



VISION TAMIL NADU



STRATEGIC PLAN FOR INFRASTRUCTURE DEVELOPMENT IN TAMIL NADU

PHASE 2

Projects Profiles



ADB

Government of Tamil Nadu



February 2014

VISION TAMIL NADU



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Project Profiles



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Vision 2023

Vision Tamil Nadu 2023

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Vision 2023

Tamil Nadu





J JAYALALITHAA

Chief Minister



SECRETARIAT
Chennai-600 009.

Date 17.2.2014

FOREWORD

The Tamil Nadu Vision 2023 is to galvanise and catalyze strategic investments in infrastructure to place Tamil Nadu on a higher growth trajectory and to secure the benefits of growth for all the people of the State. Tamil Nadu Vision 2023 is ambitious and aspirational in its intent and scope – aiming to meet the legitimate expectations of the people of the State for a higher quality of life.

I am fully committed to converting this Vision into reality. In keeping with this commitment, the Second Phase of the Vision 2023, containing reports on the sector strategy and approach and profiles of infrastructure projects proposed for implementation in the selected sectors, has been prepared. The draft of this Document was carefully examined and discussed in detail in a meeting of the Tamil Nadu Infrastructure Development Board chaired by me. The Document has been further modified and some important projects added. **The Document includes profiles of 217 infrastructure projects in six major sectors – Energy; Transport; Industrial and Commercial Infrastructure; Urban Infrastructure and Services; Agriculture; and Human Development.**

Suggestions received when Phase-I of the Tamil Nadu Vision 2023 Document was released have been addressed in the Phase-II Document. Accordingly, the investment envisaged in the Agriculture sector is being substantially stepped up from Rs.40,000 crores to Rs.1,21,400 crores. The projected investment in the Human Development sector has been increased from Rs.30,000 crores to Rs.59,140 crores. The investments in the other critical sectors have been maintained at the levels indicated earlier, within the overall projected investment of Rs.15 lakh crores, to ensure the manifestation of the outcomes expected from the Tamil Nadu Vision 2023.

The tasks to be accomplished and the projects to be implemented have been identified. We now need to start the actual implementation of the proposed projects. The goals and tasks are many and the time is short. We need to commence our journey



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forthwith to reach our destination. I have already directed the concerned agencies to take up the implementation of some of the projects listed in this Document.

I expect that considerable investment – public and private; Central Government and State Government; domestic and foreign – will be attracted not just to these projects but also to the greater economic activity that will be propelled in the State consequential to the implementation of these projects.

It is my endeavour to ensure that high quality infrastructure is put in place and I am confident that the milestones envisaged in this Document would be reached by all of us collectively. There is strength in togetherness and our march to prosperity is ensured by the Vision 2023.

I wish all the stakeholders a smooth journey to the proclaimed destination.

J JAYALALITHAA
Chief Minister of Tamil Nadu





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PREFACE

The Vision Tamil Nadu 2023 Strategic Plan for Infrastructure Development in Tamil Nadu was launched by the Honourable Chief Minister on March 22, 2012. The Vision document outlined the outcomes that are targeted to be achieved by 2023. The focus of the Vision is on implementing physical and social infrastructure projects that will aid economic development and make Tamil Nadu the most prosperous and progressive state in the country. The Vision Document envisaged an investment of Rs.15,00,000 crore to be made over the next 10 years.

This second volume of the Vision Document contains profiles of the specific projects and programmes identified in the various sectors, highlighting the rationale for choosing these projects and their impact. While some of the initiatives are amenable to be implemented as projects, for example, power generation projects or port projects, some other initiatives are best described as programmes, comprising a series of smaller projects and policy measures that are to be implemented at a number of locations. Examples of such programmes include the programme for soil quality improvement, restoration of ground water and the programme for large scale skill development. Many of these initiatives will have to be undertaken at the grassroots level across the state and the requirements are to be identified based on the local conditions.

These project and programme profiles and ideas are intended to be converted into feasibility reports, detailed project reports and specific schemes. They will be taken up for implementation by different agencies - some in the public sector mode, others as public-private partnerships and in certain cases as private sector initiatives with some facilitation by the Government of Tamil Nadu. The Tamil Nadu Infrastructure Development Board, set up under the recently enacted TN Infrastructure Development Act 2012 with the Hon'ble Chief Minister as the Chairperson, would play a critical role in taking these initiatives forward. The role of the individual line departments cannot be over-emphasised. Ultimately they have to act effectively to ensure that the Vision is realised.

The summary of the proposed investments are given below. The sectoral allocations are at slight variance from the original estimates as some projects and the cost estimates have undergone a further revision based on a more detailed evaluation and scrutiny.

Sector	Proposed Investment (Rs Crore)
Energy	389,335
Transport	368,123
Industrial and Commercial infrastructure	171,285
Urban Infrastructure	263,350
Agriculture	121,400
Human development (Health & Education)	59,140
Sub-Total	13,72,633
General and Social infrastructure projects	75,000
Capital improvements to existing projects	52,367
Sub total	127,367
Grand Total	15,00,000

VISION TAMIL NADU



STRATEGIC PLAN FOR
INFRASTRUCTURE DEVELOPMENT
IN TAMIL NADU

Energy Sector





1. Energy Sector

1.1. Sector Overview

The energy sector in Tamil Nadu has been the prime mover of the economy over the last many decades. Growth in manufacturing was aided by sufficient availability of power. Till about a decade ago, the State had surplus electricity. However, availability of power has not kept pace with the increased industrial activity and the increased demand from the domestic consumer segment resulting in a large deficit in power availability over the last few years.

Key Performance Indicators

	1976-77	1986-87	1996-97	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
Installed Capacity (MW)	2,364	3,987	6,908	10,098	10,122	10,214	10,214	10,237	10,365	10,515.34
Generation & Purchase (MU)	8,350	14,853	32,700	63,563	66,848	66,966	72,887	75,884	77,819	74,812
Energy Sales (MU)	6,576	11,999	25,805	50,159	53,370	53,506	57,776	59,658	61,439	58,810
Per Capita Consumption (KWH)	146	232	420	960	1,000	1,000	1,080	1,040	1,065	1,065*
Sub-Station Nos.	304	475	734	1,148	1,202	1,259	1,309	1,343	1,320	1,341
EHT & HT Lines (Lakh Ckt.Kms.)	0.72	0.92	1.25	1.54	1.63	1.64	1.69	1.77	1.8	1.84
L.T Lines (Lakh Kms.)	2.14	3.00	4.01	5.01	5.18	5.26	5.39	5.56	5.67	5.78
Distn. Transformers (Nos.)	42,499	68,826	1,11,522	1,73,053	1,80,763	1,86,638	1,92,632	2,03,794	2,12,921	2,21,288
ELECTRIFICATION										
Towns, Villages & Hamlets (Nos.)	63,274	63,755	64,063	63,956@	63,956	63,956	63,956	63,956	63,956	63,956*
Pumpsets (Lakh)	7.85	11.16	15.67	18.02	18.39	18.72	19.08	19.85	20.18	20.33
Consumers (Lakh)	32.23	64.86	112.14	185.82	194.34	203.87	212.76	223.44	231.80	243.51

@ Reduction due to electrified Villages de-electrified as per New Definition on Village Electrification

* As of FY 2012 Source: TANGEDCO

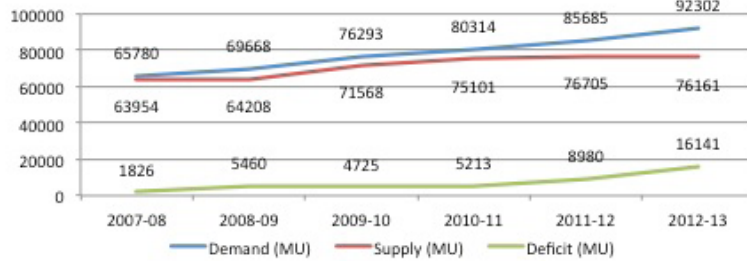
It can be observed from the Table above that the generation capacity has not kept pace with the per capita consumption which has increased significantly over the last many years. The State has resorted to buying power through short term contracts to tide over the shortage. This has increased the cost of power purchase for the State which is one of the reasons for the poor financial condition of the State Power Utilities. Further, nearly 25% of the State's installed capacity is wind based which is seasonal and infirm contributing to the uncertainty in power availability.

Current and Projected Demand

The energy demand - supply gap in Tamil Nadu is fairly high. According to the Central Electricity Authority (CEA), the energy deficit of the State in FY 2013 was around 17.5% as compared to 2.8% in FY 2008 and peak deficit in FY2013 was over 13%. However, the situation improved significantly in the first 3 quarters of FY 2014 with the peak shortage declining to 9% during April - July 2013 and further to about 2% in October 2013. Additional capacities coming on stream has improved power availability in the second half of 2013.

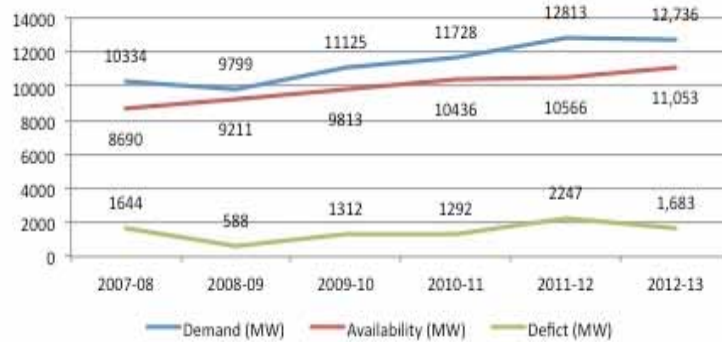


Figure 1: Trend in Demand – Supply of Energy (MU) in Tamil Nadu



Source: CEA- Power Scenario at a Glance & Power Supply Position Report (2012-13)

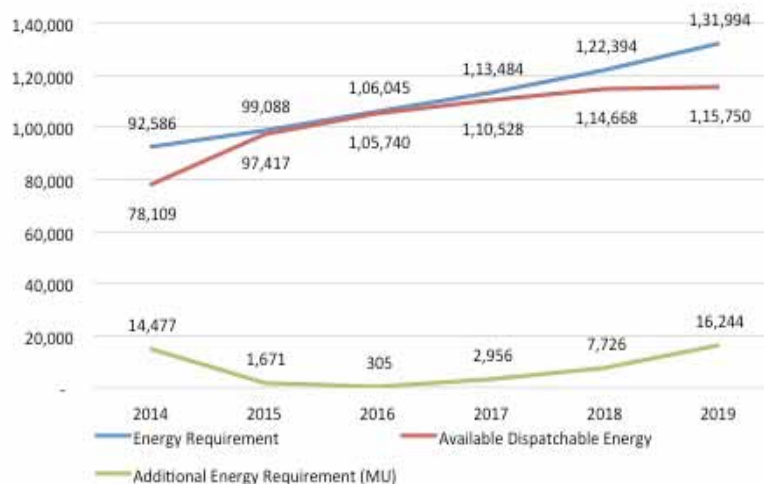
Figure 2: Trend in Demand – Supply of Peak (MW) in Tamil Nadu



Source: CEA - Power Scenario at a Glance & Power Supply Position Report (2012-13)

Figure 3 below depicts the projected energy demand - supply gap for Tamil Nadu. It is estimated that by FY 2018-19, the State is expected to have an energy deficit of around 16.2 Billion Units (BU). There are a number of projects in the various stages of implementation and this gap is expected to be bridged as those capacities come on stream over the next few years.

Figure 3: Demand - Supply Projections of Energy (MU) for the period 2014-19 for Tamil Nadu



Source: IMAcS analysis



While the overall deficit will reduce over the next couple of years and can be satisfied by short term procurement, it is critical to substantially ramp up capacity to ensure adequate availability of power beyond 2015-16 to achieve the goal of the Vision of providing uninterrupted high quality power to all consumers

1.2. Sectoral targets

The following projects and targets are proposed to be implemented by 2023:

- a. Setting up of an additional 20,000 MW of power generating capacity including two Ultra Mega Power Projects of 4,000 MW each;
- b. Thrust for green power by maximising investments in Wind Power and Solar energy to create incremental renewable generation capacity of 10,000 MW;
- c. Significant investment in the Transmission Sector to create the required evacuation capacity with buffers for the higher power generation capacity. Select high capacity Transmission corridors will be bid out on PPP basis to establish the necessary evacuation infrastructure;
- d. Two Greenfield LNG Terminals with 5 MPTA capacity each and city gas pipeline infrastructure for 10 towns to be established;
- e. Establishment of a smart grid system that enables lower cost of energy to consumers, sparks innovation in energy management at all levels in the energy chain across the economy and improves the reliability and security of the electricity grid;
- f. Government will implement reforms in the Power Sector in a progressive manner so that the benefits of competition and innovation are delivered to consumers by way of reliable power supply at the most competitive price while ensuring that the vulnerable sections are protected. This will call for new models of electricity transmission and distribution which have been successfully implemented in several countries.

1.3. Institutional Structure

Tamil Nadu Electricity Board (TNEB) is the apex organisation that manages the day to day operations of the Power Sector in the State. Consequent to the unbundling process, TNEB Limited has become a holding company with two wholly owned subsidiaries, Tamil Nadu Generation and Distribution Corporation Limited (TANGEDCO) and Tamil Nadu Transmission Corporation Limited (TANTRANSCO). TANGEDCO takes care of the generation and distribution functions of the electricity sector in the State, while TANTRANSCO manages the transmission sector.

Tamil Nadu Energy Development Agency

Tamil Nadu Energy Development Agency (TEDA) is responsible for creating awareness on the potential and to promote use of Renewable Energy. It focuses on estimating the potential for Renewable Energy, evolving policies for the promotion of the Renewable Energy Sector and undertaking measures such as setting up demonstration projects and promoting R&D initiatives.

Tamil Nadu Power Finance and Infrastructure Development Corporation Limited (TN PowerFin)

TN Powerfin was set-up with the objective of mobilising funds for the Power Sector in Tamil Nadu. The Company is registered as a Non-Banking Finance Company (NBFC) and is wholly owned by the Government of Tamil Nadu. The objective of the Company is to raise resources through public deposits and borrowings to lend funds to the State owned electricity utilities.



Sectoral imperatives and actions to realise goals of TN Vision 2023

The key Sectoral imperatives and actions in the context of Tamil Nadu Vision 2023 in the Energy Sector are listed below:

- Strengthening and Restructuring TANGEDCO and other State utilities:** The first step towards economic sustainability of TANGEDCO and TANTRANSCO has been initiated by revising power tariff which is expected to enable the utilities to meet their incremental revenue requirements. The Financial Restructuring Plan(FRP) has also been initiated. The Government is committed to ensuring the continued strengthening of the power utilities in the State through timely and appropriate rationalisation of tariffs with direct and transparent subsidies to ensure that the utilities are financially viable and vibrant to achieve the goals of Vision 2023.
- Expeditious additions to conventional power generation capacity to bridge deficits and reduce uncertainty:** The Government of Tamil Nadu will accord highest priority to increase power generation capacity in the State through a combination of investments in generation assets and by actively implementing Power Projects through Case 2 bidding in the State. The State will also endeavour to procure power through Case 1 bids as required. Efforts in the short term would be to expeditiously implement the on-going conventional thermal generation projects.
- Continued Investments for balanced power availability while retaining the edge in clean energy:** GoTN would continue to pro-actively plan for and invest in power generation assets both in thermal energy and other renewable energy in order to ensure a balance between consistent power availability and maintaining a high share of generation from clean energy sources. Under its recently released Solar Policy, GoTN expects to add 3,000 MW of solar power by 2015. It also expects to retain its pre-eminent position in wind energy and envisages an additional generation of 15,000 MW through renewable sources.
- Modernisation of Transmission and Distribution Infrastructure:** Apart from investments in Generation, GoTN will pay close attention to developing a modern electricity grid to enable inter-State and intra-State Power Transmission. It would also undertake initiatives to strengthen the distribution system starting with a comprehensive feeder separation programme and gradually investing in smart grid technologies to progressively create a state-of-the-art electricity network in the State.

1.4. Proposed Projects

Sl. No	Sector	Projects / Programmes	Investment (Rs. Crore)
1.4.1	Generation	North Chennai Thermal Power Project (Stage III) - 800 MW	4,800
1.4.2	Generation	North Chennai Thermal Power Project (Stage IV) - 1600 MW (2x800 MW)	11,155
1.4.3	Generation	Ennore Thermal Power station Expansion - 660 MW	3,135
1.4.4	Generation	Tuticorin Thermal Power Project - 800 MW	4,800
1.4.5	Generation	Uppur (Thiruvadana) Thermal Power Projects - 1600 MW (2x800 MW)	9,600
1.4.6	Generation	Udangudi Super Critical Power Project 1600 MW (2x800 MW)	9,083
1.4.7	Generation	Udangudi Expansion - 800 MW	4,800
1.4.8	Generation	Ennore Thermal Power station Replacement - 660 MW	3,600
1.4.9	Generation	Cheyur UMPP - 4000 MW (TN Share - 1600 MW)	19,200
1.4.10	Generation	New project - 800 MW	4,800



Sl. No	Sector	Projects / Programmes	Investment (Rs. Crore)
1.4.11	Generation	New project - 800 MW	4,800
1.4.12	Generation	Chattisgarh - MTMTEL - 2000 MW (TN Share - 1000 MW)	4,800
1.4.13	Generation	Jayamkondan Lignite Power Plant (1500 MW)	6,000
1.4.14	Generation	Private Sector Power generation projects	10,000
1.4.15	Generation	R-LNG based Gas Turbine Power Plant - 1000 MW	4,000
1.4.16	Renewable	Small Hydro - Periyar Vaigai (5 to 17) - 30 MW	240
1.4.17	Renewable	Kolimalai Hydro-electric project - 20 MW	258
1.4.18	Renewable	Kundah Pumped Storage - 500 MW	1,500
1.4.19	Renewable	Sillahalla Pumped Storage HEP - 2000 MW	6,914
1.4.20	Renewable	Vellimalai Pumped Storage HEP (200 MW)	1,200
1.4.21	Renewable	Programme - Solar Power Generation (2000 MW)	50,000
1.4.22	Renewable	Programme - Offshore Wind Generation Programme (200 MW)	2,500
1.4.23	Renewable	Programme - Wind Generation Programme (10000 MW)	60,000
1.4.24	Transmission	Identified Projects - TAN TRANSCO	16,000
1.4.25	Transmission	Identified Projects - CTU (PGCIL)	18,000
1.4.26	Transmission	Proposed Programme - TAN TRANSCO	54,000
1.4.27	Transmission	Proposed Programme - CTU (PGCIL)	12,000
1.4.28	Distribution	Distribution infrastructure - LT and HT lines and transformers	15,000
1.4.29	Distribution	Feeder Separation Project	16,000
1.4.30	Distribution	Programme - Smart Grid	20,000
1.4.31	Gas Grid	Development of a State Gas Grid and City Gas Networks in select cities	10,000
1.4.32	Solar Homes	Provision of Solar Home Lights	900
1.4.33	Solar Street light	Energising Street Lights with Solar Power	250
		TOTAL	389,335



1.4.1. North Chennai Thermal Power Project Stage - III

Name of the Project: North Chennai Thermal Power Project Stage –III		Capacity: 1x 800 MW
Investment: Rs. 4,800 Crore		Time Frame: 2017
Mode of Finance	State Sector	Implementing Agency: Tamil Nadu Generation and Distribution Corporation Limited (TANGEDCO)
Project Description/Status:		
<p>North Chennai power project is located about 25 Km north of Chennai city. Feasibility report for the project has been finalised. The project is in the preparatory stage. Draft Detailed Project Report (DPR) has been prepared by the consultants. Ministry of Environment and Forests, Government of India has issued the Terms of Reference for the Environment Impact Assessment (EIA) study and the same has been completed. Indian Institute of Technology (IIT) Madras has been entrusted with the work of preparing a Marine Impact Assessment Study.</p> <p>Coastal Regulation Zone Application would be filed shortly, following which the project development and bid process would be initiated.</p> <p>Financing of the project would be done through 80% loan from REC/FI and the rest 20% would be through equity.</p>		
Targeted Impact:		
The project is expected to generate 800MW of additional electrical power for the state		
Implementation Strategy:		
The project would be implemented in the state sector. The state will contribute the equity component and loans would be availed from banks and financial Institutions such as REC and PFC.		





1.4.2. North Chennai Thermal Power Project Stage - IV

Name of the Project: North Chennai Thermal Power Project Stage - IV		Capacity: 2x 800 MW (1600MW)
Investment: Rs. 11,155 Crore		Time Frame: 2017
Mode of Finance	State Sector	Implementing Agency: Tamil Nadu Generation and Distribution Corporation Limited (TANGEDCO)

Project Description/Status:

The North Chennai Power project is located at about 25km north of Chennai city. The fourth stage is being proposed in parallel with the third stage. Aviation clearance for the project has been obtained and demarcation of site and foreshore facilities of the project has been carried out. EIA study and Public hearing have been completed. Expert Appraisal Committee of MOEF, Government of India, has cleared the proposal for issue of Environment Clearance subject to submission of reports for some additional studies. Marine study report of water outlet for CRZ clearance is nearing finalisation. TANGEDCO has already sent the draft MOU to MMTC for import of coal. The consultants appointed have prepared the draft tender specification and the tender for EPC contract will be floated shortly.

Award of work for engineering consultancy and finalisation of specification for the plant under EPC basis and floating a tender for EPC contract is under progress.

Targeted Impact:

The project is expected to generate 1600MW of additional electrical power for the state.

Implementation Strategy:

The project will be implemented in the state sector. The project will be financed through loan from banks and financial institutions such as REC and PFC and and equity contribution from the state Government.





1.4.3. Ennore Thermal Power Station Expansion

Name of the Project: Ennore Thermal Power Station Expansion		Capacity: 1X 660 MW
Investment: Rs. 3,135 Crore		Time Frame: 2016
Mode of Finance	State Sector	Implementing Agency: Tamil Nadu Generation and Distribution Corporation Limited (TANGEDCO))
Project Description/Status:		
<p>The Ennore thermal power project is proposed to be expanded by adding 660 MW of capacity. Aviation clearance and CRZ clearance for the project has been obtained. The project would use imported coal due to non-availability of long term coal agreement from Govt of India. The configuration has been changed from 600MW sub critical unit to 660MW super critical unit. All approvals have been obtained. Expert Appraisal Committee of MOEF, Government of India, has cleared the proposal for issue of Environment Clearance for the revised configuration and the orders of MOEF are awaited.</p> <p>Consultants have been appointed for preparing EPC specifications and it has been completed. The procurement action for the project would be initiated following necessary clearances and approvals</p>		
Targeted Impact:		
The project is expected to generate 660MW of additional electrical power for the state.		
Implementation Strategy:		
The project will be executed in the state sector. The state intends to approach banks and financial institutions such as PFC and REC for debt finding and the equity will be contributed by the state Government.		





1.4.4. Tuticorin Thermal Power Project

Name of the Project: Tuticorin Thermal Power Project		Capacity: 1X 800MW
Investment: Rs. 4,800 Crore		Time Frame: 2017
Mode of Finance	State Sector	Implementing Agency: Tamil Nadu Generation and Distribution Corporation Limited (TANGEDCO)
Project Description/Status: Tuticorin Thermal Power Station (TTPS) is situated near the Tuticorin port spread over an area of 160 hectares and with a generation capacity of 1050 MW(5 X 210 MW). It is proposed to add an additional capacity of 800 MW in the same site. Demarcation of site under CRZ has been carried out. The feasibility report has been completed and the preparation of the Detailed Project Report is underway. MOEF has opined that the proposed site (inside the TTPS complex) is not suitable from environmental perspective and has advised the development of the project in a new site. The process of identifying an alternative site is currently on.		
Targeted Impact: The project is expected to generate 800MW of additional electrical power for the state.		
Implementation Strategy: The project would be funded through the state sector. Banks and Financial institutions such as REC and PFC will be approach to fund the debt component and state would finance the equity component of the project.		





1.4.5. Uppur (Thiruvadana) Thermal Power Project

Name of the Project: Uppur (Thiruvadana) Thermal Power Project		Capacity: 2X 800MW(1600MW)
Investment: Rs. 9,600 Crore		Time Frame: 2016
Mode of Finance	State Sector	Implementing Agency: Tamil Nadu Generation and Distribution Corporation Limited (TANGEDCO)
Project Description/Status: The Government of Tamil Nadu has identified 1200 acres of land in Turuvadana, Ramanathapuram district. Pre-Feasibility report has been prepared and Plant layout has been finalised. Demarcation of site under CRZ has been carried out. MOEF has issued the Terms of Reference for the EIA study. The EIA study is under progress. IIT Madras has been awarded the Marine Impact study and work of identifying the location of cooling water drawal and effluent disposal into the sea. Application for acquisition of lands has been filed with the District Collector. The project development and procurement action for the project would be initiated following necessary clearances and approvals.		
Targeted Impact: The project is expected to generate 1600MW of additional electrical power for the state.		
Implementation Strategy: As the project is expected to be carried out under Tariff based competitive bidding route, the project expenditure would be borne by the successful bidder.		





1.4.6. Udangudi Super Critical Power Project

Name of the Project: Udangudi Super Critical Power Project		Capacity: 2X 800MW(1600MW)
Investment: Rs. 9,083 Crore		Time Frame: 2017
Mode of Finance	State Sector	Implementing Agency: Tamil Nadu Generation and Distribution Corporation Limited (TANGEDCO)
Project Description/Status: The project was conceived as a joint venture with BHEL and the Udangudi Power Corporation Limited (UPCL) was formed. However the project could not achieve much progress as a joint venture. The Government of Tamil Nadu, is in discussions with BHEL for termination of the JV by mutual consent and to take up the project under state sector. 305.31 hectares of land has been alienated for the project. MOEF clearance has been obtained for the coal jetty. T M/s MMTTC has given a consent letter for the supply of 4.5 MTPA of imported coal from Indonesia. DPR for the project, EIA study and EMP reports are being revised for using 100% imported coal. The project development and procurement action for the project has been initiated.		
Targeted Impact: The project is expected to generate 1600MW of additional electrical power for the state.		
Implementation Strategy: The project would be implemented in the state sector and debt would be accessed from REC, PFC and other financial institutions and banks.		





1.4.7. Udangudi Expansion

Name of the Project: Udangudi Expansion		Capacity: 1X 800MW
Investment: Rs. 4,800 Crore		Time Frame: 2018
Mode of Finance	State Sector	Implementing Agency: Tamil Nadu Generation and Distribution Corporation Limited (TANGEDCO)
Project Description/Status: The Government of Tamil Nadu is undertaking preparatory steps for expanding the Udangudi project by adding an additional 800 MW of capacity. The feasibility report for the expansion has been completed. MOEF will be approached after obtaining environment clearance for the 1x800 MW project The project development and procurement action for the project would be initiated during the course of implementation of Phase I		
Targeted Impact: The project is expected to generate 800MW of additional electrical power for the state.		
Implementation Strategy: The project would be implemented in the state sector where loans would be taken from banks and financial institutions including REC and PFC and state would find the equity component		





1.4.8. Ennore Thermal Power Station Replacement

Name of the Project: Ennore Thermal Power Station Replacement		Capacity: 1X 660MW
Investment: Rs. 3,600 Crore		Time Frame: 2018
Mode of Finance	State Sector	Implementing Agency: Tamil Nadu Generation and Distribution Corporation Limited (TANGEDCO)
Project Description/Status: The Ennore Thermal Power Station (ETPS) comprises of 5 units aggregating to 450 MW. All the units were installed during the period 1970 to 1975. The plants have outlived their useful life and their Plant Load Factor for the year 2010-11 was about 40%. The Government of Tamil Nadu has proposed to take up the replacement of the 5 units with a new single 660 MW super critical unit either under the state sector or through joint venture. Pre-Feasibility report has been completed and the project development activities are under progress.		
Targeted Impact: The project is expected to generate 660MW of electrical power for the state.		
Implementation Strategy: The funding strategy will be finalised once the project structuring is completed. The extent of state funding will depend on the terms of the Joint venture. If the state is not able to find a suitable partner, the project will be implemented in the state sector		





1.4.9. Cheyyur Ultra Mega Power Project

Name of the Project: Cheyyur Ultra Mega Power Project		Capacity: 4000MW
Investment: Rs. 19,200 Crore		Time Frame: 2020
Mode of Finance	Private sector	Implementing Agency: Power Finance Corporation (PFC)
Project Description/Status:		
<p>M/s. PFC Consulting Ltd. which is the Nodal agency for executing the UMPP, has formed a Special Purpose Vehicle, viz. "M/s Coastal Tamil Nadu Power Limited (CTNPL)" for developing and implementing an Ultra mega Power Project (UMPP) at Cheyyur in Kancheepuram district based on imported coal. The site for the captive jetty has also been identified in Chinna Panaiyur Village. The project is expected to have a capacity of 4000 MW and TANGEDCO will get an allocation of 1600MW from this project as its share.</p> <p>The RFQ for the project shall be issued after obtaining necessary directions from Ministry of Ports. The Expert Appraisal Committee of MOEF on infrastructure and CRZ has recommended the clearance for the establishment of a captive port for the project. Tamil Nadu State Coastal Zone Management Authority has recommended the proposal for CRZ clearance for Captive Port and has directed that NOC's from the concerned departments should be obtained. The plant is expected to be commissioned in the year 2020</p>		
Targeted Impact:		
The project is expected to generate additional 4000 MW of electrical power for the state.		
Implementation Strategy:		
M/s PFC Consulting will conduct the bid process to select the private sector partner for the project.		





1.4.10. New Thermal Power Project I

Name of the Project: New project - Thermal Power Project - Location to be identified		Capacity: 800MW
Investment: Rs. 4,800 Crore		Time Frame: 2017
Mode of Finance	Private sector	Implementing Agency: Tamil Nadu Generation and Distribution Corporation Limited (TANGEDCO)
Project Description/Status: The project is proposed to be located in a coastal location in Southern TamilNadu. As estimated 2,000 acres of land is required for the project. The project site is to be identified and will be close to a port as the project will be based on imported coal. The details of the lands available in the region will have to be collected from Revenue Authorities and feasibility of the site from environmental angle has to be examined.		
Targeted Impact: The project is expected to generate additional 800 MW of electrical power for the state.		
Implementation Strategy: As the project is expected to be carried out under Tariff based competitive bidding route, the project expenditure would be borne by the successful bidder. The upfront financial commitment by TANGEDCO towards capital investment would be meagre in this case.		





1.4.11. New Thermal Power Project II

Name of the Project: New project – Thermal Power Project - Location to be identified		Capacity: 800MW
Investment: Rs. 4,800 Crore		Time Frame: 2017
Mode of Finance	Private sector	Implementing Agency: Tamil Nadu Generation and Distribution Corporation Limited (TANGEDCO)
Project Description/Status: The project is proposed to be located in Southern Tamil Nadu at a location that has access to the port as the project will be based on imported coal. It is estimated that 1,500 to 2,000 acres of land will be required. TANGEDCO will coordinate with the revenue authorities and identify the locations where the lands are available and examine the feasibility of the site from the environment angle, connectivity and suitability of setting up a power plant		
Targeted Impact: The project is expected to generate additional 800 MW of electrical power for the state.		
Implementation Strategy: As the project is expected to be carried out under Tariff based competitive bidding route, the project expenditure would be borne by the successful bidder. The upfront financial commitment by TANGEDCO towards capital investment would be meagre in this case.		





1.4.12. MTMTEL Joint Venture Project

Name of the Project: Chattisgarh - MTMTEL		Capacity: 2000MW
Investment: Rs. 4,800 Crore		Time Frame: 2017
Mode of Finance	Joint venture between Govt of Tamil Nadu and Govt of Maharashtra.	Implementing Agency: SPV – MTEMEL

Project Description/Status:

The Gare Pelma Sector II has been allocated to TANGEDCO for captive mining in 2006 with tentative reserve capacity of 768 million tonnes jointly with Maharashtra State Mining Corporation. The quantity of coal will be shared between Tamil Nadu and Maharashtra in the ratio 77:23. A joint venture company “MahaTamil Collieries Ltd” has been formed.

Considering huge expenditure due to coal transportation to Tamil Nadu, it is proposed to install a pithead power station utilizing TANGEDCO’s share of coal received from this mine. M/s Lanco Infratech is the Mine developer and Operator for Gare Pelma Sector II coal block. They will set up a 2000+MW power plant at the pit head as per the tender.

The share of power from this plant for Tamil Nadu and MDO’s will be 50% of the balance net capacity of the power project.

The MDO has constituted a separate Project Company namely “MahaTamil Mining and Thermal Energy Limited” for the mining and development of Gare Pelma Sector II Coal Block and for erecting the associated power plant. The JV Company is already in the line of work in developing the block.

Targeted Impact:

The project is expected to generate additional 1000 MW of electrical power for the state which is Tamil Nadu’s share out of a total of 2000MW

Implementation Strategy:

The project would be funded by a joint venture of Govt of Maharashtra and Govt of Tamil Nadu. MoU Execution with both the Governments is expected to get completed shortly.





1.4.13. Jayamkondan 1500 MW lignite Power Plant

Name of the Project: Jayamkondan Lignite Power Project		Capacity: 1500 MW
Investment: Rs. 6,000 Crore		Time Frame: 2020
Mode of Finance	Public Private Partnership	Implementing Agency: Tamil Nadu Generation and Distribution Corporation Limited (TANGEDCO)
Project Description/Status: It is estimated that there is 1150 million tonnes of lignite reserve in Jayamkondan area. The Government of Tamil Nadu has acquired 9000 acres of land for the project and had planned to set up a 1500 MW power project in three stages. A couple of attempts to develop the Project in the private sector and in JV with Neyveli Lignite Corporation did not fructify. The erstwhile Tamil Nadu Electricity Board had paid Rs. 60 crore to TIDCO for the land but is yet to take possession of the land even as compensation and rehabilitation cases are still underway with 13 villages required to be relocated for the project. Given that a number of steps including land acquisition have been initiated and the availability of lignite, TANGEDCO and TIDCO will review the scope for this project and take this forward		
Targeted Impact: The project could potentially generate 1500 MW with locally available lignite.		
Implementation Strategy: The implementation strategy would need to be finalised by TANGEDCO. However, given the availability of lignite, the project could be implemented under Tariff based competitive bidding route with mine development and project expenditure borne by the successful bidder.		





