TRANSPORT AND COMMUNICATION

CHAPTER VIII

Growth process can be led by a widening of market, which in turn may result from increased efficiency in transport and communication. Cheapening transport fuses markets; bringing additional buyers and sellers into contact with one another, increasing elasticity of demand and supply. Roads and transport, railways, ports, aviation and tele-communications are viewed as sinews of the economy and catalysts for social and economic change. They establish forward and backward linkages with the rest of the economy.

Box 1: Twelfth Five Year Plan objectives on Road and Communication

- *To increase the capacity, connectivity, efficiency and safety of highway network,*
- *To provide road infrastructure for equitable socio-economic development,*
- *To ensure equity and balance new road works are identified considering the density of road net work per unit area and unit population,*
- *Industrial corridors to be established in the economically backward areas,*
- *To provide connectivity considering the heavy loaded vehicles plying in these industrial areas, specially designed roads are required to be provided.*
- *Development of minor and intermediate ports along the East Coast through Private Public Participation (PPP) mode.*

Recognising the importance of roads and bridges in propelling the State economy, the Government of Tamil Nadu set an outlay of Rs.16,911 crore which constitutes a share of 8 per cent of the total outlay of Rs.21,1250 crore for the 12th Five Year Plan. The objectives of the plan in road sector are indicated in Box 1.

8.1. Vision 2023

Infrastructure involves lumpiness of capital, short term risks are high, the benefits are an indirect and diffused character which accrues only over the long period. Such investment would furnish a base for expansion of the economy. Infrastructure development generates significant employment opportunities and drives economic growth; and more importantly, infrastructure development creates huge positive externalities in the economy by providing a fillip to economic and social development across all sectors. Spending on infrastructure development in Tamil Nadu constitutes 4 to 5 percent share of GSDP. The Vision 2023 has envisaged doubling of infrastructure spending to 11.5 percent of GSDP by 2014. The infrastructure sector includes power, water & sanitation, transportation, irrigation, ports, airports, connectivity, housing, healthcare and education. Infrastructure creation in many sectors involves substantial financial outlays, coupled with regulatory reforms such as tariff changes, cost recovery, viability, gap funding, consumer protection, institutional realignment, and independent regulation. The projection on the total investment to enable universal access to infrastructure services over the 11 year period is estimated at Rs 15 lakh crore

(approximately US$ 330 billion). Box 3 furnishes information on proposed outlay on infrastructure development viz. Road and transport in Vision 2023 document.

Box No.2 Vision 2023: Transportation and Communication Sector –Target Outline

a) Roads & highways: *Tamil Nadu to get 2000 km of 6-8 lane expressways, 5000 km of 4 lane highways, and all highways being at least double-laned and with paved shoulders.*

b) Ports: *Incremental capacity of ports in Tamil Nadu to exceed 150 million tonnes per annum including 15mn TEU of container capacity.*

c) Railways: *All urban nodes with population of over 500,000 to be connected with high-speed rail corridors for both freight and passenger traffic.*

d) Airport: *Total capacity to handle 80 million passengers per annum across all airports in the state, with Chennai alone accounting for half the capacity.*

e) Telecommunication: *Every village will be connected with high speed Optical Fibre Cable (OFC) network enabling broadband connectivity at a grass root level across the state.*

f) Urban transport: *Putting in place a system of integrated multimodal urban transport including mass transit systems for faster mobility in cities*

Source: Vision 2023. Govt. of Tamil Nadu

Box-No.3 Vision 2023
Transportation Sector-Financial Outlay

Total investment: Rs.370,000 crore

Highway improvement : *2000 km of 6/8 lane highway, 5,000 km of four lane highway and two-laning of all other highways with paved shoulder :* ***Rs.133,000 crore***

Port development: *Three Greenfield ports and 5 minor ports with cumulative capacity to handle 150 million tonnes of cargo* ***: Rs.15, 000 crore***

Rail project: *High speed rail between Chennai - Coimbatore - Madurai - Kanyakumari Dedicated freight corridor between Chennai and Thoothukudi* ***: Rs.132,000 crore***

City Transport: *Metro/Mono rail/BRT:* ***Rs.65,000 crore***

Airports: *Greenfield Airport near Chennai as well upgrading other airports:* ***Rs.25, 000 crore****.*

Source: Vision 2023, Govt. of Tamil Nadu

8.2: Unified Metropolitan Transport Authority (UMTA)

With a population of over 4.7 million and with a rapidly growing economy, Chennai, the capital city of Tamil Nadu, needs a capable, safe, and dependable transport solution to its citizens with an eye on quality of life. The convergence of the responsibility in issues such as planning, coordination, and accountability of various transport modes is the need of the hour. The Chennai Unified Metropolitan Transport Authority (CUMTA) formed in November 2010 aims to serve as a single nodal agency. This Authority is now a co-ordinating agency for various projects and schemes being undertaken by departments like State Highways, Public Works, National Highways, Corporation of Chennai, Chennai Metro Rail Limited, Southern Railway and Metropolitan Transport Corporation. The basic purpose of UMTA is to achieve integration of all modes of transport in the City of Chennai like buses, local trains and MRTS, along with Metro Rail and Bus Rapid Transit System (BRTS) in future to provide seamless travel to the passengers across the entire network. A plan to give statutory support to UMTA is on the pipeline so that the Authority can effectively discharge its functions and responsibilities.

8.3. Road Network:

The road network improves connectivity and provides linkage between industries and agriculture. It incentivizes the directly productive activities and accelerates the process of economic development. Based on MORT & H Road Statistics, as of March 2012, the road density of Tamil Nadu is 177 km per 100 sq km which is more than Indian average of 148 km per 100 sq km. Table 8.1 below furnishes information on length of road by type.

Table-8.1: Length of Roads-Tamil Nadu (Kms.)

Type of Road	2011-12	2012-13	2013-14	% share to total
National Highways	4974	4974	4974	2.02
State Highways	10764	10764	11594	4.70
Major District Roads	11247	11247	11289	4.57
Other District Roads	33263	33263	32492	13.17
Sugarcane Roads	1769	1769	1668	0.68
Panchayat Union &V.P. Roads	114556	128189	143071	57.97
Town Panchayat Roads	18554	18221	19304	7.82
Municipality Roads**	12703	12703	12703	5.15
Corporation Roads**	9694	9694	9694	3.93
Total	217524	230824	246789	100.00

up to Feb'14 actual * *not available 12-13,13-14
Source: 1. Department of Highways, Chennai-5
2. Dept of Rural Department and Panchayat Raj, Chennai-15
3. Dept. of Town Panchayats, Chennai-108
4.Dept. of Municipal Administration, Chennai-5

As borne out in the Table above, structural changes in the types of road constructed are noticed. The State Highways Roads has a 8 percent increase in the total length of roads in 2013-14, which is essentially a conversion of Major District Roads in to its fold. As far as Major District Roads are concerned, the increase in its length is the result of the upgradation of Other District Roads. On the other hand, Other District Roads shows a declining trend as Other District Roads joining the Major District Roads fold because of high traffic and other strategic reasons. The rise in the Panchayat Union and Village Panchayat roads from 128189 Kms to 143071 Kms, is 12 percent. It bears a testimony to the growing network of roads in the interior villages of Tamil Nadu. Thus rural connectivity is ensured. Such a penetration of roads to rural areas in the *State reflects the realization of the goal of Provision of Urban Amenities in Rural Areas* (PURA).

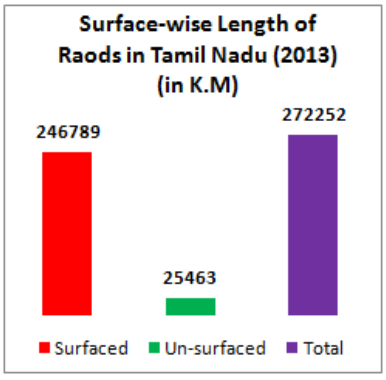
Table – 8.2: Surface-wise Length of Roads in Tamil Nadu (Kms)

Year	Surfaced Roads	Un-surfaced Roads	Total Length of Roads
1950-51	28291	15569	43860
1970-71	45345	23101	68446
1990-91	134135	36666	170801
2000-01	131882	43848	175740
2010-11	216352	55900	272252
2011-12	217524	54728	272252*
2012-13	230824	41428	272252*
2013-14(P)	246789	25463	272252*

Source: Statistical Hand Book, 2013, Department of Economics and Statistics , Chennai *calculated by DEAR

8.3.1. Surface-wise Conversion of Roads:

The up-gradation of roads, maintenance of existing roads and new road formation all ensure smooth flow of goods and services from one place to another. A surfaced road signifies superior connectivity available. The ratio of surfaced and unsurfaced roads to total length of roads shows a shift from 65:35 in 1950-51 to 91:9 in 2013-14 (Projection) which is a manifestation of significant upgradation in terms of mobility and motorability.



