91.60)	18112.01 (92.49)
Personnel	2,936(38.50)	4,229(40.06)	7316.75(42.36)	7492.62(41.30)	7785.14 (39.75)
Material	2,462(32.29)	3,250(30.78)	5652.98(32.73)	6159.77(33.95)	6874.06 (35.10)
Adm. Expenses	364(4.78)	634(6.00)	1202.65(6.96)	1148.39*(6.33)	1337.33(6.83)
Oper. Expenses	5,762(75.57)	8,113(76.84)	14172.38 (82.05)	14800.78 (81.58)	15996.53 (81.69)
Interest	467(6.12)	587(5.56)	569.48(3.30)	741.08(4.08)	818.50 (4.18)
Taxes	791(10.37)	1,135(10.75)	1620.93(9.38)	1640.60(9.04)	1810.26 (9.24)
Depreciation	606(7.94)	723(6.85)	909.23(5.26)	960.63(5.29)	956.47 (4.88)
Total Cost	7,626(100.00)	10,559(100.00)	17272(100.00)	18143.09(100.00)	19581.76 (100.00)
Net loss	658	1060	1946.46	1524.74	1469.75
Note: Operational expenses include personnel, material and administrative expenses ; Total cost is operational cost plus interest plus taxes plus depreciation; Figures within parenthesis indicated percentage in relation to the total cost * includes payment to hired/privately operated vehicles					

9.6 Financial performance viewed in terms of rural and urban operations reveal that the recovery rate (ratio of total revenue to total cost) has been maintained at close to 96% in case of rural SRTUs in comparison to far lower recovery rate for urban operations at around 77 percent. It is noteworthy that recovery rate has been consistently lower for urban operations vis-à-vis rural (moffusil) operations as Tables 24 & 25 bear out. This clearly shows that urban operations were sustained by higher injection of subsidy or budgetary support. The lower cost recovery on urban routes is the outcome of inability to make frequent fare adjustments in urban bus operations. Also there exist some other significant differences in the cost structure between urban and rural SRTUs as well. The manpower costs for urban operations have been quite high (more than two-fifth of the total and in some years more than half of the total costs) compared with rural operations where these have been less than 40% of the total costs. However, material costs have been typically higher for rural operations hovering around two fifth of the total costs compared to urban operation where these were in the range one fifth to one fourth of the total costs. The higher material costs on rural operations to some extent is the result of greater wear and tear on account of rider ship quality of rural roads.

Table 24 : Cost Structure of Urban SRTUs (Rs Crore)					
Revenue/Cost	1992-93	1995-96	2000-01	2002-03	2003-04
Revenue	811(71.71)	1,029(63.63)	2261.62(80.78)	2323.00(79.10)	2509.18 (76.70)
Personnel	508(44.94)	692(42.83)	1572.87(56.18)	1578.46(53.75)	1512.64 (46.23)
Material	249(21.99)	316(19.54)	631.79(22.56)	733.05(24.96)	894.15 (27.33)
Adm. Expenses	113(9.97)	183(11.34)	354.28(12.65)	150.92*(5.14)	273.9* (8.37)
Op Expenses	870(76.90)	1,191(73.71)	2558.94 (91.39)	2462.43(83.85)	2680.69 (81.94)
Interest	173(15.31)	310(19.19)	56.45(2.01)	252.84(8.61)	327.34 (10.0)
Taxes	30(2.69)	45(2.76)	83.49(2.98)	88.18(3.00)	113.44 (3.46)
Depreciation	58(5.10)	70(4.34)	100.76(3.60)	133.06(4.53)	149.84 (4.58)
Total Cost	1,131(100.00)	1,616(100.00)	2799.64(100.00)	2936.51(100.00)	3271.31 (100.00)
Net loss	320	588	538.02	613.51	762.13
Note: Operational expenses include personnel, material and administrative expenses ; Total cost is operational cost plus interest plus taxes plus depreciation; Figures within parenthesis indicated percentage in relation to the total cost * includes payment to hired/privately operated vehicles					

Table 25 : Cost Structure of Rural SRTUs (Rs.Crore)					
Revenue/Cost	1992-93	1995-96	2000-01	2002-03	2003-04
Revenue	6,043(95.22)	8,303(95.13)	12838.86(88.73)	14029.62(91.60)	15351.56 (95.92)
Personnel	2,372(37.37)	3,443(39.45)	5595.20(42.36)	5753.65(41.30)	6122.82 (38.25)
Material	2,159(34.02)	2,854(32.70)	4914.66(32.73)	5311.95(33.95)	5860.66 (36.62)
Adm. Expenses	246(3.87)	443(5.08)	843.72(5.95)	989.79*(6.65)	1060.66* (6.62)
Op Expenses	4,776(75.26)	6,740(77.22)	11353.58 (81.03)	12055.39 (81.89)	13044.14 (81.51)
Interest	279(4.39)	271(3.11)	500.32(3.30)	474.7(4.08)	479.39 (2.99)
Taxes	757(11.92)	1,084(12.42)	1531.54(9.38)	1545.09(9.04)	1690.10 (10.56)
Depreciation	534(8.42)	634(7.26)	794.33(5.26)	804.84(5.29)	789.56 (4.93)
Total Cost	6,346(100.00)	8,729(100.00)	14179.77(100.00)	14880.02(100.00)	16003.19 (100.00)
Net loss	303	425	1340.91	850.40	651.63
Note: Operational expenses include personnel, material and administrative expenses ; Total cost is operational cost plus interest plus taxes plus depreciation; Figures within parenthesis indicated percentage in relation to the total cost * includes payment to hired/privately operated vehicles					

9.7 Apart from the cost structure there appears to be significant differences in the incidence of taxes between urban and rural operations. Urban bus operations not only receive higher subsidies to cover losses but are also subject to a far lower incidence of taxes around 3 per cent of the total cost compared to rural bus operation which bear the brunt of taxation with incidence of around 10%

or more in terms of total cost. This incidence of taxes seems to be incongruous given the higher per capita income levels and better access to public goods/facilities in urban areas.

Endogenous factors

Drop in occupancy ratio (i.e. average percentage of seats in a bus taken by passengers) of SRTUs from 71% in 1995-96 to 61% in 2004-05. This is an outcome of competition from other modes as well as quality of service. However, some SRTUs (notably BMTC) by upgrading and improving the quality of their services have succeeded in weaning away users from personalized mode in particular.