1.4.14. Private sector power generation projects

Name of the Project:		Capacity: 2000 MW
Private Sector Power generation projects		
Investment: Rs. 10,000 Crore		Time Frame: 2020
Mode of Finance	Private	Implementing Agency: Private players
Project Description/Status:		
<p>Tamil Nadu is currently a power deficit state. A number of projects are in the pipeline to address the deficit. While the situation will ease over the next two to three years as these projects come on stream, the demand for energy will continue to increase given the thrust given by the state to the manufacturing sector. This will require further increase to capacity over the Vision period.</p> <p>In order to ensure uninterrupted high quality power the state expects the private sector to increase the generation capacity over the next 7 to 10 years</p>		
Targeted Impact:		
It is estimated that a total of 2000 MW will be generated by private players		
Implementation Strategy:		
TANGEDCO as part of its long term procurement will come out with Case 2 bids and private players will bid for supply of power.		





1.4.15. R-LNG based Gas Turbine Power Plant

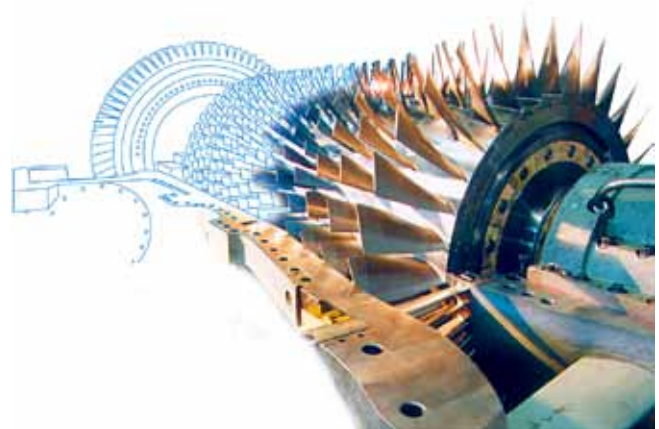
Name of the Project:		Capacity: 1000 MW
R-LNG based Gas Turbine Power Plant		
Investment: Rs. 4,000 Crore		Time Frame: 2017
Mode of Finance	Public Private Partnership	Implementing Agency: Tamil Nadu Generation and Distribution Corporation Limited (TANGEDCO)
Project Description/Status:		
<p>Under Vision 2023, LNG capacity of 10 MTPA is envisaged. IOCL has signed an MoU to set up a 5 MTPA LNG plant at Ennore. Another LNG Terminal is planned along with the proposed PCPIR in the Cuddalore Nagapattinam region. Gas from the proposed GAIL pipeline between Chennai and Bangalore is also expected to be available.</p> <p>Given that gas based power plants can operate in open cycle in proximity to load centres, they are best suited to meet peak demand. LNG plants have lesser emissions and have a shorter gestation time. Given that the cost of power generated through LNG will be higher, these plants can serve as peak load plants. Further this power can also be run complementary to the seasonal and infirm wind power in the state.</p>		
Targeted Impact:		
The project is expected to generate an additional 1000 MW of electrical power for the state.		
Implementation Strategy:		
The Projects would be developed through Joint ventures promoted by TIDCO with other PSUs or with private sector participation		





1.4.16. Periyar Vaigai Small hydro electric projects

Name of the Project: Periyar Vaigai Small hydro electric projects		Capacity: 30MW
Investment: Rs. 240 Crore		Time Frame: 2018
Mode of Finance	State Sector	Implementing Agency: Tamil Nadu Generation and Distribution Corporation Limited (TANGEDCO)
Project Description/Status: The water from Mullaiperiyar reservoir traverses a total distance of 62 kms before it discharges into Vaigai Reservoir. Hence to harness this hydro potential, 21 numbers of small hydro-electric projects have been proposed across river Periyar/Suruliari at various locations. Feasibility studies for these projects have been completed. The first 2 of them (Periar Vaigai 1 and 2) have been synchronised and commissioned. The third and fourth, (Periar Vaigai 3 and 4) are under commissioning. 17 small HEP's with a total installed capacity of 30 MW in the corridor are now proposed to be taken up.		
Targeted Impact: The project is expected to generate additional 30 MW of electrical power for the state.		
Implementation Strategy: Detailed Project Report on Periar Vaigai small HEP (5 & 6) have already been approved by the Government of Tamil Nadu. DPRs for Periar Vaigai small HEP (7 to 11) are under preparation.		





1.4.17. Kolimalai Hydro-electric project

Name of the Project: Kolimalai Hydro-electric project		Capacity: 1x20MW
Investment: Rs. 258 Crore		Time Frame: 2017
Mode of Finance	State Sector	Implementing Agency: Tamil Nadu Generation and Distribution Corporation Limited (TANGEDCO)
Project Description/Status: The project envisages the pooling of waters of the tributaries of Aiyar river at the highest elevation of Kolli Hills by construction of five numbers ungated weirs (small dams), interconnecting tunnels, flumes, penstock and power house for generation of 20 MW		
Targeted Impact: The project is expected to generate additional 20 MW of electrical power for the state.		
Implementation Strategy: The equity component would be funded through the state sector. The state will access loans from banks and financial institutions such as REC and PFC.		





1.4.18. Kundah Pumped Storage Project

Name of the Project: Kundah Pumped Storage Hydro Electric Project		Capacity: 4X125MW (500MW)
Investment: Rs. 1,500 Crore		Time Frame: 2017
Mode of Finance	State Sector	Implementing Agency: Tamil Nadu Generation and Distribution Corporation Limited(TANGEDCO)

Project Description/Status:

The Kundah hydro power project is located in the Nilgiris. TANGEDCO proposes to commission a pumped storage project with a capacity of 500 MW (4X 125). All the statutory clearances except techno - economic clearance from Central Electricity Authority have been obtained. Considering the difficulties in obtaining interstate clearance from Central Water Commission for executing the Kundah pumped storage HEP (500 MW) as a whole and the immediate need for the project to meet the peak power demand, TANGEDCO's Board has decided to take up the project in three phases. The present status of the project is as follows:

- Taking over of 30 hectares of forest land required for the project is underway (as per the Forest Conservation Act, 1980)
- MOEF has been approached for renewal of environmental clearance (clearance expired on 7/05/2012)
- Project pre-development works and residual studies have been undertaken
- Tender for consulting services have been called
- Steps for obtaining Government of Tamil Nadu approval for Phase II are being undertaken

Targeted Impact:

The project is expected to generate additional 500 MW (1005 MU/Annum under pumped storage concept)

Implementation Strategy:

The project will be funded by the state Government. Debt funding will be accessed from REC, PFC and other financial institutions and banks





1.4.19. Sillahalla Pumped Storage Project

Name of the Project: Sillahalla Pumped Storage Hydro Electric Project		Capacity: 4X500MW(2000MW)
Investment: Rs. 6,914 Crore		Time Frame: To be decided
Mode of Finance	State Sector	Implementing Agency: Tamil Nadu Generation and Distribution Corporation Limited(TANGEDCO)

Project Description/Status:

This pumped storage Hydro Electric Project envisages construction of an upper reservoir across Sillahalla river with a capacity of 2250 Mcft and keeping the existing Pillur reservoir as lower reservoir. It is proposed to establish a water conducting system, comprising of 3800 m Head Race Tunnel, Head Race surge shaft, 2 nos. pressure shafts of length 3900m and Tail race Tunnel of 8980 m with Tail Race Surge Shaft. It is also proposed to construct an underground Power House along with a 5750 m long Access tunnel to the Power House. A control cum ventilation tunnel and a switch yard are also proposed.

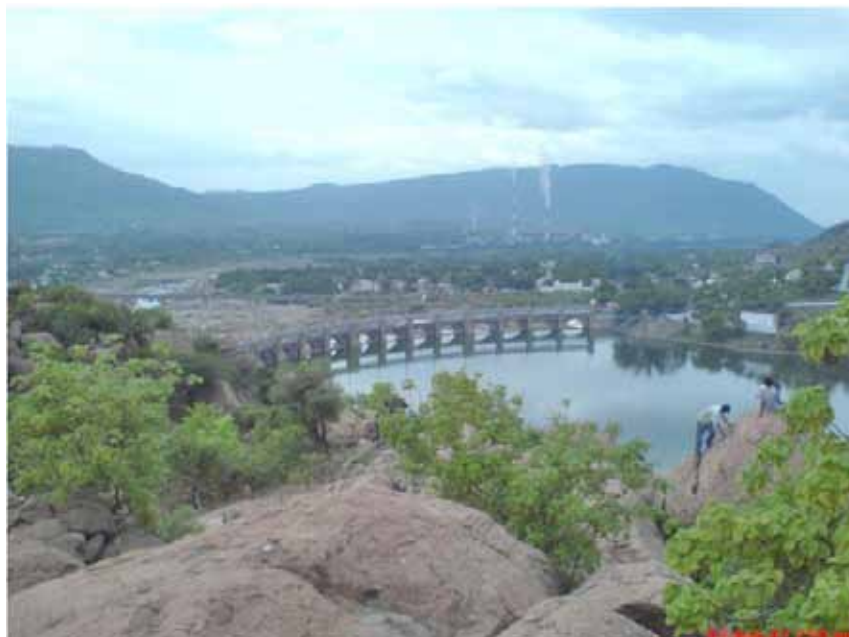
Pre-feasibility report has been prepared. GOTN's in principle approval has to be obtained. The project will be implemented in two phases. Detailed Project Report for Phase I, namely, formation of upper reservoir (Sillahalla reservoir) and the interconnecting tunnel with the TANGEDCO's existing Emerald reservoir will be taken up to avail the benefits forthwith. The Phase I execution will be taken up in 2012-15 after obtaining techno-economic clearance, environmental clearance, etc.

Targeted Impact:

The project is expected to generate additional 2000 MW under pumped storage concept.

Implementation Strategy:

The project will be implemented in the state sector. Debt funding will be accessed from REC, PFC and other financial institutions and banks.





1.4.20. Velimalai Pumped Storage Hydro Electric Project

Name of the Project: Velimalai Pumped Storage Hydro Electric Project		Capacity: 200MW
Investment: Rs.1,200 Crore		Time Frame: To be decided
Mode of Finance	State Sector	Implementing Agency: Tamil Nadu Generation and Distribution Corporation Limited(TANGEDCO)
Project Description/Status: The projects proposes to construct a dam at the originating point of Valliyar river (i.e.) at Maruattarkannu in KanyaKumari District, which would act as a Forebay dam for the proposed project. Another dam is proposed to be constructed which will also act as a Forebay dam at the origin point of the main tributary of Tamiraparani river (i.e.) at Velimalai. These two reservoirs will be connected by an interconnecting tunnel to enhance the storage capacity of the Forebay. The lower reservoir (viz) Kumarakoil reservoir is proposed in the Mambazhathuraiar basin on the south eastern slope of Velimalai. Preliminary steps involve measurement of inflows in the upper and lower reservoir locations to establish hydrological feasibility which would take at least 3 years. Thereafter, the work on pre-feasibility report would be started. In 2017-18, the preparation of Detailed Project Report and statutory clearances would be taken up.		
Targeted Impact: The project is expected to generate additional 200 MW of electrical power for the state under the pumped storage concept.		
Implementation Strategy: The project would be funded through the state sector and the debt component would be funded by loans from banks and financial institutions. The state would contribute the equity component of in the project.		





1.4.21. Solar Power Generation programme

Name of the Project:		Capacity: 5000MW
Solar Power Generation Programme		
Investment: Rs. 50,000 Crore		Time Frame: 2020
Mode of Finance	Public Private Partnership	Implementing Agency: TANGEDCO
Project Description/Status:		
<p>Tamil Nadu has a very good solar potential with 300 clear sunny days as it receives very high solar radiation. This indicates a very clear potential of solar based power generation in Tamil Nadu. The capacity addition can be done through solar PV (Photo Voltaic) and solar CSP (Concentrated Solar Power). Solar PV based power generation involves the direct conversion of solar radiation into electricity using solar cells. In solar CSP based power generation, the heat energy from the sun is used to heat a thermal fluid which generates steam that drives a steam turbine thereby generating electricity. 22 MW is currently commissioned in Tamil Nadu as a part of Phase I of Jawaharlal Nehru National Solar Mission (JNNSM) initiated by Government of India.</p> <p>The state has unveiled the TN Solar Policy 2012 which is progressive and encourages investors to take up solar energy generation projects in the state. The policy envisages generation of 3000 MW by 2015 (1000 MW each in 2013, 2014, 2015)</p>		
Targeted Impact:		
<p>The programme is expected to generate grid connected power of 3,000 MW by 2015 and 5000 MW by 2020 for the state. The programme would augment renewable energy in the form of solar power.</p>		
Implementation Strategy:		
<p>The programme sub projects would be funded through PPP, private and in the state sector (TANGEDCO and TEDA). Overall 1000 MW of solar power is envisaged to be created through state sector investment and 4000 MW is expected to be implemented through PPP and private sector investment.</p> <p>The salient features of the policy that facilities the solar power generation programme are:</p> <ol style="list-style-type: none"> 1. Provide generation based incentive for domestic rooftop solar plants installed upto March 2014 2. Solar purchase obligation of 3% upto 31/12/2013 and 6% from January 2013 for all HT consumers and LT commercial consumers 3. Mandatory installation of solar rooftops in all new Government and Local body buildings 4. Existing Government and local body buildings will be provided with solar rooftops in a phased manner 5. Installation of solar water heating system will be made mandatory for industries having hot water boiler/ team boiler using fossil fuel 6. Allowing net metering at multiple voltage levels for commercial establishments and individual households with power credits to promote rooftop penetrations 		



1.4.22. Offshore Wind Generation Programme

Name of the Project: Offshore Wind Power Generation Programme		Capacity: 200MW
Investment: Rs. 2,500 Crore		Time Frame: 2020
Mode of Finance	Private Sector	Implementing Agency: TANGEDCO

Project Description/Status:

Offshore wind based wind farms are usually located up to a sea-bed depth of 30m in the sea. These sites tend to have a much higher wind power density when compared with the sites on land. Wind turbines located in offshore sites are typically of very high capacity per turbine (about 5 MW or higher). These turbines, because of their higher capacity as well as the fact that the wind speeds are much higher off the coast, tend to produce more electricity per MW of installed capacity as opposed to onshore turbines. Also, offshore wind farms tend to offer higher Plant Load Factor (PLF), usually about 35% or higher, indicating that they have to operate for longer durations due to prevailing wind conditions.

The state has a rich offshore wind potential and offshore wind deployment in Tamil Nadu could become commercially viable despite high costs. It has been estimated that the offshore wind potential off Tamil Nadu coast is as high as 1,27,428 MW. Four companies have submitted proposals for the development of offshore projects off the coast of Rameswaram and Kanyakumari.

The Government of Tamil Nadu has taken special initiatives towards exploring the feasibility for development of coastal wind power projects. The Tamil Nadu Energy Development Agency (TEDA) has entrusted C-WET with a study to assess the wind power density on the entire coast of Tamil Nadu.

Targeted Impact:

The project is expected to generate additional 200 MW of electrical power for the state.

Implementation Strategy:

The projects are expected to be set up in the private sector.





1.4.23. Onshore Wind Generation Programme

Name of the Project:		Capacity: 10,000MW
Onshore Wind Power Generation Programme		
Investment: Rs. 60,000 Crore		Time Frame: 2020
Mode of Finance	Private Sector	Implementing Agency: TANGEDCO
Project Description/Status:		
<p>Wind based power generation involves the conversion of wind energy to electrical energy through the use of wind turbine generators (WTG). Tamil Nadu is endowed with three prominent passes (Palghat Pass, Shencottah Pass and Aralvoimozhi Pass) having high wind potential, due to the tunnelling effect during south West Monsoon. Cumbum Pass in Dindigul District has been identified as wind potential area in the recent past.</p> <p>7,134 MW is installed in Tamil Nadu making it the clear leader in the wind energy sector in India accounting for about 41% of the total installed capacity in the country. Wind constitutes over 88% of total renewable energy installed capacity in the state.</p> <p>The Government is also working on a project to implement a 400 kV wind power corridor. This would comprise setting up of five numbers 400 kV substations and its associated lines of 1,100 kms route length. .</p> <p>The Government has already established 23 dedicated wind farm substations in Tirunelveli area and 16 dedicated wind farm sub stations in Udumalpet area.</p>		
Targeted Impact:		
The project is expected to generate additional 10,000 MW of electrical power for the state.		
Implementation Strategy:		
<p>Wind monitoring masts would have to be installed at potential areas to check the wind speed, directions and seasonality .Based on the findings, wind farms of would be set up by the private party developers after getting environmental and other statutory clearances.</p> <p>The State Government has asked TEDA to put up wind monitoring masts at several locations. In consultation with the Centre for Wind Energy Technology, a research body under the Government of India, TEDA has just installed and commissioned two 80-m high wind monitoring masts at Ittarai in</p> <p>Erode district and Vellamadam in Tuticorin district. Another will be installed at the hill station of Yercaud shortly. Further, TEDA and C-WET have jointly finalised 10 more locations in various districts where 100-m high wind masts will be put up.</p> <p>The Wind generation projects are envisaged to be set up under the Private sector.</p> <p>The bottleneck of transmission infrastructure has to be resolved by the state agencies. The present infrastructure can evacuate about 5,000 MW of wind power. It is necessary to establish dedicated 765/400 kV and 230 kV substations and associated extra high tension lines in the corresponding areas to accommodate capacity addition. The Government proposes also to establish “regional load despatch centre” exclusively for monitoring and control of wind generation</p>		



1.4.24. Transmission – Identified Projects of TAN TRANSCO

Name of the Project:		
Identified Projects – TAN TRANSCO		
Investment: Rs 16,000 Crore		Completion Time Frame: 2017
Mode of Finance	State Sector and Public Private Partnership	Implementing Agency: TAN TRANSCO

Project Description/Status:

TAN TRANSCO has identified a set of specific projects for implementation during the 12th Five Year Plan which are summarised below:

Area / Category	Indicative Costs Rs. Crore	Timeframe for completion
Power Evacuation	1,500	2017
Wind Corridor Transmission	2,000	2017
Transmission backbone	3,500	2015
Greater Chennai Transmission Strengthening	5,000	2017
Rest of TN Transmission Strengthening	4,000	2017

Targeted Impact:

These projects would enable augmenting transmission capacity for a wide range of requirements as indicated including Power evacuation from ongoing and proposed thermal generation schemes, adding capacity on the wind corridor, improving and augmenting back bone capacity and strengthening transmission capacity in select regions including Chennai city.

Implementation Strategy:

The above projects would be implemented through a combination of state sector investment and private investment. The projects are expected to be completed by 2017.





1.4.25. Transmission – Identified projects of CTU (PGCIL)

Name of the Project:		
Identified Projects - Central Transmission Utility		
Investment: Rs. 18000 Crore		Time Frame: 2017
Mode of Finance	Central Sector	Implementing Agency: Central Transmission Utility

Project Description/Status:

Central Transmission Utility has identified a set of specific projects for implementation during the 12th Five Year Plan which are summarised below: (i) High power Interstate transmission corridor and interstate HVDS projects Rs. 7500 crore

Inter-state transmission projects	Estimated Project Cost (Rs. Crore)
Dedicated and common transmission system with 765/400 kV substation with associated 765/400 kV substations and 400 kV transmission lines for MPPs	7,000
765/400 kV substation with associated lines for Interstate transfer of power	2,500
Interstate HVDC system and other power evacuation systems	8,518

Targeted Impact:

The above projects would enable augmenting transmission capacity on the inter-state corridors.

Implementation Strategy:

The above projects are being implemented by the CTU (PGCIL) and are expected to be completed by 2017.





1.4.26. Transmission – Proposed Investment programme of TAN TRANSCO

Name of the Project:		
Identified Projects – TAN TRANSCO		
Investment: Rs 54,000 Crore		Time Frame: 2020
Mode of Finance	State Sector and Private Investments	Implementing Agency: TAN TRANSCO

Project Description/Status:

TAN TRANSCO has identified a programme for implementation in order to realise the objectives of TN Vision 2023 which includes the following elements

Area / Category	Indicative Costs Rs. Crore	Indicative timeframe
Programme - Evacuation - Upcoming Generation Projects - State/Central	6,000	2020
Programme - Evacuation - Upcoming Generation Projects - MPPs	10,000	2019
Programme - Additional Wind Corridor Transmission (TBF)	5,000	2018
Programme - Solar and other Renewable Transmission (TBF)	3,000	2017
Programme - Network Improvement and System strengthening	15,000	2019
Programme - Sub-station automation and modernisation	15,000	2020

Targeted Impact:

The above projects would enable augmenting transmission capacity for a wide range of requirements as indicated.

Implementation Strategy:

The above projects would be implemented through a combination of state sector investment and PPPs. The time frame and the details of the Programme would be finalised by TAN TRANSCO.





1.4.27. Transmission – Investment Programme of CTU (PGCIL)

Name of the Project:		
Investment Programme of Central Transmission Utility		
Investment: Rs. 12,000 Crore.		Time Frame: 2020
Mode of Finance	Central Sector	Implementing Agency: Central Transmission Utility
Project Description/Status:		
<p>Central Transmission Utility has identified a set of specific projects for implementation during the 12th Five Year Plan which are summarised below:</p> <ul style="list-style-type: none"> (i) High power Interstate transmission corridor and interstate HVDS projects Rs. 7500 crore (ii) Power Evacuation for MPPs by CTU (Dedicated + Common) Rs. 4500 crore 		
Targeted Impact:		
The above projects would enable augmenting transmission capacity on the inter-state corridors.		
Implementation Strategy:		
The above projects are being implemented by PGCIL and are expected to be completed by 2020.		





1.4.28. Distribution infrastructure

Name of the Project:		
Distribution infrastructure - LT and HT lines and transformers		
Investment: Rs.15,000 Crore		Time Frame: 2023
Mode of Finance	State Sector/Public Private Partnership	Implementing Agency: TANGEDCO
Project Description/Status:		
<p>The proposed increase in generation capacity will necessitate increased investments in the distribution infrastructure. It is estimated that about 88,850 kms of LT lines and 29,600 Kms of HT lines will be required in the next 5 years to cater to the increased demand. An estimated 61,675 distribution transformers will be required to support the distribution infrastructure. A similar increase in infrastructure is envisaged for the period 2017 to 2023.</p>		
Targeted Impact:		
<p>The investment in the distribution network will help in augmenting the distribution capacity and reducing the energy loss in distribution network</p>		
Implementation Strategy:		
<p>The projects will be implemented by the state sector and on a PPP basis. The details of the network expansion and upgradation will be prepared in conjunction with the generation projects that are being undertaken.</p>		





1.4.29. Feeder Separation Project

Name of the Project:		Scope: TANGEDCO
Feeder Separation Project along with HVDS		
Investment: Rs.16,000 Crore		Time Frame: 2017
Mode of Finance	State Sector	Implementing Agency: Tamil Nadu Generation and Distribution Corporation Limited (TANGEDCO)
Project Description/Status:		
<p>Of the total loss in the network, distribution line loss in the LT Lines forms the major part. This is particularly evident in the rural areas where the low voltage LT lines run for several kms. The Project aims to separate agricultural lines from the common feeder lines and convert low voltage lines to high voltage lines. This will also allow continuous supply of electricity for services other than agriculture. There are about 3,000 rural feeders in Tamil Nadu where this segregation needs to be undertaken</p>		
Targeted Impact:		
<p>The Project will enable separation of agri loads from others and would facilitate provision of continuous supply to industrial and commercial consumers. Shifting loads to high voltage lines would also help in reducing line losses substantially.</p>		
Implementation Strategy:		
<p>The Project is expected to be implemented in a phased manner from 2012-13 to 2016-17. As a pilot project 30 feeders in Villupuram district are being taken up. The fund requirements will be met by counterpart funding expected from PFC/REC to the tune of Rs. 240 crore, ADB (Rs. 2,800 crore) and JICA funding.</p>		





1.4.30. Smart Grid initiatives in Tamil Nadu

Name of the Project:		Scope: TANGEDCO
Smart Grid initiatives in Tamil Nadu		
Investment: Rs. 20,000 Crore		Time Frame: 2014-2023
Mode of Finance	State Sector, Public Private Partnership, Development grants	Implementing Agency: Tamil Nadu Generation and Distribution Corporation Limited (TANGEDCO)
Project Description/Status:		
<p>There are many definitions of Smart Grid, some functional, some technological, and some benefits-oriented. A common element to most definitions is the application of digital processing and communications to the power grid, making data flow and information management central to the Smart Grid. Implementing a Smart Grid programme would involve several projects in all parts of the Electricity value chain – generation, transmission, despatch, distribution, grid management, metering, and consumption.</p> <p>A Smart Grid involves multi-layered investments by the Government, Utilities, Appliance makers, and End-users of electricity. It calls for a complex integration of a number of technologies with an implementation time of a decade to realise full benefits. The projects underlying this programme can be grouped under five broad heads (1) intelligent devices infrastructure (e.g. installing smart meters, distribution automation systems, demand response devices, sub-station IED controllers); (2) Communication infrastructure (e.g. Enterprise communication system, Integration of fibre and broadband networks); (3) IT infrastructure (upgrading IT architecture for real time processing and integration across multiple systems); (4) Analytical infrastructure (new data analysis capabilities, enhanced display dashboards); (5) Grid optimisation capabilities in real time</p>		
Targeted Impact:		
<p>Implementing the initiatives that go towards building a Smart Grid in Tamil Nadu will make the electricity grid of the state more efficient, reliable, and carbon friendly. There will be better management of demand resulting in levelling of the load curve (resulting in lower spinning reserve capacity and lower energy bills), and better integration of the renewable energy capacity in the grid.</p>		
Implementation Strategy:		
<p>Smart Grid initiatives would be back-ended temporally as the Electricity regime in the state has to overcome its supply deficit position in the initial few years and create the necessary awareness and institutional capabilities. Therefore, the first few years till 2015 should be spent in preparatory initiatives and capacity building exercises. The key initiatives that would be the building blocks of a Smart Grid implementation in Tamil Nadu are as follows:</p> <ol style="list-style-type: none"> 1. Formulating a Vision for a Smart Grid in Tamil Nadu 2. Preparatory exercises with consumers, employees, suppliers, telecom carriers, and other stakeholders of the Electricity sector in the state familiarising them with a Smart Grid 3. Capacity building in TANGEDCO, TANTRANSCO and Government departments 4. Implementing pilot projects in various functional areas and geographical regions 5. Laying the standards, policy and regulatory norms as required under a Smart Grid regime 6. Implementing the different modules of the Smart Grid at various points in the electricity chain, evaluating benefits and fine tuning the roll out accordingly. 		



1.4.31. State Gas Grid and City Gas Networks in select cities

Name of the Project: State Gas Grid and City Gas Network program		Scope: Energy Department / TIDCO
Investment: Rs. 16,000 Crore		Time Frame: 2014-2023
Mode of Finance	Joint development	Implementing Agency: Energy Department / TIDCO
Project Description/Status:		
<p>In order to address long-term security needs of the state, a comprehensive Natural Gas system comprising LNG terminals, a state-wide Gas Grid and City Gas Networks in select cities is envisaged. The Government has already entered into a MoU with IOCL for an LNG terminal in Ennore port (refer profile 4.3.6) and will take steps to set up another LNG terminal in Cuddalore/Nagapattinam along with the proposed PCPIR.</p> <p>To facilitate transmission and distribution of gas across the state, GoTN would initiate a program to set up a comprehensive gas grid in the state. This will complement the ongoing project being implemented by GAIL between Kochi and Bengaluru which will serve seven districts in western Tamil Nadu.</p>		
Targeted Impact:		
<p>The project is expected to facilitate availability of Natural Gas in all parts of the state and will contribute to addressing the long-term energy security needs of the state.</p>		
Implementation Strategy:		
<p>The project will be developed through joint sector route and will be developed by TIDCO in coordination with the Energy Department.</p>		





1.4.32. Provision of Solar Home Lights

Name of the Project: Provision of Solar Home Lights in Hon'ble Chief Minister's Solar Power Green Houses		Scope: Tamil Nadu
Investment: Rs. 900 Crore		Time Frame: 2016
Mode of Finance	GoTN through Rural Development Department	Implementing Agency: Tamil Nadu Energy Development Agency
Project Description/Status:		
<p>The Government of Tamil Nadu has launched the country's largest solar roof top programme under Chief Minister's Solar Powered Green House Scheme. Under this program, 3 lakh houses with solar powered lights are targeted for the benefit of the poor in rural areas over a period of 5 years from 2011-12 to 2015-16 @ 60,000 houses per year at an estimate of Rs.9 00 crore. Solar lighting systems of 50-100 Wp SPV Panel will energise 5 CFL or LED bulbs.</p> <p>These bulbs can be operated for 5 hrs a day. The solar home lighting system has an innovative design having storage for only one day with provision for grid backup. The Smart Hybrid Power Conditioning Unit in the system allows charging of battery from grid, only on rainy or cloudy days, when solar power is not sufficient to charge the battery in full. The intelligent algorithm permits charging from grid only between 10am and 6pm. This has been done to prevent charging during the night (which would leave battery in full condition when sun comes in the morning) and has also excluded charging during morning peak. Reduction in autonomy has resulted in considerable reduction in capital investment on additional battery & SPV panel capacity required for higher autonomy (usually 3 day autonomy is provided). Since Tamil Nadu has more than 300 sunny days, no autonomy is provided.</p>		
Targeted Impact:		
<p>The Program will help expand the provision of housing to the rural citizens while providing for assured green power to rural households. Given the size of the Program and the replication potential, the initiative is expected to contribute considerably to renewable energy potential of the state and to its efforts to reduce carbon footprint.</p>		
Implementation Strategy:		
<p>The Program will be implemented with funding under GoTN's Rural Development department in association with TEDA which will provide the technical know-how and development/monitoring support for the Project</p>		





1.4.33. Energising Street Lights with Solar Power

Name of the Project: Energising Street Lights with Solar Power		Scope: Tamil Nadu
Investment: Rs. 900 Crore		Time Frame: 2016
Mode of Finance	GoTN through Rural Development Department	Implementing Agency: Tamil Nadu Energy Development Agency
Project Description/Status:		
<p>Government of Tamil Nadu has also launched the unique scheme of energising existing street lights with solar power in clusters through centralised solar power plants. 1 lakh street lights in village panchayats are target over a period of 5 years upto 2016 at an estimate of Rs.250 Crore.</p> <p>This is first of its kind in the country, as the existing street lights so far powered from grid supply are power from solar energy in clusters of 10 to 15 provisions for grid backup. The existing street lights with 40W tube lights & filament lamps are replace with 20W LED lights. Similar to the home lights, the Smart Power Conditioning Unit in the system allows charging of battery from grid, only in rainy or cloudy days, when solar power is not sufficient to charge the battery in full during 10am-6pm only.</p> <p>Remote monitoring unit is provided in each power plant for monitoring the performance of the street lights from the Office of Tamil Nadu Energy Development Agency (TEDA) as well as from each District. Daily fault report is generated & sent to the supplier for rectification within 2 days. Tampering of Panel, battery & inverter housing is also monitored through temper alarm and SMS. The street lights are dimmed to one third of full brightness from 10.00 pm to 5.00 am to save energy.</p>		
Targeted Impact:		
<p>The Program will help expand the provision of street lighting through renewable sources and will contribute to considerably to renewable energy potential of the state and to its efforts to reduce carbon footprint.</p>		
Implementation Strategy:		
<p>The Program will be implemented with funding under GoTN's Rural Development department in association with TEDA which will provide the technical know-how and development/monitoring support for the Project.</p>		

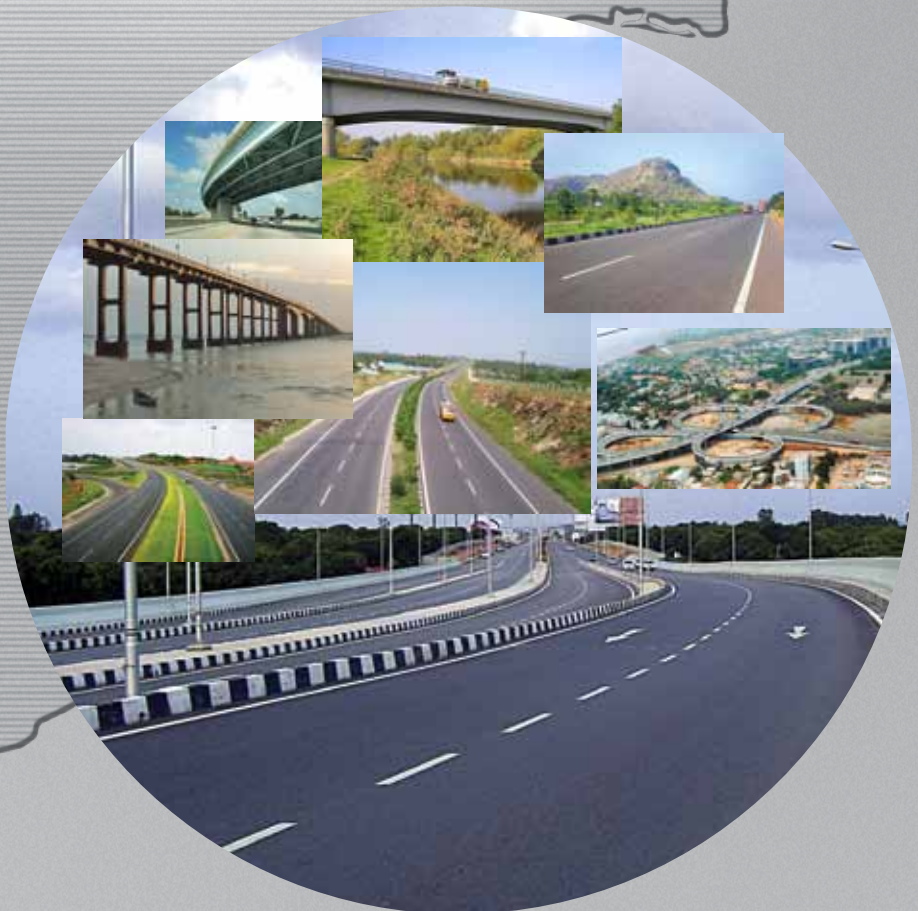


VISION TAMIL NADU



STRATEGIC PLAN FOR
INFRASTRUCTURE DEVELOPMENT
IN TAMIL NADU

Highways, Bridges and By-pass Sector





2. Highways, Bridges and By-pass Sector

2.1 Sector overview

Tamil Nadu has 62,017 kms of major roads maintained by the Central and State Highways Departments. This includes 4,974 kms of National Highways, 10,764 kms of State Highways, 11,247 kms of Major District Roads (MDR) and 35,032 kms of Other District Roads (ODR). There are about 9,500 bridges and over 1,00,000 culverts across these roads.