8.3.2. Length of Road Matrix-Lane-wise:

The need for lanes in roads is intended for speed, safety and a smooth flow of goods. The lane-wise length share indicates the state of the road networks in the State - about half of the road length is turning into Intermediate lane (17.11 %), Double lane (26.33 %) and Multi-lane (5.90 %). However, 51 percent of the roads are still single lane which is a cause for concern.

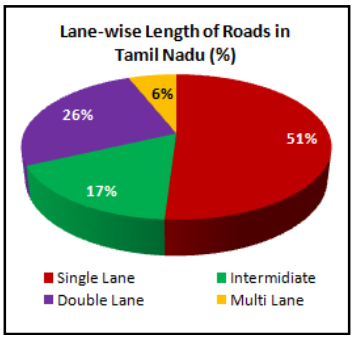


Table – 8.3: Lane-wise Length of Roads as on 31st March 2014(P) Tamil Nadu (in Kms)					
Type of Road	***Single Lane***	***Inter-mediate***	***Double Lane***	***Multi Lane***	***Total***
National Highways	*12* *(0.24)*	*4* (0.08)	*2778* (55.86)	*2180* (43.83)	*4974* (100)
State Highways	*96* *(1.00)*	*481* (4.00)	*9710* (84.00)	*1307* (11.00)	*11594* (100)
Major District Roads	*883* *(8.00)*	*7251* (64.00)	*3012* (27.00)	*143* (1.00)	*11289* (100)
Other District Roads	*28936* *(89.05)*	*2738* (8.43)	*768* (2.36)	*50* (0.15)	*32492* (100)
Sugar cane Roads	*1470* *(88.13)*	*139* (8.33)	*59* (3.54)	-	*1668* (100)
Total	31397 (51.00)	10613 (17.00)	16327 (26.00)	3680 (6.00)	62017 (100)
Source: Department of Highways, Chennai-5.					

8.3.3. Roads upkeep to Standards of the Indian Roads Congress (IRC):

Indian Roads Congress (IRC) Standards serve as the benchmark to ascertain the status of road development for a State. Going by the standards of IRC, Major District Roads have met the requisite standards with 92 percent having the Double/Intermediate Lane and State Highways follow suit with 95 percent of it matching Double Lane norms in Tamil Nadu.

Table –8.4: Stock of Road Length and Standard Specified by Indian Roads Congress			
Type of Road	**Stock of Road Length During 2013-14 (Kms)**	**Standard Specified by Indian Roads Congress**	**Availability of Road in the State as per IRC Standard (Kms)**
State Highways	11594	75 % should be Double Lane = 8696 Kms	11017 (95%)
Major District Roads	11289	65% should be Double Lane / Intermediate Lane (i.e.) = 7338 Kms	10406 (92%)
Other District Roads	32492	50% of the total Road should be strengthened and to be improved = 16246 Kms	3556 (22%)
Source: Computed by DEAR using the data from Highways Department Chennai – 5			

8.4. Highways and Minor Ports Department:

8.4.1 Highways Department:

Highways Department discharges a unique function to carry out road and bridge projects. The department attained its uniqueness, after having bifurcated from out of Public Works Department as a separate Secretariat Department in 1996. The wings under the Highways are - The Office of the Director General, Construction and Maintenance, NABARD and Rural Roads , National Highways, Projects, Metro, Planning, Design and Investigation

and Quality Assurance and Research. The Tamil Nadu Road Sector Project, The Tamil Nadu Road Development Company and The Tamil Nadu Road Infrastructure Development Corporation also function under the Highways Department.

8.4.2 State Maritime Board:

Amongst the maritime States, Tamil Nadu has the second longest coastline (1076 KMs) with 3 major ports and 17 non-major ports next only to Gujarat State which has the longest coastline of about1600 KMs with one major port and about 40 non-major ports. The Major Ports are governed by the Government of India under the Major Port Trust Act 1963 and the non major ports are governed by the respective Maritime States under the Indian Ports Act, 1908. The non-major ports in Tamil Nadu were administered and controlled by the Tamil Nadu Port Department. Keeping in line with the maritime history and the need for growth in the maritime sector, the erstwhile Tamil Nadu Port Department was converted into Tamil Nadu Maritime Board under the Tamil Nadu Maritime Board Act, 1995 (Tamil Nadu Act 4/96) with effect from 18.03.1997. The Minister for Highways and Minor Ports, Government of Tamil Nadu is the ex-officio Chairman of the Board.

8.4.3. Physical and Financial performance of Highways in 2011-12, 2012-13 and 2013- 14:

The budget allocation takes precedence over all developmental works with plan and non-plan as their heads. Table below presents information on budget allocation vis-a-vis expenditure.

Table: 8.5: Allocation and expenditure for Roads in the year 2011-12, 2012-13 and 2013-14

(Rs.crore)

Year	Category of allocation		Expenditure		Works under taken (nos.)
	Plan	Non-plan	Plan	Non-plan	
2011-12	Rs.3402.83	Rs.1120.71	Rs.3016	Rs.1128.87*	Road improvement works (5488 km) , Bypasses (4), Road Over Bridges and Bridges / Culverts/ Buildings / Protective works (371)
2012-13	Rs.3658.63	Rs.1180.95	Rs.3205.05	Rs.1191.49	Widening and improvements in of roads, bypasses (4794 km), bridges, culverts, protective works (325) and buildings (35).
2013-14	Rs.1088.07		Works under progress		

including 13th Finance Commission to RD.
Source: Policy Note on Road, Minor Ports and Shipping - 2013-14, Govt. of Tamil Nadu

8.4.4. Performance of Schemes under Construction and Maintenance wing, High ways:

The responsibility of the Construction and Maintenance Wing of the Highways Department is to execute major infrastructure projects such as strengthening and improvements of roads, construction of bridges, Railway Over Bridges and formation of bypasses. A total length of 57,043 km of Government Roads is under its control and effectively managed by the eight circles and forty divisions under this wing.

8.4.5. Comprehensive Road Infrastructure Development Programme (CRIDP):

This is the flagship scheme of the Government, under which widening of all intermediate lane State Highways (SH) to double lane; widening of single lane Major District Roads (MDR) progressively to intermediate lane and widening of Other District Roads (ODR) with heavy traffic intensity from single lane to intermediate lane are being taken up. In addition, construction of Bridges and Culverts, formation of bypasses and protective works such as Drains, Retaining walls, and Centre medians are part of this scheme. As far as the Department's flagship CRIDP (Comprehensive Road Infrastructure Development Programme) is concerned, Government made a decision in 2013-2014 to take up works in backward districts. Some recent initiatives under CRIDP include.

Table- 8.6: Progress of Road works under CRIDP

Category of Roads	Road Works / Bridges/ Culverts		
	Works sanctioned progress/completed in 2011-12	**Works sanctioned progress/completed in 2012-13**	**Works sanctioned progress/completed in 2013-14**
State Highways (SHs)	During 2011-12, widening / improvements in 1221 km roads and 122 bridges / culverts/protective works have been completed incurring an expenditure of Rs.717 crore	During 2012-13, widening / improvements in 1236 km roads and 57 bridges / culverts/ protective works have been completed incurring an expenditure of Rs.796.85 crore	During 2013-14, widening / improvements in 1729 km roads and 52 bridges / culverts/ protective works have been completed incurring an expenditure of Rs.933.61 crore
Major District Roads (MDRs)	During 2011-12, widening / improvements in 1207 km roads and 70 bridges/ culverts/ protective works have been completed incurring an expenditure of Rs.493 Crore.	During 2012-13, widening / improvements in 1582 km roads and 55 bridges/ culverts/ protective works have been completed incurring an expenditure of Rs.593.75 Crore.	During 2013-14, widening / improvements in 2127 km roads and 29 bridges/ culverts/ protective works have been completed incurring an expenditure of Rs.917.93 Crore.
Other District Roads (ODRs)	During 2011-12, widening / improvements in 974 km roads and 59 bridges / culverts/ protective works have been completed incurring an expenditure of Rs.210 Crore.	During 2012-13, widening / improvements in 642 km roads and 68 bridges / culverts/ protective works have been completed incurring an expenditure of Rs.199.40 Crore.	During 2013-14, widening / improvements in 1200 km roads and 71 bridges / culverts/ protective works have been completed incurring an expenditure of Rs.334.13 Crore.
Connectivity to Adi Dravida Habitations (OD Roads connecting villages with more than 40% of Adi Dravidar population	During 2011-12, widening / improvements in 1551 km roads and 23 bridges / culverts have been completed at an expenditure of Rs.310 Crore.	During 2012-13, widening / improvements in 1166 km roads and 49 bridges / culverts have been completed at an expenditure of Rs.315 Crore.	During 2013-14, widening / improvements in 1336 km roads and 28 bridges / culverts have been completed at an expenditure of Rs.315 Crore.