Low vehicle productivity (kms per day): Although vehicle productivity has improved from 270 in 1996-97 to 305 in 2004-05, it is still much below the best performing SRTUs (400 kms or more in TN SRTUs). At the other end there are SRTUs in North Eastern region with very low vehicle productivity (80 kms in case of Tripura).

Fleet Utilisation: Although fleet utilization has improved from 88% in 1995-96 to 92.1% in 2004-05, but it hides considerable variation across SRTUs which point towards scope for improving fleet utilization. For instance, fleet utilization was 99.5% in case of APSRTC and a low of 51% in case of Mizoram SRTU which is a departmental undertaking.

Over staffing: This is reflected in high staff to bus ratio amongst SRTUs. Although it has dropped from 8.1 in 1995-96 to 6.9 in 2004-05 but is still much above the optimum range of staff to bus ratio 5.5 to 6. Besides it varies from a high of 10 in some North Eastern States to 5.4 in Rajasthan which points towards considerable scope for man power rationalization.

Fuel efficiency: Fuel efficiency is a function of age of bus fleet, maintenance, competence of drivers and terrain. Although over all fuel efficiency in terms of km per litre has improved from around 4.4 in 1995-96 to 4.8 in 2004-05 there still

seems to be a lot of scope for improvement. At present there are many SRTUs which have attained fuel efficiency of 5 km per litre.

Structural rigidity in the cost structure of STRUs : Fuel cost and man power cost accounted for 36% and 40% of the total cost respectively in 2005-06. Over the past decade both fuel cost and staff cost have risen at the rate of about 15% and close to 6% per annum which is much higher than the over all annual rate of inflation.

High debt burden of SRTUs and consequent rise in interest ougo: Outstanding debt of SRTUs has more than doubled from Rs. 4071 crore in 2000-01 to Rs 8550 crore in 2004-05 with interest payments rising up from Rs 570 crore to Rs 855 crore over the same period. **The level of outstanding debt of SRTUs is an outcome of past profligacy.**

Constrained autonomy in matters of fare revision: As a result fare revisions are infrequent and fare structure is not in alignment with costs of operation.

Exogenous factors

Burden of Concessions/exemptions: SRTUs are not fully compensated for various concessional fares/exemptions (valued at Rs 1482 crore in 2004-05) and universal service obligation rendered in the form bus connectivity to remote areas;

Heavy and varying incidence of MVT on SRTUs: SRTUs in Maharastra and Gujarat contribute MVT to the tune of 17 % of their respective turnover; in Rajasthan MVT is assessed at 2.1 % of the current cost of bus chasis on a monthly basis; in Uttar Pradesh the average passenger tax on UPSRTC was Rs2.35 lakh almost four times what a private bus operator paid (Rs0.85 lakh) in 2004-05; in Punjab the average tax liability per SRTU Bus was 3.93 lakh compared to a private bus operator which paid Rs2.80 lakh per Bus in 2005-06.

High incidence of excise on bus chasis: It varies between Rs90, 000 to Rs1.3 Lakh.

High excise and sales tax incidence on fuel, spares, tyres; The high incidence of tax on diesel varies from 42 % to 29 % depending on the location/State.

Cost of Financial Package for improving financial performance of SRTUs

9.8 These have been worked out keeping in view following elements: (i) Cap on MVT at 5.5% turnover; (ii) Factoring in cost of concessions/fare revisions; (iii) Cost of USO (iv) Cost of fleet augmentation and (v) Clean balance sheet of debt. This package of measures is estimated to cost Rs. 22000 crore in XI Plan of which Rs. 10000 crore is to be provided by Centre (Rs. 2000 crore per annum) and Rs. 12000 crore by States (Rs. 2400 per annum). Besides cost of replacement and augmentation of bus fleet to the tune of 25,000 to 30,000 buses per annum by SRTUs would need investment Rs. 3000-Rs. 3500 crore per annum. The details of the financial implications are given in Annexure-B

9.9 With a view to improve efficiency in the operation of SRTUs and to restore financial health of SRTUs a number of measures have been suggested and include the following in particular:

a) Financial relief through take over of 50% outstanding loan by the Centre and State
b) Special institutional set up for funding public transport
c) Use of forex ($3 to 4 billion) to finance public transport
d) Reduce MV tax on SRTUs from about 11 % of their turnover to a maximum of 5.5% during the 11th Five Year Plan period. Further it would be desirable to introduce a lifetime tax of about 10 % of the cost of bus to promote bus transport
e) Excise exemption on chassis purchased by SRTUs for a period of 5 years

f) Uniform rate of sales tax/State Vat of 5 per cent on purchases of bus chassis spares parts by SRTUs

g) Reduction of 50 % of Sales tax currently levied on diesel

h) Provide a rebate of 50 % in the excise on diesel supplied to SRTUs

i) Full reimbursement of cost of concessional travel facilities

j) Compensate for Universal Service Obligation through levy of deficit charges on profit making routes (luxury and express services)

k) Fare structure should fully costs of operation and leave about 5% to 10 % margin to enable SRTUs to make investments

l) States should restrict to deciding fares for rural services and students and leave the rest to SRTUs

m) Ensure functional autonomy through MOU mechanism covering a period of 3 to 5 years. The MOUs will spell out commitments from the State and financial and operational performance expected from SRTUs

n) Make adequate provision for extending financial support to SRTUs to cover the cost of financial package [Details in Annexure-A]

ANNEXURE-A

Proposed Reforms Facility for SRTUs

A Brief overview of Reform Facilities initiated by the Centre in the past

Government of India in the past have put in place a number of incentivised reform packages to restructure the finances of States and certain sectors (State Power Sector, viz. State Electricity Board). A noteworthy initiative was "States Fiscal Reforms Facility (2000-01 to 2004-05)". Under the scheme states were incentivised to undertake fiscal reforms. An incentive Fund was earmarked by the Centre for States. States were required to formulate their Medium Tern Fiscal Reforms Programme (MTFRP) and sign MOU with Government of India on the basis of MTFRP. Grants from the incentive fund were released on the basis of a single monitorable fiscal indicator.

In addition, Government of India announced a Debt Swap Scheme in 2002 to mitigate the mounting burden of interest payments. The scheme capitalizes on the prevalent low interest regime to enable states to pre pay expensive loans contracted from the Government of India in the past, with low coupon bearing small savings and open market loans. The Debt Swap Scheme impacts on the interest burden through the gradual conversion of the high cost debt into low cost debt. The process while not reducing the existing debt helps the states in reducing the burden of interest payments in the years to come.