As of 2011, the density of road network in Tamil Nadu was 280 km per lakh population and 156 km per 100 Sq.km area as compared to the all India average of 103 km.

National Highways

State capitals, major ports, large industrial areas and tourist centres are connected by National Highways. These roads have heavy traffic intensity. The total length of National Highways in Tamil Nadu is 4,974 km of which 1,500 km are maintained by National Highways wing of the State Government and 3,474 km are maintained by the National Highways Authority of India (NHAI).

State Highways

The State Highways provide connectivity to District head quarters, with National Highways and with neighbouring states. 94% of the state highways have a carriageway width of 7m (double lane) and right of way of 30m. These stretches have traffic intensity next only to National Highways. The total length of State Highways in Tamil Nadu is 10,764 km.

Major District Roads

Towns and municipal areas are connected with district head quarters through Major District Roads. These roads link the major production and marketing centres with State Highways and National Highways. 75% of the roads have a carriageway width of 5.5m (intermediate lane) and right of way of 30m. The total length of Major District Roads in Tamil Nadu is 11,247 km.

Other District Roads

Villages and smaller marketing centres are connected with Taluk headquarters through Other District Roads. They provide mobility for transport of agricultural produce and thus form the backbone of the rural economy. They have a minimum carriageway width of 3.75m (single lane) and right of way of 12m. The total length of Major District Roads in Tamil Nadu is 35,032 km.

2.2 Sectoral Targets

The Vision document envisages achieving the following targets:

- (1) Enhancement of 2,000 km of roads into 6/8 lane Expressway corridors between Chennai and major towns.
- (2) Modernization of State Highways covering 5,000 km of four lane highways and conversion of other State Highways and other Highways of 16,000 km length to two lane roads with paved shoulders

2.3 Institutional Structure

The road sector in the state is under the overall control and management of the Highways Department, which functions under the overall coordination of the Director General. The functions of the department are grouped under Planning, Design & Investigation, Quality Assurance & Research and Execution wings.

The planning wing carries out investigation for new road works. It is responsible for the preparation of structural designs, drawings, and estimates for bridge works costing Rs.2 Crore and above.



Research activities relating to roads and bridges, road safety and traffic improvement are undertaken by the Quality Assurance Wing. Execution is carried out by six wings organised based on the source of project funding:-

1. Construction & Maintenance wing - State fund works
2. National Highways wing - Central fund works
3. NABARD & Rural Roads wing - NABARD loan assistance works
4. Projects wing - Railways Works Programme (fund sharing)
5. Metro wing - Chennai Metro Development Programme works
6. Tamil Nadu Road Sector Project - World Bank loan assistance works

In addition to the above, there are two companies that execute special projects.

Tamil Nadu Road Development Company (TNRDC)

TNRDC was formed to implement major PPP projects in the State. The company is involved in maintenance and improvement of the Rajiv Gandhi IT Expressway and the East Coast Road. It is also involved in the management of the on-going Chennai Outer Ring Road project.

Tamil Nadu Road Infrastructure Development Corporation (TNRIDC)

TNRIDC is involved in the development of road and bridge infrastructure required in industrial areas

2.4 Proposed Projects

Sl No	Name of Project	Investment Rs. Crore
2.4.1	Six/Eight Lane Triangular Corridor : Chengalpet - Thoothukudi Alignment	10,000
2.4.2	Six/Eight Lane Triangular Corridor : Thoothukudi - Coimbatore Alignment	5,000
2.4.3	Six/Eight Lane Triangular Corridor : Coimbatore - Chengalpet Alignment	9,000
2.4.4	Chennai Bangalore Expressway	6,000
2.4.5	Six/Eight Laning of National Highway 4	4,000
2.4.6	Strategic Road Expansion Programme-I (Northern Tamil Nadu)	4,000
2.4.7	Strategic Road Expansion Programme-II (Central Tamil Nadu)	9,000
2.4.8	Strategic Road Expansion Programme-III (Southern Tamil Nadu)	8,500
2.4.9	Strategic Road Expansion Programme-IV (Western Tamil Nadu)	9,000
2.4.10	Chennai Peripheral Road	1,600
2.4.11	High Priority State Highways Upgradation Program	10,000
2.4.12	Northern Port Access Road	1,000
2.4.13	Major District Roads Upgradation programme	24,000
2.4.14	Other District Roads Upgradation programme	31,000
2.4.15	Ring Road/Bypass Construction and Upgradation Programme	1,500
2.4.16	Phase II of Outer Ring Road – Chennai	1,000
	Total	134,600



2.4.1 Six/Eight Lane Triangular Corridor : Chengalpet - Thoothukudi Alignment

Name of the Project: Chengalpet - Thoothukudi Alignment		Scope: 538 km
Investment: Rs. 10,000 Crore		Time Frame: 2017
Mode of Finance	Public Private Partnership (DBOT)	Implementing Agency: Tamil Nadu Road Development Corporation

Description:

Tamil Nadu has witnessed significant development along the National Highway stretches through the development of towns and cities along the NH alignment. In order to broadbase development, reduce congestion on the National Highways, and develop new cities and towns, it is proposed to form a new triangular 6 lane alignment connecting the nodes of Chennai, Thoothukudi and Coimbatore. The alignment is divided into three segments. In order to minimise the issues of land acquisition and associated delays, the alignment is proposed in a manner that the existing road network would form the base and expansion of the National, State and District highways will be carried out as required. The first segment of the Six/Eight Lane Triangular Alignment runs from Chengalpet to Thoothukudi and covers 243 km of national highways, 89 kms of state highways and 206 kms of the East Coast Road

Sl No	Chengalpet Thoothukudi Alignment	Road Segment	Distance in KM	Length of New Road in KM
1	Chengalpet-Villuppuram (Vikravandi)	NH-45	95	190
2	Villuppuram (Vikravandi)-Kumbakonam	NH-45 C	122	244
3	Kumbakonam-Needamangalam	NH-45 C	26	52
4	Needamangalam-Mannargudi	SH-66	13	52
5	Mannargudi-Madakkur	SH-66	21	84
6	Madakkur-Adiramapattinam	SH-66	16	64
7	Adiramapattinam-Devipattinam	ECR	117	468
8	Devipattinam-Ramanathapuram	ECR	15	60
9	Ramanathapuram-Sayalkudi	ECR	60	240
10	Sayalkudi-Vembar	ECR	14	56
11	Vembar-Kurukkuchalai(Thoothukudi)	ECR & SH-75	39	156
	Total		538	1666

Targeted Impact:

This project will have a multiplier effect on the economy of the districts that it passes through, namely, Kanchipuram, Villuppuram, Cuddalore, Nagapattinam, Thiruvarur, Thanjavur, Pudukottai, Ramanathapuram and Tuticorin district, provide employment to local people during construction/operations and will change the economic landscape of the district.

It would also help in faster and efficient transport of materials from the PCPIR in Cuddalore and Nagapattinam districts. It would help in utilizing the unexplored opportunity of the region by providing connectivity to hinterland and other existing and proposed industrial areas.

Implementation Strategy:

The project will be implemented in the Public-Private-Partnership mode on a Design, Build, Operate and Transfer (DBOT) basis. The stretches in 4-lane National Highways and 2-lane State Highways and ECR would be converted to six/eight-lane roads with paved shoulders. The total new road length to be laid is around 1,666 km. The total anticipated cost of the alignment is around Rs. 10,000 crore.



2.4.2 Six/Eight Lane Triangular Corridor : Thoothukudi - Coimbatore Alignment

Name of the Project: Thoothukudi-Coimbatore Alignment		Scope: 335 km
Investment: Rs. 5,000 Crore		Time Frame: 2017
Mode of Finance	Public Private Partnership (DBOT)	Implementing Agency: Tamil Nadu Road Development Corporation

Description:

The second segment of the Six/Eight Lane Triangular Alignment runs from Thoothukudi to Coimbatore and covers 282 km of National Highways & 53 kms of State Highways

Sl No	Thoothukudi-Coimbatore Alignment	Road Segment	Distance in KM	Length of new road in KM
1	Kurukkuchalai (Thoothukudi)-Ettayapuram	NH-45B	26	52
2	Ettayapuram-Kovilpatti	SH-44	16	64
3	Kovilpatti-Sattur	NH-7	20	40
4	Sattur-Virudhunagar	NH-7	30	60
5	Virudhunagar-Thirumangalam	NH-7	29	58
6	Thirumangalam-Pallapatti	SH-73	37	148
7	Pallapatti-Dindigul	NH-7	25	50
8	Dindigul-Oddanchatram	NH-209	30	60
9	Oddanchatram-Palani	NH-209	28	56
10	Palani-Pollachi	NH-209	64	128
11	Pollachi-Madukkurai	NH-209	30	60
	Total		335	776

Targeted Impact:

This project will have a multiplier effect on the economy of the districts that it passes through i.e

Tuticorin, Virudhunagar, Madurai, Dindigul and Coimbatore district, provide employment to local people during construction/operations and will change the economic landscape of the district.

It will form the backbone of the Madurai - Tuticorin Industrial Corridor that envisages the formation of manufacturing and business investment hubs, agri-business hubs, special tourism zones and knowledge hubs.

Implementation Strategy:

The project will be implemented in the Public-Private-Partnership on a Design, Build, Operate and Transfer (DBOT) basis. The stretches in 4-lane National Highways and 2-lane State Highways would be converted to six/eight-lane roads preferably with paved shoulders. The total new road length to be laid is around 776 km. The total cost of the alignment is around Rs. 5,000 crore.



2.4.3 Six/Eight Lane Triangular Corridor : Coimbatore - Chengalpet Alignment

Name of the Project: Coimbatore-Chengalpet Alignment		Scope: 462 km
Investment: Rs. 9,000 Crore		Time Frame: 2017
Mode of Finance	Public Private Partnership (DBOT)	Implementing Agency: Tamil Nadu Road Development Corporation

Description:

The third segment of the Six/Eight Lane Triangular Alignment runs from Coimbatore to Chengalpet and covers 196 km of National Highways and 266 kms of State Highways

SI No	Coimbatore-Chengalpet Alignment	Road Segment	Distance in KM	Length of new road in KM
1	Madukkurai(Coimbatore)-Avinashi	NH-47	41	82
2	Avinashi-Perundurai	NH-47	42	84
3	Perundurai-Bhavani	NH-47	22	44
4	Bhavani-Salem	NH-47	61	122
5	Salem-Harur	SH-18	62	248
6	Harur-Uttangarai	SH-18	27	108
7	Uttangarai-Chengam	NH-77	30	60
8	Chengam-Polur	SH-133	49	196
9	Polur-Vandavasi	SH-115	54	216
10	Vandavasi-Kanchipuram	SH-115	39	156
11	Kanchipuram-Chengalpet	SH-58	35	140
	Total		462	1456

Targeted Impact:

This project will have a multiplier effect on the economy of the districts that it passes through i.e

Coimbatore, Erode, Salem, Dharmapuri and Tiruvannamalai district, provide employment to local people during construction/operations and will change the economic landscape of the district.

It will form the backbone of the Coimbatore –Salem Industrial Corridor that envisages the formation of manufacturing and business investment hubs, agri-business hubs, special tourism zones and knowledge hubs.

Implementation Strategy:

The project will be implemented in the Public-Private-Partnership mode on a Design, Build, Operate and Transfer (DBOT) basis. The stretches in 4-lane national highways and 2-lane State highways would be converted to six/ eight-lane roads preferably with paved shoulders. The total new road length to be laid is around 1,456 km. The total cost of the alignment is around Rs. 9,000 crore.



2.4.4 Chennai - Bangalore Expressway

Name of the Project: Chennai Bangalore Expressway		Scope: 260 km
Investment: Rs. 6,000 Crore		Time Frame: 2016
Mode of Finance	Public Private Partnership(BOT)	Implementing Agency: National Highways Authority of India
Description: A Chennai Bengaluru Expressway is proposed along with the industrial corridor on this route. The National Highways Authority of India (NHAI) is in the process of finalising the alignment of the proposed expressway. The expressway is envisaged to be developed on a Build Operate Transfer (BOT) basis and is likely to be designed as a six/eight lane divided carriageway.		
Targeted Impact: The expressway could potentially reduce travel time and fuel consumption along the route and is expected to catalyse further growth of industrial activity and urbainsation along this corridor.		
Implementation Strategy: BCEOM International S.A. and SECON Pvt. Ltd. are the consultants for preparation of Detailed Project Report and they are expected to submit their report by September. Government should try to develop townships and SEZs around the expressways and provide additional traffic, increasing the viability of the projects. The Government of Japan has shown interest in developing the Chennai Bengaluru Industrial Corridor and could participate in the project. The project could be synergistic with the proposed development of the Chennai-Ranipet-Hosur Industrial Corridor.		





2.4.5 Six/Eight Laning of National Highway 4

Name of the Project:		Scope: 362 km
6 Laning of National Highway 4		
Investment: Rs. 4,000 Crore		Time Frame: 2016 (3 stretches)
Mode of Finance	Public Private Partnership	Implementing Agency: National Highways Authority of India
Description:		
<p>The National Highway 4 connecting Chennai and Bangalore is being widened from 4 lanes to 6 lanes with 2-lane service roads on either side under phase-V of the National Highways Development Project. Four stretches are being widened under this project</p> <ul style="list-style-type: none"> • Hosur-Krishnagiri on NH7 with a length of 59.87km, costing Rs. 535 crore • Krishnagiri-Walajabad on NH46 with a length of 148.3 km, costing Rs. 1,250 crore • Walajabad-Poonamallee on NH4 with a length of 93 km, costing Rs. 1,288 crore • Bengaluru-Krishnagiri (TN portion) on NH7 with a length of 61 km <p>The Poonamallee-Walajapet stretch forms the main and preferred road connectivity between Chennai and Bangalore and caters to both commercial and passenger movement between the two cities. Service lanes for 30.3 km would come up in the Poonamallee- Sriperumbudur stretch. Toll plazas will come up at Nemili/ Pennalur, near Sriperumbudur, and at Chennasamudram. One major bridge will come up at Poonamallee.</p> <p>Truck laybys will come up at three locations. Flyovers are to come up at locations including Poonamallee, Sriperumbudur, Hyundai Motors, SIPCOT, Sunguvachatram and at the start and end of the Kancheepuram bypass. Vehicular subways are to come up at 15 locations, including Noombal, Poonamallee, Sriperumbudur, Chembarampakkam, Thandalam, Vedal and Siruvedal.</p>		
Targeted Impact:		
<p>The road near Poonamallee is prone to accidents. Crossing Poonamallee is also tough being very congested due to the presence of various commercial establishments on the either side of the road.</p> <p>Specific spots, including Nazrethpet, Thirumazhisai Kootu Road and Chembarampakkam, witness a lot of accidents. Many vehicles are parked on the road leading to accidents and lack of space on roads. By widening the lanes in the accident prone areas, the number of accidents would come down drastically.</p>		
Implementation Strategy:		
<p>The project is being built on a Public Private Partnership mode. Hosur-Krishnagiri segment has been awarded to Reliance Infrastructure. Krishnagiri-Walajabad has been awarded to L&T. Walajabad-Poonamallee has been awarded to Essel Group and the fourth segment is yet to be awarded. The estimated completion date for the first two segments is Dec 2013 and the third segment would be executed on a Design, Build, Finance, Operate and Transfer (DBFOT) basis for a period of 17 years would take two-and-half years for completion.</p>		



2.4.6 Strategic Roads Expansion Programme-I (Northern Tamil Nadu)

Name of the Project: Strategic Road Expansion Programme-I (Northern Tamil Nadu)		Scope: 334 km
Investment: Rs. 4,000 Crore		Time Frame: 2020
Mode of Finance	State/Public Private Partnership/National Highway Programme	Implementing Agency: Tamil Nadu State Highways Department/NHAI

Description:

Sl. No.	Stretch	Existing road	Distance in KM	Total Distance in KM
1	Wallajah - Sholingar - Arakkonam	SH 61	51	334
2	Sholingar - Kaveripakkam	SH 128	23	
3	Arakkonam - Ocheri	SH 126	32	
4	Kanchipuram - Arakkonam	SH 58	29	
5	Chingleput - Tirukalikundram - Mahabalipuram	SH 58	29	
6	Cheyyur - Odiyur (on ECR)	SH 115	5	
7	Odiyur - Marakkanam	ECR	21	
8	Marakkanam - Tindivanam	SH 134	35	
9	Cheyyur - Melmaruvathur	SH 115	23	
10	Tiruvannamalai - Vellore	SH 9	86	

The first portion of Strategic Road Expansion Programme will cover the up gradation and widening of the State Highways in the Northern Tamil Nadu.

The programme will involve a study of the current road conditions in these stretches with respect to deflection, unevenness, pavement conditions and traffic and recommendations would come up in terms of capacity improvement proposals, cross section improvement, profile corrective courses, resurfacing, earthen or paved shoulders.

Targeted Impact:

This project would cover key stretches of road connecting important cities and potential cities which lack connectivity to other cities/towns and are poised to grow in the next 10 years in terms of being the hinterland for manufacturing and business investment regions, knowledge hubs, agri business hubs, tourist spots, etc.

Implementation Strategy:

The project will be implemented in the Public-Private-Partnership mode on a Design, Build, Operate and Transfer basis or will be taken up by NHAI. The stretches of 2-lane State Highways would be converted to four-lane roads preferably with paved shoulders. The total new road length to be laid is around 668 km (334 X 2). The total cost of the alignment is around Rs. 4,000 crore, taking the unit cost as Rs. 6 crore to lay 1 km of road.



2.4.7 Strategic Roads Expansion Programme-II (Central Tamil Nadu)

Name of the Project: Strategic Road Expansion Programme-II (Central Tamil Nadu)		Scope: 731 km
Investment: Rs. 9,000 Crore		Time Frame: 2020
Mode of Finance	State/Public Private Partnership/National Highway Programme	Implementing Agency: Tamil Nadu State Highways Department/NHAI

Description:

Sl. No.	Stretch	Existing road	Distance in KM	Total Distance in KM
1	Panruti - Tirukoviloor - Tiruvannamalai	SH 9	83	731
2	Cuddalore - Nellikuppam - Panruti	SH 9	25	
3	Cuddalore - Neyveli - Vridachalam	SH 10	60	
4	Vridachalam - Thittakudi - Ariyalur	SH 143	67	
5	Perambalur - Ariyalur	SH 27	30	
6	Ariyalur - Govindaputhur Road	SH 139	40	
7	Govindaputhur - Karaikurichi - Madhanathur - Neelathanallur bridge - Kumbakonam - Tiruvarur	Karaikurichi Kumbakonam Road & SH 65	66	
8	Thanjavur - Pattukottai - Athiramanpatinam	SH 63 & Pattukottai - Athiramapatinam road	65	
9	Aranthangi - Kuttumavadi (on ECR)	SH 145	26	
10	Karaikudi - Aranthangi	SH 28	35	
11	Karaikudi - Kallal - Kalayarkoil - Maravamangalam - Elayangudi - Paramakudi - Muthukulathur - Sayalkudi	SH 28	130	
12	Dindigul - Karaikudi	SH 35	104	

The second portion of Strategic Road Expansion Programme will cover the upgradation and widening of the State Highways in Central Tamil Nadu.

The programme will involve a study of the current road conditions in these stretches with respect to deflection, unevenness, pavement conditions and traffic and recommendations would come up in terms of capacity improvement proposals, cross section improvement, profile corrective courses, resurfacing, earthen or paved shoulders

Targeted Impact:

This project would cover key stretches of road connecting important cities and potential cities which lack connectivity to other cities/towns and are poised to grow in the next 10 years in terms of being the hinterland for manufacturing and business investment regions, knowledge hubs, agri business hubs, tourist spots, etc.

Implementation Strategy:

The project will be implemented in the Public-Private-Partnership mode on a Design, Build, Operate and Transfer (DBOT) basis or will be taken up by NHAI. The stretches of 2-lane State Highways would be converted to four-lane roads preferably with paved shoulders. The total new road length to be laid is around 1,462 km (731 X 2). The total cost of the alignment is around Rs. 9,000 crore, taking the unit cost as Rs. 6 crore to lay 1 km of road.



2.4.8 Strategic Roads Expansion Programme-III (Southern Tamil Nadu)

Name of the Project: Strategic Road Expansion Programme-III (Southern Tamil Nadu)		Scope: 705 km
Investment: Rs. 8,500 Crore		Time Frame: 2020
Mode of Finance	State/Public Private Partnership/National Highway Programme	Implementing Agency: Tamil Nadu State Highways Department/NHAI

Description:

Sl. No.	Stretch	Existing road	Distance in KM	Total Distance in KM
1	Madurai - Sivaganga - Thondi	SH 33	96	705
2	Virudunagar - Aruppukottai - Tiruchuli - Narikudi - Parthibanur (NH 47 junction)	SH 42	64	
3	Parthibanur (NH 47 junction) - Kamuthi	SH 47	27	
4	Kamudhi - Mudukulathur	Kamudhi - Mudukulathur Road	23	
5	Ettayapuram - Vilathikulam - Vembar	SH 44	43	
6	Manapad - Tiruchendur - Tuticorin	SH 176	60	
7	Tiruchendur - Palayamkottai - Ambasumdrum - Tenkasi - Kuttralam - Sencottah	SH 40	130	
8	Thisayanvilai - Manapad	SH 176	23	
9	Nanguneri - Thisayanvilai	SH 89	32	
10	Nagarcoil - Kolachel	SH 46	24	
11	Sankarankoil - Kalugumalai - Nalatinputhur Road	SH 76	41	
12	Rajapalayam - Srivilliputhur	Kollam - Thirumangalam Road	12	
13	Srivilliputhur - Sivakasi	SH 42	20	
14	Sivakasi - Sattur	SH 187	20	
15	Sivakasi - Virudunagar	SH 42	27	
16	Palani - Kodaikanal	Palani Ghat Road	63	

The third portion of Strategic Road Expansion Programme will cover the upgradation and widening of the State Highways in Southern Tamil Nadu.

The programme will involve a study of the current road conditions in these stretches with respect to deflection, unevenness, pavement conditions and traffic and recommendations would come up in terms of capacity improvement proposals, cross section improvement, profile corrective courses, resurfacing, earthen or paved shoulders



Targeted Impact:

This project would cover key stretches of road connecting important cities and potential cities which lack connectivity to other cities/towns and are poised to grow in the next 10 years in terms of being the hinterland for manufacturing and business investment regions, knowledge hubs, agri business hubs, tourist spots, etc.

Implementation Strategy:

The project will be implemented in the Public-Private-Partnership mode on a Design, Build, Operate and Transfer (DBOT) basis or will be taken up by NHAI. The stretches of 2-lane State Highways would be converted to four-lane roads preferably with paved shoulders. The total new road length to be laid is around 1,410 km (705 X 2). The total cost of the alignment is around Rs. 8500 crore, taking the unit cost as Rs. 6 crore to lay 1 km of road.





2.4.9 Strategic Roads Expansion Programme-IV (Western Tamil Nadu)

Name of the Project: Strategic Road Expansion Programme-IV (Western Tamil Nadu)		Scope: 741 km
Investment: Rs. 9,000 Crore		Time Frame: 2020
Mode of Finance	State/Public Private Partnership/National Highway Programme	Implementing Agency: Tamil Nadu State Highways Department/NHAI

Description:

Sl. No.	Stretch	Existing road	Distance in KM	Total Distance in KM
1	Pollachi - Dharapuram - Karur	SH 21	130	741
2	Namakkal - Tiruchengode	SH 94	31	
3	Trichy - Namakkal	SH 25	88	
4	Bhavani - Erode	SH 20	15	
5	Bhavani - Gobichettipalayam - Sathyamangalam	SH 15	60	
6	Mettur - Bhavani	SH 20	41	
7	Salem - Mettur	SH 20 & Mecheri - Omalur Road	52	
8	Erode - Tiruchengode - Rasipuram - Mallaikarai - Athur	SH 79	100	
9	Hosur - Dharmapuri	SH 17	85	
10	Dharmapuri - Harur	SH 60A	42	
11	Uthangarai - Tirupathur - Vaniyambadi	SH 18	50	
12	Dharmapuri - Hogenakkal	Dharmapuri - Hogenakkal Road	47	

The fourth portion of Strategic Road Expansion Programme will cover the upgradation and widening of the State Highways in Western Tamil Nadu.

The programme will involve a study of the current road conditions in these stretches with respect to deflection, unevenness, pavement conditions and traffic and recommendations would come up in terms of capacity improvement proposals, cross section improvement, profile corrective courses, resurfacing, earthen or paved shoulders

Targeted Impact:

This project would cover key stretches of road connecting important cities and potential cities which lack connectivity to other cities/towns and are poised to grow in the next 10 years in terms of being the hinterland for manufacturing and business investment regions, knowledge hubs, agri business hubs, tourist spots, etc.

Implementation Strategy:

The project will be implemented in the Public-Private-Partnership mode on a Design, Build, Operate and Transfer (DBOT) basis or will be taken up by NHAI. The stretches of 2-lane State Highways would be converted to four-lane roads preferably with paved shoulders. The total new road length to be laid is around 1482 km (741 X 2). The total cost of the alignment is around Rs. 9000 crore, taking the unit cost as Rs. 6 crore to lay 1 km of road.

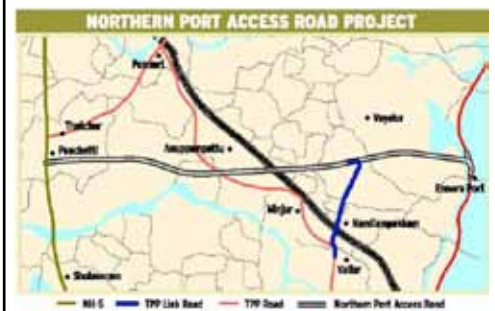


2.4.11 Northern Port Access Road

Name of the Project: Northern Port Access road		Scope: 25 km
Investment: Rs. 1,000 Crore		Time Frame: 2020
Mode of Finance	Public Private Partnership (BOT)	Implementing Agency: Tamil Nadu State Highways Department in conjunction with Ennore Port

Description:

The proposed road will enhance the connectivity from Ennore port to NH 5 to facilitate evacuation of containers, coal and other cargo. The new four-lane road from the northern gate of Ennore port to Panchetti near Thatchur on National Highway 5 will be developed for a distance of 21.1 km. A link road will be laid from the new road to Tiruvottiyur-Ponneri-Panchetti (TPP) Road, running to a distance of 4.3 km near Vallur. The proposed road would provide direct access to NH 5 from the Ennore port and the Kattupalli port of L&T. The road corridor will also have buffer yards which will serve as container terminals. The road between the Ennore port and Panchetti would have its alignment along nine villages, including Kattupalli, Ariyanvoyal, Nallur, Vellampakkam and Vannivakkam. TPP link road to be created would cover the villages of Kollatur, Nandiambakkam and Vallur.



Targeted Impact:

The Northern Port Access Road will be an important link between Port area and TPP road near Vallur and then on to NH5 at Thachur thus providing connectivity to Chennai metropolitan area and the deep hinterland. This road would also serve the proposed industrial parks and other developments north of Ennore Port. Apart from cargo laden vehicles from and to Ennore and Kattupalli ports, the Northern Port Access Road would benefit vehicles taking the TPP Road and Inner Ring Road from the Chennai port and bound for NH 5.

Implementation Strategy:

The feasibility report of the project has been completed by NHA and the alignment has been identified. The project will be implemented on a design, build, finance, operate and transfer basis, by identifying a suitable private partner.



2.4.12 High Priority State Highways Upgradation Program

Name of the Project: High Priority State Highways Upgradation Program		Scope: 2,700 km
Investment: Rs. 10,000 Crore		Time Frame: 2020
Mode of Finance	Public Private Partnership and State Funded	Implementing Agency: Tamil Nadu Road Sector Project
Description:		
<p>Under the Strategic Options Study, Tamil Nadu Road Sector Project had identified 2,477 km of State Highways and Major District Roads and had employed consultants for carrying out a Techno Economic Feasibility and prepare a shelf of projects for various financing options including institutional borrowing for improvements to the core road network in Tamil Nadu.</p> <p>The list of roads consists of 39 corridors with 87 links. State Highways of 2,289 kms and Major District Roads of 188 kms are covered as part of the project. Further study for a length of 239 km is in progress.</p> <p>Proposals in terms of pavement improvement, capacity building, cross section improvement, bypasses, railway over/under bridges and junctions have been identified</p>		
Targeted Impact:		
<p>This project would help decrease the travel time on the roads between the cities which have been selected based on a number of parameters like traffic, connectivity and social, regional and political importance. These roads have high tollable traffic and the traffic is expected to rise in future. These roads would provide connectivity to specific cities and small towns and increase the efficiency of vehicular movement along these roads</p>		
Implementation Strategy:		
<p>The project would be taken up on a PPP basis in stretches that are amenable to tolling and the rest will be taken up in the State sector.</p>		





2.4.13 Major District Roads upgradation Programme

Name of the Project: Upgradation of Major District Roads (MDR)		Scope: 8080 km
Investment: Rs. 24,000 Crore		Time Frame: 2020
Mode of Finance	Public Private Partnership and State Funded	Implementing Agency: Tamil Nadu Highways Department
Description: The state has 11,247 kms of Major District Roads (MDR), which connect important towns across the state. Of these, stretches totalling 8,080 kms are single lane or intermediate lane roads. With the Vision focussing on providing an impetus to industrial and agricultural output, connectivity of important towns and cities is vital to realise the development goals. The objective of this programme is to make all MDRs into two lane roads to facilitate smooth movement of traffic and ensure safety.		
Targeted Impact: Converting MDR into two lane roads will facilitate faster movement of both passenger and goods traffic. This will also result in safer travel and will reduce the cost of transportation. Quicker movement of goods, particularly agricultural produce from the farm gate to the processing centres/markets will be facilitated.		
Implementation Strategy: The State Highways Department will conduct detailed feasibility studies and prioritise the stretches to be converted into two-lane in a phased manner. Precedence should be given to those stretches that connect important producing centres to State and National Highways. The mode of implementation will be PPP or by the State Sector, depending on the possibility of tolling or otherwise.		





2.4.14 Other District Roads up gradation Programme

Name of the Project: Upgradation of Other District Roads (ODR)		Scope: 31,000 km	
Investment: Rs. 31,000 Crore		Time Frame: 2020	
Mode of Finance	Public Private Partnership and State Funded	Implementing Agency: Tamil Nadu Highways Department	
Description: The state has 35,032 kms of Other District Roads (ODR), which connect the smaller towns and villages to the important towns of each district. Of these, stretches extending to 31,732 kms are single lane roads. It is proposed to convert all ODR to at least intermediate lane roads to facilitate easy movement of traffic and prevent accidents. The objective of this programme is to make all ODR into intermediate lane roads to facilitate smooth movement of traffic and ensure safety.			
Targeted Impact: Converting ODR into intermediate lane roads will facilitate connectivity of smaller towns and villages to the important towns in each district. Movement of people and goods will be faster. The population residing in the interior areas of the district will be able to access the facilities available in the larger towns in each district.			
Implementation Strategy: The State Highways Department will conduct detailed feasibility studies and prioritise the stretches to be converted into intermediate lane in a phased manner. Precedence should be given to those stretches that connect important producing centres to State and National Highways. The mode of implementation will be PPP or by the State Sector, depending on the possibility of tolling or otherwise.			





2.4.15 Ring Road/Bypass Construction and Up gradation Programme

Name of the Project: Ring Road/Bypass Construction and Upgradation Programme		Scope: 366 km
Investment: Rs. 1,500 Crore		Time Frame: 2017
Mode of Finance	State Funded	Implementing Agency: Tamil Nadu Highways Department
Description:		
<p>Ribbon development along major roads is quite prevalent in towns and urban settlements in India. These areas have created bottlenecks for faster movement of traffic. Given the rise in population and corresponding vehicular traffic, ring roads and bypasses need to be created with the ambit of the current road network in the major towns in order to cover the missing links which would result in capacity augmentation for the older roads. Other possible interventions would include regulated parking spaces, provision of truck terminals, signalized junctions and interchanges.</p> <p>The Strategic Options Study recommends 30 bypasses of total length of 126.4 km in the State Highways and Major District Roads. Land acquisition for additional 17 bypasses of length 186 km is currently under progress. Detailed project report is being prepared for 21 new bypasses by the Construction & Maintenance Wing, National Highways Wing and NHAI.</p>		
Targeted Impact:		
<p>The new bypasses and ring roads would help in faster movement of traffic in town roads and would help in the decongestion of the major roads, thereby improving road safety. These bypasses could also be used to divert through truck traffic away from the town and provide connectivity to outlying suburbs. Ring roads often connect the State Highways and National Highways that would be passing through the city and bypass the most developed areas of the city, besides providing direct access from all major as well as minor radial or arterial roads</p>		
Implementation Strategy:		
<p>The Highways Department, through its various wings, would take the initiative to identify and construct the bypasses and ring roads in the major towns and cities. For large cities, a three phase plan of developing an Inner Ring Road, Intermediate Ring Road and Outer Ring Road will be considered. The Inner Ring Road and Intermediate Ring Road should be developed into high capacity corridors along with improvement of radial corridors for the efficient and even distribution of heavy volume of traffic. The Outer Ring Road should be designed solely on the basis of projected volume of traffic rather than immediate needs.</p>		





2.4.16 Phase II of Outer Ring Road

Name of the Project: Integrated Urban Road Development Programme		Location: Chennai
Investment: Rs. 1,000 Crore		Time Frame: 2017
Mode of Finance	PPP	Implementing Agency: TNRDC

Description:

A major arterial, the Outer Ring Road (ORR) is planned to be developed in the peri-urban area of the Chennai Metropolitan Area (CMA). The 62.3 km long ORR connects GST Road (NH-45) at Vandalur, GWT Road (NH-4) at Nazarethpet, Chennai Tiruvallur High Road (NH-205) at Nemilichery and Tiruvottiyur-Ponneri-Panchetty (TPP) Road at Minjur. The configuration of the road comprises 6 lane divided carriageway with a service road and a footpath on either side with a central verge of 22 m for development of a rail transit in future.