Source: Policy Note on Road, Minor Ports and Shipping -2011-12, 2012-13 and 2013-14, Govt. of Tamil Nadu

8.4.5.1 Urban State Highway Roads:

Rabid urbanization leads to heavy flow of traffic in the towns, which compels the need for bypasses, in order to ensure vehicle movements to be free from traffic snarls. Hitherto busy stretches in several towns turn on to unused/abandoned roads due to the construction of bypasses by NHAI. The need is to have such stretches reclassified as urban State Highways roads, so as to undertake immediate maintenance works. At present, 11 such abandoned stretches, to a length of 81.53 km were identified and permanent restoration at a cost of Rs. 85.66 crore had been granted under the CRIDP for 2013-2014.

8.4.5.2. Stress on Maintenance of Roads with quality:

The Government swiftly sanctioned *Rs.* 16.50 crore from the Comprehensive Road Infrastructure Development Programme to restore the roads which had been handed over to NHAI. NHAI could not take up permanent road improvement works due to non-viability of the BOT (Build, Operate and Transfer) matrix stipulations. Further, Government sanctioned Rs.5 crore to repair the busy 22 km stretch from Padi to Thirunindravur of NH-205, to ease the difficulties being experienced by the public.

8.5. Performance Based Maintenance Contract:

Quality should never take a back seat in road works because precious public money should not go in fructuous. This Government has ensured quality in road works through implementation of Performance-Based Maintenance Contract. In accordance with the announcement made in the Budget 2011-2012, Government sanctioned the Performance Based Maintenance Contract of 191.40 km of State Highways at a cost of Rs.121.62 crore and 185.98 km of Major District Roads in Pollachi division at a cost of Rs.112.31 crore. The total cost of the project stood at Rs.233.93 crore.

8.6. Central Road Fund Schemes:

8.6.1. Centrally-Sponsored Scheme

The corpus of the Central Road Fund sourced it from the 50 percent cess levied on High Speed Diesel and 100 percent cess on Petrol, out of this 30 percent of funds provides for development and maintenance of State roads. The said fund finances the Centrally Sponsored Schemes under

1) Revamped Central Road Fund Scheme
2) The Economic Importance Scheme and
3) The Inter State Connectivity Scheme for the betterment of National Highways and other State roads.

8.6.2. Revamped Central Road Fund Scheme:

- During 2011-12, 29 road works to a length of 369.15 Km and 7 bridge works costing Rs.232.45 crore were taken up as spill over. Out of this, 18 road works to a length of 244.08 Km and 5 bridge works were completed at a cost of Rs.147.45 crore during 2011-12.
- During 2012-13, 11 road works to a length of 126.73 Km and 2 bridge works costing Rs.86.89 crore were taken up as spill over. Further the Ministry of Road Transport and Highways has sanctioned 19 road works to a length of 208.77 Km costing

Rs.166.22 crore as new works. Out of this, 15 road works to a length of 148.98 Km were completed at a cost of Rs.116.88 crore during 2012-13.

- During 2013-14, 15 road works to a length of 186.52 Km costing Rs.118.50 crore were takenup as spill over. Further the Ministry of Road Transport and Highways has sanctioned 31 road works to a length of 306.68 Km and 1 bridge work costing Rs.255 crore as new works. Out of this, 20 road works to a length of 179.97 Km have been completed at a cost of Rs.163.92 crore during 2013-14.

8.6.3. Inter State Connectivity Scheme:

- During 2011-12, 2 road works to a length of 20 Km were takenup at a cost of Rs.9.16 crore as spill over and these works were completed with an expenditure of Rs.8.68 crore.
- No sanction was received under this scheme during 2012-13.
- MORT&H has sanctioned 5 road works to a length of 44.89 Km costing Rs.39.03 crore under ISC scheme 2013-14. Out of this, 2 works have been completed and 3 works are in progress.

8.6.4. Developing Rural Roads under Bharat Nirman Scheme:

Up-gradation of rural roads that forms a part of the core network roads, is the prime focus in the rural-based Bharat Nirman Scheme. Phase–II of this scheme was under execution in 2011-12 and 2012-13, had fruited well. It witnessed formation of sizable road as well as building projects. During 2012-13, Ministry of Rural Development has sanctioned upgradation of 330 Other District Road works to a length of 1062.55 Km executed by National Highways wing at a cost of Rs.278.54 crore. Out of this, 228 Other District Road works to a length of 662.36 Km were completed at a cost of Rs.238.79 crore upto 2013-14.

8.6.5. Hill Area Development Programme (HADP):

This scheme is being implemented by the State Government, to improve Hill roads in Nilgiris District with the funds provided by Government of India.

- During 2011-12, 3 road works to a length of 3 Km and 4 CD / protective works were takenup at a cost of Rs.1.78 crore as spill over. Further, the Government has sanctioned 5 road works to a length of 7.20 Km and 5 CD / protective works at a cost of Rs.2.90 crore as new works.Out of this, 3 road works to a length of 3 Km and 4 CD / protective works were completed at a cost of Rs.1.52 crore during 2011-12.
- During 2012-13, 5 road works to a length of 7.20 Km and 5 CD / protective works were takenup at a cost of Rs.2.70 crore as spill over. Further, the Government has sanctioned 4 road works to a length of 4 Km and 3 CD / protective works at a cost of Rs.2.26 crore as new works. Out of this, 5 road works to a length of 7.20 Km and 5 CD / protective works were completed at a cost of Rs.2.55 crore during 2012-13.
- During 2013-14, 4 road works to a length of 4 Km and 2 CD / protective works were takenup at a cost of Rs.2.35 crore as spill over. Further, the Government has sanctioned 4 road works to a length of 4.40 Km and 2 CD / protective works at a cost of Rs.2.40 crore as new works. Out of this, 4 road works to a length of 4 Km and 2 CD / protective works were completed at a cost of Rs.3.25 crore during 2013-14.

8.7. Projects and Performance of National Highways Authority of India (NHAI):

The National Highways Authority of India (NHAI), is the implementing agency for the National Highway Development Project mainly concentrates on improvement of National Highways in Tamil Nadu in association with the State Government. Apart from this, roads, flyovers and under passes are being built under the Port Connectivity Project and other Special Projects. So far works completed by NHAI are 2089 m. length of roads at a cost of Rs.13079 crore upgraded to four lane/ six lane works under implementation are 1083 km. length of roads at a cost of Rs.8649 crore and 1799 km length of roads are yet to be awarded.

8.7.1. Port Connectivity Scheme:

The Cabinet Committee on Economic Affairs (CCEA) approved the port connectivity scheme during 2000 with the objective of connecting the 12 important ports in India through NHAI by establishing a Special Purpose Vehicle (SPV). Two Special Purpose Vehicles (SPV) were established in Tamil Nadu to improve the roads connecting 3 major ports Chennai, Ennore and Thoothukudi.

8.7.2. Chennai-Ennore-Manali Road Improvement Project (EMRIP):

Chennai - Ennore - Manali Road Improvement Project (EMRIP) is being implemented by NHAI through a SPV established by name Chennai Ennore Port Road Company Ltd with Government of Tamil Nadu, Chennai Port Trust and Kamaraj Port Ltd, erstwhile called as Ennore Port Ltd as stake holders.

Table : - 8.7 : Cost sharing details of Ennore-Manali Road Improvement Project (*Rs. crore)*

Stake Holders	Share Amount	Loan amount	Total	Share amount so far released
Natioal Highways	139.80	117.50	257.30	182.87
Chennai Port Trust	139.80	110.68	250.48	139.80
Govt. of Tamil Nadu	58.20	---	58.20	58.20
Ennore Port	34.02	---	34.02	34.00
Total	371.82	228.18	600.00	414.87

Source :Policy Note on Road, Minor Ports and Shipping - 2013-14 Govt. of Tamil Nadu

Widening to four lane with service road and improvements such as paved shoulder to a stretch of 30 Km. of State Highways connecting the Chennai port are being carried out at an estimated cost of Rs.600 crore .

8.7.3. Thoothukudi Port Connectivity Scheme:

Under this scheme, NHAI established a SPV namely, Thoothukudi Port Road Company Ltd with Thoothukudi Port Trust to improve 47.20 km length of road in NH-7A from Tirunelveli to Thoothukudi at a cost of Rs.290 crore. The work was completed during January 2013.

8.8. Special Industrial Corridors:

8.8.1 Rajiv Gandhi Salai (IT Expressway)

Under Phase-I, the Rajiv Gandhi Salai (IT Corridor) was developed as a six lane road of international standards from Madhya Kailash to Siruseri for a length of 20.10 km. Also the link road connecting Sholinganallur and East Coast Road for a length of 2.15 km was widened to four lanes. This road is being maintained as a toll road by M/s IT Expressway Ltd., the Special Purpose Vehicle (SPV) of Tamil Nadu Road Development Company. In the

second phase, the Government proposed to construct a six lane road for a length of 25 km from Siruseri to East Coast Road near Mamallapuram, under a viable financial arrangement through Public Private Partnership. The cost estimate, as per the DPR for the project is Rs.574 crore. The Government sanctioned Rs.294 crore for land acquisition. The process of updating the DPR as per current rates and modified specifications is on. Out of the 13 villages, land acquisition works have been completed for 8 villages and it is under progress for the remaining 5 villages. The DPR is under process.