The other notable sectoral initiative launched by the Government of India to reform State Electricity Boards/Utilities was Accelerated Power Development and Reform Programme. Under this facility, States could access the Fund on the basis of an agreed reform programme. The Fund had two main components, viz. an investment component for strengthening and upgrading the transmission and distribution system, and incentive component for encouraging utilities to reduce cash losses. Under the

incentive component, states were given incentive up to 50% of the loss reduction by the State Electricity Boards/utilities.

Contours of the Reform Facility proposed for SRTUs

The Working Group on SRTUs has worked out a financial package of Rs.24000 Crores during the Eleventh Plan for SRTUs. This proposed financial package is intended to compensate States/SRTUs for the revenue foregone on account of (a) capping MVT at 5.5% of SRTUs' turnover.(b)Student Concessions, (c) rendering universal service obligations (connectivity to remote/rural areas). Besides it has suggested capital assistance to SRTUs for (a) Fleet augmentation and; (b) sharing the burden of accumulated debt. It is envisaged that the total financial cost of the package would be shared between the Centre and the States to the tune of Rs.11400 Crores and Rs.13600 Crores respectively during the Eleventh Plan period (Details in the Table at the Annexure B).

Outline of Framework

It would be appropriate to have a reform facility for SRTUs restricted for investment for the fleet augmentation and replacement only. Such a facility should not be extended to cover open ended schemes like compensation to states for revenue foregone on account of reduction in MVT, exemption/concession and for providing so called universal service obligation. Besides, any facility to finance expenditure of revenue nature which does not create assets and future income stream would not be prudent and self-sustaining in the long run.

The proposed reform facility for SRTUs could have the following features;

(a) Creation of a Fund/access to the Facility which could be used by STUS. The overall size could be Rs 10,000 crore or could be determined in consultation with the stake holders. The options for operating the Fund/Facility could be either of the following:

(i) Through a Plan provision in the Eleventh Plan;

(ii) A Soft Loan Window to be operated by a designated All India Financial Institution (Possible candidates IDBI, IDFC etc);

(iii) A Soft Loan Window which could be operated by State Financial Corporations with facility for refinance

(b) Access to the fund would be conditional and subject to well defined monitorable targets in terms of combination of physical and financial parameters. The physical/financial targets could possibly be related to ;
(i) Vehicle productivity (KMs/Day)
(ii) Manpower productivity
(iii) Staff Bus ratio and
(iv) Financial reduction in cash losses

(c) Presently, advances under priority sector lending are restricted to small transport operators owning a fleet of vehicles not exceeding ten vehicles (including the one proposed to be financed). Further, there is no distinction between state owners or private operators. The total outstanding amount in books of public sector banks as at the end of March 2005 was Rs. 3877 crore for mainly small road transport operators. With a view to provide access to SRTUs to priority sector lending, the restrictive

eligibility condition be relaxed for SRTUs as they have to fulfill public service obligations apart from being commercial entities.

(d) Mechanism of MOUs amongst the stakeholders (SRTUs, State Governments and Central Government) would be put in place to operationalise the scheme and maintain accountability. The MOUs would be entered for the period of 3-5 years.

Other Initiatives required for making SRTUs viable and sustainable

With a view to mitigate the burden of interest payments on account of accumulated debt, SRTUs could be encouraged to pre- pay expensive loans contracted in the past, with lower interest bearing open market loans. This may need State Government Guarantees.

The burden of high MVT on SRTUs vis-à-vis private bus operators would also need to be addressed as this affects the cash flow of the SRTUs. This calls for both moderation and harmonization of MVT across the states. This could be dealt with Empowered Committee of the State Transport Ministers. A similar mechanism was adopted for resolving the State VAT issue by the Ministry of Finance.

ANNEXURE-B

Financial Implications of Suggestions made by the Sub-Group on SRTUs					
Item	**Suggestion**	**Financial Implication**	**Contribution from Centre**	**Contribution from States**	**SRTUs**
MV tax	Benchmark MV tax Rate above this governments has to bear	Rs. 800 crore per year	Loss to be compensated by Centre for three years	States to bear the loss after three years	
Students concessions	Policy for revision of fares No indiscriminate issue of passes	Rs. 1500 crore annually	No obligation	States to bear one third of the costs	STUs to bear one third of the costs Students to pay one third
USOs	Service goals to be specified	20% of the losses of all corporations can be attributed to this	To prescribe national benchmarks to support urban services	States to compensate STUs for losses incurred on this. It can collect cess on luxury and express services buses for this	STUs will be compensated only based on achieving some benchmark performance standards
Fleet Augmentation	Fleet augmentation plan to be made	Rs. 10,000 crore total for five years	Centre to bear 50% of this. Also reduce duties and excise on bus chassis	States to bear 25%. Also to reduce Sales Tax on bus body building and spare parts States to guarantee loan	STUs to raise from FIs
Capital Support	To create clean balance sheet	Aggregate cumulative borrowings of all States Rs. 8000 crores (estd)	Centres to share 25% of the accumulated borrowings	States to share 25% of the accumulated borrowings	STUs to service 50% balance borrowings.

ANNEXURE-C

Total Number of Registered Motor Vehicles in India - 1951-2004

(In thousands)

Year (As on 31st March)	All Vehicles	Two Wheelers	Cars, Jeeps and Taxis	Buses	Goods Vehicles	Others*
1	2	3	4	5	6	7
1951	306	27	159	34	82	4
1956	426	41	203	47	119	16
1961	665	88	310	57	168	42
1966	1099	226	456	73	259	85
1971	1865	576	682	94	343	170
1976	2700	1057	779	115	351	398
1981	5391	2618	1160	162	554	897
1986	10577	6245	1780	227	863	1462
1991	21374	14200	2954	331	1356	2533
1996	33786	23252	4204	449	2031	3850
1997	37332	25729	4672	484	2343	4104
1998	41368	28642	5138	538 @	2536	4514
1999	44875	31328	5556	540 @	2554	4897
2000	48857	34118	6143	562 @	2715	5319
2001	54991	38556	7058	634 @	2948	5795
2002	58924	41581	7613	635 @	2974	6121
2003 (R)	67007	47519	8599	721 @	3492	6676
2004 (P)	72718	51922	9451	768 @	3749	6828

** : Others include tractors, trailers, three wheelers (passenger vehicles) and other miscellaneous vehicles which are not separately classified.*