The Government has approved the implementation of the ORR in the first Phase from NH 45 (Vandalur) to NH 205 (Nemilichery) for a distance of about 30 km, facilitating six lane traffic under Build, Operate & Transfer (BOT) basis on annuity format at a cost of Rs.1081.40 crore. The Tamil Nadu Road Development Corporation has been nominated by the Government as the managing associate for the implementation of the project. The work is in progress and is expected to be completed by December 2012.

The second phase of land acquisition from NH-205 to TPP Road for a length of about 30 km covering 27 villages is under progress and lands to the extent of about 253.08.5 hectare have been taken possession. The balance land acquisition work is expected to be completed by the end of 2012. The Government have since approved implementation of the second phase of the ORR from NH 205 (Nemilichery) to Tiruvottiyur-Ponneri-Panchetti (TPP) Road (Minjur) for a distance of about 30 km, facilitating six lane traffic under BOT basis on annuity format at a cost of Rs.1075 crore with the TNRDC as the Managing Associate for the implementation of the project

Targeted Impact:

The objective of development of the ORR is to relieve congestion within the city and catalyse even dispersal of urban growth. This project envisages both road development and area development.

Implementation Strategy:

The project will be implemented on a Public Private Partnership basis.



VISION TAMIL NADU



STRATEGIC PLAN FOR
INFRASTRUCTURE DEVELOPMENT
IN TAMIL NADU

Railways Sector





3. Railways

3.1 Sector Overview

Railway services in Tamil Nadu are under the Southern Railway. The divisions of Chennai, Trichy, Madurai, Salem and some part of the Palghat division cover the State. The State has 3,069 kms of broad gauge and 692 kms of meter gauge lines of which about 30% are electrified.

The Chennai - Madurai - Kanyakumari, Chennai - Erode - Coimbatore, Chennai - Jolarpet - Bangalore are the key routes within the state. The Chennai - Madurai - Kanyakumari railway line passes through some of the important towns of Tamil Nadu. In this section of nearly 700 kms of broad gauge line, less than 300 kms are double line, while the rest is single line. This severely impacts the free movement of trains and the movement of freight by rail. About 15 to 20 trains leave Chennai Egmore everyday on this route and intermittent stretches of single line severely impacts the movement of trains.

The proposed projects are designed to fill the gaps in the existing network, in terms of doubling and electrification and new tracks for freight and for a high speed rail link.

3.2 Sectoral targets

- Connecting urban centres with more than 500,000 population with high speed rail link;
- Connecting all ports with dedicated freight links;
- Doubling and electrification of all important routes.

3.3 Institutional Structure

The railways are under the control of the Indian Railways and the operations in Tamil Nadu are under Southern Railway.

In terms of implementing new projects such as High Speed Rail, the State will consider forming a Special Purpose Vehicle (SPV) with the Indian Railways and possible private players as partners. Given the existing commitment of the Indian Railways, projects such as the freight corridor or High Speed Rail are unlikely to get the requisite priority and hence the Government of Tamil Nadu may have to take a more active role in the SPV. The Ministry of Railways should provide the necessary facilitative legal environment.





3.4 Proposed Projects

SI No.	Project Name	Investment (Rs. Crore)
3.4.1	Complete doubling for Chennai - Kanyakumari line	3,000
3.4.2	Sriperumbudur - Guindy freight line	500
3.4.3	Chennai - Tuticorin freight corridor	10,000
3.4.4	High speed passenger rail link - Chennai - Madurai – Kanyakumari	70,000
3.4.5	High speed passenger rail link - Madurai to Coimbatore	23,000
3.4.6	High speed passenger rail link - Coimbatore to Chennai	45,000
3.4.7	Chennai-Bengaluru high speed rail link	30,000
3.4.8	Chennai-Bengaluru freight corridor	5,400
3.4.9	Avadi – Guduvanchery rail link	1,100
3.4.10	Avadi / Tiruvallur – Ennore port link	400
	Total	188,400





3.4.1 Complete electrification and doubling of Chennai - Kanyakumari railway line

Name of the Project: Complete doubling of Chennai - Kanyakumari line and electrification		Distance: About 350 kms
Investment: Rs. 3,000 Crore		Time Frame: 2020
Mode of Finance	State and Central Government	Implementing Agency: Indian Railways
Description: The objective of the project is to complete the doubling of the line between Chennai and Kanyakumari and electrify the stretch completely. The segment is one of the busiest stretches and carries significant amount of traffic. The NH 45 road which runs parallel to the railway line has expanded from 2-lane to 4-lane and even 6-lane in some segments and has been attracting significant traffic.		
Targeted Impact: The doubling of the line will help in reducing the time taken to travel in this segment. The travel time between Chennai and Kanyakumari can be reduced by nearly 4 to 5 hours. Further, easing of congestion in this segment will help in moving more freight on this corridor. A very large part of the State's population and the businesses in the central and southern districts will immensely benefit by improving this connectivity.		
Implementation Strategy: The project has to be implemented in conjunction with Indian Railways. The State could consider participating in an SPV that will coordinate with Indian Railways and if required bring in private players to participate in the development of the project		



3.4.2 Sriperumbudur - Guindy freight line

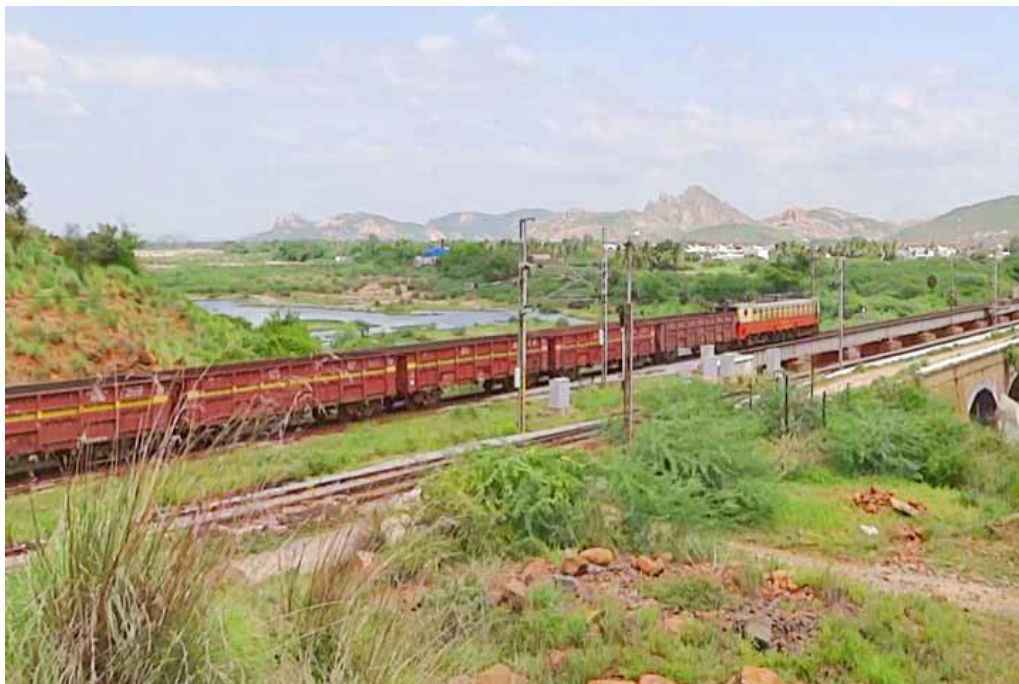
Name of the Project: Sriperumbudur - Guindy freight line		Distance: 50 kms
Investment: Rs. 500 Crore		Time Frame: 2017
Mode of Finance	State and Central Government	Implementing Agency: Indian Railways
Description: The Sriperumbudur belt is fast emerging as the most important manufacturing and logistics hub of South India. With the proposed Greenfield airport, logistics hub and area development of Sriperumbudur, the amount of manufacturing activity is expected to grow manifold. It is essential to have free access to the ports and a railway line is the best possible option. The proposed alignment to Guindy will facilitate connectivity to the port and to the southern region as well. It will also cover the industrial belt between Guindy and Sriperumbudur as well. Indian Railways has commenced the survey for this line.		
Targeted Impact: The line will help in moving freight from the Sriperumbudur industrial corridor. The line will connect the port and the other railway corridors of the State. Movement of freight, particularly bulk cargo to and from the port will be facilitated.		
Implementation Strategy: The project will be implemented by the Indian Railways. The State could float a company that will coordinate with Indian Railways to speed up the implementation and if required bring in private players to participate in the development of the project.		





3.4.3 Chennai - Tuticorin freight corridor

Name of the Project: Chennai - Tuticorin freight corridor		Distance: 500 kms
Investment: Rs. 10,000 Crore		Time Frame: 2017
Mode of Finance	Public Private Partnership	Implementing Agency: Indian Railways
Description: The objective of this project is to develop a freight corridor between Chennai and Tuticorin along the eastern coast. With new ports proposed to be developed at Cuddalore, Nagapattinam and Manappad, there is a need to provide rail connectivity to this corridor along the east coast for efficient freight movement. This will also ease the pressure on Chennai - Madurai -Tuticorin railway line		
Targeted Impact: The freight corridor will help in providing freight movement to the existing and proposed ports on the eastern coast. The proposed PCPIR in Cuddalore and Nagapattinam will spawn a number of downstream units which will require freight connectivity. The line will also serve the proposed inland container station and logistics hub proposed in Ariyalur/Perambalur belt. This corridor will provide the much needed impetus for industrial development in central and southern Tamil Nadu.		
Implementation Strategy: The project has to be implemented as a PPP in conjunction with Indian Railways. The State would float a company that will coordinate with Indian Railways and bring in private players to participate in the development of the project.		





3.4.4 Chennai - Madurai - Kanyakumari high speed rail link

Name of the Project: Chennai - Madurai - Kanyakumari high speed rail link		Distance: 700 kms
Investment: Rs. 70,000 Crore		Time Frame: 2020
Mode of Finance	Public Private Partnership	Implementing Agency: Indian Railways
Description: The project is proposed to connect the cities of Chennai, Madurai and Kanyakumari by a High Speed train link. The link will be aligned to the existing main line via Kumbakonam, Thanjavur, Trichy and Madurai. The link will provide faster movement of passengers from Chennai to the Southern districts. Easier and quicker movement will help in enhanced economic activity. It will also facilitate a more balanced regional development.		
Targeted Impact: The Chennai - Madurai - Kanyakumari segment witnesses significant passenger traffic. Madurai being the gateway to southern Tamil Nadu is an important destination. It is also estimated that on an average more than 80% of passenger movement in India is through roads. A high speed link between Chennai and Madurai will serve as a useful link for fast passenger movement between the two cities and result in significant savings on account of lesser energy consumption as compared to road transport, reduced accidents and faster overall economic development of the region.		
Implementation Strategy: The project has to be implemented as a PPP in conjunction with Indian Railways. The State would float a company that will coordinate with Indian Railways and bring in private players to participate in the development of the project.		





3.4.5 Madurai - Coimbatore high speed rail link

Name of the Project:		Distance: 230 kms
Madurai - Coimbatore high speed rail link		
Investment: Rs. 23,000 Crore		Time Frame: 2020
Mode of Finance	Public Private Partnership	Implementing Agency: Indian Railways
Description:		
<p>The project is proposed to connect the cities of Madurai and Coimbatore by a High Speed train link. The link will be aligned through the towns of Dindigul, Udumalpet and Pollachi. The link will provide faster movement of passengers between the western and southern districts of the State. Easier and quicker movement will help in enhanced economic activity. It will also facilitate a more balanced regional development.</p>		
Targeted Impact:		
<p>Madurai and Coimbatore are the two important cities in Tamil Nadu. The segment has significant passenger traffic. Coimbatore being an industrial town attracts significant traffic from the southern districts. A high speed link between Madurai and Coimbatore will serve as a useful link for fast passenger movement between the two cities and result in significant savings on account of lesser energy consumption as compared to road transport, reduced accidents and faster overall economic development of the region. The rail line will be aligned with the proposed Madurai - Coimbatore industrial corridor.</p>		
Implementation Strategy:		
<p>The project has to be implemented as a PPP in conjunction with Indian Railways. The State would float a company that will coordinate with Indian Railways and bring in private players to participate in the development of the project.</p>		



3.4.6 Coimbatore - Chennai high speed rail link

Name of the Project: Coimbatore - Chennai high speed rail link		Distance: 450 kms
Investment: Rs. 45,000 Crore		Time Frame: 2020
Mode of Finance	Public Private Partnership	Implementing Agency: Indian Railways
Description: The project is proposed to connect the cities of Chennai and Coimbatore by a High Speed train link. The link will be aligned through the towns of Erode, Salem, Tiruvannamalai, Kanchipuram and Sriperumbudur. The link will provide faster movement of passengers between the Western districts and the capital of the State. Easier and quicker movement will help in enhanced economic activity.		
Targeted Impact: Chennai and Coimbatore are two important industrial and business centres in Tamil Nadu and witness significant amount of passenger traffic. Coimbatore also serves as the gateway to North Kerala. Coimbatore being an industrial town attracts significant traffic from Chennai. A high speed link between Chennai and Coimbatore will serve as a useful link for fast passenger movement between the two cities and result in significant savings on account of lesser energy consumption as compared to road transport, reduced accidents and faster overall economic development of the region.		
Implementation Strategy: The project has to be implemented as a PPP in conjunction with Indian Railways. The State would float a company that will coordinate with Indian Railways and bring in private players to participate in the development of the project.		





3.4.7 Chennai-Bengaluru high speed rail link

Name of the Project: Chennai – Bengaluru high speed rail link		Distance: 350 kms
Investment: Rs. 30,000 Crore		Time Frame: 2020
Mode of Finance	Public Private Partnership	Implementing Agency: Indian Railways
Description: The project is proposed to connect the cities of Chennai and Bengaluru by a High Speed train link. The link will provide faster movement of passengers between Chennai and Bengaluru and spur enhanced economic activity along the Chennai Bengaluru Industrial Corridor. The feasibility study for the link is underway.		
Targeted Impact: Chennai and Bengaluru are two important industrial and business centres in South India and witness significant amount of passenger traffic. A high speed link between Chennai and Bengaluru will serve as a useful link for fast passenger movement between the two cities and result in significant savings on account of lesser energy consumption as compared to road transport, reduced accidents and faster overall economic development of the region.		
Implementation Strategy: The project has to be implemented as a PPP in conjunction with Indian Railways. The State would float a company that will coordinate with Indian Railways and bring in private players to participate in the development of the project.		





3.4.8 Chennai-Bengaluru Freight Corridor

Name of the Project: Chennai – Bengaluru Freight Corridor		Distance: 350 kms
Investment: Rs. 5,400 Crore		Time Frame: 2020
Mode of Finance	Public Private Partnership	Implementing Agency: Indian Railways
Description: The project is proposed to connect the cities of Chennai and Bengaluru by a High Speed train link. The link will provide faster movement of freight between Chennai and Bengaluru and spur enhanced economic activity along the Chennai Bengaluru Industrial Corridor. The project will also help connect the hinterland with the ports of Chennai and will facilitate two way rail freight traffic. This project is in conceptual stages and a feasibility study will be initiated shortly.		
Targeted Impact: Chennai and Bengaluru are two important industrial centres in South India and witness significant amount of freight traffic. A dedicated freight corridor between Chennai and Bengaluru will serve as a useful link for fast movement of goods between the two cities and result in significant savings on account of lesser energy consumption as compared to road transport, reduced accidents and faster overall economic development of the region.		
Implementation Strategy: The project has to be implemented as a PPP in conjunction with Indian Railways. The State would float a company that will coordinate with Indian Railways and bring in private players to participate in the development of the project.		





3.4.9 Avadi – Guduvancheri Rail line

Name of the Project: Avadi - Guduvancheri Rail line		Distance: 100 kms
Investment: Rs. 1,100 Crore		Time Frame: 2020
Mode of Finance	State and Central Government	Implementing Agency: Indian Railways
Description: The project comprises providing a rail line to connect to Avadi (on Chennai Arakonam line) with Guduvanchery (on Chennai Trichy line) passing through Sriperumbudur and Oragadam. The project also includes a spur line to Irungattukottai. The survey of the project is in progress by Indian Railways and a detailed study will need to be conducted by Indian railways.		
Targeted Impact: The line will help in moving freight from the industrial regions around Chennai and will help facilitate connectivity of the Chennai Madurai and Chennai Arakonam line and enable ease of movement of freight in particular.		
Implementation Strategy: The project has to be implemented in conjunction with Indian Railways. The State could float a company that will coordinate with Indian Railways and if required bring in private players to participate in the development of the project.		



3.4.10 Avadi/Tiruvallur – Ennore Port Rail line

Name of the Project:		Distance: 50 kms
Avadi/Tiruvallur – Ennore Port Rail line		
Investment: Rs. 400 Crore		Time Frame: 2017
Mode of Finance	State and Central Government	Implementing Agency: Indian Railways
Description:		
<p>The project comprises providing a rail line to connect Ennore Port with either Avadi or Tiruvallur with a new rail link. The proposal has been placed with Indian Railways and land acquisition for the same has been initiated.</p> <p>In addition, a feasibility study is already in progress to connect Ennore port to the main line at a location north of Athipattu Railway station.</p>		
Targeted Impact:		
<p>The line will help in evacuation of freight from Ennore Port and will also facilitate movement of goods between the industrial regions around Chennai and Ennore Port.</p>		
Implementation Strategy:		
<p>The project has to be implemented in conjunction with Indian Railways. The State could float a company that will coordinate with Indian Railways and if required bring in private players to participate in the development of the project.</p>		

VISION TAMIL NADU



STRATEGIC PLAN FOR INFRASTRUCTURE DEVELOPMENT IN TAMIL NADU

Port Sector





4. Port Sector

4.1 Sector overview

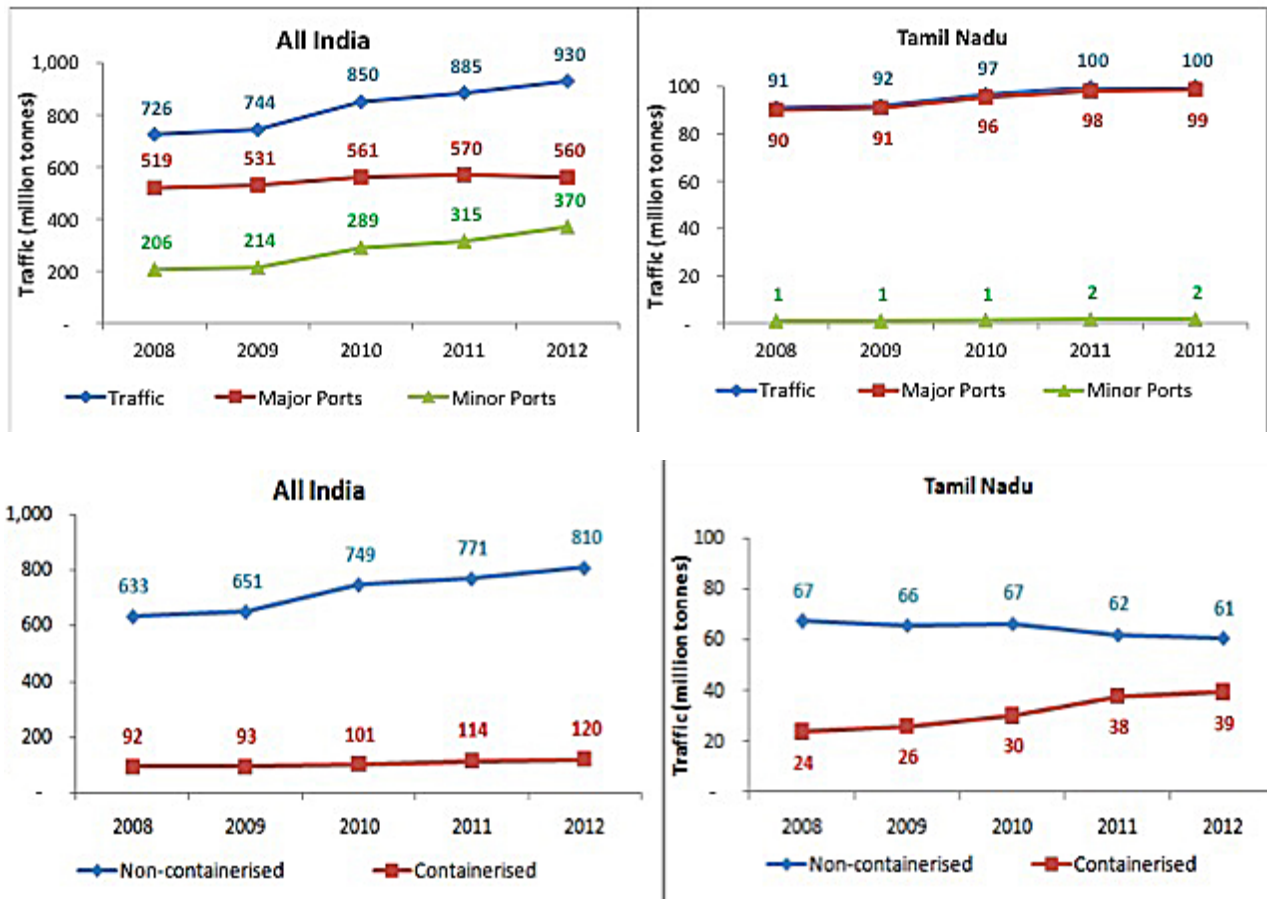
Ports in Tamil Nadu

With a length spanning 1,076 km, Tamil Nadu has the second longest coastline among Indian states. The coastline is dotted with 3 Major Ports (at Chennai, Ennore and Tuticorin) and 23 Minor Ports. The Major ports have been developed under the Major Port Trust Act of 1963 and function under the control of Government of India while the Minor Ports are developed based on Indian Ports Act of 1908 by Government of Tamil Nadu.

Traffic trends

Exhibit 1 summarises the trends in growth in cargo handled at ports in India and in Tamil Nadu and

Exhibit 1 Total Cargo Handled at Ports: All India and Tamil Nadu





Key traffic trends (Tamil Nadu vis-à-vis All-India) during 2008-12 are summarised below

- Port Traffic in TN stood at 100 million tonnes vis-à-vis All India traffic of 930 million tonnes.
- Port traffic growth in TN (CAGR of 2%) has trailed All India traffic growth (6%). As a result, share of traffic of Ports in TN has come down from 12.6% in 2008 to 10.8% in 2012.
- Though traffic growth at Minor ports has matched national average of 16% CAGR in the last five years, traffic at Minor Ports in Tamil Nadu contributed a miniscule 1.6% of total port traffic vis-à-vis 40% nationally.
- Container cargo (in million tonnes) in TN grew at 14%, nearly twice the national average growth of 7% during the corresponding period. The share of container cargo (in million tonnes) out of the total traffic in TN increased from 26% in 2008 to 39% in 2012. This is different from rest of India where there was no appreciable change in share of container cargo emerging from all-India trends (12.7% in 2008 to 12.9% in 2012).
- Container traffic (in TEU terms) in TN grew only at 7%, reflecting an increase in average cargo per TEU from 15 Tonnes to 19.3 Tonnes during 2008-12.

4.2 Institutional Structure

The major ports i.e., the Chennai and Ennore Ports come under the jurisdiction of the Ministry of Shipping, Government of India. The Tamil Nadu Maritime Board is the nodal agency for development of non-major ports in Tamil Nadu. TMB falls administratively under the Highways and Minor Ports Department of Government of Tamil Nadu

Minor Ports in Tamil Nadu

Overview

There are 23 minor ports in the State of Tamil Nadu which are under the control of the state through Tamil Nadu Maritime Board. 7 of them are Government ports and the remaining 16 ports are captive ports. Of the sixteen captive ports, four ports, i.e. Ennore Minor Port (Tiruvallur), PY-03 Oil Field (Cuddalore), Thirukkadaiyur (Nagapattinam), Koodankulam (Tirunelveli) are presently operational. The remaining twelve captive ports are under various stages of development.

The minor ports facilitate the establishment of port based industries such as Thermal Power Plants, Refineries, Fertilizer plants, etc., by providing exclusive port facilities. Given the rapid industrialization and economic development of the State, a port policy was formulated to provide investment opportunities for the development of minor ports in Tamil Nadu through Public Private Participation.

The minor ports are proposed to be developed with multi user facilities capable of handling all types of cargo like bulk, break bulk, containers, liquid bulk petroleum products, chemicals, etc. Private companies making substantial investment in coastal areas will be allotted sites for construction of captive jetties. The development of all the infrastructure facilities in these captive ports is the responsibility of the private developer.

Traffic Outlook

Traffic projections

Traffic projections for ports have been made for FY 2017 and FY 2020 under the National Maritime Agenda (2010) and for FY 2017 under the Report of the Working Group on Ports for the 12th Plan.

National Maritime Agenda: The National Maritime Agenda 2010 had made projections for seaborne traffic based on a regression analysis till the year 2019-20.



Exhibit 3 National Maritime Agenda – Traffic projections for India and Tamil Nadu

All India	Actual 2012	Projections			Implied CAGR % (2012 Actual – 2020)
		2012	2017	2020	
Major Ports	560	630	1,032	1,215	10%
Non-major ports	370	403	988	1,280	17%
TOTAL	930	1,032	2,019	2,495	13%
Tamil Nadu	Actual 2012	Projections			Implied CAGR % (2012 Actual – 2020)
		2012	2017	2020	
Major Ports	99	114	201	238	12%
Non-major ports	1	3	35	45	61%
TOTAL	100	117	236	283	14%

Working Group report of Planning Commission on Ports for 12th Five Year Plan: The Working Group of the Planning Commission on Ports for the 12th Five Year Plan estimated that overall traffic would increase to 230 million tonnes by 2017.

Exhibit 4 12th Five Year Plan – Traffic projections for Tamil Nadu

Tamil Nadu	2011-12 (Actual)	12th FYP Projections		Implied CAGR % (2012 Actual – 2017)
		2013	2017	
Container	39	34	78	15%
POL	15	21	31	16%
Coal	20	38	83	33%
Others	26	26	39	8%
TOTAL TRAFFIC DEMAND	100	119	231	33%

Traffic outlook in the context of TN Vision 2023

The TN Vision 2023 sets an ambitious 11% growth target for the period 2013-23 which is significantly higher than the GDP growth assumption underlying the above projections and hence in the context of the TN Vision 2023, these projections will need to be revisited particularly in the context of the following goals and themes of TN Vision 2023:

- **Container traffic growth:** A regression analysis on the container traffic and TN's GSDP trends suggests that container traffic could grow to 188 million tonnes for 2023. This is consistent with the trend assumed in the 12th Five Year Plan report which estimates container traffic demand at TN ports to increase to 78 million tonnes by 2017 (or a 14.5% CAGR from 2011-12). Under Vision 2023 scenario, this growth trend could continue till 2023.



- **Coal Traffic:** TN Vision 2023 envisages an incremental thermal power generation capacity of 20,000 MW which translates to an incremental 80 million tonnes of thermal coal requirement which will need to be almost entirely addressed through coastal means. Given that in 2011-12 over 20 million tonnes of coal was handled at TN ports, the coal traffic could surpass the 94 million tonnes projected for 2020 under the NMDP.
- **Overall Traffic:** Overall Traffic growth is projected at 13% (at 1.2 times the projected GSDP growth envisaged in TN Vision 2023) in line with the elasticity assumed in the report of the working group of the 12th Five Year Plan. Under TN Vision 2023 scenario, traffic demand at ports under this scenario could potentially triple from current levels by 2020 and more than quadruple by 2023. Traffic demand under the TN Vision 2023 scenario could be 17-20% higher than the levels envisaged in other projections.

Exhibit 5 provides a summary of the projections of the National Maritime Agenda and the 12th Five Year Plan and projections under TN Vision 2023 Scenario.

Exhibit 5 Scenario Analysis – Commodity Traffic projections for Tamil Nadu

Cargo wise demand (TN Ports)	2011-12 (Actual)	NMP Projections		12th FYP Projections		TN Vision 2023 scenario			CAGR % 2012 - 23
Container	39	32	65	34	78	78	123	188	15%
POL	15	18	40	21	31	31	45	53	12%
Coal	20	30	94	38	83	83	100	120	18%
Others	26	37	85	26	39	39	65	118	15%
TRAFFIC DEMAND	100	117	284	119	231	231	332	479	13%
Container (TEUs)	1.99	2.53	5.21	2.32	5.35	5.35	8.25	9.73	16%

4.3 Sectoral targets

It is thus likely that the potential increase in traffic demand, (in the context of the ambitious industrial growth targets under TN Vision 2023) could exceed earlier estimates and traffic demand could grow to 3-4 times of prevailing traffic levels by 2023.

The Government of Tamil Nadu would therefore accord highest priority to develop large-scale multi-user minor port facilities to complement planned increases in capacity in major ports.

In this regard, it would undertake a review of minor ports policy to enable creation of large-scale multi-user port facilities (rather than sub-scale captive facilities) to cater to the likely growth in port traffic demand in the state in a more efficient manner.

The State Government would create an enabling policy framework to attract investments to develop at least 3 greenfield multi-user multi-cargo cargo ports with a planned capacity of at least 150 million tonnes to handle the future burgeoning traffic.



4.4 Proposed projects

SI No	Name of Project	Amount Rs. Crore
4.4.1	Development of ports in Cuddalore region	2,000
4.4.2	Development of ports in Nagapattinam region	2,000
4.4.3	Development of ports in Manappad region	1,900
4.4.4	Mega Container Terminal at Chennai Port	3,700
4.4.5	Ro-Ro cum Multipurpose Berth and Multilevel Car Park at Chennai Port	100
4.4.6	LNG Terminal at Ennore Port	4,320
4.4.7	LNG Terminal at Colachel	4,000
4.4.8	Dry Port and Logistics Hub at Sriperumbudur	275
4.4.9	Dry Port and Logistics Hub at Perambalur/Ariyalur	200
4.4.10	Container Terminal at Ennore Port	1,428
4.4.11	Ro-Ro cum Multilevel Car berth at Ennore Port	200
	Total	20,123





4.4.1 Development of Port in Cuddalore region

Name of the Project: Development of Greenfield/brownfield port facilities in Cuddalore region		Location: Cuddalore District, Tamil Nadu Area: 800 acres
Investment: Rs. 2,000 Crore		Time Frame: 2020
Mode of Finance	Public Private Partnership	Implementing Agency: Tamil Nadu Maritime Board, Govt. of Tamil Nadu
Description: <p>The objective of development of a greenfield port at Cuddalore of 20 million ton (MT) capacity is to provide logistics infrastructure for the imported coal based thermal power plants and the proposed Petroleum, Chemical and Petrochemical Investment Region (PCPIR) in Cuddalore.</p> <p>Gol has approved the proposal of the Tamil Nadu Government for setting up a Petroleum, Chemical and Petrochemical Investment Region (PCPIR) in Cuddalore and Nagapattinam districts. The region is expected to attract an investment of around Rs. 92,160 crore. Many imported coal based Thermal Power Plants are also planned or under implementation in Cuddalore district.</p> <p>The primary and secondary hinterland of the proposed greenfield port at Cuddalore comprises the districts of Cuddalore, Perambalur, Villupuram, Salem, Namakkal, Karur, Thanjavur, Thiruvarur and Erode. Cuddalore district has a sizeable industrial composition with over 30 large-scale industries. It also has a number of Small Scale Units and Cottage industries engaged in the development of small, medium and large scale industries in Tamil Nadu. SIPCOT has set up a 1,266 acre Industrial Complex in phases. Apart from the SIPCOT Complex, SIDCO also houses an industrial complex at Semmandalam, which caters to a number of MSME Units.</p> <p>In this context, it is becoming critical to develop sizeable world-class port facilities in the Cuddalore-Nagapattinam region through a combination of upgradation of existing captive brownfield facilities as well as creation of new multi-user green-field port facilities in this region.</p>		
Targeted Impact: <p>The proposed Cuddalore port will have a multiplier effect on the economy of Cuddalore district, provide employment to local people during construction/operations and will change the economic landscape of the district.</p>		





Implementation Strategy:

Two captive ports have already been planned in the Cuddalore district:

1. The Tiruchopuram port is being developed by M/s Nagarjuna Oil Corporation Limited and is expected to handle 6.5 million tonnes of Crude Oil and 2.8 million tonnes of refined petroleum products annually. Permission to set up a Single Point Mooring for importing crude and a berth for exporting petroleum products. The developer has submitted a proposal for developing additional facilities to handle other commercial cargo that has been approved by Tamil Nadu Maritime Board.
2. Parangipettai port is being developed by IL&FS Tamil Nadu Power Company Limited as a captive port to handle 14 million tonnes of coal. Coastal land has been allotted on lease basis and the project (along with the power plant) has been granted consent to establish by the Tamil Nadu Pollution Control Board

In addition to these facilities, GoTN will take steps to create a green-field multi-user port in the region. The project will be implemented in the Public Private Partnership mode on Design, Build, Operate and Transfer (DBOT) basis. Tamil Nadu Maritime Board (TMB), the nodal agency for development of ports in Tamil Nadu will select a port developer on International Competitive Bidding process.

The project will developed in phases with an estimated investment of around Rs. 2,000 crore with a capacity in the range of 30-50 million MT.

The project entails development of a port with breakwaters, approach channel, dry bulk/liquid jetties, coal jetties, cargo handling equipment, communication/navigational aids, port service vessels (Pilot, Mooring, Tugs), fire fighting equipment, pollution control equipment, office/operational buildings and utilities.