8.8.2 Elevated Road from Taramani to Mahabalipuram in 2 phases:-

Based on the announcement made by the Honorable Chief Minister, administrative sanction of Rs. 5.0 Crores has been accorded for "The Construction of Elevated Road from Taramani to Siruseri under Phase-I and from Siruseri to Mahabalipuram under Phase-II, for a length of 45Km". The tenders for appointing the consultancy service for preparation of Detailed Project Report (DPR) for the above work has been called for and the technical bids have been opened and it is under scrutiny.

8.8.3 Road Infrastructure Facility Improvement in Oragadam Industrial Park:

Tamil Nadu Road Infrastructure Development (TNRIDC) has taken up the task of road infrastructure facility improvement in Oragadam Industrial Park so as to cater to the needs of newly started industries in Sriperumpudur area to ease the traffic congestion. The Phase I of the scheme is split into two road works. The first road work is for 24.00 Km. The second road work is for 33.4 Km which is split up into two packages as 16.60 km and 16.80 km. The road works in the first phase were completed for a length of 44.6 km. Totally *Rs.*10 crore worth drainage works were completed. Construction of a Grade Separator at Oragadam junction at a cost of Rs.23 crore is in progress. The total expenditure so far incurred for this project stood at *Rs.*382.25 crore including cost of Land acquisition against the estimated cost of Rs.300 crore, and the scheme is under implementation with the revised estimated cost of Rs.462.42 crore.

The Phase II of this scheme had a sanction of Rs.86.65 crore for the work of "Widening four lane to six lane for the stretch from Oragadam to Sriperumbudur, km 12/6 – 24/6 in Singaperumalkoil -Sriperumpudur road and the work is in progress. This work is proposed to be completed by July, 2015.

8.9. NABARD-Assisted Schemes:

The contributions of the NABARD-Assisted Scheme such as construction of bridges, improvements of roads, construction of Railway Over Bridges, Railway Under Bridges and bypasses are significant. The below table provides a bird's eye view of various works taken up under this scheme.

Table – 8.8: NABARD Assisted Schemes - Tamil Nadu		
Scheme	**Objective**	**Progress**
1. Improvement to MDRs and ODRs	Improving and strengthening of MDRs and ODRs	Under this scheme during 2011-12, 268.10 km. of roads at a cost of Rs.96.86 Crore has been taken up for execution. During 2011-12, 219.10 km. length of roads were completed incurring an expenditure of Rs.74.73 Crore. Under this scheme during 2012-13, totally 482.72 km. length of roads at a cost of Rs.224.32 Crore has been taken up for execution. During 2012-13, 49 km. length of roads were completed incurring an expenditure of Rs.22.84 Crore. Under this scheme during 2013-14, totally 433.72 km. length of roads at a cost of Rs.201.17 Crore has been taken up for execution. During 2013-14, 422.42 km. length of roads were completed incurring an expenditure of Rs.191.60Crore. During 2014-15, an allotment of Rs.100 crore has been made under this head.
2. Construction of River Bridges in Government and Panchayat Union Roads	Bridgeworks	Under this scheme during 2011-12, totally 199 bridges at a cost of Rs.419.88Crore has been taken up for execution. During 2011-12, 67 bridges were completed incurring an expenditure of Rs.142.67 Crore. Under this scheme during 2012-13, totally 250 bridges at a cost of Rs.518.52 Crore has been taken up for execution. 64 bridges were completed incurring an expenditure of Rs.137.18 Crore. Under this scheme during 2013-14, totally 309 bridges at a cost of Rs.626.25 Crore has been taken up for execution. During 2013-14, 104 bridges were completed incurring an expenditure of Rs.232.60Crore. During 2014-15, an allotment of Rs.265 crore has been made under this head.
3. Rural Road Scheme	Panchayat Union Roads connecting villages having a population of 500 – 1000.	Under this scheme during 2011-12, 5 bridges at a cost of Rs.7.07 Crore has been taken up for execution. During 2011-12, 3 bridges were completed incurring an expenditure of Rs.3.66 Crore. Under this scheme during 2012-13, 2 bridges at a cost of Rs.3.27 Crore has been taken up for execution. 1 bridge was completed incurring an expenditure of Rs.0.81 Crore. Under this scheme during 2013-14, 1 bridge at a cost of Rs.1.43 Crore has been taken up for execution and due to involvement of IAF land alienation this work has been carried over to the next year and will be completed after land transfer from IAF. During 2014-15, an allotment of Rs.1.53 crore has been made under this head.
		Contd….

(Contd…)	Table – 8.8: NABARD Assisted Schemes - Tamil Nadu	
Scheme	**Objective**	**Progress**
4. Bridge Works	Providing road access in rural areas, bridge works are undertaken.	Under this scheme during 2011-12, 13 Bridges at a cost of 24.72 crore. has been taken up for execution. During 2011-12, 2 bridges were completed incurring an expenditure of Rs. 12.85 crore. Under this scheme during 2012-13, 7 Bridges at a cost of 10.25 crore has been taken up for execution and 5 bridges were completed incurring an expenditure of Rs. 3.19 crore. Under this scheme during 2013-14, 2 Bridges at a cost of 4.41 crore. Has been taken up for execution and during 2013-14, 1 bridge work was completed incurring an expenditure of Rs. 1.61 crore. During 2014-15, an allotment of Rs.2.46 crore has been made under this head
5. Bus Route Scheme	No new sanction under this Scheme during 2013-14.	Under this scheme during 2011-12, spill over work of 1 Bridge at a cost of 1.72 crore has been taken up for execution and completed. During 2011-12, an expenditure of Rs. 0.59 crore has been incurred. Under this scheme during 2012-13, an expenditure of 0.96 crore has been incurred.
Source: Policy Note on Roads, Bridges and Shipping 2013-14, Highways Department, Chennai, Govt. of Tamil Nadu		

8.10. Tamil Nadu Road Sector Project- World Bank Assistance:

With consistent and sustained follow- up, the Department obtained the approval of the World Bank and the Government of India for the Second Phase of the Tamil Nadu Road Sector Project (TNRSP). This project is the biggest externally aided project implemented by the State so far, at a total cost of Rs.8583 crore and covering 1678 km. The project will improve and develop road links with high-density traffic. These works was expected to commence from 2013-2014. The approval of the Ministry of Road Transport and Highways (MoRTH), Government of India was obtained on 05.06.2012, subsequently followed up by the approval of the Department of Economic Affairs on 31.08.2012. The World Bank gave its "In-Principle Approval" on 09.10.2012. State Govt. sanctioned an amount of Rs.65 crore from the Project Preparatory Fund of the Tamil Nadu Infrastructure Development Board.

Consequently, the Request of Expression of Interest (REOI) was published on 15.02.2013 and the final Detailed Project Report (DPR) gets ready for execution of work by 15.05.2014. It is expected that the loan agreement with the World Bank will be executed by 30.06.2014.

8.11. Involvement in Public Private Partnership (PPP) under Infrastructure Development:

Under the PPP mode, the Government will play the role of a change agent and will originate infrastructure projects in line with Vision 2023, and will also focus on the important functions of regulation and overall governance. Implementation of Vision 2023 will call for significant institutional reform to accelerate infrastructure development in PPP mode. The fiscal strategy over the 11 years in Vision 2023, envisage the State share to invest in infrastructure projects limits to 30 percent, with central sector projects accounting for

30% and balance investment will be sourced through PPP. The total investment requirement for infrastructure over the 11 year period is estimated at Rs 15,00,000 crore (~US$ 330 billion). Given that the present annual capital expenditure of Government of Tamil Nadu is of the order of Rs 14,000 crore, which allowing for increase in the future, cannot be expected to contribute to more than one-third of the required investment of annual infrastructure creation, make PPP imperative for the State's infrastructure needs.

8.11.1 Tamil Nadu Infrastructure Development Board (TNIDB):

The need for capacity building in Government is necessary in order to reengineer procurement packages and procedures in implementing infrastructure projects by Government in an efficient manner. The cherished dreams of Vision 2023 for capacity building in Government is for realization with "Tamil Nadu Infrastructure Development Board (TNIDB)."

The 'Tamil Nadu Infrastructure Development (TNID) Act 2012' has established the "Tamil Nadu Infrastructure Development Board (TNIDB)."TNIDB which serve as the nodal agency to coordinate the implementation of infrastructure projects in the State. The Board will coordinate infrastructure development activities in the State and facilitate projects undertaken solely by Government institutions as well as projects undertaken through Public-Private Partnerships (PPP).