@ : Includes omni buses. (P) : Provisional (R) : Revised

ANNEXURE-D

Requirement of new LCVs during Eleventh Plan			
Year	Assumption of 7% growth rate of GDP		
	Additional LCVs required to attain additional targeted BTKM	No. of LCVs to be scrapped	Total requirement of new LCVs
2007-08	138932	40746	179678
2008-09	149630	43713	193343
2009-10	161151	43511	204662
2010-11	173559	54834	228393
2011-12	186924	53639	240563

Year	Assumption of 8% growth rate of GDP		
	Additional LCVs required to attain additional targeted BTKM	No. of LCVs to be scrapped	Total requirement of new LCVs
2007-08	158779	40746	199525
2008-09	172752	43713	216465
2009-10	187954	43511	231465
2010-11	204494	54834	259328
2011-12	222489	53639	276128

Year	Assumption of 8.5% growth rate of GDP		
	Additional LCVs required to attain additional targeted BTKM	No. of LCVs to be scrapped	Total requirement of new LCVs
2007-08	168703	40746	209449
2008-09	184477	43713	228190
2009-10	201725	43511	245236
2010-11	220586	54834	275420
2011-12	241212	53639	294851

Year	Assumption of 9% growth rate of GDP		
	Additional LCVs required to attain additional targeted BTKM	No. of LCVs to be scrapped	Total requirement of new LCVs
2007-08	178627	40746	219373
2008-09	196310	43713	240023
2009-10	215746	43511	259257
2010-11	237104	54834	291938
2011-12	260578	53639	314217

ANNEXURE-E

Requirement of new M&HCVs during Eleventh Plan			
Year	Assumption of 7% growth rate of GDP		
	Additional M&HCVs required to attain additional targeted BTKM	No. of M&HCVs to be scrapped	Total requirement of new M&HCVs
2007-08	153712	37155	190867
2008-09	165547	46983	212530
2009-10	178295	48951	227246
2010-11	192024	62281	254305
2011-12	206809	60160	266969

Year	Assumption of 8% growth rate of GDP		
	Additional M&HCVs required to attain additional targeted BTKM	No. of M&HCVs to be scrapped	Total requirement of new M&HCVs
2007-08	175671	37155	212826
2008-09	191129	46983	238112
2009-10	207949	48951	256900
2010-11	226249	62281	288530
2011-12	246158	60160	306318

Year	Assumption of 8.5% growth rate of GDP		
	Additional M&HCVs required to attain additional targeted BTKM	No. of M&HCVs to be scrapped	Total requirement of new M&HCVs
2007-08	186650	37155	223805
2008-09	204102	46983	251085
2009-10	223185	48951	272136
2010-11	244053	62281	306334
2011-12	266872	60160	327032

Year	Assumption of 9% growth rate of GDP		
	Additional M&HCVs required to attain additional targeted BTKM	No. of M&HCVs to be scrapped	Total requirement of new M&HCVs
2007-08	197629	37155	234784
2008-09	217195	46983	264178
2009-10	238697	48951	287648
2010-11	262328	62281	324609
2011-12	288299	60160	348459

ANNEXURE-F

Requirement of new Articulated Vehicles during Eleventh Plan			
Year	Assumption of 7% growth rate of GDP		
	Additional Articulated Vehicles required to attain additional targeted BTKM	No. of Articulated Vehicles to be scrapped	Total requirement of new Articulated Vehicles
2007-08	2956	358	3314
2008-09	3183	337	3520
2009-10	3429	327	3756
2010-11	3693	410	4103
2011-12	3977	616	4593

Year	Assumption of 8% growth rate of GDP		
	Additional Articulated Vehicles required to attain additional targeted BTKM	No. of Articulated Vehicles to be scrapped	Total requirement of new Articulated Vehicles
2007-08	3378	358	3736
2008-09	3675	337	4012
2009-10	3999	327	4326
2010-11	4351	410	4761
2011-12	4734	616	5350

Year	Assumption of 8.5% growth rate of GDP		
	Additional Articulated Vehicles required to attain additional targeted BTKM	No. of Articulated Vehicles to be scrapped	Total requirement of new Articulated Vehicles
2007-08	3589	358	3947
2008-09	3925	337	4262
2009-10	4292	327	4619
2010-11	4693	410	5103
2011-12	5133	616	5749

Year	Assumption of 9% growth rate of GDP		
	Additional Articulated Vehicles required to attain additional targeted BTKM	No. of Articulated Vehicles to be scrapped	Total requirement of new Articulated Vehicles
2007-08	3800	358	4158
2008-09	4177	337	4514
2009-10	4590	327	4917
2010-11	5045	410	5455
2011-12	5544	616	6160

ANNEXURE-G

Requirement of new Buses during Eleventh Plan			
Year	Assumption of 7% growth rate of GDP		
	Additional Buses required	No. of Buses to be scrapped	Total requirement of new Buses
2007-08	116374	22800	139174
2008-09	134216	11100	145316
2009-10	154885	32800	187685
2010-11	178737	24900	203637
2011-12	206263	34200	240463

Year	Assumption of 8% growth rate of GDP		
	Additional Buses required	No. of Buses to be scrapped	Total requirement of new Buses
2007-08	132989	22800	155789
2008-09	156314	11100	167414
2009-10	183825	32800	216625
2010-11	216178	24900	241078
2011-12	254225	34200	288425

Year	Assumption of 8.5% growth rate of GDP		
	Additional Buses required	No. of Buses to be scrapped	Total requirement of new Buses
2007-08	141297	22800	164097
2008-09	167637	11100	178737
2009-10	198985	32800	231785
2010-11	236195	24900	261095
2011-12	280363	34200	314563

Year	Assumption of 9% growth rate of GDP		
	Additional Buses required	No. of Buses to be scrapped	Total requirement of new Buses
2007-08	149604	22800	172404
2008-09	179143	11100	190243
2009-10	214613	32800	247413
2010-11	257106	24900	282006
2011-12	308013	34200	342213

ANNEXURE-H

Addendum to the Report on Passenger and Goods Traffic and Assessment of Adequacy of Fleet and Data Collection in the Eleventh Five Year Plan

In Conjunction with long-term elasticity of BPKM of 1.51 (from 1990-91 to 2004-05) and keeping the baseline assumptions made by the Sub-Group unchanged, alternate projections pertaining to passenger traffic 2005-06 onwards have been made. In the projection exercise for the working group, elasticity estimate of 2.2 was used based on the data for the most recent year's viz., 1999-2000 to 2004-05. The present exercise of making projections using an elasticity of 1.51 has been necessitated in the light of the observations made by Advisor (Transport), Planning Commission.