4.4.2 Development of Port in Nagapattinam region

Name of the Project:		Location: Nagapattinam
Development of Greenfield/brownfield ports in Nagapattinam region		Area: 1,000 acres
Investment: Rs. 2,000 Crore		Time Frame: 2017
Mode of Finance	Public Private Partnership	Implementing Agency: Tamil Nadu Maritime Board, Govt. of Tamil Nadu
Description:		
<p>The objective of development of a greenfield Port at Nagapattinam of 20 million ton (MT) capacity to provide logistics infrastructure for the imported coal based Thermal Power plants and the existing steel, cement and sugar industries in the hinterland.</p> <p>The primary and secondary hinterland of the proposed greenfield port at Nagapattinam comprises the districts of Nagapattinam, Perambalur, Villupuram, Salem, Namakkal, Karur, Thanjavur, Thiruvarur and Erode. Chennai Petroleum Corporation Ltd. has an oil refinery in Nagapattinam. In this context, it is critical to develop sizeable world-class port facilities in the Nagapattinam region.</p>		
Targeted Impact:		
<p>The proposed Nagapattinam port will have a multiplier effect on the economy of Nagapattinam district, provide employment to local people during construction/operations and will change the economic landscape of the district.</p>		
Implementation Strategy:		
<p>IIT Madras has prepared a Technical feasibility study for setting up a greenfield port at a cost of Rs. 380 crore to handle 1 million MT in the first year going up to 6 million tonnes in year 25. The Government of Tamil Nadu has approved implementation of this project on a PPP mode through a competitive bidding process. The project bid documents submitted by the transaction advisor appointed by TMB are under examination by a technical committee.</p> <p>Given the scale of industrial development plans in the Cuddalore-Nagapattinam region, GoTN recognises the need to build larger scale port facilities in the region to support these plans. Accordingly, GoTN will evaluate the feasibility for implementation of a world-class a greenfield multi-user port in the region.</p> <p>The project will be implemented on Public Private Partnership on Design, Build, Operate and Transfer basis. The project will developed in phases with an estimated investment of around Rs. 2,000 crore with with a capacity in the range of 30-50 million MT.</p>		



4.4.3 Development of Port in Mannapad region

Name of the Project:		Location: Thoothukudi District, Tamil Nadu
Development of Greenfield ports in Manappad region		Area: 1,000 acres
Investment: Rs. 1,900 Crore		Time Frame: 2020
Mode of Finance	Public Private Partnership	Implementing Agency: Tamil Nadu Maritime Board, Govt. of Tamil Nadu
Description:		
<p>The objective of development of a greenfield Port at Mannapad of 20 million ton (MT) capacity to provide logistics infrastructure for the imported coal based thermal power plants at Udangudi and other cargo from Southern Tamil Nadu.</p> <p>The project entails development of a port with breakwaters, approach channel, dry bulk/liquid jetties, coal jetties, cargo handling equipment, communication/navigational aids, port service vessels (pilot, mooring, tugs), fire fighting equipment, pollution control equipment, office/operational buildings and utilities.</p>		
Targeted Impact:		
<p>The proposed Mannapad port will have a multiplier effect on the economy of Thoothukudi district, provide employment to local people during construction/operations and will change the economic landscape of the district.</p>		
Implementation Strategy:		
<p>GoTN had declared Manappad as a minor port in 1998 for captive use of a private developer for their proposed 2000 MW Gas Turbine project. Coastal land had been allotted to the developer for construction of port facilities. In the event of this project not taking off within the prescribed timeframe, GoTN will take steps to develop a multi-user port at this location on Public Private Partnership mode on Design, Build, Operate and Transfer basis</p>		





4.4.4 Mega Container Terminal at Chennai Port

Name of the Project:		Capacity: 4 mn TEU's
Mega Container Terminal at Chennai Port		
Investment: Rs. 3,700 Crore		Time Frame: 2020
Mode of Finance	Public Private Partnership	Implementing Agency: Chennai Port Trust
Description:		
<p>Chennai port has proposed to build a mega container terminal of capacity of 4 million TEUs per annum through Public-Private Partnership (PPP) on Design, Build, Finance, Operate and Transfer (the "DBFOT") basis.</p> <p>The terminal will be the first deep water terminal of its kind in India. It can handle ultra large container ships of capacity over 15000 TEUs and length 400 m. The infrastructure would be developed north of the existing Bharathi Dock with two new breakwaters of length of 4.5 kms and continuous quay length of 2 KM with 22 m. alongside depth. The total basin area will be 300 hectares with a back up area of 100 hectares. The BOT operator will invest on berth & breakwater construction, reclamation of backup area, handling equipment and other landside infrastructure (Rs. 3,125 crore). The proposed investment includes Rs 963 crore towards breakwater, Rs 362.25 crore for dredging; Rs. 496.80 crore to construct berths, and Rs. 124.20 crore for reclamation. The cost of purchasing tugs, dredging, floating crafts and navigational aids (Rs. 561 crore) will be borne by Chennai Port.</p>		
Targeted Impact:		
<p>It will enable Chennai port to compete with international ports and reduce the need for trans-shipment from Singapore and Colombo. It would also help in handling the sharp growth in container volume at Chennai Port over the recent years and cater to latest generation of mainline vessels requiring more draft.</p>		
Implementation Strategy:		
<p>The port is being developed on Develop, Operate, Maintain, Share and Transfer (DOMST) basis on a PPP mode through a bidding process. It would have a on a 30-year concession period.</p> <p>The present practice of moving containers mostly only by road in/ out of Chennai port can only support a traffic of around 1 million TEUs per year whereas the mega terminal capacity is 4 times more than this volume which would lead to severe congestion at the port. The port connectivity projects including the Ennore-Manali highway need to be expedited. The movement of containers to ICD/CFS's should be increased by providing better rail connectivity.</p>		





4.4.5 RO-RO cum Multipurpose Berth and Multilevel Car Park at Chennai Port

Name of the Project: Ro-Ro cum Multipurpose Berth and Multilevel Car Park at Chennai Port		Capacity: 1 Million tones
Investment: Rs. 100 crore		Time Frame: 2014
Mode of Finance	Public Private Partnership (DBFOT)	Implementing Agency: Chennai Port Trust

Description:

Chennai port proposes to develop a Ro-Ro cum Multipurpose Berth of area 300m X 30m, at southern end of Container Terminal at Bharathi dock of the port along with multi level car parking facility for about 5000 vehicles in an approximate area of 147m X 70m to handle automobile cargo. The project would have a design life of 50 years

Automobile manufacturing giants like Hyundai, Ashok Leyland, Nissan, and Ford located around Chennai are increasing their exports. In Chennai port, cars for export are parked in the area of about 47,700 sq m at the Dr. Ambedkar Dock allotted to M/s.Hyundai Limited and the automobile units of all other manufacturers are parked in the West Quay I area till they are rolled on to the vessels. This has led to severe congestion in the dock.

In order to meet the ever increasing export requirements of automobile manufacturers, the port has to augment its infrastructure facilities. The car cargo traffic in 2010-2011 and 2011-12 are less than that of 2009-10 which calls for creating better facilities to attract other car manufacturers as well. 2.52 lakh cars were exported in year 2011-12 and it is forecast to increase to 5.5 lakh in 2022-23 and 8.5 lakh in 2043-44.

The draft required for the 60,000 DWT vessels is 12m and the bed level at site is 4m. So, the developer would be required to carry out dredging activity for an area of 36, 000 m² to dredge a volume of 2, 00,000 m³.

Targeted Impact:

The project is expected to boost and augment the export of cars by the automobile industries located in and around Chennai port in the form of improved cargo handling capacity and increased efficiency in car handling operations. The berth can also utilized optimally by using it for handling other non-car cargos i.e. project cargo and break bulk cargo during idle time.

Implementation Strategy:

Chennai Port Trust has decided to develop the Ro-Ro cum Multipurpose Berth and Multilevel Car Park through Public-Private Partnership (PPP) on Design, Build, Finance, Operate and Transfer (DBFOT) basis. Detailed Project Report has been prepared and Transaction Advisor has been appointed. Upfront Tariff proposal was forwarded to TAMP (Traffic Authority for Major Ports).

Sixteen applications were received which were evaluated resulting in the pre-qualification of fourteen applicants. The concession period for the project is 30 years. The revenue for the developer is envisaged from the rental / storage charge from the car manufacturers for the usage of multilevel car parking facility and handling of cargo through Ro Ro Berth





4.4.6 LNG Terminal at Ennore Port

Name of the Project:		Capacity: 5 Million TPA
LNG Terminal at Ennore Port		
Investment: Rs. 4,320 Crore		Time Frame: 2016
Mode of Finance	Private Sector	Implementing Agency: Indian Oil Corporation Limited
Description:		
<p>Indian Oil Corporation Ltd has plans to set up an LNG import terminal at Ennore port, situated on the Coromandal coast about 24 km north of Chennai port in Tamil Nadu. The proposed terminal will have berth, storage and re-gasification facilities of 5 million tonnes p.a. capacity. The project is to be implemented by a joint venture company, in which Indian Oil Corporation, Tamil Nadu Industrial Development Corporation Limited and others, including LNG suppliers, would be stakeholders.</p> <p>IOC has also signed an agreement with Tamil Nadu Industrial Development Corporation for the project, which will come up on 132 acres. The entire investment would be done by IOC and Ennore Port would facilitate the development of the terminal. IOC has already undertaken front-end engineering design (FEED), environment impact assessment (EIA) studies through reputed consultants and is making good progress on the project. It is also in discussions with various international LNG suppliers for the project</p>		
Targeted Impact:		
<p>The project will supply natural gas/regasified LNG to the gas-starved southern states, particularly Tamil Nadu, and some parts of Karnataka and Andhra Pradesh. Currently Southern India does not have adequate supply of piped gas and the project will address this gap.</p>		
Implementation Strategy:		
<p>Indian Oil has entered into a Memorandum of Understanding and Heads of Agreement with Tamil Nadu Industrial Development Corporation for partnering in the project. There would be equity participation by TIDCO in the project as envisaged in a memorandum of understanding in August 2010 for co-operation in the development of infrastructure projects. TIDCO could take a 5-10 per cent equity stake in the project while IOC would have a minimum of 26 per cent stake in the joint venture. The mode of funding the project cost through a ratio of debt to equity is being worked out. Some fiscal incentives from the State Government for the project have been also awarded.</p>		





4.4.7 LNG Terminal at Colachel

Name of the Project: LNG Terminal at Colachel		Capacity: 5 Million TPA
Investment: Rs. 4,000 crore		Time Frame: 2016
Mode of Finance	Private Sector	Implementing Agency: TIDCO/TANGEDCO
Description: Natural gas is an important long term fuel source for power generation, industrial, commercial, transportation and domestic applications. It is proposed to set up an LNG terminal at Colachel to handle 5 million TPA. A power project will be the anchor customer while industrial units and city gas distribution will be the other users. In order to support the energy needs of the state and the industrial and domestic demand for gas in Southern Tamil Nadu, an LNG terminal with a capacity of 5 MMTPA is being planned.		
Targeted Impact: The project will contribute to the gas supply for the State and is intended to achieve part of the 10 MMTPA capacity that is targeted under TN Vision 2023. The project will support the energy needs of the industries in PCPIR and will also help provide the supply base for creation of a gas grid that can support industrialization, power generation and urbanisation in the extended region around the terminal.		
Implementation Strategy: The terminal will be developed on a PPP basis. TIDCO along with TANGEDCO will identify the private partner and promote the project as a joint venture. The State will provide the incentives under the prevailing policy regime.		





4.4.8 Dry Port and Logistics Hub at Sriperumbudur

Name of the Project: Integrated Dry Port & Multi-modal Logistics Hub near Sriperumbudur		Capacity: 125 acres
Investment: Rs. 275 Crore		Time Frame: 2015
Mode of Finance	Public Private Partnership (DBFOT)	Implementing Agency: Chennai Port Trust
Description:		
<p>Chennai port has taken an area of 125 acres (75 Acres in Northern side of the Arakkonam Road and 50 Acres in southern side of the road) of land on long term lease basis for 99 years from SIPCOT at Mappedu, Sriperumbudur to build an Integrated Dry Port and Multi-modal Logistics Hub, about 50 km from Chennai port. The design life of the port is 50 years. The Traffic for dry port is forecasted at 7 lakh TEU's in 2022-23 and 39 lakh TEU's in 2043-44.</p> <p>The components proposed in the dry port are ICD / off dock CFS, container yard, connectivity, trade centre, cold storages, closed and open warehouses for containerized cargo separately for exports and imports and long term storage of bonded cargo. Off-dock CFS will have onsite customs clearance facility. There will be provision for cargo handling equipment such as reach stackers, fork lift trucks, rubber tyre gantry crane, electronic weighbridge. Facilities like parking, railway line and rail siding yard feeder service, freight forwarders & customs brokers, export management & packing diesel / petrol outlet point would also be provided.</p>		
Targeted Impact:		
<p>It would solve the huge problem of acute shortage of land and relieving of congestion in and around the Chennai Port. This project would consolidate the position of Chennai port as a container hub on east coast of India and would facilitate enhancement of the port capacity. It would also address the export / import needs of the surrounding industrial area/ electronics SEZ and harness the benefits arising out of its usage as a concentration point for long distance cargo. It would serve as a transit facility with customs clearance facility available near the centres of production and consumption, resulting in reduced level of demurrage and pilferage. It would also help in reduced level of empty container movement and inventory cost thereby, improving transport cost and trade flows.</p>		
Implementation Strategy:		
<p>Chennai Port Trust has decided to develop the Integrated Dry Port & Multi-modal Logistics Hub near Sriperumbudur through Public-Private Partnership (PPP) on Design, Build, Finance, Operate and Transfer (the "DBFOT") basis. A Detailed Project Report has been prepared and a Transaction Advisor has been appointed. Consultant has been appointed for fixation of Upfront Tariff. Bids have been invited from interested parties. The concession period is 30 years including construction period. The revenue for the developer shall be from the charges to be levied on the containers likely to be handled in dry port.</p>		





4.4.9 Dry Port and Logistics Hub at Ariyalur/Perambalur

Name of the Project:		Capacity: 200 acres
Integrated Dry Port & Multi-modal Logistics Hub near Ariyalur/Perambalur		
Investment: Rs. 200 Crore		Time Frame: 2017
Mode of Finance	Public Private Partnership (DBFOT)	Implementing Agency: Cuddalore/Nagapattinam ports
Description:		
<p>The components proposed in the dry port are ICD / off dock CFS, container yard, connectivity, trade centre, cold storages, closed and open warehouses for containerized cargos separately for exports and imports and long term storage of bonded cargo. Off-dock CFS will have onsite customs clearance facility. There will be provision for cargo handling equipments such as reach stackers, fork lift trucks, rubber tyre gantry crane, electronic weighbridge. Facilities like parking, railway line and rail siding yard feeder service, freight forwarders & customs brokers, export management & packing diesel / petrol outlet point would also be provided.</p>		
Targeted Impact:		
<p>The proposed development of the Cuddalore and Nagapattinam ports will cater to the hinterland in Central and Eastern Tamil Nadu. The dry port at Perambalur/Ariyalur will help in consolidating cargo and serve as a transshipment point for the hinterland. The port will also serve the cargo from the western districts which currently use Kochi or Tuticorin ports.</p>		
Implementation Strategy:		
<p>The dry port will be developed through Public-Private Partnership (PPP) on Design, Build, Finance, Operate and Transfer (the "DBFOT") basis. The revenue for the developer shall be the charges to be levied on the cargo likely to be handled in dry port.</p>		





4.4.10 Container Terminal at Ennore Port

Name of the Project:		Capacity: 2.4 M TEU's
Container Terminal at Ennore Port		
Investment: Rs. 1,428 Crore		Time Frame: 2014
Mode of Finance	Public Private Partnership	Implementing Agency: Ennore Port Trust
Description:		
<p>Ennore Port Trust has proposed to build a container terminal of capacity of 2.4 million TEUs per annum through Public-Private Partnership (PPP) on Build, Operate and Transfer (the "BOT") basis. The terminal will have a quay length of 1,000 meters and an initial estimated throughput of 1.5 million TEUs (twenty-foot equivalent unit) annually. It will provide 15-metre water depth at the berths and will be able to handle three container vessels of up to 8,000 TEUs simultaneously. The terminal would be spread across an area of 5 lakh sq.mts and would have two berths. The channel depth can be deepened to 18.5m to allow 10,000 TEU capacity ships to call at the port</p> <p>Eredene Capital has won a bid in a consortium to build and operate the container terminal at Ennore Port in Tamil Nadu. Bay of Bengal Gateway Terminal Pvt. Ltd, a company formed by the group to build the terminal has signed a concession agreement with Ennore Port Ltd to build the terminal and is currently under the process of achieving financial closure for the project.</p>		
Targeted Impact:		
<p>The nearby Chennai port suffers because of constraints like space availability for expansion, congestion in access roads, draft limitation and labour problems. The Ennore port would remain competitive by developing the container terminal for 6,000-8,000-TEU vessels on priority with better facilities and commission it ahead of competing facilities. The container terminal will serve a growing industrial hinterland and motor-manufacturing hub, and it will have an eventual planned annual capacity of 2.4 million TEUs (twenty-ft equivalent units).</p>		
Implementation Strategy:		
<p>The port is being developed on Develop, Operate, Maintain, Share and Transfer (DOMST) basis on a PPP mode through bidding process. It would have a 30-year concession period.</p>		



4.4.11 RO-RO cum Multipurpose Berth and Multilevel Car Park at Ennore Port

Name of the Project: Ro-Ro cum Multipurpose Berth and Multilevel Car Park at Ennore Port		Capacity: 1 MT
Investment: Rs. 200 Crore		Time Frame: 2020
Mode of Finance	Public Private Partnership	Implementing Agency: Ennore Port Trust
Description: Ennore port proposes to develop a 3-4 Ro-Ro cum Multipurpose Berths along with multi level car parking facility. Automobile manufacturing giants like Hyundai, Ashok Leyland, Nissan, etc. have been involved heavily in exporting their manufacturing automobiles through ports in Chennai. This facility is expected to address this growing export demand and will complement a similar facility being planned at Chennai Port.		
Targeted Impact: The project is expected to boost and augment the export of cars by the automobile industries located in and around Chennai port in the form of improved cargo handling capacity and increased efficiency in car handling operations. The berth can also be utilized optimally by using it for handling other non-car cargos i.e. project cargo and break bulk cargo during idle time.		
Implementation Strategy: The project will be implemented by Ennore Port Trust on PPP model.		





5. Airports and Aircraft Maintenance Sector

5.1 Sector Overview

The development of civil aviation in an economy echoes economic development – in terms of fuelling speedy travel and also lending its support to all industries, especially the tourism sector.

The Indian civil aviation has grown rapidly in the last decade, with India emerging as the ninth largest civil aviation market in the world. Some of the salient features that illustrate this boom in the aviation sector are:

- Scheduled air services available to/from 82 airports, increasing from only 50 in early 2000
- Enhanced national and international connectivity - 72 foreign airlines are operating to/from various destinations
- 1,356 International flights utilising 3,26,705 seats per week.
- Three Indian carriers are operating 990 flights to 35 destinations in 25 countries.
- North East Connectivity improvement from 87 flights per week to 286 flights per week in the period 2005-2010

Even in terms of the cargo flights that are operated, India has 14 scheduled airlines operating exclusive for the same. In 1990, there were only two airlines in operation. The number of aircraft operated for cargo has also increased. In 1990 there were only 100 aircraft operating in the country which have now risen to 413. The total number of aircraft in the country too has shown a rapid rise from 225 in 2000 to 735 in 2010.

This growth story is emphasized by the numbers that showcase the increased traffic handling ability.

- The number of operational airports has increased from 50 in 2000 to 82 in 2010
- The passenger handling capacity has increased from 66 million to 235 million during the same period
- The growth in air cargo has been from 3 million tons in 2002 to 4.5 million tons in 2010

In spite of the above said growth, India continues to be a small player in the international arena. The trips per capita in India still remain very low (0.04) even by the standards of other emerging markets, such as China (0.15), Brazil (0.25) and Malaysia (0.54). China's domestic traffic is 5 times the size of India's despite having a population just 15% larger. The upside potential therefore, remains huge, driven by strong economic and demographic fundamentals. India has 1 aircraft for every 2.89 million population which is miniscule in comparison to 1.14 million in China, 0.96 of Indonesia, 0.89 in Philippines and 0.63 in Brazil.

Thus, Indian civil aviation sector could witness a growth up to 20% in the domestic passenger traffic. India's air passenger travel has been growing at almost 25% a year¹. A projection of number of aircraft required by India in the next 3-4 years is depicted in the following table.

Aircraft Seating capacity	1995	2006	2016
300 and more	11	18	36
200 – 300	30	50	120
100 – 200	60	186	350
50 – 100	20	58	200
Total	121	312	700

¹ Source: Planing Commission



Aviation in Tamil Nadu

The civil aviation in Tamil Nadu has its hub at the Chennai International Airport. There are two terminals in the Chennai airport, namely, Kamaraj Domestic Terminal and the Anna International Terminal. Chennai Airport is one of the major airports in Southern India and has handled about 13.5 million passengers, 1.11 lakh aircrafts and 7 lakh metric tons of cargo during the year 2011-12. Share of Chennai Airport in all India's passenger traffic is 8.5% and is the third busiest airport after Delhi (DIAL) and Mumbai (MIAL) airports.

On an average, daily, 14,500 international passengers and 23,600 domestic passengers were handled during 2011-12 at Chennai Airport.

Passenger in-flow details – in million



In addition to the Chennai airport, the state of Tamil Nadu has airports in Madurai, Coimbatore, Trichy and Tuticorin. The analysis of the passenger and cargo traffic reiterates the fact that Chennai airport is the hub for Southern India.





Passenger Traffic Details – Tamil Nadu 2010-11

Airport	Embarked	Disembarked	Transit	Total
Chennai Airport- International	21,47,500	20,74,124	24,212	42,45,836
Chennai Airport - Domestic	3,921,074	38,82,769	-	78,03,843
Coimbatore airport - International	50,374	48,690	-	99,064
Coimbatore airport - Domestic	5,76,500	5,73,938	32,911	11,83,349
Madurai Airport - Domestic	2,05,782	2,12,256	-	4,18,038
Trichy airport - International	2,86,918	3,05,790	69,578	6,62,286
Trichy airport - Domestic	40,428	43,006	-	83,434

Source: Airport Authority of India, Chennai Airport

Cargo Handled – in tons – Tamil Nadu 2010-11

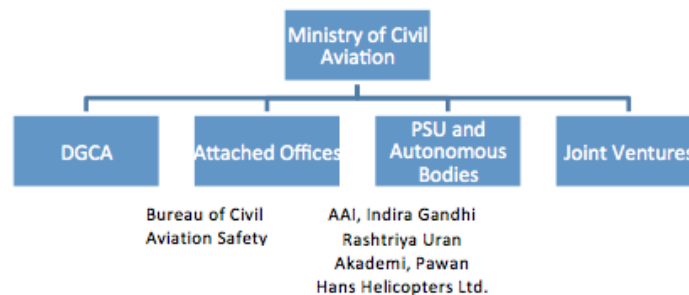
Airport	Loaded	Unloaded	Transit
Chennai Airport- International	1,59,726	1,35,771	2,95,497
Chennai Airport - Domestic	54,246	39,089	93,335
Coimbatore airport - International	3,280	149	3,429
Coimbatore airport - Domestic	3,929	3,140	7,070
Madurai Airport - Domestic	3,430	1,262	4,691
Trichy airport - International	87	50	137
Trichy airport - Domestic	223	369	592

Source: Airport Authority of India, Chennai Airport

5.2 Sectoral targets

- Green field Airport complex in Chennai equipped to handle 40 million passengers
- Upgradation of existing airports in Coimbatore, Trichy and Madurai to international class with a capacity of 10 million passengers each

5.3 Institutional Structure





5.4 Proposed Projects

SI No. (Rs. Crore)	Project Name	Investment
5.4.1	Greenfield airport at Sriperumbudur	15,000
5.4.2	Expansion of Madurai airport	3,000
5.4.3	Expansion of Coimbatore airport	3,000
5.4.4	Development of Airport facilities in Tiruchirapalli	500
5.4.5	Development of Airport facilities in Thoothukudi	500
5.4.6	Aerospace park at Vellore	3,000
	Total	25,000





5.4.1 Development of Greenfield Airport at Sriperumbudur

Name of the Project: Development of Greenfield Airport at Sriperumbudur		Location: Kancheepuram District, Tamil Nadu Area: 5,000 acres
Investment: Rs. 15,000 Crore		Time Frame: 2017
Mode of Finance	Public-Private-Partnership	Implementing Agency: Transport Department, Govt. of Tamil Nadu

Description:

The objective of development of a greenfield airport at Sriperumbudur with a capacity of 40 million passengers and 1 million ton (MT) cargo capacity is to provide additional air transport facilities to the Chennai region due to the lack of additional land for expansion of the Chennai Airport and the proposed Logistics Park in Sriperumbudur region. The greenfield airport can be developed at Sriperumbudur on land acquired by Govt. of Tamil Nadu.

The project entails development of an airport for wide bodied aircraft with 3 runways (when fully developed) of 4,000 metres length, taxiways, rapid exit ways, communication, navigation and surveillance (CNS) equipment, a passenger terminal with a capacity of 15 million passengers initially which will be expanded to 40 million passengers in a phased manner, air traffic control tower, fire fighting equipment, pollution control equipment, office/operational buildings and utilities. The airport will also have a 500 room hotel to cater to the needs of passengers. The terminal will also have 10,000 Sq. mtr of retail space to start with, which will be expanded to 30,000 Sq. mtr when the third phase is complete.

Targeted Impact:

The proposed greenfield international airport will have a multiplier effect on the economy of the Sriperumbudur region, provide employment to local people during construction/operations and will change the economic landscape of the Tiruvallur district.

Implementation Strategy:

The project will be implemented on Public-Private-Partnership on Design, Build, Operate and Transfer basis. TIDCO would select an airport developer on International Competitive Bidding process.

The project can be developed in three phases with a capacity of 15 million passengers/0.5 MT cargo in Phase I to be increased to 30 million passengers/0.75 MT of cargo in Phase II and 40 million passengers in Phase III. The total project cost is estimated at Rs.15,000 crore. An area of around 5,000 acres is proposed to be given to the developer for development of airport and its associated facilities.





5.4.2 Expansion of Madurai Airport

Name of the Project: Expansion of Madurai Airport		Location: Madurai District, Tamil Nadu Area: 2,000 acres
Investment: Rs. 3,000 Crore		Time Frame: 2020
Mode of Finance	Public-Private-Partnership	Implementing Agency: Airports Authority of India and Transport Department, Govt. of Tamil Nadu
Description:		
<p>Madurai is one of the important tourist locations not only of Tamil Nadu but also of South India. The important tourist places in Madurai are the Meenakshi Temple, Thirumalai Palace, Thirupparankundram Temple, Alagar Koil, Gandhi Museum and Mariammam Teppakulam. Madurai district has many manufacturing facilities such as T.V. Sundaram Iyengar & Sons, Madura Coats, and Fenner (India) which are engaged in the production of variety of goods like tyres and tubes, machineries, textile, conveyor belts, etc.</p> <p>The existing airport is spread over an area of around 502 acres. It is proposed that an additional land of around 2,000 acres be acquired for brownfield development. The existing passenger terminal of area 17,000 sq.mtrs and the airport has CAT I landing facilities.</p> <p>The project entails expansion of the AAI's airport at Madurai. The main features of the project would be increasing the length of the runway to 3,000 metres to handle wide bodied aircraft, development of one more passenger terminal with a capacity of 2 million passengers and associated facilities by the year 2015-16 and further expanding to 10 million passengers. The airport will also have a second runway with the terminal space of about 65,000 Sq.mtrs when completed including a retail space of about 6,500 Sq. mtrs.</p>		
Targeted Impact:		
<p>The proposed brownfield airport will have a multiplier effect on the economy of the Madurai region, provide employment to local people during construction/operations and will change the economic landscape of the Madurai district. The airport expansion is aligned with the development of the Madurai - Tuticorin industrial corridor and the other developments proposed in the region.</p>		
Implementation Strategy:		
<p>The airport expansion project will be implemented by way of Public Private Partnership. TIDCO is proposed to be the nodal agency for acquisition of land for the expansion project.</p> <p>The project can be developed in two phases with a capacity expansion by 2 million passengers/0.1 MT cargo in Phase I to be increased to 10 million passengers/0.25 MT of cargo in Phase II. The total project cost in Phase I is estimated at Rs.3,500 crore. An area of around 2,000 acres will be acquired by TIDCO for expansion of the existing airport and its associated facilities.</p>		



5.4.3 Expansion of Coimbatore Airport

Name of the Project: Development of Brownfield Airport – Coimbatore		Location: Coimbatore District, Tamil Nadu Area: 2,000 acres
Investment: Rs. 3,000 Crore		Time Frame: 2020
Mode of Finance	Public-Private-Partnership	Implementing Agency: Airports Authority of India and Transport Department, Govt. of Tamil Nadu
Description:		
<p>Coimbatore is the second largest city in Tamil Nadu with a population of about 10.60 lakh as per the 2011 census. The district has one of the highest GDP in Tamil Nadu, given its manufacturing base in textiles and light engineering.</p> <p>Textiles and light engineering are the main industries in Coimbatore. The country's largest textile machinery manufacturer Lakshmi Machine Works is located at Coimbatore. There are many electric pump manufacturing companies in and around Coimbatore, such as Deccan, CRI, Texmo, KSB, Sharp. Coimbatore also houses some auto component manufacturing companies such as Roots, Pricol and LGB. Robert Bosch, the largest auto component company in India has its R & D facility in Coimbatore. Coimbatore also has many Information Technology and Business Process Outsourcing companies such as Cognizant Technology Solutions and Perot Systems.</p> <p>The existing airport is spread over an area of around 607 acres. TIDCO can acquire the additional land of around 2,000 acres for the brownfield development. The existing passenger terminal of area 11,430 sq.mtr and has CAT I landing facilities.</p> <p>The project entails expansion of the AAI's airport at Coimbatore. The main features of the project would be increasing the length of the runway to 3,000 metres to handle wide bodied aircraft, development of one more passenger terminal with a capacity of 2 million passengers and associated facilities by the year 2015-16 in the first phase. The airport will have 2 runways, a terminal area of 65,000 sq.mtrs of which 10% will be retail space when the expansion is complete and will handle 10 million passengers.</p>		
Targeted Impact:		
<p>The proposed brownfield airport will have a multiplier effect on the economy of the Coimbatore region, provide employment to local people during construction/operations and will change the economic landscape of the Coimbatore district.</p>		
Implementation Strategy:		
<p>The airport expansion project will be implemented under Public Private Partnership. TIDCO is proposed as the nodal agency for acquisition of land for the expansion project.</p> <p>The project can be developed in two phases with a capacity expansion by 2 million passengers/0.1 MT cargo in Phase I to be increased to 10 million passengers/0.25 MT of cargo in Phase II. The total project cost is estimated at Rs. 3,500 crore. An area of around 2,000 acres will be acquired by TIDCO for expansion of the existing airport and its associated facilities.</p>		



5.4.4 Development of airport facilities in Trichy

Name of the Project:		Location: Trichy
Development of Airport facilities in Trichy		
Investment: Rs. 500 Crore		Time Frame: 2020
Mode of Finance	Public-Private-Partnership or by Airports Authority of India	Implementing Agency: Airports Authority of India and Transport Department, Govt. of Tamil Nadu
Description:		
<p>Tiruchirappalli International Airport is an international airport, serving Tiruchirapalli and adjacent districts. After the entry of Air Asia, Trichy airport started becoming an LCC entry point into South India, serving mostly the labour workforce in the South East and Gulf Countries from this region. Trichy airport was made as an international airport on 4 October 2012 along with Lucknow, Varanasi, Coimbatore and Mangalore airports.</p> <p>The airport has two adjacent terminals. Currently the integrated international terminal is being used for both international and domestic air traffic. The new integrated passenger terminal built at cost of Rs. 80 Crore (US\$14.56 million) was inaugurated on 21 February 2009 and started its operations from 1 June 2009. The old terminal at the airport has been converted into an international cargo complex. The 4,000m² (43,000 sq ft) cargo complex was commissioned for operations on 21 November 2011. The project entails expansion of facilities to meet the long term aviation demand in the region. GoTN will work in coordination with AAI to assess the long-term aviation demand in the region and firm up plans to meet the same through a combination of brownfield and greenfield expansion of airport facilities.</p>		
Targeted Impact:		
<p>The creation of airport facilities will have a multiplier effect on the economy of the Trichy region, provide employment to local people during construction/operations and will change the economic landscape of the region.</p>		
Implementation Strategy:		
<p>The airport expansion plans will be implemented in coordination with Airports Authority of India.</p>		





5.4.5 Development of airport facilities in Thoothukudi

Name of the Project:		Location: Thoothukudi
Development of Airport facilities in Thoothukudi		
Investment: Rs. 500 Crore		Time Frame: 2018
Mode of Finance	Public Private Partnership	Implementing Agency: Airports Authority of India and Transport Department, Govt. of Tamil Nadu
Description:		
<p>Thoothukudi airport is a domestic airport with a 1,351 meter long runway and provision for parking ATR type facilities.</p> <p>A master plan for upgrading the Tuticorin airport in phases had been prepared by the Ministry of Civil Aviation and has sought 586 acres of land free and without encumbrances to the Airports Authority of India for development.</p> <p>The project entails expansion of facilities to meet the long term aviation demand in the region. GoTN will work in coordination with AAI to confirm the long-term aviation demand in the region and firm up plans to meet the same through a combination of brownfield and greenfield expansion of airport facilities.</p>		
Targeted Impact:		
<p>The creation of airport facilities will have a multiplier effect on the economy of the Thoothukudi region, provide employment to local people during construction/operations and will change the economic landscape of the Thoothukudi district and adjoining areas.</p>		
Implementation Strategy:		
<p>The airport expansion plans will be implemented in coordination with Airports Authority of India.</p>		





5.4.6 Aerospace park at Vellore

Name of the Project: Aerospace Industry Development		Location: Vellore (3000 acres)
Investment: Rs. 3,000 Crore		Time Frame: 2013-2018
Mode of Finance	Public-Private-Partnership or by Airports Authority of India	Implementing Agency: TIDCO, Government of Tamil Nadu
Description: Tamil Nadu aspires to achieve 30% of Indian aerospace business by 2020 and multiple projects will be taken up to reach the target. A special policy is under development for boosting investments in manufacturing of aerospace components, Maintenance Repair and Overhaul (MRO) activities, and education. Multiple projects those have been identified by TIDCO towards the course as follows: <ol style="list-style-type: none"> 1. Establishment of SEZ in Hosur for MRO activities 2. Establishment of MRO complex in Sriperumbudur adjacent to the proposed international airport 3. Establishment of aerospace component manufacturing units in Sriperumbudur 4. Integrated aerospace park in Vellore for manufacturing of aerospace components and aero university for education, research and development in the sector 		
Targeted Impact: These projects are aimed towards achieving the primary position in aerospace components in Asia. An enabling investment of Rs 3,000 crore will be employed to rollout these projects. The aerospace university will act as a centre of excellence for all courses pertaining to the industry covering design, manufacture, testing, operations, MRO and recycling of aero science. The university would be hosted in partnership with international aerospace industries and research organisations; it shall deliver cutting edge technologies and processes for the industry worldwide.		
Implementation Strategy: The project is proposed to be implemented in PPP mode and different partners will be chosen for each of the projects. TIDCO will be the nodal agency co-ordinating the activities on behalf of Government of Tamil Nadu and will coordinate with the revenue authorities to identify land in Vellore region. An aerospace specific policy will be announced by the Government the enabling investments would be initiated.		