The Government has also notified the Tamil Nadu Infrastructure Development Rules, 2012, Tamil Nadu Infrastructure Development Regulations 2013 and Tamil Nadu Transparency in Tenders (PPP Procurement) Rules, 2012. The said three rules ensures facilitation in project preparation, structuring, financing and efficient procurement. The life blood of finance will flow from the Tamil Nadu Infrastructure Development Fund (TNIDF) to support the design, development, working, administration and management of projects. In addition, the Government has established the Project Preparation Fund (PPF) to conduct studies, hire experts / consultants, prepare feasibility studies, capacity building, undertake research and training, etc.The Secretariat of TNIDB is in the Infrastructure Cell under the Department of Finance, Government of Tamil Nadu.

8.12. Growth of Vehicle Population:

Vehicle population has been rising in leaps and bounds in Tamil Nadu. The growing vehicle population in the State testifies to the burgeoning needs of the economy for conveyance of goods and passengers. Growing demand for personalized vehicles, facilities for hire purchase system and swelling real per capita income are a trigger for rapid growth of vehicle population. The growth rate of the vehicle in the State, also serve as a barometer of the growth of economy, which peaked a 12.50 per cent in 2011-12, decelerated to 11.21 percent in 2012-13 and further to 9.65 percent in 2013-14. The slowdown in the tertiary sector and sluggishness in purchase of consumer durables that fuelled the growth in vehicle population may be attributed to this falling trend. More than 90 percent of the total vehicles are non-transport vehicles. Between 2012-13 and 2013-14, the growth in non-transport vehicles (9.9%) in the State had outweighed the transport vehicles (5.9%). Vehicle density per square kilometer in the State reached peak at 144 in 2013-14.

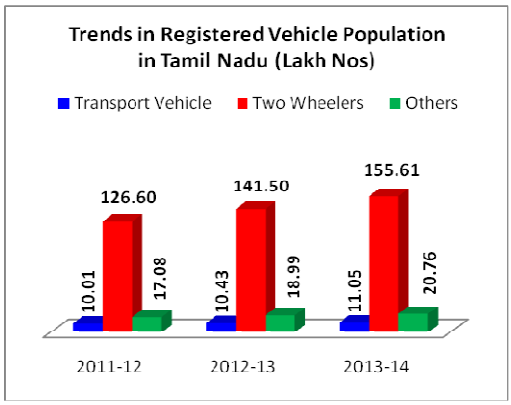


Table-8.9: Trend in Registered Vehicle Population in Tamil Nadu (Lakh Nos.)						
Year	Transport vehicles	Non-transport vehicles		Total vehicles	Growth Rate (%)	Vehicle Density per Sq.Km (Nos.)
		Two wheelers	Others			
2008-09	7.84	90.37	12.19	110.40	9.64	84
2009-10	8.34	99.70	13.53	121.57	10.12	93
2010-11	9.29	112.07	15.25	136.61	12.37	105
2011-12	10.01	126.60	17.08	153.69	12.50	118
2012-13	10.43	141.50	18.99	170.92	11.21	131
2013-14 (Projection)	11.05	155.61	20.76	187.42	9.65	144
				AAGR	9.58	
Source: Commissioner of Transport, Chennai – 5. Govt. of Tamil Nadu						

8.13. Vehicle Population and Road Infrastructure:

Rapid growth in vehicle population leads to air pollution, space constraints in terms of road accessibility and exhaustion of scarce petroleum resources. Oil companies encourage the practice of Car Pool in cities to save the precious fuel energy and Government encourages the public to use public transport to conserve energy.

Table – 8.10: Vehicle Population and Road Infrastructure – Tamil Nadu			
Year	No. of Registered Motor Vehicles per Lakh population	Road Density per 1000 Sq.Kms (in Kms)	Number of Motor Vehicles per Sq.Km.
1960-61	132	338	0.34
1970-71	333	526	1
1980-81	663	935	2
1990-91	2755	1312	12
2000-01	8301	1353	40
2010-11	18937	1581	105
2011-12	21304	1672	118
2012-13	23693	1774	131
2013-14 (Projections)	25980	1859	144
Source: Computed by DEAR			

The road density per 1000 sq.km, number of motor vehicles per square kilometer and the motor vehicles registered per lakh population in the State had shown a steady upward trend. During the past 6 decades, the road density per 1000 square kilometer had gone up by 6 times. In 2013-14, it stood at 1859 and also significantly higher than the All-India (1288 kms.). The number of registered motor vechicles per lakh of population increased manifold from 132 in 1960-61 to 25980 in 2013-14 indicating the improvement in accessibility of means of transport for the people.

8.14. Vehicle population and Road Accidents in Tamil Nadu:

Road safety is ensured through steps like widening of narrow culverts, improvement to accident prone areas such as widening and reconstruction of narrow bridges, junction improvements and construction of centre medians, The need for road safety is imperative to save the precious lives of the nation. Accidents take a heavy toll on the individual in terms of lost person-hours, earnings and terminal illness. The nation suffers in terms of money spent on the accident victims. The families of the accident victims not only suffer psychological effect due to loss of their dear and near ones, but also unable to meet their both ends due to the loss of earnings from the members. In the above context, Road Safety Policy is regularly formulated and approved by Government to eschew road accidents. The preventive measures for accidents are by improving the accident prone-areas and black spots.

The alarming rise in vehicle population as well fatality is noticeable from the above table. The road accidents are on the rise due to the rough roads. Fatal accidents almost doubled between 1993 to 2013. The upward trend in fatality in road accidents continued in 20011-12 and 2012-13, which gave the State the dubious distinction of topper in road accidents in the country. However, its ratio to the total persons involved revolved around 17 percent since 2010. The State took note of this precarious trend and allotted Rs.60 crore for road safety measures in 2012-2013. Road Safety has always been a primary consideration in highways design and operation. Highways Department has taken up road safety works like improvements to geometrics, curve improvements and widening of narrow cross drainage structures. During the Budget Session 2014-15, it has been announced that, a special project to attend to the black spots with proper civil engineering works in highly accident prone spots will be taken up at a cost of Rs.300 Crore. During 2011-12 to 2013-14, 427 Nos. of road safety works have been completed under Road safety Fund.

Table -8.11: Vehicle Population and Road Accidents in Tamil Nadu

Year	Vehicle Population (In lakhs)	Total Accidents (Nos)	Persons Involved (Nos)	Persons Killed (Nos)	Fatal* (%)
(1)	(2)	(3)	(4)	(5)	(6)
1993	19,21,440	34,925	36,675	7,349	18.5
2003	62,09,037	51,025	64,517	9,275	14.4
2010	121,56,961	64,996	90,854	15,409	17.0
2011	136,60,717	65,873	89,664	15,422	17.2
2012	153,68,625	67,757	94,523	16,175	17.1
2013	170,91,768	66,238	91,244	15,563	17.1

***Note:* *Col(5) as (%) to Col.(4)**
Source: Commissioner of Transport, Chennai – 5. Govt. of Tamil Nadu

8.15. State Transport Undertakings (STU):

The inadequate public transport system has been straining the growing population especially in the urban areas due to congestion and overcrowding. This trend has made the transport economist to explore various other transport systems like Metro rail, Mono rail and Bus Rapid Transport Systems (BRTS). The Metropolitan Cities like Calcutta, New Delhi, Mumbai, and Bangalore started implementing such transport systems. Chennai is yet to launch the Chennai Metro Rail System and the works are in progress. Mono Rail System is in the bidding stage.

8.15.1. Fleet Strength:

The seven State Transport Undertaking in Tamil Nadu constitute a total fleet strength of 22053 in 2012-13 which was higher by 4 percent from the fleet strength for 2011-12. The financial position of the STC continues to be in the red with a temporary easing to the extent of loss which was Rs.829.91 crore (pre-audit) in 2012-13 compared to the loss of Rs.1791.64 (Post-audit) in 2011-12. The diesel subsidy of Rs.500 crore from the budgetary allocation of the government gives some respite to the STUs reeling under loss.

Table – 8.12: Fleet Strength of State Transport Corporation (in nos.)

Service Category	March'12	March'13	Growth %
Chennai Metro – City Service	3222	3365	4.44
Town Services (Districts)	6687	6951	3.95
Mofussil Services	8174	8646	5.77
Express & Ghat Services	1425	1538	7.93
Spare Buses	1700	1553	-8.65
Total Fleet strength	21207	22053	3.99

Source: Commissioner of Transport Chennai – 5. Govt. of Tamil Nadu

8.15.2. Operational Efficiency of State Transport Undertakings (STU):

The STUs transverse a total distance of 88.44 lakh kms per day in 2011-12 which increased to 89.78 lakh kms per day in 2012-13. The fleet utilization had a marginal drop of 94.42 per cent in 2012-13 as against 94.43 per cent witnessed in 2011-12. The operating average kilometre per litre of diesel showed a marginal improvement from 5.25 kms in 2011-12 to 5.27 kms in 2012-13.