Table 1 : BPKMs Projected with respect to GDP Growth

Year	BPKMs	Projections			
10th Plan					
2002-03	2815				
2003-04	3070				
2004-05	3469				
2005-06	3909 *				
2006-07	4381 #				
		(Assumption of GDP target)			
11th Plan		**7%**	**8%**	**8.50%**	**9%**
2007-08		4844	4910	4944	4977
2008-09		5356	5504	5578	5653
2009-10		5923	6168	6294	6421
2010-11		6549	6914	7102	7294
2011-12		7241	7749	8013	8285

** For the year 2005-06 Revised Estimate of GDP growth rate of 8.4% given by CSO has been taken to estimate BPKM*
 # Estimate for 2006-07 has been worked out based on a target growth rate of 8% assumed in the Tenth Plan.

The number of buses required for the four alternative growth scenarios are given in Table 2 below. For the purpose of projecting the number of buses required during the Eleventh Plan under the four alternative scenarios, a weighted average of 0.006 BPKMs of public and private sector buses has been used.

Table 2 : Number of Buses required during Eleventh Plan				
Year	(Assumption of GDP target rate of growth)			
	7%	8%	8.5%	9%
2007-08	807385	818411	823924	829437
2008-09	892726	917275	929675	942158
2009-10	987087	1028082	1048999	1070197
2010-11	1091422	1152274	1183638	1215637
2011-12	1206785	1291469	1335558	1380842

From the data available and making an assumption of 15 years as the useful life of a bus, it is projected that during the Eleventh Plan on an average 26,000 buses will require replacement every year. The number of new buses required during the Eleventh Plan under the four alternative scenarios is given in Annexure – H (a). The Sub-Group was of the view that since passenger movement is not subjected to as many barriers as freight movement, an alternative scenario of barrier-less passenger movement need not be worked out for the Eleventh Plan.

Keeping in view the alternate GDP growth paths (7 per cent, 8 per cent, 8.5 per cent and 9 per cent) in conjunction with passenger elasticity with respect to GDP at 1.51, volume of passenger movement by road during the Eleventh Plan has been projected as under:

Table 3: Eleventh Five Year Plan (2007-2012): Projections of BPKM				
	Alternative Scenarios of GDP Growth			
	7%	8%	8.5%	9%
Average Annual Freight and Passenger Movement				
BPKM	5982	6249	6386	6526
Average Annual Vehicle Fleet Requirement				
Buses	997081	1041502	1064359	1087654
***Note**: Approach Paper to the Eleventh Five Year Plan brought out by the Planning Commission has proposed a target growth of 8.5 per cent per annum in GDP during 11th Plan*				

ANNEXURE- H (a)

Requirement of new Buses during Eleventh Five Year Plan			
Year	Assumption of 7% growth rate of GDP		
	Additional Buses required	No. of Buses to be scrapped	Total requirement of new Buses
2007-08	52229	22800	75029
2008-09	85341	11100	96441
2009-10	94361	32800	127161
2010-11	104335	24900	129235
2011-12	115363	34200	149563

Year	Assumption of 8% growth rate of GDP		
	Additional Buses required	No. of Buses to be scrapped	Total requirement of new Buses
2007-08	63255	22800	80655
2008-09	98864	11100	109964
2009-10	110807	32800	143607
2010-11	124192	24900	149092
2011-12	139195	34200	173395

Year	Assumption of 8.5% growth rate of GDP		
	Additional Buses required	No. of Buses to be scrapped	Total requirement of new Buses
2007-08	68768	22800	91568
2008-09	105751	11100	116851
2009-10	119324	32800	152124
2010-11	134639	24900	159539
2011-12	151920	34200	186120

Year	Assumption of 9% growth rate of GDP		
	Additional Buses required	No. of Buses to be scrapped	Total requirement of new Buses
2007-08	74281	22800	97081
2008-09	112721	11100	123821
2009-10	128039	32800	160839
2010-11	145440	24900	170340
2011-12	165205	34200	199405

ANNEXURE- I

Summary of Physical Performance of SRTUs (2004-05)

Physical Parameters Achieved									
S.No	Company Name	Avg. no of buses held	% Fleet Utilization	Load factor(%)	Passengers Carried (Lakhs)	Total Staff	BSR	KMPL	Accidents/ Lakh Kms.
1	Andhra Pradesh SRTC	19208	99.50	62.00	42767.05	117400.00	6.14	5.29	0.10
2	Maharashtra SRTC	15953	95.50	45.00	21407.08	102231.00	6.71	4.85	0.18
3	Gujarat SRTC	8472	84.00	57.60	8342.00	52043.00	7.32	5.19	0.15
4	Uttar Pradesh SRTC	6715	96.00	62.20	3767.69	39757.00	6.17		
5	Rajasthan SRTC	4592	96.00	70.30	3905.71	22651.00	5.14	5.00	0.12
6	Karnataka SRTC	4572	95.10	69.60	5847.31	24989.00	5.75	5.28	0.16
7	NWKnRTC	3290	95.80	63.90		20527.00	6.51	5.36	0.13
8	NEKnRTC	2370	100.00	74.20	3200.00	10073.00	4.25	5.44	0.09
9	S.T. Haryana	3255	96.30	68.50	4083.01	18354.00	5.84	4.88	0.08
10	S.T. Punjab	1712	84.30	60.00	1934.00	9500.00	6.58	4.30	0.07
11	TNSTC (CBE)	2469	95.50	72.50	9873.51	15910.00	6.76	4.58	0.32
12	TSTC (KUM-I)	581	95.50	71.10	1795.07	3758.00	6.77	4.99	0.25
13	TSTC (KUM-II)	922	90.70	72.60	3145.96	5707.00	6.83	4.77	0.32
14	TSTC (MDU)	3478	94.70	69.00	13566.72	22198.00	6.74	4.83	0.32
15	TSTC (SLM)	1609	95.80	71.00	5519.18	10687.00	6.94	4.81	0.19
16	SETC (TN)	885	92.70	78.50	327.56	6971.00	8.50	4.68	0.31
18	North Bengal STC	800	52.90	68.10	729.95	5576.00	13.18	3.79	0.23
19	South Bengal STC	478	68.20	54.60	380.83	2825.00	8.67	4.09	0.20
20	Orissa SRTC	258	88.40	69.00	55.31	1336.00	5.86	4.38	0.04
21	Himachal RTC	1711	97.30			8711.00	5.23	3.64	0.10
22	Tripura RTC	96	63.50	71.80	14.00	720.00	11.80	3.59	0.03
23	Mizoram ST	55	50.90	38.90	1.13	831.00	29.68	2.89	
24	BEST Undertaking	3387	90.70	60.50	16356.00	35785.00	11.65	3.19	0.34
25	Delhi TC	3584	84.00	63.80	10567.87	29200.00	9.70		0.16
26	BMTC	3719	95.00	77.20	10866.45	17759.00	5.03		
27	MTC (CNI)	2773	78.90	80.80	13205.00	18523.00	8.47	3.65	0.52
28	Calcutta STC	1114	63.50	86.80	2039.82	7741.00	10.95	3.70	0.20
29	Ahmedabad MTS	551	67.30	54.70	1276.23	3986.00	10.74	3.47	0.75
30	Pimpri Chinchwad MT	212	58.00	73.00	303.51	1895.00	15.41	3.65	0.49
31	Kolhapur MTU	145	88.30	79.40	337.42	780.00	6.09	3.69	1.11