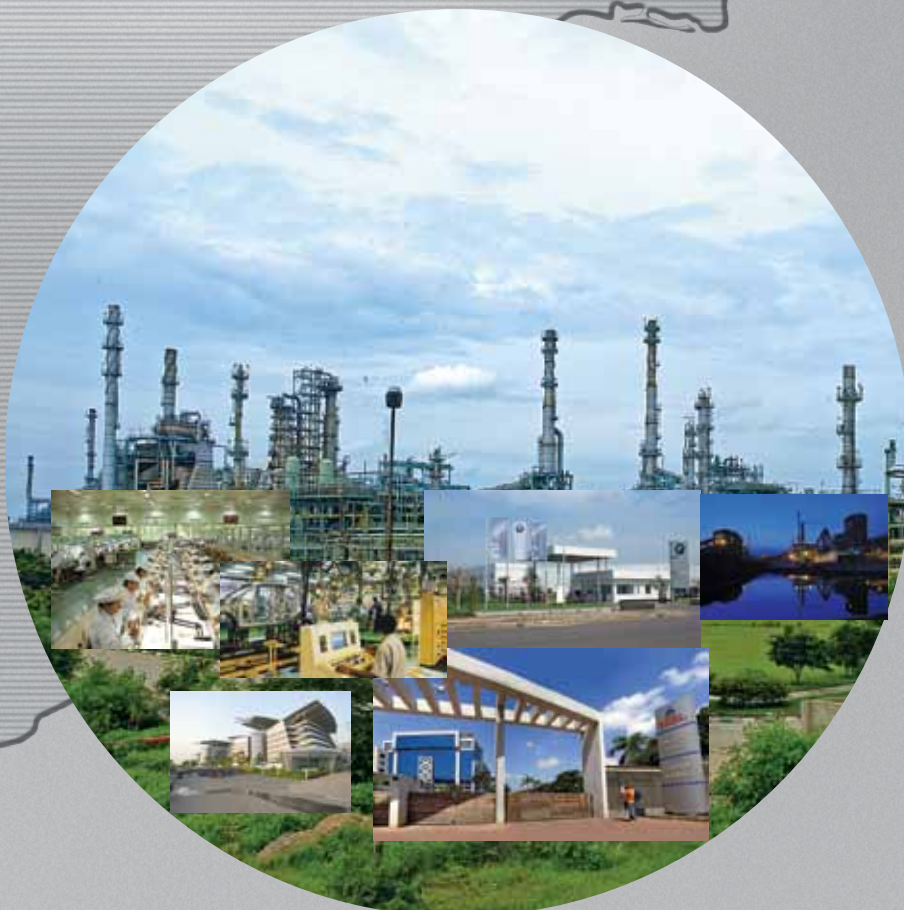


VISION TAMIL NADU



STRATEGIC PLAN FOR
INFRASTRUCTURE DEVELOPMENT
IN TAMIL NADU

Industry Sector





6. Industry Sector

6.1 Sector Overview

Tamil Nadu is one of the industrialised States in the country. With a 16.6% share in GDP (2010-11), Tamil Nadu is the largest manufacturing hub in South India. Tamil Nadu produces a range of manufacturing products like automobiles, auto components, light and heavy engineering, garments & textile products, leather products, chemicals, plastics etc.

The key reasons for Tamil Nadu emerging as the industrial hub on South India have been the entrepreneurial spirit of the local population and the availability of industrial infrastructure. The State does not have any significant natural endowments except for a long coast line. In spite of the fact that less than 2% of the country's cotton crop is grown in the State, the State contributes to nearly 40% of the yarn manufacture of the country.

However, in recent years, non availability of power and water has been a major cause for concern for industries. The Vision envisages clearing these bottlenecks and creating adequate industrial infrastructure to facilitate the growth of industries in the State.

The manufacturing sector is envisaged to grow at a rate 14% year on year for the next 10 years. Such a growth is achievable if adequate industrial infrastructure is made available. The focus of infrastructure development will be to facilitate the growth of the industries where Tamil Nadu has inherent advantages in terms of a certain factor advantages and past track record.

The Vision has identified a set of corridors for development that will facilitate the growth of industries in an equitable manner across all regions of the State. The proposed development of industrial parks and corridors dovetail with the proposed development of the road and rail network in order to provide seamless connectivity.

6.2 Sectoral Targets

- Tamil Nadu will be one of the top three preferred investment destinations in Asia and the most preferred in India with a reputation for efficiency and competitiveness.
- Tamil Nadu will be known as the innovation hub and knowledge capital of India, on the strength of world class institutions in various fields and the best human talent.
- Tamil Nadu will preserve and care for its ecology and heritage.

6.3 Institutional Structure

The industrial development of the State is co-ordinated by the Industries department of the Government of Tamil Nadu. The key institutions that facilitate industrial development are:

1. Tamil Nadu Industrial development Corporation Limited (TIDCO)
2. State Industries Promotion Corporation of Tamil Nadu (SIPCOT)
3. Tamil Nadu Small Industries Development Corporation (TANSIDCO)
4. Tamil Nadu Industrial Guidance and Export Promotion Bureau (TN Guidance Bureau)



Tamil Nadu Industrial development Corporation Limited (TIDCO)

Established in 1965 as a Government of Tamil Nadu Enterprise for the development of large and medium Industries in association with private promoters TIDCO's role is to promote large and medium scale industries in partnership with private sector companies and individual entrepreneurs either in the joint sector or the associate sector. TIDCO's participation in the equity capital of joint and associate sector companies will be restricted to 26% and 2 to 11% respectively. TIDCO also provides escort services where the promoters do not require TIDCO's equity participation and as a token of TIDCO's participation, TIDCO invests up to 1% of the equity if it is necessary. It has also set up infrastructure for sectors such as IT/ITES and bio-technology parks, SEZs, infrastructure and road development, agri-export zones and special investment region.

TIDCO has been in the forefront of shaping the direction of the industrial investment in the State by identifying the sectors and guiding the development of infrastructure.

State Industries Promotion Corporation of Tamil Nadu (SIPCOT)

SIPCOT was established in the year 1971 to develop industrial growth in Tamil Nadu. The focus of SIPCOT is to undertake area development activities by acquiring land and forming industrial complexes and provide comprehensive infrastructure facilities for industries. SIPCOT is the nodal agency of the Government of Tamil Nadu for sanction and disbursement of the State's package of assistance to large industrial units.

The objective of SIPCOT is to establish, develop, maintain and manage industrial complexes, parks and growth centres at various places across the State of Tamil Nadu. SIPCOT has developed 19 industrial estates in 12 districts covering an area of over 20,000 acres.

Tamil Nadu Small Industries Development Corporation (TANSIDCO)

TANSIDCO was incorporated in 1970 as a Government of Tamil Nadu undertaking with the objective of playing catalytic role in the promotion and development of small-scale industries and increasing the pace of industrialisation in Tamil Nadu. The key areas of TANSIDCO's activities are as follows:

- Development of industrial estates with infrastructure facilities
- Provision of work sheds and developed plots
- Raw materials supply scheme
- Marketing Assistance Scheme
- Guidance to entrepreneurs

So far 92 industrial estates have been developed with 4,385 work sheds and 6,658 plots. For micro enterprises, 1,841 tiny sheds in sizes ranging from 200 sq.ft to 600 sq.ft have been constructed and allotted.

Tamil Nadu Industrial Guidance and Export Promotion Bureau (TN Guidance Bureau)

TN Guidance Bureau was constituted by the Government of Tamil Nadu in 1992 with the objective of attracting major new investments. The primary objectives of the Guidance Bureau are as follows:

- To attract major industrial projects into Tamil Nadu
- To function as "Single Window Documentation Centre" for major investment proposals
- To consider the proposals for Assistance to States for Infrastructure Development for Exports (ASIDE) grant



In 2011-12, the Guidance Bureau handled 28 major investment proposals with a total investment of Rs 15,138.62 crore. The Bureau has been instrumental in attracting large industrial investments in Tamil Nadu by way of its focussed approach in presenting the strengths of the state in relation to the target investment.

The agencies mentioned above have worked effectively till now in attracting investment and ensuring the development of industrial infrastructure. However, there is a need for greater coordination between the agencies, for instance SIPCOT and TIDCO, to ensure that the acquisition of land and development of industrial infrastructure by SIPCOT is in line with the industrial development plans that TIDCO works on. Similarly, SIPCOT and TANSIDCO need to work closely to ensure that adequate infrastructure for small industries are provided in the areas where SIPCOT develops industrial parks.

Assistance is provided by the Guidance Bureau to large industries. A similar facility needs to be provided to the SMEs in each district to facilitate the various approvals. It is proposed to address these issues under the Tamil Nadu Investment Promotion Programme to be implemented with Japanese assistance.

6.4 Proposed Projects

Sl No.	Project Name	Investment (Rs. Crore)
6.4.1	Madurai-Thoothukudi Industrial Corridor - Manufacturing and Business Investment Regions (MBIR) I	4,000
6.4.2	Madurai-Thoothukudi Industrial Corridor - Manufacturing and Business Investment Regions (MBIR) II	4,300
6.4.3	Madurai-Thoothukudi Industrial Corridor - Manufacturing and Business Investment Regions (MBIR) III	2,500
6.4.4	Madurai-Thoothukudi Industrial Corridor - Manufacturing and Business Investment Regions (MBIR) IV	20,200
6.4.5	Madurai-Thoothukudi Industrial Corridor Agri- Business Investment Region (ABIR)	5,000
6.4.6	Madurai-Thoothukudi Industrial Corridor Manufacturing and Business Investment Area I & II (MBIA - I & II)	2,000
6.4.7	Coimbatore-Salem Industrial Corridor - Manufacturing and Business Investment Region - I & II	7,200
6.4.8	Coimbatore-Salem Industrial Corridor - Agri Business Investment Region (ABIR)	4,800
6.4.9	Chennai - Ranipet Industrial Corridor	17,000
6.4.10	Ranipet - Hosur Industrial corridor	20,000
6.4.11	Chennai - Trichy Industrial Corridor	20,000
6.4.12	Coimbatore - Madurai industrial corridor	10,000
6.4.13	Sriperumbudur industrial area development	5,000
6.4.14	Finance City in Chennai	1,500
6.4.15	Information Technology Investment Region	21,600
6.4.16	Petroleum, Chemical and Petrochemical Investment Region (PCPIR)	13,725
6.4.17	Heavy Engineering Industrial Park	1,000
6.4.18	Plastics park	160
6.4.19	Industrial parks for SMEs	1,000
Total		160,985



6.4.1 Madurai-Thoothukudi Industrial Corridor - Manufacturing and Business Investment Regions (MBIR) I

Name of the Programme:		Land Area: 5000 hectares
Manufacturing and Business Investment Region-I		
Investment: Rs. 4,000 Crore		Time Frame: 2020
Mode of Finance	Public Private Partnership	Implementing Agency: State Industries Promotion Corporation of Tamil Nadu (SIPCOT)
Description:		
<p>The first of the Manufacturing and Business Investment Regions is proposed to be established in Madurai district. It would primarily be a manufacturing hub catering to industries like textiles & garments, plastic, electrical, leather, ceramics, electronics, cement chemical, paper, etc. Light and heavy engineering industries as well as auto components and auto ancillaries are also proposed.</p> <p>Manufacturing zones, industrial parks, warehouses and logistics hubs would be the key development areas. Internal infrastructure for residential development would include roads, site grading, drainage system, water supply, sewerage & effluent network, STPs, ETPs, SWM, communication network, utilities and common amenities. Specialized infrastructure for the regional manufacturing hub would include testing centres, QC labs ,product display centres, administration buildings, training centre, etc.</p>		
Targeted Impact:		
<p>The project would help in the sustainable development of Southern Districts of Tamil Nadu by enhancing the employment potential and raising the competitiveness and efficiency of small and medium enterprises. It would help in increasing the industrial output and result in balanced industrialization across the state. It would help in utilizing the unexplored opportunity of the region by providing connectivity to hinterland and other existing and proposed industrial areas.</p>		
Implementation Strategy:		
<p>The total investment in infrastructure is estimated at around Rs. 4,000 crore and the total industrial investment would be around Rs 12,350 crore. More than 80% of the investment in infrastructure would be primarily in internal infrastructure and external infrastructure connectivity. Tamil Nadu Industrial Development Corporation (TIDCO) will work with SIPCOT in identifying the private partner and structuring the transaction.</p>		





6.4.2 Madurai-Thoothukudi Industrial Corridor - Manufacturing and Business Investment Regions (MBIR) II

Name of the Programme:		Land Area: 5000 hectares
Manufacturing and Business Investment Region-II		
Investment: Rs. 4,300 Crore		Time Frame: 2020
Mode of Finance	Public Private Partnership	Implementing Agency: State Industries Promotion Corporation of Tamil Nadu (SIPCOT)
Description:		
<p>The second of the Manufacturing and Business Investment Regions is proposed to be established in Thoothukudi district. It would cater to multiple industries like light engineering (steel fabrication, corrosion prevention), heavy engineering (boiler components, heat exchangers, chemical process equipments, electrical & power generation), leather, chemical process, mineral based etc. Port based industries, ship building and ship repair complex and free trade warehousing zones are also proposed to cater the trade and commerce through the Tuticorin port.</p> <p>Manufacturing zones, industrial parks, warehouses and logistics hub would be the key development areas. Internal infrastructure for residential development would include roads, site grading, drainage system, water supply, sewerage & effluent network, STP, ETP, SWM, power distribution, street lighting, communication network, utilities and common amenities. Specialized infrastructure for the manufacturing hub would include common user coal terminal, free trade warehousing, testing centre, product display centre, administration buildings, training centre, etc.</p>		
Targeted Impact:		
<p>The project would help in prioritizing the needs of import based and export oriented units. Multi-commodity logistics park will provide further benefits to industrial units and other port users in terms of state of the art equipment, facilities and services to its customers. Engineering and chemical industries would save on the transit costs by setting up manufacturing and processing units that can derive major benefits from the close proximity to the port.</p>		
Implementation Strategy:		
<p>The total investment in infrastructure is estimated at around Rs 4300 crore and the total industrial investment would be around Rs. 18,525 crore. More than 80% of the investment in infrastructure would be primarily in internal infrastructure and external infrastructure connectivity. Tamil Nadu Industrial Development Corporation (TIDCO) will work with SIPCOT in identifying the private partner and structuring the transaction.</p>		



6.4.3 Madurai-Thoothukudi Industrial Corridor - Manufacturing and

Business Investment Regions (MBIR) III

Name of the Programme:		Land Area: 5000 hectares
Manufacturing and Business Investment Region-III		
Investment: Rs 2,500 Crore		Time Frame: 2020
Mode of Finance	Public Private Partnership	Implementing Agency: State Industries Promotion Corporation of Tamil Nadu (SIPCOT)
Description:		
<p>The third of the Manufacturing and Business Investment Regions is proposed to be established in Tirunelveli district. It would primarily serve as a renewable energy hub. It would function as a solar products manufacturing hub with products like photovoltaic panels, solar collectors, etc. It is expected to give thrust to SME's for renewable energy component manufacturing and commercial production of solar energy.</p> <p>Manufacturing zones, industrial parks, warehouses and logistics hub would be the key development areas. Internal infrastructure for residential development would include roads, site grading, drainage system, water supply, sewerage & effluent network, STP, ETP, SWM, power distribution, street lighting, communication network, utilities and common amenities. Specialized infrastructure for the manufacturing hub would include renewable energy park, testing centre, QC labs ,product display centre, administration buildings, training centre, power evacuation system ,etc</p>		
Targeted Impact:		
<p>The project would help in the augmentation of renewable energy in terms of solar power. Currently the percentage of solar power in renewable energy generated in the state is miniscule and Tamil Nadu also faces a power deficit of around 4000MW. This renewable solar energy project would not give impetus to the solar industry in terms of manufacturing and research but also help in reducing the increasing need of coal for power generation.</p>		
Implementation Strategy:		
<p>The total investment in infrastructure is estimated at around Rs 2,500 crore and the total industrial investment would be around Rs. 61,750 crore. More than 80% of the investment in infrastructure would be primarily in internal infrastructure and external infrastructure connectivity. Tamil Nadu Industrial Development Corporation (TIDCO) will work with SIPCOT in identifying the private partner and structuring the transaction.</p>		



6.4.4 Madurai-Thoothukudi Industrial Corridor - Manufacturing and

Business Investment Regions (MBIR) IV

Name of the Programme:		Land: 25000 hectares
Manufacturing and Business Investment Region-IV		
Investment: Rs. 20,200 Crore		Time Frame: 2020
Mode of Finance	Public Private Partnership	Implementing Agency: State Industries Promotion Corporation of Tamil Nadu (SIPCOT)
Description:		
<p>The fourth of the Manufacturing and Business Investment Regions is proposed to be established in Ramanathapuram district. It would primarily serve as petroleum, chemicals and petrochemicals investment region (PCPIR). Petroleum refining, chemical industries like fertilizers and other industries covering the entire gamut of petrochemical value chain are envisioned to be set up in this region. It would be is a combination of production projects, public utilities, logistics, environmental protection, residential areas and administrative services.</p> <p>Processing zones, warehouses and logistics hub would be the key development areas. Internal infrastructure for residential development would include roads, rail, air links, ports, site grading, drainage system, water supply, sewerage & effluent network, STP, ETP, SWM, power distribution, street lighting, communication network, utilities and common amenities. Specialized infrastructure for the PCPIR hub would include marine terminal, petroleum, oil and lubricants (POL) terminal, tank farm and dedicated pipe network for hazardous chemicals.</p>		
Targeted Impact:		
<p>The project would help in encouraging large scale investment in petroleum, chemical & petrochemical sectors in both upstream and downstream segments, thereby accelerating economic growth. It would help in utilizing the unexplored opportunity of the region by providing connectivity to hinterland and other existing and proposed industrial areas. It would have fully developed external infrastructure linkages including rail, road, ports, airports and telecom linkages which would be developed through public - private partnerships as well as with budgetary support from the Government. The total employment generation expected during this period is estimated at about 750,000.</p>		
Implementation Strategy:		
<p>The total investment in infrastructure is estimated at around Rs 20,200 crore and the total industrial investment would be around Rs. 77,188 crore. More than 80% of the investment in infrastructure would be primarily in internal infrastructure and external infrastructure connectivity. Apart from VGF (viability gap funding) and Public Private Partnership (PPP) model of funding these projects, the scope of public financial support would also be explored including Government grants or tax breaks for investors coming into the zone.</p> <p>Tamil Nadu Industrial Development Corporation (TIDCO) will work with SIPCOT in identifying the private partner and structuring the transaction.</p>		



6.4.5 Madurai-Thoothukudi Industrial Corridor Agri- Business Investment Region (ABIR)

Name of the Programme:		Land Area: 5000 hectares
Agri-Business Investment Region		
Investment: Rs. 5,000 Crore		Time Frame: 2020
Mode of Finance	Public Private Partnership	Implementing Agency: State Industries Promotion Corporation of Tamil Nadu (SIPCOT)
Description:		
<p>The Agri Business Investment Region is proposed to be established in Virudhunagar and Thoothukudi district. It would primarily serve as a hub for agri engineering and food processing for vegetables, fruits, grains and packaged/ convenience foods. Spices, dairy, poultry and animal products would be exclusively processed here. High tech biotechnology based agriculture and cultivation under controlled climate conditions are also envisioned in this region.</p> <p>Manufacturing zones, industrial parks (agro food, livestock, agro logistic), warehouses and logistics hub would be the key development areas. Internal infrastructure development would include roads, site grading, drainage system, water supply, sewerage & effluent network, STP, ETP, SWM, power distribution, street lighting, communication network, utilities and common amenities.</p> <p>Specialized infrastructure for the agri-business hub would include post harvest infrastructure, grading and packing halls, common service centres, primary processing centres, common processing hubs, modern terminal markets, quarantine facilities and quality control labs. It would potentially also include gas pipelines to establish mini power plants, establishing backward linkages by way of rural transformation centres — including cold storage, warehousing and rural mart and forward linkages with marketing complexes, aggregation centres and retail chains.</p>		
Targeted Impact:		
<p>The project would be a multi-modal infrastructure development to empower the rural communities to create high value agri-business opportunities and would help in creating five lakh direct or indirect jobs and encourage ‘agripreneurs’ in rural areas. It would establish an enabling institutional structure for addressing thrust areas like improving production and productivity, wastage reduction, price stabilization, genetically modified varieties, micro propagation, micro irrigation, organic farming, integrated pest management, greenhouse technology, post harvest management, etc. It would also facilitate flow of investment, technologies, skill sets and modern management practices</p>		
Implementation Strategy:		
<p>The total investment in infrastructure is estimated at around Rs. 5,000 crore and the total industrial investment would be around Rs. 9,263 crore. Around 88% of the investment in infrastructure would be primarily in internal infrastructure and external infrastructure connectivity. A separate entity is proposed, which would develop the ABIR on Public-Private Partnership basis and rope in international companies as joint venture partners. Tamil Nadu Industrial Development Corporation (TIDCO) will work with SIPCOT to structure the transaction and identify the private partner.</p>		



6.4.6 Madurai-Thoothukudi Industrial Corridor Manufacturing and Business Investment Area (MBIA) I & II

Name of the Programme: Manufacturing and Business Investment Area Development - I & II		Location: Madurai and Tirunelveli
Investment: Rs. 2,000 crore		Time Frame: 2012 – 2015
Mode of Finance	Public Private Partnership	Implementing Agency: SIDCO
<p>Description:</p> <p>The Government of Tamil Nadu is working towards realising the twin objective of providing employment to the people through rapid industrialisation of the state and balanced growth of industries in all parts of the state. In this context, SIPCOT has prepared a comprehensive corridor development plan for creating an industrial corridor of excellence with world class infrastructure which will house special economic zones, industrial and IT parks, R&D institutions, universities, social infrastructure in the southern districts of the state. As part of this initiative, GoTN has identified manufacturing & Business industrial Areas (MBIAs) in Madurai to give impetus to SME industries covering Food and Agro Based Industries, Chemical Industries, Engineering Industries, Ceramics and Mineral Based Industries, IT and ITES, Hosiery and Leather.</p>		
<p>Targeted Impact:</p> <p>The focus of the MBIAs will be to attract small and medium enterprises and provide adequate facilities for them as opposed to the MBIRs where the focus is on all types of industries.</p>		
<p>Areas of Focus</p> <ul style="list-style-type: none"> • MBIA I: Food and Agro Based Industries, Chemical Industries, Engineering Industries, Ceramics and Mineral Based Industries, IT and ITES, Hosiery and Leather • MBIA 2: Textile, Light Engineering, Chemical Marine Export, Mineral Processing Industries, Engineering, Auto Components, Pharma, Electronics and Bio-technology 		
<p>Impact</p> <ul style="list-style-type: none"> • Industrial development and employment generation 		
<p>Implementation Strategy:</p> <p>The project shall be operated on Public Private Partnership mode with a specific service provider, the Government will provide the enabling infrastructure.</p>		



6.4.7 Coimbatore-Salem Industrial Corridor - Manufacturing and Business Investment Region - I & II

Name of the Programme:		Land Area: 5,000 hectares each
Manufacturing and Business Investment Region-I & II		
Investment: Rs. 7,200 Crore		Time Frame: 2020
Mode of Finance	Public Private Partnership	Implementing Agency: State Industries Promotion Corporation of Tamil Nadu (SIPCOT)
Description:		
<p>One Manufacturing and Business Investment Region is proposed to be established in Coimbatore - Tiruppur districts and the second one in Salem district. The first region would primarily be a production hub catering to industries like heavy engineering, precision tools, logistics, etc. and the second region would be catering to renewable energy industries and would have manufacturing zones for logistics and manufacturing industries</p> <p>Manufacturing zones, industrial parks, warehouses and logistics hub would be the key development areas. Internal infrastructure for residential development would include roads, site grading, drainage system, water supply, sewerage & effluent network, STP, ETP, SWM, communication network, utilities and common amenities. Specialized infrastructure for the region manufacturing hub would include testing centre, QC labs, product display centre, administration buildings, training centre, etc.</p>		
Targeted Impact:		
<p>The project would help in further enhancing the employment potential and raising the competitiveness and efficiency of manufacturing enterprise in the western region of the State.. It would help in increasing the industrial output and would help in utilizing any unexplored opportunity of the region by providing connectivity to the hinterland and existing industrial areas.</p>		
Implementation Strategy:		
<p>The total investment in infrastructure is estimated at around Rs. 7,200 crore and the total industrial investment would be around Rs. 30,875 crore. More than 80% of the investment in infrastructure would be primarily in internal infrastructure and external infrastructure connectivity. Tamil Nadu Industrial Development Corporation (TIDCO) will work with SIPCOT in identifying the private partner and structuring the transaction.</p>		





6.4.8 Coimbatore-Salem Industrial Corridor - Agri Business Investment Region (ABIR)

Name of the Programme:		Land Area: 5000 hectares
Agri-Business Investment Region		
Investment: Rs. 4,800 Crore		Time Frame: 2020
Mode of Finance	Public Private Partnership	Implementing Agency: State Industries Promotion Corporation of Tamil Nadu (SIPCOT)
Description:		
<p>The Agri Business Investment Region is proposed to be established in Erode-Namakkal districts with PHM Network in Pollachi and Mettupalayam. It would primarily serve as a hub for agri engineering and food processing for vegetables, fruits, grains and packaged/convenience foods. Spices, dairy, poultry and animal products would be exclusively processed here. High tech biotechnology based agriculture and cultivation under controlled climate conditions are also envisioned in this region.</p> <p>Manufacturing zones, Industrial Parks (agro food, livestock, agro logistic), warehouses and logistics hub would be the key development areas. Internal infrastructure for residential development would include roads, site grading, drainage system, water supply, sewerage & effluent network, STP, ETP, SWM, power distribution, street lighting, communication network, utilities and common amenities. Specialized infrastructure for the agri-business hub would include post harvest infrastructure, grading and packing halls, common service centres, primary processing centres, common processing hubs, modern terminal markets, quarantine facilities and quality control labs. It would potentially also include gas pipelines to establish mini power plants, establishing backward linkages by way of rural transformation centres - including cold storage, warehousing and rural mart and forward linkages with marketing complexes, aggregation centres and retail chains.</p>		
Targeted Impact:		
<p>The project would be a multi-modal infrastructure development to empower the rural communities to create high value agri-business opportunities and would help in employment of five lakh direct or indirect jobs and encourage 'agripreneurs' in rural areas. It would help in creating an enabling institutional structure for addressing the thrust areas like improving production and productivity, wastage reduction, price stabilization, genetically modified varieties, micro propagation, micro irrigation, organic farming, integrated pest management, greenhouse technology, post harvest management, etc. It would also facilitate flow of investment, technologies, skill sets and modern management practices</p>		
Implementation Strategy:		
<p>The total investment in infrastructure is estimated at around Rs. 4,800 crore and the total industrial investment would be around Rs. 9,263 crore. Around 88% of the investment in infrastructure would be primarily in internal infrastructure and external infrastructure connectivity. A separate entity is proposed which would develop the ABIR's on Public-Private Partnership basis and rope in international companies as joint venture partners. Tamil Nadu Industrial Development Corporation (TIDCO) will work with SIPCOT in identifying the private partner and structuring the transaction.</p>		



6.4.9 Chennai - Ranipet Industrial Corridor

Name of the Programme:		Land Area: 20,000 hectares
Chennai Ranipet Industrial Corridor		
Investment: Rs. 17,000 Crore		Time Frame: 2020
Mode of Finance	Public Private Partnership	Implementing Agency: State Industries Promotion Corporation of Tamil Nadu (SIPCOT)
Description:		
<p>The Chennai - Ranipet corridor is proposed to be developed as an industrial corridor. The corridor will cover 6 municipalities, 10 town panchayat and 5 census towns which together have a population of about 17 lakh (2001 census) and covers an area of about 20,000 hectares.</p> <p>The corridor will have six major nodes namely, Chengalpattu, Kanchipuram, Walajapet, Arakonam, Sriperumbudur and Tiruvathipuram. Automobile and auto components, light engineering, logistics and agro processing are the main industries that are expected to come up in this corridor. A total of 26 industrial estates will be developed along the corridor.</p> <p>Manufacturing zones, industrial parks, warehouses and logistics hubs would be the key development areas. Internal infrastructure for residential development would include roads, site grading, drainage system, water supply, sewerage & effluent network, STP, ETP, SWM, communication network, utilities and common amenities. Specialized infrastructure for the region manufacturing hub would include testing centre, QC Lab, Product display centre, administration buildings, training centre, etc.</p>		
Targeted Impact:		
<p>The project will build on the existing industrial development in this belt. Currently, the development is around the Sriperumbudur, Walajapet nodes and to some extent around Arakonam and Chengalpattu nodes. The focus of the corridor development will be to provide a holistic development around the nodes in the region.</p> <p>The development of the corridor will help in spreading the industrial development which is at present concentrated in areas closer to the Chennai city. The development will also derive benefit from the development along the Chennai - Bangalore highway. The agricultural belt adjoining the corridor will benefit on account of the agro processing units that will come up in the corridor.</p>		
Implementation Strategy:		
<p>The total investment in infrastructure is estimated at around Rs 17,000 crore. The investment in infrastructure would be primarily in internal infrastructure and external infrastructure connectivity.</p> <p>The identified industrial estates can be parcelled to private players for development under PPP mode. Each industrial estate will have a specific focus for the industries it will serve and the facilities will be tailored to those industries</p> <p>Tamil Nadu Industrial Development Corporation (TIDCO) will work with SIPCOT in identifying the private partner and structuring the transaction</p>		



6.4.10 Ranipet - Hosur Industrial Corridor

Name of the Programme:		Land Area: 30,000 hectares
Ranipet - Hosur Industrial Corridor		
Investment: Rs. 20,000 Crore		Time Frame: 2020
Mode of Finance	Public Private Partnership	Implementing Agency: State Industries Promotion Corporation of Tamil Nadu (SIPCOT)
Description:		
<p>The Ranipet - Hosur corridor is proposed to be developed as an industrial corridor. The corridor will cover 9 municipalities and 23 town panchayat which together have a population of about 12.5 lakh (2001 census) and cover an area of about 30,000 hectares.</p> <p>Vellore, Hosur, Krishnagiri, Tirupattur, Vaniyambai and Gudiyatham are the major towns in the corridor and are expected to be the growth nodes. As compared to the Chennai - Ranipet belt, this corridor is relatively less developed in terms of industrial development and investment in industrial infrastructure is likely to be higher as compared to the Chennai - Ranipet corridor.</p> <p>SEZs, DTAs, industrial parks, warehouses and logistics hub would be the key development areas. Internal infrastructure for residential development would include roads, site grading, drainage system, water supply, sewerage & effluent network, STP, ETP, SWM, communication network, utilities and common amenities. Specialized infrastructure for the region manufacturing hub would include testing centre, QC labs, product display centre, administration buildings, training centre, etc.</p>		
Targeted Impact:		
<p>The focus of development in this belt will predominantly be agro based and engineering industries. Engineering industries are expected to be concentrated around the Vellore and Hosur nodes. An aerospace park is also proposed to be developed around the Vellore node and will attract a significant number of ancilliary and downstream units. Tirupattur, Gudiyatham and Krishnagiri will have agro based industries.</p> <p>The development will help in spreading the industrial development in the corridor which is presently agrarian in nature. The corridor will also help in utilising the produce of the agricultural belt adjoining the corridor. The development will also derive benefit from the development along the Chennai- Bangalore highway.</p>		
Implementation Strategy:		
<p>The total investment in infrastructure is estimated at around Rs. 20,000 crore. The investment in infrastructure would be primarily in internal infrastructure and external infrastructure connectivity.</p> <p>The identified industrial estates can be parcelled to private players for development under PPP mode. Each industrial estate will have a specific focus for the industries it will serve and the facilities will be tailored to those industries</p> <p>Tamil Nadu Industrial Development Corporation (TIDCO) will work with SIPCOT in identifying the private partner and structuring the transaction</p>		



6.4.11 Chennai - Trichy Industrial Corridor

Name of the Programme:		
Chennai - Trichy Industrial Corridor		
Investment: Rs. 20,000 Crore		Time Frame: 2020
Mode of Finance	Public Private Partnership	Implementing Agency: State Industries Promotion Corporation of Tamil Nadu (SIPCOT)
Description:		
<p>The Chennai - Trichy corridor is proposed to be developed as an industrial corridor. The corridor will cover the districts of Kanchipuram, Villupuram, Cuddalore, Perambalur, Ariyalur and Trichy.</p> <p>The objective of the corridor is to build on the prevailing industrial development at both ends of the corridor namely Chennai and Trichy. The area between the two industrialised regions is sought to be developed through this corridor. The corridor will help the development of central Tamil Nadu which does not have a strong industrial base.</p> <p>Manufacturing zones, industrial parks, warehouses and logistics hubs would be the key development areas. Internal infrastructure for residential development would include roads, site grading, drainage system, water supply, sewerage & effluent network, STP, ETP, SWM, communication network, utilities and common amenities. Specialized infrastructure for the region manufacturing hub would include testing centre, QC labs, product display centre, administration buildings, training centre, etc.</p>		
Targeted Impact:		
<p>The focus of development in this belt will predominantly be agro based, engineering industries and certain mineral based industries (in the Ariyalur belt). Engineering industries are expected to be concentrated around Trichy and Chennai nodes, while Villupuram will have agro based industries.</p> <p>The development will help in spreading the industrial development in the corridor which is presently agrarian in nature. The corridor will also help in utilising the produce of the agricultural belt adjoining the corridor. The corridor will adjoin the Chennai - Kanyakumari railway line and NH 45 thus proving connectivity by road and rail.</p>		
Implementation Strategy:		
<p>The total investment in infrastructure is estimated at around Rs. 20,000 crore. The investment in infrastructure would be primarily in internal infrastructure and external infrastructure connectivity.</p> <p>The identified industrial estates can be parcelled to private players for development under PPP mode. Each industrial estate will have a specific focus for the industries it will serve and the facilities will be tailored to those industries</p> <p>Tamil Nadu Industrial Development Corporation (TIDCO) will work with SIPCOT in identifying the private partner and structuring the transaction</p>		