Box No.4

Lowest Fare/ per Km

Tamil Nadu boasts the lowest fare in the country with a fare per km is 42 paisa per km for ordinary mofussil bus to air-conditioned bus that charge just 90 paisa per km. The fare in the neighbouring states such as Kerala, Karnataka, Andhra Pradesh, Maharastra and Gujarat ranged between 51 paise to Rs.1.60 paisa for ordinary mofussil bus and air-conditioned bus respectively.

Source: Policy Note on Transport , 2013-14 Govt. of Tamil Nadu

8.15.2.1 Dual Pricing Policy for Diesel Supply to STU:

Dual pricing policy for diesel adopted by the Oil Marketing companies worsened the operational efficiency of the State Transport Undertakings (STU). The supply price for diesel for the bulk orders from Tamil Nadu State Transport Undertakings is comparatively higher than the supply price in retail outlets. This dual pricing system has caused mounting losses for the Transport Undertakings. This policy which actually subsidizes private transport and penalizes public transport has been strongly opposed by the State Government which has called on the Central Government to abolish the dual price policy.

8.15.2.2 Social Obligation Functions of STU:

- Compulsory operation of long distance buses even at the time of inadequate passenger capacity.
- Operation of fleets in non-profitable rural areas to ensure the mobility of the rural population.
- Free pass for the students from school to college level, concessional pass to the differently able persons, chronically sick patients, freedom fighters, trips made for professional course counselling for students etc., are laudable welfare measures by the Government of Tamil Nadu.
- The comparative low fares in STUs to the STUs in the neighboring states such as Kerala, Karnataka, Andhra Pradesh, Maharashtra and Gujarat is laudable and it is a classic example of people centric policy by the Government. Such low fares also indirectly promote more usage of public transport by people and lessen the use of own transport. Ultimately, the country gains in terms of foreign exchange used in import of depleting fuel energy and save the environment from pollution.

8.15.2.3 .Measures to improve revenue by STU:

- Business initiatives in the form of advertisement in buses as well as parcel/courier services and tie-ups with high way motels garner additionally Rs.65 crore in 2012-13.
- The ‘travel-as-you-like' pass is available on daily, weekly, monthly basis at a fixed price in city transport of STU. Commuters have to pay Rs. 30 for a daily pass, Rs. 160

for weekly and Rs. 600 for a monthly pass, which is a real hit among commuters and would benefit those who travel a lot in city buses.

8.16. Railways:

Railways are the lifeline in the movement of bulk cargo within the State as well as for interstate movement. The conversion of meter gauge lines to broad gauge and electrification of tracks have been proceeding slowly and steadily in the State within the given fund constraints and competing claims. The current rail net work covers a 3761.62 Kms in the year 2011-12 which has a decline of (-)3.07 percent as compared to 3880.90 Kms in the year 2010-11 all due to the conversion of meter gauge. In the total 3761.6 Km routes, electrified routes constitute 1759.16 Kms.(46.76%).

8.16.1. Railway Projects in the State:

The Railway projects under way in Tamil Nadu include new line completion, doubling, gauge conversion, New Railway Electrification Projects as well as a Rail Neer plant. The projects are under three stages namely survey, under Planning Commission Appraisal and under progress as detailed in the table below. The setting up of new Rail Neer Plants at Palur in Tamil Nadu is under way.

Year :13-14	Table 8.13 : Railway Projects in the State		
Stage	**Survey**	**Under Progress**	**Under Planning Commission Appraisal**
a) New lines	I. Aloor-Nagarcoil-Chettikulam II. Thanjavur-Ariyalur (Updating) III. Tirunelveli-Sankarankoil via Pettai,Pudur, Sendamaram Veerasigmamani IV. Karaikkudi-Dindigul V. Karaikkudi-Madurai (updating) VI. Morappur-Dharmapuri (updating)	I. Karaikal-Peralam; II. Thanjavur to Pudukottai via Gandarvakottai III. Walajah Road-Arcot	I. Cumbum-Proddatur Sriperambudur-Guduvanchery with spurIrunKattukotti-Avadi. II. Jolarpettai-Hossur via Krishnagiri III. Kanhangad-Panathur IV. Karaikal-Peralam V. Avadi-Gaduvancheri via Sriperumbudur & Oragadam
b) Gauge Conversion		I. Pollachi-Kinattukkadavu of Pollachi-Podanur II. Sengottai-Bhagavathipuram	
c) Doubling	I. Tirupati – Katpadi II. Salem – Omalur	I. Chennai Central-Basin Bridge Junction (5th & 6th lines); II. Attipattu-Ennore 4th line III. Melmaruvthur-Tozhuppedu IV. Ottivakkam-Madurantakam V. Tindivanam-Perani VI. Vallakudi - Palanganatham VII. Ariyalur-Sendurai VIII. Golden Rock byepass	

		IX. Ottivakkam-Karunguzhi X. Sendurai-Ichchangadu XI. Tiruvottiyur-Ennore XII. Tozhuppedu-Olakur-Tindivanam XIII. Ulundurpet-Parikkal XIV. Vridhachalam Jn to Ulundurpet	I. Jollarpettai- Katpadi-Arakkonam II. Renigunta-Arakkonam 3rd line
d) New Electrifi-cation Project		I. Kanniyambadi-Vellore Cantt.	
http://www.sr.indianrailways.gov.in/			

18.16.2 Urban Transportation:

Urban transport is one of the key elements of urban infrastructure. Effective urban transportation enhances productivity and growth of the economy. Urban transportation consists of two components- private transport and public transport. Public transport system helps to improve urban-rural linkages and improve access of rural/semi-urban population in the periphery of the city centers' for the purpose of labour supply without proliferation of slums. Urban transportation ensures easily accessible safe, affordable, quick, comfortable, reliable, and sustainable mobility for all.

8.16.3. Chennai Metro Rail Limited (CMRL):

The two initial corridors in the ongoing Chennai Metro Rail Project under the Phase-1, running from Washermenpet to Airport (23.1 Kms) and Chennai Central to St.Thomas Mount (45.1 Kms) are moving at a fast pace. The estimated base cost of this project is about Rs.14000 crore. CMRL officials have completed the tests/trials on January 30, 2014 which was tested on the ramp section leading up to the elevated portion for a distance of 1.5 km from the Koyambedu Depot. In total 42 train sets, with four cars each, will be operational by the Chennai Metro. Of these nine will be imported from Brazil, while the balance 33 will be manufactured at French multinational Alstom's plant at Sri City SEZ, 55 Kms from Chennai. The first line of the Phase I is expected to commence by October 2014 and the second line by 2015 beginning. Nearly 50 per cent of the overall Metro Rail work has been completed. The elevated corridor is approaching the final stages of construction and a third of the work in the underground section is over. Signaling and electrical work is under progress on the elevated corridor. Frequency of one train would be for every 2.30 minutes once footfalls reach six lakh passengers a day. CMRL projected passenger trips per day would reach.7.74 lakh in 2016 and 12.85 lakh in 2026. The State Government has proposed the extension of line I to Thiruvottiyur and also Phase II of the Project for a further three lines to the Government of India.

8.16.4. Chennai Mono Rail Project:

The Chennai Mono Rail Project is slowly but steadily emerging successfully. This flagship project of the Government has been pruned to two corridors namely Vandalur-Velachery corridor and - Poonamallee to Kathipara. Apart from Vadapalani, areas such as Valasaravakkam and Virugumbakkam will be covered in the Poonamallee to Kathipara corridor . The cost of the 23-km-long Vandalur-Velachery corridor is around *Rs.* 4,000 crore. The estimated cost of the Poonamallee-Kathipara corridor had been reduced to *Rs.* 3,235 crore. The pre-qualification bids have been floated for this corridor - Poonamallee to

Kathipara. The process of bidding for the project is in the final stage and the bids would be floated soon.

8.17. Sea Port:

An efficient multimodal system which uses the most efficient mode of transport from origin to destination is pre-requisite for the smooth functioning of any port. A multimodal rail and road system involves coordinating networks to ensure good connectivity between port and hinterland.

Sea Ports cater to the promotion of foreign exchange flow to the country with its function as a link for the export and import of cargo from the foreign countries. The advantage of the sea coast in Tamil Nadu endows it with three major ports, namely, Chennai, Tuticorin and Kamaraj port and serves as a hub for the traffic of import and export of cargo from in and out of India. The Kamaraj port commenced export of cars from the port owned General Cargo Berth (GCB) from January,2012 and handled around 1.50 lakh units of automobiles during 2012-13 for the automobile manufacturers like Nissan, Renault, Ford, Toyota, Ashok Leyland ET. The year 2012-13 marked yet another milestone with Honda cars being shipped out to South Africa.

The analysis of commodity wise cargo movements through three major ports of Tamil Nadu exhibits an overall growth rate of 7.57 per cent between, 2012-13 and 2013-14. A further handling of commodity- wise traffic growth from 2011-12 to 2012-13 is shown in the Table-8.15.