ANNEXURE- J

Summary of Financial Performance of SRTUs (2004-05)

Financial Parameters Considered										
		Total Revenue		Total Cost			Net profit/ Loss (Rs. In lakh)	Fuel & Lubricants		
S.No	Name of STU	Rs. In lakh	Paise/eff. km	Rs. In lakh	Paise/eff. km	Operating Ratio (%)		Rs. In lakh	Paise/eff. km.	Total Taxes
1	Andhra Pradesh SRTC									
2	Maharashtra SRTC	298272	1659.3	309320	1720.7	80.09	-11048	107665	598.9	42863
3	Gujarat SRTC	120440.7	1301.9	145962.2	1577.8	114.14	-25521.5	48138.8	520.4	17228
4	Uttar Pradesh SRTC	109183.5	1504.2	108329.3	1492.4	83.75	854.18	29656.2	408.6	18129
5	Rajasthan SRTC	77164.06	1384.4	81814.03	1467.8	79.84	-4649.97	25745.2	461.9	10504
6	Karnataka SRTC	89113.22	1533.9	86324.94	1485.9	77.69	2788.28	28991.3	499	6148.4
7	NWKnRTC	60080.22	1324	61669.9	1359	76.08	-1589.68	19781.3	435	3329.1
8	NEKnRTC	34336.76	1299	36602.02	1384.7	61.66	-2265.26	8927.52	337.7	812.75
9	S.T. Haryana	64418.25	1564.9	73473.76	1784.9	102.17	-9055.51	20848	506.4	18562
10	S.T. Punjab	18379.81	1424.6	27643.58	2142.6	113.1	-9226.38	6091.23	472.1	5840.7
11	TNSTC (CBE)	55006.63	1578.7	53673.2	1540.5	91.26	1333.43	20265.5	581.6	2555.4
12	TSTC (KUM-I)	13825.66	1454.6	12821.02	1348.9	80.27	1004.64	5096.43	536.2	621.25
13	TSTC (KUM-II)	19977.7	1485.4	19568.04	1455	84.1	409.66	7646.44	568.5	1056
14	TSTC (MDU)	75261.33	1464.1	75852.07	1475.6	94.78	-590.74	28385.7	552.2	3474.8
15	TSTC (SLM)	37018.14	1470.6	35653.94	1416.4	80.5	1364.2	13978	555.3	1990.3
16	SETC (TN)	22490.08	1209.4	26439.07	1421.8	100.76	-3948.99	10703.3	575.6	747.61
17	North Bengal STC	4103.29	1091.7	10847.57	2886.1	226.4	-6744.28	2519.05	670.2	0
18	South Bengal STC	6068.03	1672.1	8173.55	2252.3	103.63	-2105.52	2513.52	692.6	51.72
19	Orissa SRTC	3407.15	1331.9	3350.9	1309.9	81.08	56.25	1677.75	655.8	207.5
20	Himachal RTC	22942.29	1642.4	29766.44	2130.9	116.56	-6824.15	9541.92	683.1	3203
21	Tripura RTC	402	1388.6	1215	4196.9	344.58	-813	194	670.1	11
22	Mizoram ST	127.56	986.5	1036.92	8019.5	910.86	-909.36	112.01	866.3	0
23	BEST Undertaking	82511.27	3445	100400.6	4191.9	103.21	-17889.4	22190.09	926.5	4792
24	Delhi TC	41832.32	1658.6	109260.9	4332	167.12	-67428.6	15100.48	598.7	3051
25	BMTC	57219.35	1924.3	49218.02	1655.2	65.37	8001.33	14423.78	485.1	2817
26	MTC (CNI)	46058.06	2209.1	47441.91	2275.5	94.27	-1383.85	15580.03	747.3	822.8
27	Calcutta STC	6541.6	1168.6	15760.95	2815.7	222.93	-9219.35	4185.07	747.7	0
28	Ahmedabad MTS	5595.11	1980.2	9618.6	3404.2	155.52	-4023.49	2428.94	859.6	81.26
29	Pimpri Chinchwad MT	2376.55	1992.1	3580.49	3001.2	159.94	-1203.94	1080.22	905.5	87.59
30	Kolhapur MTU	2306.85	2077.1	2491.35	2243.2	85.74	-184.5	816.21	734.9	19.48

ANNEXURE- K

Terms of Reference of the Working Group

1. To review the growth of road transport for passenger and freight traffic during the Tenth Five Year Plan period making a critical assessment of the problems faced and the remedial action to be considered in the context of Eleventh Plan preparation.
2. To recommend a policy framework for the development of Road Transport - Passenger and Freight for the Eleventh Plan. Following policy issues may be considered for formulation the policy.

    - Regulatory issues confronting road transport sector to ensure healthy and balanced growth.
    - Modernisation of Road Transport system to bring down transit costs and improve service levels.
    - Preferential framework for public transport vis-à-vis private transport and steps required to be taken in this regard including support to bus transport both in private and public sector.
    - Efficiency and otherwise of the Inter State Transport flows and bringing about a barrier free transport environment
    - The problem of pollution and accidents arising out of road transport operations and measures to mitigate the same including periodic inspection of new vehicles.
    - To review the existing arrangements for data collection for road Traffic taxes/fees collected, (state-wise) the adequacy of such systems and measures to improve them to facilitate decision-making on Road Transport problems on a continuous basis.