6.4.12 Coimbatore - Madurai Industrial Corridor

Name of the Programme:		
Coimbatore - Madurai Industrial Corridor		
Investment: Rs. 10,000 Crore		Time Frame: 2020
Mode of Finance	Public Private Partnership	Implementing Agency: State Industries Promotion Corporation of Tamil Nadu (SIPCOT)
Description:		
<p>The Coimbatore - Madurai corridor is proposed to be developed as an industrial corridor. The corridor will cover the districts of Coimbatore, Tiruppur, Dindigul and Madurai. The objective is to develop the region between these two cities into an industrial corridor. Textile and agro processing industries have been established in a number of places in these districts. The development of the corridor will help in integrating the industrial development in this region and provide the necessary industrial infrastructure.</p> <p>Manufacturing zones, industrial parks, warehouses and logistics hubs would be the key development areas. Internal infrastructure for residential development would include roads, site grading, drainage system, water supply, sewerage & effluent network, STP, ETP, SWM, communication network, utilities and common amenities. Specialized infrastructure for the region manufacturing hub would include testing centre, QC labs, product display centre, administration buildings, training centre, etc.</p>		
Targeted Impact:		
<p>The focus of development in this belt will predominantly be textile, light engineering and agro based industries. Engineering and textile industries are expected to be concentrated around Coimbatore and Tiruppur, while Dindigul and Madurai districts will have textile and agro processing industries.</p> <p>The corridor will help in utilising the produce of the agricultural belt adjoining the corridor. The proposed six lane road connecting the Madurai with Coimbatore and the proposed high speed rail link will also facilitate the development of the corridor.</p>		
Implementation Strategy:		
<p>The total investment in infrastructure is estimated at around Rs. 10,000 crore. The investment in infrastructure would be primarily in internal infrastructure and external infrastructure connectivity.</p> <p>The identified industrial estates can be parcelled to private players for development under PPP mode. Each industrial estate will have a specific focus for the industries it will serve and the facilities will be tailored to those industries.</p> <p>Tamil Nadu Industrial Development Corporation (TIDCO) will work with SIPCOT in identifying the private partner and structuring the transaction</p>		



6.4.13 Sriperumbudur Area Development

Name of the Programme:		
Sriperumbudur area development		
Investment: Rs. 5,000 Crore		Time Frame: 2020
Mode of Finance	Public Private Partnership	Implementing Agency: State Industries Promotion Corporation of Tamil Nadu (SIPCOT)
Description:		
<p>The area development of the Sriperumbudur area focuses on providing the necessary industrial infrastructure facilities in the existing industrial belt at Sriperumbudur. The objective is to provide the necessary connectivity to the proposed greenfield airport, the Chennai - Ranipet corridor and the industries in the region.</p> <p>The investment will be in creating warehouse and storage locations, truck and bus terminals, parking facilities, drainage system, water supply, waste water recycling, effluent treatment plants, solid waste management systems etc. The area will also have state of the art telecom and communication facilities with bandwidth matching the best in the world. Housing facilities required for the workers and employees of the industrial units in the region will also be covered as part of the area development.</p> <p>Entertainment and social facilities such as restaurants and location based entertainment complexes will also be developed to provide the necessary recreation facilities.</p>		
Targeted Impact:		
<p>The focus of the area development activity is to ensure that the growth of industrialisation in the region is accompanied by adequate infrastructure development and ensure that the region is self sufficient in terms of industrial and social infrastructure. This will help in reducing the stress on the infrastructure on the city of Chennai and the transport facilities between Chennai and Sriperumbudur area.</p>		
Implementation Strategy:		
<p>The total investment in infrastructure is estimated at around Rs. 5,000 crore. The investment in infrastructure would be primarily in internal infrastructure. The identified facilities can be parcelled to private players for development under PPP mode. Tamil Nadu Industrial Development Corporation (TIDCO) will work with SIPCOT in identifying the private partner and structuring the transaction.</p>		





6.4.14 Finance City in Chennai

Name of the Programme:		Location: Chennai
Finance City		
Investment: Rs. 1,500 Crore		Time Frame: 2014
Mode of Finance	Public Private Partnership	Implementing Agency: Tamil Nadu Industrial Development Corporation (TIDCO)
Description:		
<p>A Finance City in Chennai will be promoted by TIDCO on behalf of Government of Tamil Nadu with an eligible private partner on PPP basis. The Finance City will provide modern office space, connectivity, and knowledge base to provide high end knowledge support to the financial world.</p> <p>The centre will attract banks, KPOs, trading and brokering houses, and analytical institutions to set base their operations. It would also aim to be the disaster recovery centre for financial institutions by providing reliable power, workforce, connectivity and reliable services.</p>		
Targeted Impact:		
<p>The Finance City is expected to generate at least 20,000 direct employment opportunities and 20,000 more by way of indirect employment. The centre will usher in a new era for financial services in the state and would aspire to be knowledge capital for financial services in India.</p>		
Implementation Strategy:		
<p>The programme will be spearheaded by TIDCO on behalf of Government of Tamil Nadu. Land parcel has been identified by TIDCO, and a detailed project report will be prepared by 2013, following which eligible partners will be invited for participation in the project.</p>		



6.4.15 Information Technology Investment Region

Name of the Programme: Information Technology Investment Region		Location: Chengalpattu, Thirukkalukundram, Kanchipuram and Sriperumbudur Talukas of Kanchipuram District
Investment: Rs. 21,600 Crore		Time Frame: 2014 - 2020
Mode of Finance	Public Private Partnership	Implementing Agency: TIDCO
Description: An Information Technology Investment Region will be promoted in the Chengalpattu, Thirukkalukundram, Kanchipuram and Sriperumbudur Talukas of Kanchipuram District. Land parcels of 500 acres have been identified for the purpose in these talukas. The ITIR region will focus on investments in IT/ITES and Electronic Hardware Manufacturing (EHM). The Government will ensure all physical infrastructure including power, water, sewerage, connectivity and other public utilities. The office space, residential townships, schools and related infrastructure inside the ITIR will be promoted on a PPP basis. The ITIR is expected to be implemented in two phases, the first phase is expected to be completed in 2016 and the second phase in 2020.		
Targeted Impact: The ITIR is expected to generate at least 5 lakh employment in the first phase and another 5 lakh upon completion of the second phase, bolstering the economic development of the State. This project will reinforce Tamil Nadu as a reliable global hub for IT/ITES professional services and will develop a high calibre talent pool in Tamil Nadu.		
Implementation Strategy: The programme will be spearheaded by TIDCO on behalf of Government of Tamil Nadu. Land parcel has been identified by TIDCO, and a detailed project report will be prepared by 2013. The project will be executed on PPP mode and the first phase is expected to be completed in 2016 and the second phase by 2020.		





6.4.16 Petroleum, Chemicals and Petrochemicals Investment Region (PCPIR)

Name of the Programme: Petroleum, Chemicals and Petrochemicals Investment Region (PCPIR)		Location: Cuddalore and Nagapattinam Districts Area: 257 sq km
Investment: Rs 13,725 Crore		Time Frame: 2013 - 2022
Mode of Finance	Public Private Partnership	Implementing Agency: TIDCO, Government of Tamil Nadu and State Industrial Promotion Corporation of Tamil Nadu (SIPCOT)
Description: Tamil Nadu will set up a Petroleum, Chemicals and Petrochemicals Investment Region (PCPIR) in the Cuddalore and Nagapattinam Districts spreading an area of 257 sq km. The objectives of this project are - to accelerate the promotion of investment in chemical and petrochemical sector in Tamil Nadu, making it a hub for both domestic and international markets, and to take advantage of the demand and production of petrochemicals which will act as a growth multiplier for the overall GDP growth. A detailed proposal has been prepared by TIDCO and has been sent to central Government for approval. The project will aim at establishing an oil refinery of 6 MMTPA capacity and downstream petrochemical and polymer processing industries. The PCPIR will host common desalination plants, power plants, effluent treatment facilities, sewage treatment facilities, marine infrastructure, road, rail and pipeline linkages.		
Targeted Impact: The oil refinery and its petrochemical units are expected to generate a direct employment of 15,000 for the State. The total employment (direct and indirect) expected to be generated by the PCPIR through the refinery, processing plants, infrastructure set up and other amenities set up in the PCPIR is 3 lakh. An investment of Rs 25,000 crore in the main oil refinery and Rs 15,000 crore in the downstream processing units are expected in the PCPIR region.		
Implementation Strategy: The project is proposed to be implemented in PPP mode. The land will be provided in the coastal areas of Cuddalore and Chidambaram Talukas of Cuddalore district and Sirkali and Tarangambadi Taluks of Nagapattinam District. The first phase will involve setting up of the support infrastructure, development of the anchor refinery and key downstream industries in the first seven years spanning 2013-2019. Other downstream processing units will be established during the second phase of the project expected during 2019-2022.		





6.4.17 Heavy Engineering Industrial Park

Name of the Programme: Heavy Engineering Industrial Park		Location: Tiruvallur District
Investment: Rs 1,000 Crore		Time Frame: 2013-2016
Mode of Finance	Public Private Partnership	Implementing Agency: TIDCO, Government of Tamil Nadu and State Industrial Promotion Corporation of Tamil Nadu (SIPCOT)
Description: Tamil Nadu Government will promote an industrial park for heavy engineering in the Tiruvallur District. Tiruvallur District hosts the Kattupalli ship building yard with a port, and turbine cum generator plant. The proposed heavy engineering industrial park will support additional anchor units and small and medium industries ecosystem. A detailed proposal is being prepared by TIDCO and the contours of the industrial area, and infrastructural requirements are being drafted. The Government will establish world class road, rail, port and urban infrastructure for supporting the heavy engineering industry. The industrial park will host only industries which belong to the heavy engineering category.		
Targeted Impact: The heavy engineering park is expected to bring in international investments in heavy electrical, ship building, and energy equipment manufacturing. This would bolster the engineering prowess of Tamil Nadu and would evolve as manufacturing capital for heavy engineering in Asia. An investment of Rs 10,000 crore is expected in the anchor units of heavy engineering industrial park, and an additional investment of Rs 5000 crore is expected from the small and medium industries which will develop around the anchor units.		
Implementation Strategy: The project is proposed to be implemented in PPP mode. The land will be provided in the Tiruvallur district and the land bank identification is under progress. Development of the support infrastructure is expected to begin 2013 and the manufacturing units are expected to be operational from 2015.		





6.4.18 Plastics Park

Name of the Programme: Plastics Park		Location: Tiruvallur District
Investment: Rs 160 Crore		Time Frame: 2013-2015
Mode of Finance	Public Private Partnership	Implementing Agency: TIDCO, Government of Tamil Nadu
Description: It is estimated that there are about 3000 plastic/polymer processors in Tamil Nadu, converting about six lakh tonnes of per year of polymers/resins into finished plastic goods. While it is estimated that 50% of the processors are located in the Chennai region The industry is highly fragmented with and the small units are unable to compete effectively in the domestic and the global markets. The Government of Tamil Nadu proposes to establish a Plastics Park in about 300 acres in Tiruvallur district by providing the necessary support facilities. A detailed proposal has been prepared by TIDCO.		
Targeted Impact: The Plastics Park is expected to attract processing industries. The units in the cluster will be small and medium enterprises. It is estimated that a total of 100 units will operate in the cluster and provide employment to about 25,000 people when it is fully developed. 75% of the units are expected to be in the SME category with investments less than Rs. 10 crore. The park will be developed at a total investment of Rs. 160 crore over an area of 300 acres and is expected to attract investments worth Rs. 1250 crore. The park will have design, testing and tooling facilities which will help SMEs to benefit from the latest technological developments in product design, development and manufacturing processes. The following are the target industry segments: <ul style="list-style-type: none"> • Automotive & Engineering Plastics • Pharmaceutical Disposables • Telecommunication • Consumer Goods – Household Segments • Packaging – Rigid & Flexible • Consumer Goods packaging 		
Implementation Strategy: The proposal has been submitted to the Department of Chemicals and Petrochemicals, Ministry of Fertilisers and Chemicals, Government of India. The project is proposed to be implemented in PPP mode. The land is in the possession of TIDCO and once the approval is received from the Government of India the process of identifying the private partner will be taken up.		



6.4.19 Industrial Parks for SMEs

Name of the Programme: Industrial parks for SMEs		Location: Various locations in Tamil Nadu covering 2,256 acres
Investment : Rs 1,000 crore		Time Frame: 2013-2018
Mode of Finance	Public Private Partnership	Implementing Agency: SIDCO, Government of Tamil Nadu
Description: Tamil Nadu houses one of the largest number of Small and medium enterprises in the country. With nearly 7 lakh registered units, the highest for any state in India. The investment in SMEs is estimated at Rs. 32,000 crore providing employment to more than 50 lakh people which is also the highest for any State in India. SIDCO proposes to develop industrial parks for SMEs at 25 locations across 15 districts. Lands have been identified at these locations and the process of alienation and acquisition has commenced. SIDCO will develop these estates as self contained parks with utilities, common services and other facilities required for small industries. A total of 2256 acres are proposed to be developed by SIDCO. The list of locations are as follows:		

Village	District	Extent (in acres)
Kandiyar Kovil	Coimbatore	250.00
Myleripalayam	Coimbatore	22.23
Idayakottai	Dindigul	116.55
Vadamugam Kankeyampalayam	Erode	50.00
Nanjaiuthukuli (Phase-2)	Erode	56.62
Thandarai	Kancheepuram	40.86
Karur, Nerur Vadapagam	Karur	59.89
Manavasi	Karur	121.58
Sedapatti	Madurai	51.00
Sankari	Salem	53.52
Chengarai	Tiruvallur	43.11
Polur	Tiruvannamalai	60.66
Kattumaduvu	Tiruvannamalai	83.80
Vaipur	Thiruvarur	58.00
Vazhkai	Thiruvarur	51.07
Kurukkalpatti	Tirunelveli	98.76
Ponnakudi	Tirunelveli	96.90
Sadayampalayam	Tiruppur	59.00
Kaverirajapuram	Tiruvallur	135.18
Enambakkam	Tiruvallur	200.00
Allalacheri and Nagaleri	Vellore	40.00
A.Sathanoor	Villupuram	215.00
Pattanam	Villupuram	88.34
Asanur (Phase-II)	Villupuram	143.94
Chathrapatti	Virudhunagar	60.00
Total		2256.01

**Targeted Impact:**

The proposed industrial parks will have design, testing and tooling facilities which will help SMEs to benefit from the latest technological developments in product design, development and manufacturing processes. The parks will also target the specific industries that are prevalent at each location and provide the necessary facilities that are suited for the industry. The cluster development programme (MSE-CDP) of the Government of India will also be taken advantage of while developing these parks.

Implementation Strategy:

The proposal has been submitted to the Department of Chemicals and Petrochemicals, Ministry of Fertilisers and Chemicals, Government of India. The project is proposed to be implemented in PPP mode. The land is in the possession of TIDCO and once the approval is received from the Government of India the process of identifying the private partner will be taken up.



VISION TAMIL NADU



STRATEGIC PLAN FOR
INFRASTRUCTURE DEVELOPMENT
IN TAMIL NADU

Tourism Sector





7. Tourism Sector

7.1 Sector Overview

Tourism is an important contributor to Tamil Nadu's Gross State Domestic Product (GSDP). Tamil Nadu's foreign exchange earnings from tourism during 2009 were Rs. 6,796 crore². Tamil Nadu's tourism sector is the second-largest in India, after Andhra Pradesh. Tamil Nadu has a 15% share in the total number of tourists visiting India³ and growing annually at the rate of 16%. Tourism has been declared as an "Industry" in Tamil Nadu and the state provides investment subsidy for tourism projects.

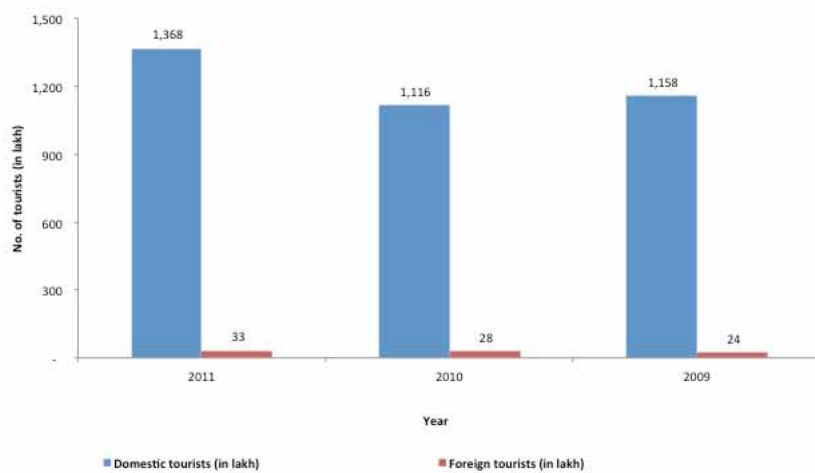


Figure 5 : Tourist Arrivals in Tamil Nadu

Source: Government of Tamil Nadu Tourism Policy Document, 2012-13

There has been a substantial increase in the flow of tourists in the State, from 118.2 million in 2009 to 187.7 million in 2012, though there was a dip in the year 2010. The number of domestic tourists to Tamil Nadu increased 34.6% year-on-year in 2012, while foreign tourists increased 9.1%. Tamil Nadu is ranked second among the States in attracting foreign tourists, the first being Maharashtra. Tamil Nadu is also the third-most attractive destination for domestic tourists, following Andhra Pradesh and Uttar Pradesh⁴. An estimated 10% of foreign tourists to India arrive at the Chennai airport. Tourists to Tamil Nadu come from Australia, Belgium, France, Germany, Israel, Italy, Malaysia, Mauritius, the Netherlands, New Zealand, Singapore, Scandinavian countries, South Africa, Spain, Russia, the UK and the US.

The State is promoted as "Enchanting Tamil Nadu" and has several tourist attractions such as beaches, forests, hill stations, national parks, wildlife sanctuaries, pilgrimage and heritage locations as well as the long and bio-diverse coastline. The Government of Tamil Nadu has its tourist offices at several key tourist centres including other state capitals such as Mumbai, Kolkata, Goa and New Delhi. In addition, there are tourist information centres at Hyderabad, Thiruvananthapuram, Bengaluru and important railway stations and airports.

² Government of Tamil Nadu Annual Plan 2011-12

³ Government of India, Ministry of Tourism, Annual Report 2011

⁴ Government of Tamil Nadu Tourism Policy Document 2013-14



The key contributor to Tamil Nadu's tourism success is the development of niche tourism segments. For example, Tamil Nadu is associated with three major segments: pilgrimage, heritage and hill station holidays. The other important segments are eco-tourism, adventure and wildlife tourism.

The state has a number of attractions such as a long shoreline with excellent beaches, temples and monuments with ancient architecture, popular hill resorts and sanctuaries, and United Nations Educational, Scientific and Cultural Organisation's (UNESCO) declared world heritage sites. The State is also South India's gateway to leading pilgrim towns such as Tirupati, Madurai, Rameswaram and Tanjore.

The following are some of the key tourist destinations in Tamil Nadu:

- **Pilgrim centres:** Kancheepuram, Madurai, Rameswaram, Tanjore, Srirangam, Chidambaram, Kanyakumari, Velankanni and Nagore Durgah
- **Hill Stations:** Udagamandalam (Ooty), Kodaikanal, Coonoor, Yercaud, Yelagiri, Valparai, Javadu hills, Kolli hills and Kothagiri
- **Beaches:** Chennai, Mahabalipuram, Kanyakumari
- **Wildlife sanctuaries:** Vedanthangal Water Birds Sanctuary, Point Calimere Bird Sanctuary, Crocodile Bank, Indira Gandhi Wildlife Sanctuary, Guindy National Park, Kalakkadu Wildlife Sanctuary, Pichavaram mangrove coast
- **UNESCO declared world heritage monuments:** Chola temples in Thanjavur, Iravatheeswarar temple in Dharasuram and Siva temple in Gangaikonda Cholapuram, monuments at Mamallapuram, Nilgiris Heritage Train and the Western Ghats.

Infrastructure development has played a major role in the development of tourism in Tamil Nadu. The state is accessible by good quality roads from surrounding states. Tamil Nadu has nearly 4500 Kms of National Highways running through the state. The state is also an important terminus in the Golden Quadrilateral road link of the National Highway Authority of India (NHAI). The district centres are linked through 187 State Highways. Tamil Nadu had a 5,958 km rail network with 536 railway stations. The State has three international airports at Chennai, Trichy and Madurai and three domestic airports at Coimbatore, Tuticorin and Salem.

7.2 Sectoral Targets

Tamil Nadu's tourism industry is among the largest in India. Tourism has the potential to provide high level of local employment. Tamil Nadu has considerable natural endowments that enable tourism as an industry to flourish. Attractive segments include beaches, hill resorts, architecture, and heritage sites. Vision 2023 gives significant thrust to the development of this sector. Given that both Tourism and Healthcare are thrust areas in the Vision 2023, medical tourism is a natural outcome for Tamil Nadu. The Vision also envisages attracting 15 million foreign tourists by the year 2023.

Investment required

Infrastructure for tourism includes development of hotels and resorts, theme parks, entertainment complexes, improvements to heritage and archaeological monuments, development of places of tourist interest and connectivity to places of tourist interest. The estimated total investment in various projects amounts to Rs. 10,000 crore.

Demand - supply situation

India is developing into an important global tourist destination offering a variety of options to the international tourist. Further the growing middle class with increasing disposable incomes is also fuelling the growth of the domestic tourist. Tamil Nadu which ranks second among the States in India in attracting domestic tourists is well poised to increase its share of domestic and international tourists.



As of 2011, 383,000 tourists visited Tamil Nadu per day. The number of tourists visiting the State has registered a CAGR of 27% between 2005 and 2011. Domestic tourists accounted for about 97% while the rest were foreign tourists. The Ministry of Tourism approved hotels provided 7,809 rooms per day or about 15,000 beds per day assuming double occupancy. Bulk of the tourists found accommodation in the unclassified and unapproved accommodations.

Estimated demand-supply situation in 2023

It is estimated that by 2023 the average daily foreign tourist arrivals will increase to 41,000 and the State is expected to attract 1.3 million domestic tourists per day.

It is estimated⁵ that about 30,000 additional rooms are required for every additional million tourists. Every million incremental tourists also contribute to an incremental employment of 6,300 persons. The targeted tourist inflow of 15 million foreign tourists and about 400 million domestic tourists will require significant capacity additions in the hotel and restaurant sector.

While the incremental capacity will be primarily met by the private sector, the objective of the Vision is to facilitate the investment in infrastructure and also provide facilitate the creation of adequate entertainment facilities to attract the tourists. The State abounds with natural endowments that attract tourists and the creation of contemporary entertainment facilities such as amusement parks, water sports complex etc., will add to the diversity and attract tourists. Tourism projects have been identified with this aspect in mind.

7.3 Institutional Structure

The Tourism Department of Tamil Nadu is the primary State Government institution responsible for development of tourism. Under the department, a Commissionerate of Tourism, formulates policies and implement programmes for the development of tourism sector in the State. Tamil Nadu Tourism Development Corporation (TTDC) is the arm that is responsible for coordination with several related Government departments, agencies and the private sector. TTDC has three main operations, namely, Hotels, Transport and Fairs. The corporation operates hotels, youth hostels, restaurants, tours, boat and telescope houses as demonstration projects for the private sector.

The State Department of Archaeology is another key stakeholder in the tourism sector. The department's objectives include conservation and preservation of ancient monuments in Tamil Nadu, excavations at historical sites, epigraphy (copying and deciphering of inscriptions, printing and publishing them in book form), setting up of site museums, chemical preservation of art objects, registration of antiquities, etc. The Department of Tourism and TTDC have been effective in positioning the State as an important tourism destination. However, the maintenance of tourist locations and the in-site infrastructure needs improvement in a number of locations.

⁵ Estimates of Ministry of Tourism, Government of India.



SI No.	Project Name	Location	Investment (Rs. Crore)
7.4.1	Amusement (Theme) Park	Near Chennai	1,000
7.4.2	Amusement (Theme) Park	Erode/Salem	1,000
7.4.3	Underwater Ocean Park	Mahabalipram	800
7.4.4	Water Sports Complex	Thondi	300
7.4.5	Water Sports Complex	Kanyakumari	300
7.4.6	Special Tourism Zone (handicrafts, art and culture)	Madurai	150
7.4.7	Rural Tourism Hub	Karaikudi	150
7.4.8	Cultural Tourism Hub	Mahabalipuram	300
7.4.9	Science Museum	Chennai	1,000
7.4.10	World Class tourism and hospitality training institute	Coonoor	200
7.4.11	Development of Heritage locations and Destinations of tourist interest	26 locations across the state	2,600
7.4.12	Other infrastructure development in places of tourist interest (including projects identified under ADB project on tourism infrastructure)	Across the state	2,500
Total			10,300



7.4.1 Theme Park near Chennai

Name of the Project:		Location: Chennai
World class theme park		Area: 100 acres
Investment: Rs. 1,000 Crore		Time Frame: 2013 - 2016
Mode of Finance	Public Private Partnership	Implementing Agency: Department of Tourism, Government of Tamil Nadu
Description:		
<p>The theme park will be a world class facility comprising of thematic rides and a water park. The theme park and water park are conceived to cover all aspects of leisure and location based entertainment (LBE) offering a combination of theme park, water park, and retail, dining & entertainment area (R, D&E). It will offer entertainment, fun, action, dining, shopping and accommodation at a single location. The project will also comprise of a 3 star hotel, which will provide facilities for tourists to stay in the location. The park will also be integrated with the tourism circuit around East Coast Road and Mahabalipuram.</p> <p>The objective of the project is to create an entertainment zone which will cater to the requirements of the population in and around Chennai. The park will be theme based and have different zones catering to all ages and will provide wholesome entertainment to the entire family.</p>		
Targeted Impact:		
<p>Tourism is a sector which provides one of the highest employment opportunity for every rupee invested. It is a sector that creates self-employment opportunities particularly for unskilled and semi-skilled workers.</p> <p>The Chennai Urban Agglomeration with a population of nearly 90 lakh and the large tourist inflow into the city will be the target segment. The proposed theme park will be an important entertainment destination around Chennai.</p>		
Implementation Strategy:		
<p>The project is proposed to be implemented in PPP mode. The land would be identified by the Department of Tourism, Government of Tamil Nadu and an operator will be selected to Build, Own and Operate the facility. The park will be developed in phases. The first phase will cover the development of the theme park and the water park and the second phase will involve the development of the 3 star hotel. The first phase is expected to commence in 2013 and be completed in 2 years time. The second phase covering the development of the hotel will commence in 2015 and complete in the year 2016.</p>		





7.4.2 Theme Park near Erode/Salem

Name of the Project:		Location: Erode/Salem
World class theme park		Area: 50 acres
Investment: Rs. 1,000 Crore		Time Frame: 2014 - 2017
Mode of Finance	Public Private Partnership	Implementing Agency: Department of Tourism, Government of Tamil Nadu

Description:

The theme park will be a world class facility comprising of thematic rides and a water park. The theme park and water park is conceived to cover all aspects of leisure and location based entertainment (LBE) offering a combination of theme park, water park, and retail, dining & entertainment area (R,D&E). It will offer entertainment, fun, action, dining, shopping and accommodation at a single location. The project will also comprise of a 3 star hotel, which will provide facilities for tourists to stay in the location. The park will also be integrated with the tourism circuit covering Yercaud and Hogenakkal.

The objective of the project is to create an entertainment zone which will cater to the requirements of the population in the western and central districts of the state. The park will be theme based and have different zones catering to all ages and will provide wholesome entertainment to the entire family.

Of the total investment of Rs. 750 crore, land is estimated to cost about Rs. 100 crore and rest of the investment will be in buildings and plant and machinery.

Targeted Impact:

Tourism is a sector which provides one of the highest employment opportunity for every rupee invested. It is a sector that affords self employment opportunities particularly for unskilled and semi skilled workers.

The western and central districts have an urban population (corporations, municipalities and town panchayat) of over 1.20 crore. The proposed theme park will be an important entertainment destination for the central and western districts.

Implementation Strategy:

The project is proposed to be implemented in PPP mode. The land will be identified by the Department of Tourism, Government of Tamil Nadu and an operator will be selected to Build, Own and Operate the facility. The park will be developed in phases. The first phase will cover the development of the theme park and the water park and second phase will involve the development of the 3 star hotel. The first phase is expected to commence in 2013 and be completed in 2 years time. The second phase covering the development of the hotel will commence in 2015 and be completed in the year 2016.