Table-8.15: Commodity-wise Traffic in the Major Ports (000 tonnes)

Commodity / Year	Chennai Port		Tuticorin Port		Kamaraj Port *		Total	
	Qty	Growth %	Qty	Growth %	Qty	Growth %	Qty	Growth %
POL								
2011-12	13290		839		502		14631	
2012-13	13375	0.64	792	-5.60	1124	123.90	15291	4.51
2013-14*								
Fertiliser – Finished								
2011-12	394		1134				1528	
2012-13	190	-51.78	487	-57.05			677	-55.69
2013-14*								
Fertiliser – Raw								
2011-12	286		1014				1300	
2012-13	263	-8.04	778	-23.27			1041	-19.92
2013-14*								
Food grains								
2011-12	190		304				494	
2012-13	314	65.26	128	-57.89			442	-10.53
2013-14*								
Iron ore								
2011-12	97		33				130	
2012-13	52	-46.39	0	-100.00			52	-60.00
2013-14*								
Coal								
2011-12	961		6050		13111		20122	
2012-13	0	-100.00	6661	10.10	14925	13.84	21586	7.28
2013-14*								

Commodity / Year	Chennai Port		Tuticorin Port		Kamaraj Port *		Total	
	Qty	Growth %	Qty	Growth %	Qty	Growth %	Qty	Growth %
Other Goods								
2011-12	40489		18731		1343		60563	
2012-13	39210	-3.16	19414	3.65	1836	36.71	60460	-0.17
2013-14*								
Total								
2011-12	**55707**		**28105**		**14956**		98768	
2012-13	**53404**	-4.13	**28260**	0.55	**17885**	19.58	99549	0.79
2013-14	**51105**	-4.30	**28642**	1.35	**27337**	52.85	**107084**	7.57

Note : Commodity wise details not available for 2013-14, * - Formerly Ennore Port.
Source: Infrastructure, CMIE & Regional Monitoring Service

As far as commodity wise, on the overall Fertilizer-Finished and Raw, Food grains, Iron ore and other Goods category dipped by 55.69 per cent, 19.92 per cent, 10.53 per cent, 60.00 per cent and 0.17 percent respectively in 2012-13 over 2011-12. Petroleum, Oil and Lube (POL) and Coal shows a positive growth of 4.51 percent and 7.28 per cent respectively.

In 2012-13 over 2011-12 Chennai Port posted a growth rate of 65.26 per cent in the traffic of food grains. Coal slid steeply by as high as 100 percent, Iron ore by 46.39 percent and other other goods category by 3.16 percent. The Chennai port clocks an overall negative growth of 4.13 percent 2012-13 and 4.30 percent in 2013-14.

Tuticorin Port shows an overall positive growth of 0.55 percent in 2012-13 and clocked 1.35 percent in 2012-13 and 2013-14. Coal registered a maximum growth of 10.10 percent while food grains sharply declined by 57.89 percent and Iron ore plummeted to 100 percent among its commodity wise traffic growth in 2012-13 over 2011-12.

Kamaraj Port continues to reign in with its high growth rate of 19.58 percent and 52.85 percent in 2012-13 and 2013-14 respectively among the three ports taken together for analysis. POL product traffic portrayed a three-digit growth rate of 123.90 percent and contributed the most to its current growth.

8.18. Public–Private Investment initiative in Port Policy:

Port Policy aims to accelerate the pace of economic growth of the State by developing a number of captive ports through Public Private Participation.

8.18.1: Objectives of the Port Policy:

- To facilitate establishment of Port-based Thermal Power Plants by providing exclusive port facilities to Import Coal, Naphtha, Oil and Natural Gas.
- To provide port facilities to promote export-oriented industries and port based industries along the coastal Districts of Tamil Nadu.
- To decongest Highways and Railways by providing facilities for coastal traffic along the East Coast.
- To promote tourism, cruises and coastal trade.
- To provide facilities to encourage ship repairing and construction of floating crafts.

8.18.2 Policy Guidelines:

8.18.2.1. Private Participation:

With a view to create multiuser facilities capable of handling all types of cargo like bulk, break bulk, containers, liquid bulk petroleum products, chemicals, the Government of Tamil Nadu aims to develop all Minor and intermediate ports in the State through Public Private Participation.

8.18.2.2. Captive Jetties:

In order to satisfy the requirements of industries for allocation of sites for construction of captive jetties for port based industries and create facilities, Government of Tamil Nadu allows private initiatives in construction of Ports / Jetties. Private companies making substantial investment in coastal areas requiring port based facilities will be allotted sites to facilitate construction of jetties both captive and commercial.

8.19.The Private Initiatives of the Board in Development of Ports :

8.19.1. Kattupalli Port:

The inauguration of Kattupalli port has marked a new dawn with M/s Tamil Nadu Industrial Development Corporation Ltd and M/s. L&T, Mumbai, forming a joint venture with a view to implement a Ship Yard-cum-Minor Port complex at Kattupalli. One of the important terms and conditions in this joint venture is that the joint venture company is permitted to operate the minor port on captive basis, cargo relating to Shipbuilding material and containers (Quantity : Proposed 1.5 MMTPA) and with a request to Tamil Nadu Maritime Board to consider permitting the joint venture company to handle other commercial cargoes and to facilitate optimum usage of the port facilities in accordance with the Minor Port Development Policy of Government of Tamil Nadu. Permission to commence handling of Captive and Commercial cargo at Kattupalli port was placed before the Tamil Nadu Maritime Board in its 75th Board meeting held on 06.12.2012 and the board has resolved to grant permission with certain conditions. This port was inaugurated by the Hon'ble Chief Minister on 30.01.2013. Ship repair facility is in full utilization. Containerships have started calling at this port.

8.19.2. Development of a Green Field Port at Nagapattinam:

The age-old port at Nagapattinam is a minor Port, located at the mouth of the Kaduvaiyaru was used to import wheat and fertilizers. The initiative from the present government has set the ball rolling to expand this port through a Techno Economic Feasibility Report by engaging I.I.T., Madras to develop an All Weather, Deep Water, Direct Berthing, and Greenfield Port, adjacent to the existing Nagapattinam Minor Port. The I.I.T., Madras, in their report, has recommended developing this port as an all Weather, Deep Water, and Direct Berthing Port at an estimate of Rs.380 crore. The primary and secondary hinterland of the proposed port at Nagapattinam comprises the districts of Nagapattinam, Perambalur, Villupuram, Salem, Namakkal, Karur, Thanjavur, Thiruvarur and Erode. Orders for the development of Nagapattinam port on PPP mode has been issued by Government vide G.O.Ms.No.7, Highways and Minor Ports (HF2) Department, dated 20.01.2012. Tamil Nadu Maritime Board has engaged M/s. i-maritime consultancy Private Limited, Mumbai as a consultant for providing consultance service for the selection of the prospective developer. The draft model concession agreement and bid document has been submitted by the consultant. Now, a Technical sub-committee formed by the Board to examine these

documents and have submitted its recommendations which was referred to consultant. Further, it was felt that the documents prepared by M/s. I.I.T Madras are more than three years old and the TEFR needs to be updated. M/s. i-maritime consultancy Pvt. Ltd., Mumbai was requested to update the feasibility report to 2013 levels to see the project viability in line to cargo potential.

8.19.3. Development of a Port at Cuddalore:

Steps are being taken to regain the glory of Cuddalore port which was handling multifarious cargo to the tune of 2-3 lakh Metric tones per annum during the eighties. The traffic dwindled and presently without any cargo activity. As such, it was decided by this Board to offer the existing Cuddalore Minor Port on the basis of Develop, Operate, Maintain, Share and Transfer (DOMST) through Public Private Participation mode. Tamil Nadu Maritime Board in its 76th Board meeting held on 27.03.2013 has decided to approve the proposal of appointment of a consultant for developing the existing Cuddalore minor port on PPP mode and to authorize VC&CEO to send a proposal to the Government for obtaining the approval of TNIDB for the engagement of the consultant. Further resolved to make appropriate amendment in the bid document for the selection of consultant for developing the existing Cuddalore minor port on PPP mode as required by TNIDB in line with the PPP guidelines. Now, the Project Concept Note of the Development of Cuddalore Minor Port has been sent to the Government for obtaining the approval of TNIDB for the engagement of the consultant.

Further, the application for assistance from Project Preparation Fund for Engagement of the Consultants for developing the existing Cuddalore Minor Port on PPP Mode in the prescribed format has also been forwarded for obtaining approval from TNIDB. The Executive Committee of TNIDB meeting has accorded in-principle approval of the proposal of Tamil Nadu Maritime Board for a sanction of Rs.40,00,000/- from Project Preparation Fund of TNIDB and the actual release may be limited to the actual tendered amount of Rs.40 lakhs whichever is lower. The scope of work and the mode of engagement of a consultant for preparation of Techno Economic Feasibility Report was placed in the 80th Board meeting held on 27.02.2014 and the Board resolved to approve and call for financial quotations from the listed companies (for a project value of Rs.100 crore and above in similar consultancy projects work) of Tamil Nadu Infrastructure Development Board's abstract dated 28.12.2013. Financial bid have been opened and the bid is being further processed.