3. To review the physical and financial performance of State Road Transport Undertakings with special reference to the achievements and failures against targets of Tenth Five Year Plan and suggest measures to improve the financial viability.
4. To make an assessment of the number of buses and trucks required in the Eleventh Five Year Plan indicating separately the requirements for replacement and augmentation of capacity with appropriate phasing over the 5 years of the Plan.
5. To make an assessment of the current and committed new capacity for production of buses and trucks to meet the projected requirements and recommend further augmentation and reorientation of capacity, wherever necessary.
6. To estimate financial outlays for the proposed programmes for public sector road transport undertakings, separately for replacements and additions keeping in view the capacity to generate internal resources. Annual phasing may also be indicated.

7. To review the internal resources of public sector undertakings during 10th plan and to assess the same for the Eleventh Five Year Plan and recommend measures to augment them.
8. To review the existing arrangements including institutional ones to control and prevent traffic related injuries and fatalities and also suggest measures to reduce incidence of accidents.
9. To review manpower training arrangements particularly drivers and instructors in the public/ private sector and suggest improvements.
10. To recommend measures for improvement in the system of data collection particularly in the context of increased role of private sector.
11. To review the development of Road Transport in North-East and assess the traffic requirements vis-à-vis economical operation of road transport passenger and goods services.

ANNEXURE - L

Composition and Specific terms and reference of the Sub Groups

Name of the Sub Group	Specific Terms of reference	Composition of the Sub Group
Sub Group on Passenger and Goods Road Traffic Assessment and Adequacy of Fleet and Data Collection.	(i) To make an assessment of the number of buses and trucks required in the Eleventh Five Year Plan indicating separately the requirements for replacement and augmentation of capacity with appropriate phasing over the 5 years of the Plan. (ii) To make an assessment of the current and committed new capacity for production of buses and trucks to meet the projected requirements and recommend further augmentation and reorientation of capacity, wherever necessary. (iii) To recommend measures for improvement in the system of data collection particularly in the context of increased role of private sector.	Shri Arvind Kumar Adviser (Transport Research), Department of Road Transport & Highways, Ministry of Shipping, Road Transport & Highways Shri Pradeep Singal General Secretary, All India Transporters Welfare Association (AITWA) Shri Chittranjan Dass, Vice President, All India Confederation of Goods Vehicle Owners' Association (ACOGOA) Prof. P.K. Chaubey Professor, Indian Institute of Public Administration (IIPA) Shri Manoj Kumar Singh, Director, Ministry of Heavy Industry Shri Sarbjeet Singh, President, Indian Tourist Transporters' Association (ITTA) Shri Dilip Chenoy, Director-General, Society of Indian Automobile Manufacturers (SIAM) Shri S.K.Patra, Senior Assistant Director (Technical),

		Association of State Road Transport Undertakings (ASRTU) Shri D.P.Agarwal, Managing Director, Transport Corporation of India Limited (TCIL) Shri Awadhesh Kumar Choudhary Joint Director, Department of Road Transport & Highways Ministry of Shipping, Road Transport & Highways
Sub Group on Non-Motorised Transport	(i) To assess the number and types of non-motorized transport plying in the country and the type and volume of traffic handled by them. (ii) To assess the major problems faced by non-motorized transport and the problems connected with shared use of road space both by motorized and non-motorized transport. (iii) To suggest measures to optimize the use of non-motorized transport and bring about a safe environment for their use. (iv) Any other relevant matter.	Mr. Ramendra Jakhu, IAS, Principal Secretary to the Govt of Haryana Dept of Transport, Chandigarh Mr. Pritpal Singh Randhawa, Dy.Advisor(Transport) Planning Commission, New Delhi-110001. Mr. S.R. Marathe, Director, ARAI, Pune Dr. P. K. Nanda, Director, Central Road Research Institute, New Delhi Mr. B. Bhanot, Chairman, CMVR-Technical Standing Committee New Delhi Mr. Rohit Baluja, President, Institute of Road Traffic Education (IRTE) New Delhi

Sub Group on State Road Transport Undertakings	(i) To review the physical and financial performance of State Road Transport Undertaking with special reference to the achievements and failures against targets of Tenth Five Year Plan and suggest measures to improve the financial viability. (ii) To estimate financial outlays for the proposed programmes for pubic sector road transport undertakings, separately for replacements and additions keeping in view the capacity to generate internal resources.(Annual phasing may also be indicated). (iii) To review the internal resources of pubic sector undertakings during Tenth Five Year Plan and to assess the same for the Eleventh Five Year Plan and recommend measures to augment them. (iv) Any other relevant matter	Shri.M.R. Sreenivasa Murthy, IAS, Vice Chairman & Managing Director, Karnataka State Road Transport Corporation, Bangalore Shri.Deepak Trivedi, Managing Director, U.P. State Road Transport Corporation, Lucknow Shri. Uttam Khobragade, General Manager, Brihan Mumbai Electric Supply & Transport Undertakings, Mumbai Shri.Bhattacharya, Managing Director, Calcutta State Transport Corporation, Kolkata Shri. Anshu Prakash, IAS, Chairman-cum-Managing Director, Delhi Transport Corporation, New Delhi Shri. Pritam Singh, Managing Director, Rajasthan State Road Transport Corporation, Jaipur Shri. O.P. Agarwal, OSD (MRTS), Ministry of Urban Development, New Delhi A representative of Secretary (Tpt.) & Chairman of Tamil Nadu STUs. Chennai Shri. P.S. Randhawa, Consultant Representative, Planning Commission, New Delhi Shri. Arvind Kumar,

		Adviser (Tr.), Department of Road Transport & Highways, New Delhi. Shri.A.K. Chaudhary, Joint Director (TRW), Department of RT&H, New Delhi Dr. G.K. Sharma, Director, Central Institute of Road Transport, Pune Prof. G. Ramesh, Visiting Professor, Indian Institute of Management-Bangalore, Bannerghatta Road, Bangalore Shri. P.S.Shrimali, Director(T), Association of State Road Transport Undertakings, New Delhi
Sub-Group On Road Safety	(i) To assess the magnitude of road traffic accidents, fatalities and injuries in India. (ii) To assess the present arrangements for managing road safety in the country. (iii) To assess the present status of rescue and relief of road accident victims. (iv) To suggest measures to improve the road safety situation in the country. (v) To bring about a targeted reduction in accident injuries and deaths. (vi) Any other relevant matter.	Prof. Dinesh Mohan, IIT, New Delhi Shri A.P. Bahadur, Chief Engineer Deptt. of Road Transport & Highways Shri Alok Rawat, Pr. Secretary, Govt. of Sikkim Shri U.K. Tyagi, Joint Commissioner, Govt. of NCT Delhi Dr. A.N. Sinha, Chief Medical Officer (HA), DGHS, New Delhi. Shri Qamar Ahmed, Jt. CP (Traffic), Police Headquarters, New Delhi

		Dr. P.K. Nanda, Director, CRRI, New Delhi Dr. Geetam Tiwari, Prof., IIT, New Delhi Prof. G. Gururaj, Head, Epidemiology, NIMHANS,Bangalore Shri Bharat Kalaskar, Dy. Regional Tpt. Officer, Maharashtra Shri Rajiv Gupta, AIMTC, New Delhi Shri Balraj Bhanot, Chairman, CMVR-TSC, New Delhi Shri S. M. Haragapurkar, Deputy Director, ARAI, Pune Shri Rohit Baluja, IRTE, New Delhi Ms. Bhuvaneswari Jayaraman, SIAM, New Delhi Shri Ramesh Aggarwal, Senior Vice-President, All India Transporters Welfare Association,New Delhi Shri Bhanu Mehrotra, Deputy Secretary, Planning Commission, New Delhi Shri Ramu Gupta, Under Secretary (RS & T) Deptt. of Road Transport & Highways

Sub-Group On Human Resource Development	(i) To estimate the requirement of manpower in transport sector i.e. drivers of various categories of vehicles, conductors for commercial passenger vehicles etc. (ii) To assess the present state of skill levels of transport and police Department officials dealing with transport matter. (iii) To suggest ways and means for training to cater to the needs of the transport industry and to equip the transport and police officials with necessary skills. (iv) To suggest way and means for public private participation in human resource development. (v) Any other relevant matter.	Shri S.K.Dash, Joint Secretary, Department of Road Transport & Highways Shri G.P.Mohapatra, Commissioner (Transport), Govt. of Gujarat, Gandhinagar. Shri N.Balachandran Member Special Secretary (Transport), Govt. of Delhi, Shri Brij Lal, IG Police (Traffic), Uttar Pradesh. Shri Shrikant R.Marathe, Director, ARAI, Pune Shri R.K.Parimoo Director, IDTR, Delhi. Shri G.K.Sharma, Director, CIRT, Pune. Shri V.S.Yadav, Dy.Director, NCRB, Delhi. Shri Chittranjan Dass, Vice-President, ACOGOA, Delhi. Shri J.M.Saksena, Adviser, AIMTC, New Delhi. Director, Indian Institute of Petroleum, Dehradun. Shri R.K.Anand, Ashok Leyland Shri Ramu Gupta,Under Secretary(RS&T) D/o Road Transport & Highways.
Sub Group on Policy Issues	(i) To recommend a policy frame work for the development of Road Transport - passenger	Shri D.Thangaraj Principal Secretary (Transport)

	and freight for the Eleventh Plan. (ii) Regulatory issues confronting road transport sector to ensure healthy and balanced growth (iii) Modernization of Road Transport system to bring down transit times and costs and improve service levels, including issues connected with security of movement of cargo, development of multimodal hubs and earmarking of space for transport activity in the industrial centres/SEZs. (iv) Preferential framework for public transport vis-a-vis private transport and steps required to be taken in this regard including support to bus transport both in private and public sector. (v) Efficiency and otherwise of the Inter State Transport flows and bringing about a barrier free transport environment. (vi) The problem of pollution and accidents arising out of road transport operating and measures to mitigate the same including periodic inspection of new vehicles. (vii) Review of the existing arrangements for data collection for road traffic taxes/fees collected, (state-wise) the adequacy of such systems and measures to improve them to facilitate decision-making on Road Transport problems on a continuous basis. (viii) Any other relevant matter	Govt.of Karnataka Shri. Arvind Kumar, Advisor(TR) New Delhi Shri. S.B.Basu, CE(Plg), Representative of DG(RD) Shri M. R.Sreenivasa Murthy, VC and Managing Director KSRTC Shri S.K. Dash, Joint Secretary(Transport) Shri. Ramendra Jakhu Principal Secretary (Transport), Government of Haryana Prof. Dinesh Mohan,IIT, Delhi Shri Kamlesh Kumar, Chief Engineer (P-10) Shri Chitranjan Dass, Vice-President, ACOGOA Shri P. K. Nanda, Director, CRRI Representative of SIAM Representative of Ministry of Railways Representative of Planning Commission Shri D.P. Aggarwal, Vice-President, TCI Shri Awadhesh Choudhary, Joint Director (TRW) Prof.T.V.Ramanayya, Professor, Indian Institute of Management, Bangalore.

Sub Group on North Eastern Development of Road Transport	(i) To assess the state and adequacy of road transport and connectivity of North Eastern India to the rest of the country and within the North Eastern Region. (ii) To assess the present level of transport flows within the region and with the rest of the country from the region in respect of both freight and passenger. (iii) To assess the bottlenecks, both infrastructural and regulatory, coming in the way of smooth transport movement within the region and with the rest of the country. (iv) To suggest measures to improve the transport connectivity of North Eastern Region. (v) Any other relevant matter	Shri Kamlesh Kumar, CE (P-10) Representative of Department of Development of North Eastern Region A representative each of Transport Secretary of 8 States in North Eastern India including Sikkim Shri V.K. Rajawat, EE
Sub Group on Control of Overloading and implementation of Inspection & Maintenance system.	(i) To assess the magnitude of problem of overloading in the country and the major contributory causes thereof. (ii) To suggest administrative and engineering solutions to the problem of overloading. (iii) To suggest a roadmap for introduction of modern Inspection & Maintenance system for all categories of vehicles in a phased manner with particular emphasis on reduction of vehicular emission for in-use vehicles. (iv) Any other relevant matter	Shri V. Velayutham, Director General (Road Development) Shri Ramendra Jakhu, Principal Secretary (Transport) Government of Haryana Shri S.B.Agnihotri, transport Commissioner, Government of Orissa. Shri G.P. Mohapatra , Transport Commissioner,Government of Gujarat Dr. P.K. Nanda Director, CRRI Shri B. Bhanot, Chairman, CMVR- TSC Shri Shrikant R. Marathe Director, ARAI Representative of SIAM

		Shri Chitranjan Dass Vice-President, ACOGOA Shri Gurmeet Singh Representative of AIMTC Shri Virendra Singh, Under Secretary (Road Transport) Deptt. of Road Transport & Highways