8.20. Airports:

Airports Authority of India (AAI) manages 4 Airports in Tamil Nadu. The Airport Authority of India has undertaken the expansion and modernisation of Chennai Airport. The State Government have been extending full co-operation and conducting co-ordination meeting with concerned departments for early completion of this prestigious project.

Table-8.16: Air Passengers and Cargo Traffic Performance in Tamil Nadu

Category	Passenger Traffic (000 Numbers)				Cargo Traffic (000Tonnes)			
	2011-12		2012-13		2011-12		2012-13	
	Pass-enger	Growth %	Pass-enger	Growth %	Quantity	Growth %	Quantity	Growth %
Domestic	10495	11.39	10389	-1.01	93	-1.59	86	-7.53
International	5196	3.61	5348	2.93	275	-9.24	241	-12.36
Total	15691	8.69	15737	0.29	374	-7.42	327	-11.14

Source: CMIE & Regional Monitoring Service

The Airport Authority of India, New Delhi has requested the Government to provide the land for the expansion and modernisation of the Non-Metro Airports in Tamilnadu. Hence, the Government is taking necessary action to provide the land in Madurai, Trichy, Coimbatore, Thoothukudi and Salem Districts.

The slowdown in the economy is axiomatic with the domestic traffic in passenger having witnessed a negative growth. The austerity measures taken by the companies pulled down the volume of domestic passenger traffic and the international passenger traffic recorded a growth of 2.93 per cent, which was lower than the growth registered in 2011-12. The cargo traffic; an indicator for the industrial growth, had taken a beating with the overall cargo traffic of domestic and international front having clocked a negative growth of 11.14 per cent.

8.21. Tele-communication Network:

Table-8.17:Tele-Communication Network in Tamil Nadu (as on June 2013)

Particulars	In Lakh
a) Wireless b) Wire line Subscriber base	72.83 03.06
Number of PCOs	1.79
Number of Villages Covered by VPTs	0.15

Source: Telecom Regulatory Authority of India

The Indian Telecommunications network with 903.09 million connections (as on June 2013) is the third largest in the World. 7.6 million Tamil Nadu subscribers formed about 10 percent of the All India subscribers. The Indian telecom industry is highly competitive with at least seven service providers in each circle and up to 12 service providers in some circles competing for market share. The benefit to the consumer with the Indian mobile industry is that, India has one of the lowest tariffs in the world due to the aggressive pricing strategies. The flip side is the trend of decline in the industry's key operating metrics: Average Revenue per User (ARPU); and Average Rate per Minute (RPM). The average ARPU in India stands at around US$2 (March 2012) as against the estimated US$63 for NTT Docomo, Japan; US$33 for Vodafone, UK; and US$12 for China Mobile, China.

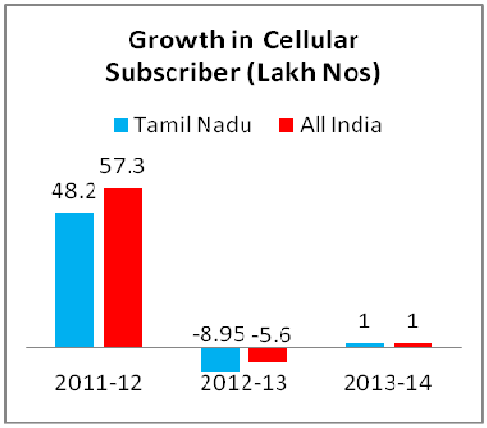
8.21.1. Cellular Subscriber Base:

Cellular phones turning to be a boon to the poorest of the poor as the subscriber base in Tamil Nadu in 2011-12 had shown a rise of 48.21 per cent. The year 2012-13 exhibited a negative growth and the reason attributed partly because of the clean-up exercise by mobile service providers and because of the exit of some service providers Service providers started terminating connections of prepaid users who had not used their SIM cards for 60 days. Around 30 million users had their connections disconnected during July-October 2012.

Table-8.18: Cellular Subscribers (in Lakh)

Year	Tamil Nadu		All India	
	Number	Growth (%)	Number	Growth (%)
2011-12	795.3	48.2	9191.7	57.3
2012-13	724.1	(-)8.95	8678.0	(-)5.6
2013-14 (June'13)	728.3	1.00	8733.6	1.00

Source: Telecom Regulatory Authority of India



8.21.2. Internet / Broad Band usage:

India has the third highest number of Internet users including Mobile Internet users. In 2013-14 there were 1984 lakhs, in All-India with Tamil Nadu having 196 lakh users in it. The economic contribution from the Internet in India to GDP is estimated presently as 1.6 percent and expect to increase to 2.8 to 3.3 percent by 2015.

Table-8.19: Internet Subscribers (lakhs)

Year	Broad band/Narrow band Users		Mobile Internet Users		Total Internet users	
	Tamil Nadu	All India	Tamil Nadu	All India	Tamil Nadu	All India
2011-12	21.62 (16)	138.1	-	-	21.62 (16)	138.10
2012-13	26.69 (12)	216.0	127.40 (9)	1432.0	154.09 (9)	1648.0
2013-14	27.00 (12)	218.9	169.15 (10)	1765.0	196.15 (10)	1983.9

Note: Figures in brackets indicate the percentage share of Tamil Nadu to All India.
Source: Telecom Regulatory Authority of India

8.21.3. Tele-density-Major States:

Tele-density gives the number of wire-line (WL) and wireless landline (WLL) telephones in use for every 100 individuals living within an area. When the tele-density exceeds 100, it means that there are more telephones than people. The total wireless subscribers in the State (GSM, CDMA & WLL (F)) base reaching 75.06 million in the mid of 2013. The total tele-density touched 108.96 with the rural tele-density was at 69.45 and urban tele-density at 138.33.Himachal Pradesh has the highest rural tele-density of 75.59, followed by Tamil Nadu (69.45), Punjab (68.83), Kerala (62.88), and Haryana (57.07). Bihar continues to have the lowest rural tele-density of 27.51, followed by Madhya Pradesh (31.87).

Table – 8.20: State wise Tele-Density -30th September, 2013

States	Rural Tele-density	Urban Tele-density	Total Tele-density
Andhra Pradesh	43.51	164.43	77.15
Assam	32.36	127.30	47.10
Bihar	27.51	147.38	43.95
Delhi	-	-	222.10
Gujarat	54.53	134.18	87.29
Haryana	57.07	114.32	77.06
Himachal Pradesh	75.59	333.15	104.93
J&K	40.28	122.68	62.82
Karnataka	44.60	167.95	91.52
Kerala	62.88	194.79	96.43
Madhya Pradesh	31.87	115.52	54.44
Maharashtra	53.34	124.87	87.29
North East	41.73	157.14	70.15
Orissa	39.40	165.83	61.21
Punjab	68.83	153.11	104.68
Rajasthan	45.68	154.65	71.88
Tamil Nadu	69.45	138.33	108.96
Uttar Pradesh	33.04	130.28	54.99
West Bengal	41.97	136.08	68.87
All India	**41.70**	**144.02**	**73.01**

Source: Telecom Regulatory Authority of India

8.22. Postal Communication:

Postal services have been revamped in India as India Post is capitalizing on their vast network of 1, 55,482 Post Offices spread over every nook and corner of India.The State has a network of 12185 post offices and 141 RMS offices/sections. The economic prudence

marks the recent developments in the Postal Communication servcies in India. The launch of premium servcies such as Speed Post, Express Parcel Post, Media Post, Greeting Post, Business Post, Logistics Post and Retail Post services are the few initiatives. E-initiatives in the form e-post, e-payment, core banking project, Instant Money Order (IMO), etc. marks the entry of the conservative postal services in to a new era of electronic revolution Tamilnadu Postal Circle encompasses the State of Tamilnadu, Pondicherry, and Karaikal Districts of the Union Territory of Pondicherry. The Circle is further bifurcated as four Regions, namely: Chennai City Region, Western Region,Central Region and Southern Region, which further proliferates into 42 Postal Divisions and 6 RMS Divisions in the Circle.

8.23: Looking Ahead:

The significance of transport and communication can hardly be over-emphasised on the ground that they can help to enhance the productivity in the economy, reduce cost of production and enlarge the market. By contributing 17 per cent of the Gross State Domestic Product originates from the transport and communication sector is worthnoting. The constraints faced in the timely completion of road network are delay in land acquisition and removal of structures, time and cost overruns in construction process, poor performance of some contractors and entanglement in the labyrinth of legal disputes.

Though the State has coherent transport policy and integrated transport system corridor management mode should be put in place – it is a technique of managing the highways to deliver maximum throughput in terms of speed and traffic volume while minimising the operational cost and enhancing road safety. The scope of the work includes road maintenance, road property management, incident management, traffic management and engineering improvements.