7.4.3 Underwater Ocean Park near Chennai

Name of the Project:		Location: Mahabalipuram
Underwater Ocean Park		Area: 300 acres
Investment: Rs. 800 Crore		Time Frame: 2015 - 2017
Mode of Finance	Public Private Partnership	Implementing Agency: Department of Tourism, Government of Tamil Nadu
Description:		
<p>The underwater park will be a world class oceanarium along the coast near Mahabalipuram. The facility will contain an interactive pool where visitors can touch and feel marine life, an amphitheatre for conducting shows and an underwater tunnel running through an enormous tank, which will house various species of marine life that are found in the region. The park will give the visitors an opportunity to see marine life in their natural habitat. In addition to being an entertainment facility, the park will also be educative in the areas of conservation and marine ecology. The park will be theme based and have different zones catering to all ages and will provide wholesome entertainment to the entire family. The proposed facility will also include a marine biology research centre which will focus on research and education in the area of marine biology.</p> <p>The objective of the project is to create an entertainment and education zone which will cater to the tourists visiting Chennai. The local population of the Chennai Agglomeration and the tourists visiting Chennai will be the target segment. Of the total investment of Rs. 800 crore, land is estimated to cost about Rs. 100 crore and rest of the investment will be in buildings and plant and machinery.</p>		
Targeted Impact:		
<p>Tourism is a sector which provides one of the highest employment opportunity for every rupee invested. It is a sector that affords self employment opportunities for particularly for unskilled and semi skilled workers.</p> <p>With more than 100 million domestic tourists and nearly 3 million foreign tourists visiting Tamil Nadu, an Oceanarium near Chennai will provide a fillip to the tourism initiatives in the region. A number of resorts and recreational facilities are coming up in his belt and is an ideal location for an Oceanarium.</p>		
Implementation Strategy:		
<p>The project is proposed to be developed and implemented in PPP mode. The land will be identified by the Department of Tourism and Department of Fisheries Government of Tamil Nadu and an operator will be selected to Build, Own and Operate the facility.</p>		



7.4.4 Water Sports Complex at Thondi

Name of the Project:		Location: Thondi
World sports complex and resort		Area: 25 acres
Investment: Rs. 300 Crore		Time Frame: 2014 - 2016
Mode of Finance	Public Private Partnership	Implementing Agency: Department of Tourism, Government of Tamil Nadu
Description:		
<p>The water sports complex and resort will consist of water sport facilities such as surfing, snorkelling, para sailing, water scooters and other facilities. The complex will also house a 200 room resort which will cater to the needs of the tourists.</p> <p>The objective of the project is to create an entertainment zone that will provide world water sports facilities. The coast line between Nagapattinam and Rameswaram is suitable for water sports given the relatively calm sea. The area is also home to the Mannar Biosphere and provides a variety of marine life that can be enjoyed by tourists. Given the absence of good accommodation and other facilities in the region, it is proposed to develop a 200 room resort along with the water sports complex. Of the total investment of Rs. 300 crore, Rs. 125 crore is proposed to be spent on development of the resort and the balance on the water sports complex.</p>		
Targeted Impact:		
<p>Tourism is a sector which provides one of the highest employment opportunity for every rupee invested. It is a sector that creates self employment opportunities for particularly for unskilled and semi skilled workers.</p> <p>The stretch of the coast between Nagapattinam and Rameswaram is an ecologically sensitive area and not much of industrial activity is possible. The services sector has an important role to play in employment generation and tourism is a key to improve the earning capacity of the local population.</p> <p>With good connectivity to Madurai and Trichy (a distance of about 100 kms), the location offers an ideal opportunity for developing a water sports complex, which will be based on sea sports. The target segment is primarily the tourists from central and coastal districts of Tamil Nadu and the international tourists who visit Madurai and Trichy.</p>		
Implementation Strategy:		
<p>The project is proposed to be implemented in PPP mode. The land will be provided by the Department of Tourism, Government of Tamil Nadu and an operator will be selected to Build, Own and Operate the facility. The project is estimated to be completed within 2 years of commencement.</p>		





7.4.5 Water Sports Complex at Kanyakumari

Name of the Project:		Location: Kanyakumari
World sports complex and resort		Area: 25 acres
Investment: Rs. 300 Crore		Time Frame: 2014 - 2016
Mode of Finance	Public Private Partnership	Implementing Agency: Department of Tourism, Government of Tamil Nadu
Description:		
<p>The water sports complex and resort will consist of water sport facilities such as surfing, snorkelling, para sailing, water scooters and other facilities. The complex will also house a 200 room resort which will cater to the needs of the tourists.</p> <p>The objective of the project is to create an entertainment zone that will provide world water sports facilities. The proposed location is ideally suited for a tourism facility as it is situated at an important tourist destination in South India.</p> <p>Of the total investment of Rs. 300 crore, Rs. 125 crore is proposed to be spent on the resort and the balance on the water sports complex.</p>		
Targeted Impact:		
<p>Tourism is a sector which provides one of the highest employment opportunity for every rupee invested. It is a sector that is employment intensive and affords self employment opportunities for particularly for unskilled and semi skilled workers.</p> <p>The Kanyakumari - Trivandrum stretch is a well developed tourism zone with a number of locations of tourist interest and would be an ideal location for a world class facility. The catchment area for the proposed water sports complex is the southern districts of Tamil Nadu and the state of Kerala. The facility will also attract the international tourists visiting Kerala.</p> <p>With good connectivity to Madurai and Trivandrum, the location offers an ideal opportunity for developing a water sports complex, which will be based on sea sports.</p>		
Implementation Strategy:		
<p>The project is proposed to be implemented in PPP mode. The land will be provided by the Department of Tourism, Government of Tamil Nadu and an operator will be selected to Build, Own and Operate the facility. The project is estimated to be completed within 2 years of commencement</p>		





7.4.6 Special Tourism Zone - Madurai

Name of the Project:		Location: Madurai
Tourism Zone		Area: 300 acres
Investment: Rs. 150 Crore		Time Frame: 2013 - 2015
Mode of Finance	Public Private Partnership	Implementing Agency: Department of Tourism, Government of Tamil Nadu
Description:		
<p>The tourism zone will consist of Arts and Craft village and Heritage village. The proposed zone will showcase the rich heritage and culture of the state. The tourism zone will have following broad themes:</p> <ol style="list-style-type: none"> 1. Art and Craft village which will showcase the art, architecture and handicrafts of the State. In addition to conducting demonstrations and showcasing the products, it will also provide a marketing outlet for the artisans. Some of the areas that can be included are - bronze work from Swamimalai, hand-made tiles from Karaikudi, wood work from Ariyalur, silk weaving from Kanchipuram and Dharmapuri and rock sculpting from Mahabalipuram. 2. Leisure and entertainment zone comprising of art gallery, sound and light shows, amphitheatre etc 3. Hospitality zone providing a taste of native cuisine from various parts of the State and in typical village atmosphere and provision for camping etc 4. Health and Ayurveda zone with centres for various types of Indian medicine and facilities for health shows and demonstration 5. Learning zone which will have a skill development centre for rural arts and provides informative programmes for increasing awareness about rural life and crafts 		
Targeted Impact:		
<p>Tourism is a sector which provides one of the highest employment opportunity for every rupee invested. It is a sector that creates self employment opportunities for particularly for unskilled and semi skilled workers.</p> <p>With an estimated 80 lakh tourists including more than 2 lakh foreign tourists visiting Madurai every year, the proposed tourism zone will provide an enriching experience to a large number of the tourists. The tourism zone will also provide an outlet to the artisans as they can showcase their wares and market them. We expect that a strong ecosystem to develop around this zone which will help in showcasing our rich heritage and culture.</p>		
Implementation Strategy:		
<p>The project is proposed to be implemented in PPP mode. The land will be provided by the Department of Tourism, Government of Tamil Nadu and an operator will be selected to Build, Own and Operate the facility. The project is estimated to be completed within 2 years of commencement.</p>		





7.4.7 Rural Tourism Hub - Karaikudi

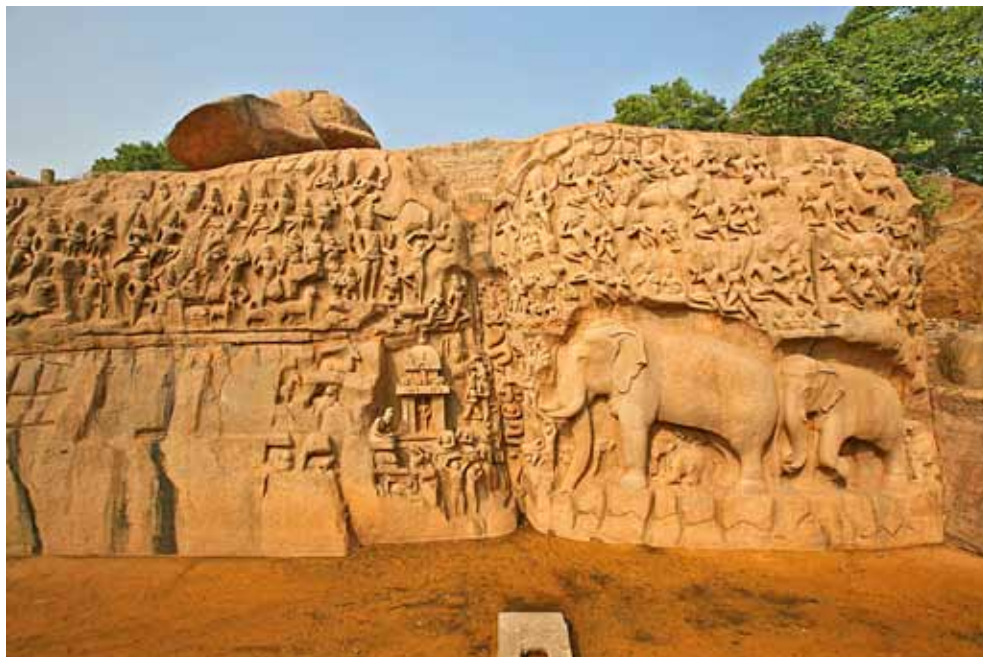
Name of the Project:		Location: Karaikudi
Rural Tourism Hub		Area: 300 acres
Investment: Rs. 150 Crore		Time Frame: 2014 - 2016
Mode of Finance	Public Private Partnership	Implementing Agency: Department of Tourism, Government of Tamil Nadu
Description:		
<p>The tourism hub at Karaikudi will focus on rural and agri tourism. It will showcase the rich heritage of the region and provide a live experience of rural life. The proposed hub will have facilities for tourists to stay in the rural environment and experience the day-to-day village life. The facilities will also have an agri tourism component where the visitors can have first hand experience by taking part in agricultural activities. The proposed hub will also have rural sports facility where visitors can try their hand at a variety of rural sports native to Tamil Nadu.</p>		
Targeted Impact:		
<p>Tourism is a sector which provides one of the highest employment opportunity for every rupee invested. It is a sector that affords self employment opportunities for particularly for unskilled and semi skilled workers.</p> <p>Karaikudi is known for its heritage and cultural richness. A number of structures in the region can be used to showcase the art, culture and architecture of the region. With an estimated 80 lakh tourists including more than 2 lakh foreign tourists visiting Madurai every year, the proposed tourism hub will attract a significant number of tourists who are keen on experiencing our culture and heritage.</p>		
Implementation Strategy:		
<p>The project is proposed to be implemented in PPP mode. The Department of Tourism, Government of Tamil Nadu will work with a private operator to configure the project and identify the various participants. It will be the responsibility of the private operator to coordinate with the other stakeholders such as owners of various mansions where the rural living experience can be provided. The private operator will develop the sports centre and the facilities for the agriculture and horticulture experience.</p>		





7.4.8 Culture Tourism Hub - Mahabalipuram

Name of the Project: Culture Tourism Hub		Location: Mahabalipuram Area: 50 acres
Investment: Rs. 300 Crore		Time Frame: 2014 - 2016
Mode of Finance	Public Private Partnership	Implementing Agency: Department of Tourism, Government of Tamil Nadu
Description: The culture tourism hub at Mahabalipuram will build on the existing set up and showcase the rich and varied architectural splendour of the UNESCO declared world heritage site. The hub will be built around the Shore Temple and other monuments in the area. It will comprise of a sound and light show that details the 2000 year history of the Chola, Pandya, Chera and Pallava regimes. It will provide an authentic and firsthand experience of the life and happenings of those periods. It will showcase the day-to-day life of the people, the art and architectural achievements, the warfare practices and the governance system of the various eras. The facility will also have a museum		
Targeted Impact: The Chennai - Mahabalipuram belt is a tourism zone with a number of amusement and entertainment facilities. The coastline also adds to the tourism and leisure activities. The Mahabalipuram monuments are classified as World Heritage site and are a standing example of the architectural richness of the region. With more than 100 domestic tourists and nearly 3 million international tourists visiting Chennai, Mahabalipuram is ideally located to attract a significant portion of the tourists.		
Implementation Strategy: The project is proposed to be implemented in PPP mode. The Department of Tourism, Government of Tamil Nadu will identify the land and appoint a private operator to configure the project and run the same on Build, Own and Operate basis. Since the proposed location is a World Heritage site, the participation of the Archaeological Survey of India (ASI) will also be required.		





7.4.9 Science Museum

Name of the Project: World Class Science Museum		Location: Chennai
Investment: Rs. 1,000 Crore		Time Frame: 2013 – 2015
Mode of Finance	Public Private Partnership	Implementing Agency: Department of Higher Education
Description: A museum is a collection of static and interactive exhibits transcend various genres of science, history, arts and culture. International research has shown that the establishment of world class museum impacts society at various levels in terms of (i) knowledge and understanding of science; (ii) improved learning experiences; (iii) promotes inter-generational learning; (iv) promotes trust and understanding between the public and the scientific community; (v) improves the economic activity of place. Given this background, the setting up of a world class science museum in Chennai is proposed. The configuration of the museum will include science, history and culture.		
Targeted Impact: <ul style="list-style-type: none"> • Areas of Focus: Science • Population benefited: Local community • Impact: Improve the overall HDI of state <p>The focus will be in inculcating scientific temper and making science easy and comprehensible at an early age which will help in better appreciation of concepts.</p>		
Implementation Strategy: The project shall be operated on PPP mode; the Government will provide the enabling infrastructure including land and initial corpus. Private sector shall provide necessary construction and design experience		





7.4.10 World class tourism and hospitality training centre

Name of the Project: World class tourism and hospitality training centre		Location: The Nilgiris
Investment: Rs. 200 Crore		Time Frame: 2013 - 2014
Mode of Finance	Public Private Partnership	Implementing Agency: Department of Tourism, Government of Tamil Nadu
Description:		
<p>Tourism is an important contributor to Tamil Nadu's Gross State Domestic Product (GSDP). Tamil Nadu's tourism sector is the second-largest in India, after Andhra Pradesh. Tamil Nadu has a 15% share in the total number of tourists visiting India⁶ and growing annually at the rate of 16%.</p> <p>As of 2011, 383,000 tourists visited Tamil Nadu per day. The number of tourists visiting the state has registered a CAGR of 27% between 2005 and 2011. Domestic tourists accounted for about 97% while the rest were foreign tourists. It is estimated that by 2023, the average daily foreign tourist arrivals will increase to 41,000 and the State is expected to attract 1.3 million domestic tourists per day. In order to cater to such large volume of tourist traffic, in addition to physical infrastructure, it is essential to have a strong service oriented cadre which is skilled in handling the various activities in the tourism value chain and provide a pleasant experience to the tourists. To ensure availability of adequate trained personnel in this area, it is proposed to set up a World Class Tourism and Hospitality Training Centre in the Nilgiris. The training centre would focus on following areas:</p> <ol style="list-style-type: none"> 1. Developing and imparting training programmes spanning tourism value chain such as travel agents, tour operators, hotels, local community, guides etc. 2. Conduct research on the emerging trends in tourism and hospitality sector 3. Develop standards for local tourism development 4. Engage with local community in developing tourism experience 5. Provide inputs to the Government on the various aspects of tourism policy 		
Targeted Impact:		
<p>Tourism is a sector which provides one of the highest employment opportunity for every rupee invested. It is a sector that creates self-employment opportunities for particularly for unskilled and semi-skilled workers. Training of skilled and unskilled workers would help in delivering high standard of experience to the tourist.</p>		
Implementation Strategy:		
<p>The project is proposed to be implemented in PPP mode. An operator will be selected to Build, Own and Operate the facility.</p>		



⁶ Ministry of Tourism, Annual Report 2011, Government of India



7.4.11 Development of Heritage locations and destinations of tourist interest

Name of the Project:		Location: 26 locations spread across Tamil Nadu
Development of Heritage locations and destinations of tourist interest		
Investment: Rs. 2,600 Crore (Rs 100 Crore per location)		Time Frame: 2012 – 2014
Mode of Finance	Public Private Partnership	Implementing Agency: Department of Tourism
Description:		
<p>Tourism industry is the highest generator of employment. Out of every nine persons, one person earns a living from tourism. Tourism is considered to be an important area for intensive development for all Governments.</p> <p>Tamil Nadu is ranked second among all States in India in attracting foreign tourists and third in attracting domestic tourists. In 2011, around 13 million domestic tourists and 3.3 million foreign tourists visited various locations in Tamil Nadu. Tamil Nadu has a blend of various tourist themes such as mountain, adventure, spiritual, cultural, rural and way side tourism with abundant potential for revenue and employment generation. In order to attract tourist to heritage and lesser known destinations, it is proposed that infrastructure improvement programme in 25 tourist locations be carried out. These places are Pichavaram, Muthupet, Srivilliputhur, Thanjavur, Kumbakonam, Gangaikondacholapuram, Cuddalore, Rameswaram, Marudhur, Kurinjipadi, Sethukkarai, Ramanathapuram, Srirangam, Ariyalur, Madurai, Palani, Tiruchendur, Thiruthani, Tiruvallur, Kolachal, Kanniyakumari, Tiruvannamalai, Gingee, Parikkal, Sittannavasal and Thiruvakkarai</p>		
Targeted Impact:		
<ul style="list-style-type: none"> • Areas of Focus: Infrastructure facilities such as boarding & lodging, signage, marketing, access to location, toilets and water facilities • Population benefited: Around 3 million • Employment/Livelihoods generated: revenue generation through tourists visit 		
Implementation Strategy:		
The project shall be operated on PPP mode with specific service provider.		





Heritage and Lesser Known Destinations

	Location	Boarding & Lodging	Signage	Marketing	Access to Location	Toilets, Water facility etc.,
1	Pichavaram	Yes	Yes	Yes	Yes	Yes
2	Srivilliputhur		Yes	Yes	Yes	Yes
3	Thanjavur			Yes	Yes	Yes
4	Kumbakonam			Yes	Yes	Yes
5	Gangaikonda Cholapuram	Yes	Yes	Yes	Yes	Yes
6	Cuddalore			Yes	Yes	Yes
7	Rameswaram	Yes		Yes	Yes	Yes
8	Marudhur		Yes	Yes	Yes	Yes
9	Kurinjipadi		Yes	Yes	Yes	Yes
10	Sethukkarai		Yes	Yes	Yes	Yes
11	Ramanathapuram	Yes		Yes	Yes	Yes
12	Srirangam		Yes	Yes	Yes	Yes
13	Ariyalur	Yes	Yes	Yes	Yes	Yes
14	Madurai		Yes	Yes	Yes	Yes
15	Palani	Yes		Yes	Yes	Yes
16	Tiruchendur			Yes	Yes	Yes
17	Tiruthani			Yes	Yes	Yes
18	Tiruvallur			Yes	Yes	Yes
19	Kolachal			Yes	Yes	Yes
20	Kanniyakumari	Yes	Yes	Yes	Yes	Yes
21	Tiruvannamalai	Yes		Yes	Yes	Yes
22	Gingee			Yes	Yes	Yes
23	Parikkal		Yes	Yes	Yes	Yes
24	Sittannavasal	Yes	Yes	Yes	Yes	Yes
25	Thiruvakkarai		Yes	Yes	Yes	Yes
26	Muthupet			Yes		Yes



7.4.12 Infrastructure development in places of tourist interest

Name of the Programme: Other infrastructure development in places of tourist interest (including projects identified under ADB project on tourism infrastructure)		Location: Various locations across the state
Investment: Rs. 2,500 Crore for the programme		Time Frame: 2013 – 2017
Mode of Finance	Public Private Partnership	Implementing Agency: Department of Tourism
Description: <p>Tourists come to a destination due to a variety of reasons. While the primary reason is the attraction the particular location offers, aspects such as the wayside facilities, improving the access to the site/facility, in site infrastructure such as toilets, retiring rooms, dining facilities, availability of skilled guides etc., are also important.</p> <p>The programme envisages providing wayside amenities and facilities in all tourism corridors in coordination with the highways department. Provision of toilets and rest rooms of high standards is envisaged as part of the clean toilet campaign. Other amenities include improving the location specific amenities such as changing rooms, facilities for restaurants and eateries, accommodation etc.</p>		
Targeted Impact: <ul style="list-style-type: none"> • Areas of Focus: Infrastructure facilities such as boarding & lodging, signage, marketing, access to location, toilets and water facilities • Improve the overall ambience and facilities at tourist locations • Employment/Livelihoods generated: revenue generation through tourists visit 		
Implementation Strategy: <p>The programme will identify the locations and specific requirements of each location. The projects identified will be operated on PPP mode with service providers identified for each location and facility.</p>		



VISION TAMIL NADU



STRATEGIC PLAN FOR
INFRASTRUCTURE DEVELOPMENT
IN TAMIL NADU

Urban Sector





8. Urban Infrastructure, Water storage and supply, Solid Waste Management and Housing

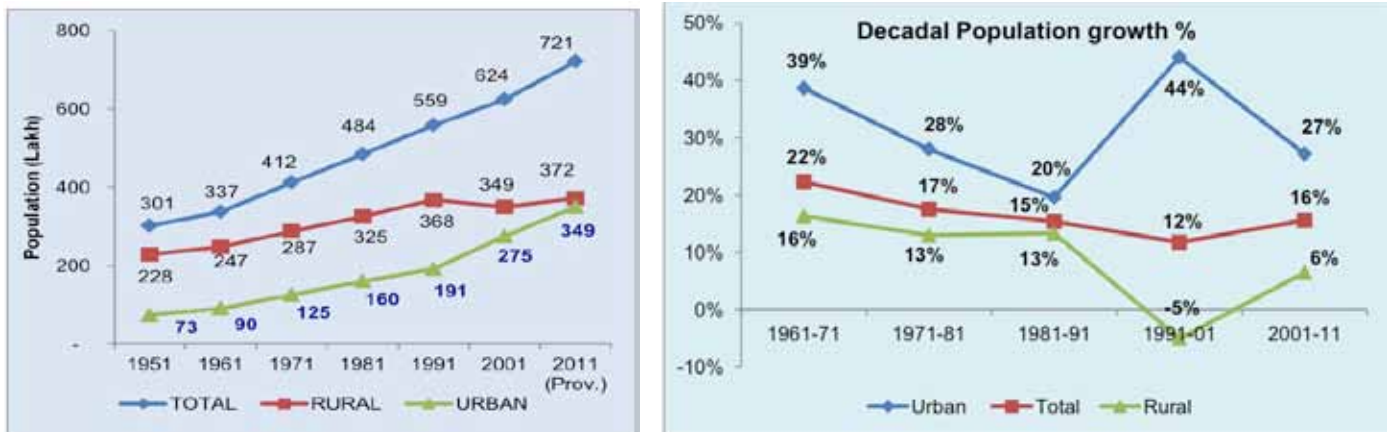
8.1 Sector overview

Urbanisation

With 48.45% of its population living in urban areas, Tamil Nadu ranks first among large States in terms of the share of urban population to total population and third in terms of size of the urban population. As per provisional estimates of 2011 Census, Tamil Nadu had an urban population of 3.49 crore. Exhibit 8.1 captures some key trends in urbanisation which are discussed below:

Exhibit 8.1 Urbanisation Trends

a. TN urbanizing rapidly over the last couple of decades



b. Corporations growing faster than other categories of statutory towns ; intensifying urbanization reflected in 'Census Towns' growth

Category	Admin. Units (Nos.)			Urban Population (Lakh)			Decadal growth (%)	
	1991	2001	2011	1991	2001	2011	91-01	01-11
Corporations	3	6	10	71.35	79.12	117.56	11%	49%
Municipalities	108	104	125	72.37	82.46	89.57	14%	9%
Town Panchayat	224	611	529	37.81	95.75	81.11	153%	-15%
Census Towns	134	111	374	9.24	15.08	61.25	63%	306%
Total	469	832	1038	190.77	272.41	349.49	44%	27%



c. Extended areas of larger cities (seen as economic engines) driving urban growth;

City / UA	Population 2001		Population 2011				Population Growth 2001-11	
	City	UA	City	UA	City	UA	Ext. Areas	01-11
Chennai	42,16,268	65,60,242	46,81,087*	86,89,010	11.0%	32.4%	71.0%	49%
Coimbatore	9,23,085	14,61,139	10,61,447	21,51,466	15.0%	47.2%	102.6%	9%
Madurai	9,22,913	12,03,095	10,16,885	14,62,420	10.2%	21.6%	59.0%	-15%
Trichy	7,52,066	8,66,354	8,46,915	10,21,717	12.6%	17.9%	52.9%	306%
Tiruppur	3,51,501	5,50,826	4,44,542	9,62,982	26.5%	74.8%	160.1%	27%

Source: Census 2001 and 2011. Secondary Research. The above data also reflects and factors the post Census 2011 re-organisation of statutory cities and towns in Tamil Nadu. Chennai corporation population at the time of Census 2011. Post Census 2011, 42 adjoining areas were amalgamated into Chennai Corporation taking Chennai corporation population to an estimated 65 lakh. Though Census Towns are classified under Census as part of urban areas, these are dealt with under the Rural Development department

- 1. Tamil Nadu is urbanising rapidly.** Growth in urban population (27% during 2001-11) continues to outpace growth in rural population (7% during 2001-11). A recent study⁷ projects that urban population in Tamil Nadu will increase to 53 million or 67% of its population by 2030. To put this in context, urban population in the state increased by 15 million in the last 20 years but could increase by 18 million in the next 18 years. Given that basic urban services like public transport, affordable housing, piped water supply, sewerage and solid waste management continue to elude a substantial portion of existing urban population, managing this accelerated urbanisation and the need to create vibrant sustainable and inclusive urban spaces is a key policy priority to realise the goals of Vision 2023.
- 2. During 2001-11, large urban agglomerations contributed to almost all of urban growth.** Population in the top ten Municipal Corporations grew by 49% and that of the top 26 Urban Agglomerations (with population more than 100,000) grew by 38% in the last decade. During this period, total population in municipalities and town panchayat actually shrunk by 4%. The negative growth in population in Town Panchayats is largely due to reduction in number of Town Panchayats between 2001 and 2011 as 82 Town Panchayats were merged with adjoining Municipalities and Corporations. On a like-to-like basis, population in the 529 Town Panchayats that are in existence grew from 70.89 lakh to 81.11 lakh. This translates to a decadal growth of 15%, which is still lower than the growth in population in UAs and Municipal Corporations. The promise of better economic opportunities, both perceived and real, and relatively better infrastructure have accelerated migration into larger cities and in their peripheries.
- 3. Extended areas of larger cities (seen as economic engines) driving much of urban growth.** Nearly 58% of the urban population lives in the top 25 Urban Agglomerations (UAs). In many of these UAs including Chennai, extended areas beyond the core city are exhibiting faster growth (refer Exhibit 2.3), yet urban services have tended to lag their core city counterparts. For instance, newly added areas of Corporation of Chennai constitute nearly 25% of the population yet access to basic services is poor in these areas. *There is thus a need to prioritize planning and infrastructure provisioning efforts in keeping with emerging urban agglomerations as opposed to planning based on 'statutory city limits of existing corporations or municipal areas'.*

This phenomenon of urban growth beyond 'administrative city jurisdictions' could accelerate the haphazard and unplanned expansion of cities witnessed around large cities. GoTN recognizes the need to frame the perspective for infrastructure planning at an urban agglomeration level taking into account extended areas and peripheries of large Corporations and Municipalities (as opposed to planning infrastructure from an administrative jurisdiction perspective), in order to arrest the trend of unplanned urban growth. **In this regard, the Government of Tamil Nadu will initiate preparation of comprehensive Regional Plans for all Urban Agglomerations with a population**

⁷ *India's Urban Awakening : Building Inclusive Cities, Sustaining Economic Growth. McKinsey Global Institute. 2010*



greater than 100,000 to clarify zoning, land-use and uniform planned infrastructure development and make cities and towns 'future ready'.

Status of urban services

This section reviews the status of service levels in water supply, sewerage, solid waste and urban roads/drains in Chennai and rest of urban Tamil Nadu. As the largest urban cluster in the state constituting more than 25% of urban population of Tamil Nadu, issues relating to Chennai region are separately discussed. This is also consistent with GoTN's recognition of the need to accord a focused thrust to upgrade urban infrastructure in Chennai region as reflected in its announcements in the recent Budget where two separate Urban Missions have been announced, one focused on Chennai and the other one on rest of the urban areas in Chennai.

Water supply

A brief overview of the water supply status in Chennai urban agglomeration and rest of urban Tamil Nadu is presented below:

- Chennai UA:** Even though the core areas of Chennai enjoy 100 % coverage of piped water supply and 99% coverage of sewerage, service levels are relatively poorer in rest of the city that have been recently added to the Corporation limits. Water demand in Chennai UA is estimated at 1750 MLD and 2248 MLD in the Chennai SMP and (base case scenario of) the Chennai revised CDP respectively. Against this, abstractable water quantity for 2026 (after factoring about 200 MLD from desalination, 90 MLD from sewage re-use and about 240 MLD of ground water in the city for uses other than drinking and cooking) is estimated at 1954 MLD. This gap between supply and demand requires a combination of conservative resource utilisation with sustainable supply supplementation. At 135 LPCD (MoUD norm for metropolitan cities), current water demand for Chennai UA (86.90 million population) is 1173 MLD. While the current treatment capacity is 1494 MLD and is sufficient vis-à-vis this demand, the current supply at 831 MLD falls significantly short of the prevailing demand. Further, a significant portion of this supply is to the core area of Chennai, thus leading to a high divergence in service levels between core area and the extended areas.
- Rest of TN:** Exhibit 2.2 provides the status of water supply performance in the urban water supply as reported by the Tamil Nadu Water and Drainage Board (TWAD). As can be seen, coverage of protected water supply has been extended to all cities with more than an third of ULBs having 'good' coverage. Further, GoTN has initiated a comprehensive plan for revamping the existing Water Supply distribution network in 54 Urban Local Bodies.

Exhibit 8.2 Status of Water Supply in Urban Local Bodies (other than Chennai Corporation)

Year	Good	Average	Poor	TOTAL
CORPORATIONS (Good > 110 LPCD, Avg 70-109 LPCD, Poor – less than 70 LPCD)	5	3	1	9
MUNICIPALITIES (Good > 90 LPCD, Avg 50-89 LPCD, Poor – less than 50 LPCD)	43	76	6	125
TOWN PANCHAYATS (Good > 70 LPCD, Avg 40-69 LPCD, Poor – less than 40 LPCD)	377	146	6	529

Source: Policy Notes. MAWS Department 2013-14. www.tn.gov.in



Waste water management

A brief overview of waste-water management in Chennai urban agglomeration and rest of urban Tamil Nadu is presented below:

- Chennai UA:** At present 99% of the core areas in Chennai city been covered with sewerage facilities. CMWSSB manages over 622,744 sewer connections maintains a network of some 4620 km of sewer lines and 218 pumping stations. As in the case of water supply, the sewerage network largely covers the core area, even though a number of projects are under implementation in the extended areas. Even though treatment capacity of 1,798 MLD is required to meet waste water treatment requirements of 2026, existing Sewerage Treatment Capacity within the city is only about 558 MLD (including a few small STPs available to serve locally the ULBs). Thus incremental treatment capacity of 1240 MLD may be required to serve the estimated population of 2026. This is however best added in phases and also by expansion of capacity of existing STPs rather than creation of greenfield STPs, as is being done by CMWSSB in case of Perungudi and Nesapakkam.
- Rest of TN:** Tamil Nadu is one of the few States that has initiated sewerage network provision in all corporations, municipalities and town panchayats through a sustainable financing and user charge framework. The successful 'Alandur' model that involved financing of sewerage projects through a combination of user deposits, loans and Government grants with user charges to manage debt servicing and O&M is being replicated across the state. The Government of Tamil Nadu has recently announced provision of sewerage schemes in all the remaining ULBs and Town Panchayat.

Solid Waste Management and Sanitation

Tamil Nadu has been a pioneer in Solid Waste Management since the 1990s when Chennai Corporation was the first large municipal corporation to implement PPP for SWM and cities like Pammal and Namakkal achieving 100% door-to-door collection and source segregation. The reported waste collection efficiency in municipalities in Tamil Nadu is 96% with more than 70% coverage of door-to-door collection. An Integrated Solid Waste Management Policy has been rolled out and a corresponding tool kit is under preparation.

Tamil Nadu has also traditionally had relatively better access to Sanitation Services vis-à-vis the national scenario. This is reflected in the sanitation ranking for 430 cities across India prepared by Ministry of Urban Development Government of India, where 14 of 26 cities from Tamil Nadu covered in the rankings figure in the top 100 cities. GoTN has announced that the state will be free of open defecation by 2015 and to achieve this a massive program for construction of toilets has been undertaken, hand-in-hand with IEC activities and designs for new and innovative toilets like water level urinals, E-Toilets, toilets for differently abled etc.

Given the pollution and environmental implications and potential to show transformational changes in a short while (for instance, SWM requires least capital investment per capita among urban services to improve service levels), there is a need for a significant push in terms of implementation of initiatives during the 12th Five Year Plan.

- Efforts relating to processing and safe disposal of waste have been negligible. Even though there have been some positive developments such as the development of integrated SWM in Coimbatore (with Transfer stations and Landfill site already commissioned under JNNURM) and collection efforts have improved in most ULBs, compliance to SWM Rules 2000 laid down by Hon'ble Supreme Court is yet to be fully achieved
- Though initiatives on regional landfills and integrated SWM for cities have been undertaken, pace of implementation has been slow. There have seen inordinate delays in terms of getting clearances from State Pollution Control Board as such projects are coming up for review for the first time to the PCB.
- Several cities in Tamil Nadu still score poorly on access to toilets. Public toilets maintenance in most cities is poor. 23 of the 26 cities covered under the sanitation ranking exercise of MoUD scored a composite score of less than 50 out of 100 indicating the extent of improvement required.



Urban transport, roads and drains

In terms of reported coverage of surfaced roads, ULBs in Tamil Nadu score well. Similarly, performance on provision of street lights has been reasonably satisfactory. In this regard, GoTN proposes to

- Prepare and implement an integrated road development plan with focus on arterial roads and bus route roads in all large urban centres. An Arterial Road Design and Standards Manual for integrated development would be developed to guide implementation which would at the minimum address
 - a. Sustainable asset creation with 100% coverage of surfaced roads taking into account traffic management considerations
 - b. Designs based on scientific assessment of needs
 - c. Systematic development of storm drains and water catchment structures
 - d. Comprehensive development of road assets (including ducting for managing utilities, green cover, side-walks, street lights etc.)
 - e. Mapping and ducting of utilities
 - f. Sustainable Contracting Structures which impose performance and maintenance obligations along with construction to ensure durability and maintenance of assets created
- Create appropriate Public Mass Transit systems to increase share of Public Transport
- Planning and regulation of **para-transit transport infrastructure** covering individual and shared auto-rickshaws and cabs
- Planning and regulation of **parking facilities**
- Wider implementation of **retro-reflective road signages** in all ULBs in the state. Major Roads in Municipal Corporations have completed implementation of road signages in a phased manner and this initiative is being expanded to other ULBs.

Housing

Given the varied and disaggregated information available on housing stock, key observations made by various studies on housing stock shortage and slums in Tamil Nadu are summarized below. As can be seen there are some divergences in the baseline housing shortage between various studies and this needs to be verified and validated.

Census 2001 and 2011: As per Census 2001, Slums⁸ were reported in 63 cities and towns in Tamil Nadu. Overall slum population in urban areas in Tamil Nadu was estimated at **28.38 lakh** of which **10.79 lakh** were in Chennai. The policy note of GoTN observes that Census of 2011 has revealed that **13.96 lakh** families (~**59 lakh** persons⁹) are living in the urban slums in Tamil Nadu. This needs to be verified and reconciled with ULB figures.

Government of India estimates: A report of the committee on slum statistics/census appointed by the Ministry of Housing and Urban Poverty alleviation on the other hand estimates the slum population in Tamil Nadu at a higher figure of **86.44 lakh** in 2011. The Technical Group¹⁰ appointed by the Ministry of Housing and Urban Poverty Alleviation estimates the housing shortage in urban areas in Tamil Nadu at **28.2 lakh**. As per this study, Tamil Nadu accounts for an estimated 11% of housing shortage in India.

While urban population in Tamil Nadu grew by 27%, reported slum population has grown from 28.38 lakh to approximately 59 lakh, a growth of 150%

⁸ Source : <http://www.hss.iitm.ac.in/rt-ppp/urban%20Health/Miscellaneous/Slums%20in%20Chennai-%20a%20profile.pdf>

⁹ Assuming a level of 4.25 persons per house hold Census 2001

¹⁰ Source : www.mhupa.gov.in/ministry/housing/HOUSINGSHORTAGE-REPT.pdf



The shortage of 28.2 lakh housing units estimated by Gol will need to be confirmed with Census figures (which suggest a much lower figure of 13.96 lakh families living in slums). Slum surveys under the Rajiv Awas Yojana are underway in 9 large cities to establish and validate the baseline. Notwithstanding the confirmed baseline, given that under initiatives of various departments, about 4.75 lakh housing units has been developed, there is a wide gap between demand and provision that still persists. GoTN also recognises that need for improving synergy in implementation between facilities and projects being undertaken slum infrastructure development schemes handled under MAWS department and housing schemes handled under the HUD department.

8.2 Sectoral targets under Vision 2023

Water supply

Chennai Urban Agglomeration

- Provision of 135 LPCD piped water supply across in all parts of Corporation of Chennai by 2017
- Achievement of SLB norms for water supply as outlined by MoUD within all zones of the core area of Chennai Corporation by 2017 and in the whole of Chennai Corporation by 2022

Rest of Tamil Nadu

- Provision of piped water supply in Urban Agglomerations (population greater than 100,000) by 2015 and in all urban areas of the state by 2017
- Achievement of SLB norms for water supply as outlined by MoUD in Urban Agglomerations (population greater than 100,000) by 2017 and in all urban areas in the state by 2022.

Waste water management

Chennai Urban Agglomeration

- Provision of sewerage network in all parts of Corporation of Chennai by 2017.
- Achievement of SLB norms for sewerage as outlined by MoUD within all zones of the core area of Chennai Corporation by 2017 and in the whole of Chennai Corporation by 2022.

Rest of Tamil Nadu

- Provision of sewerage network in Urban Agglomerations (population greater than 100,000) by 2015 and in all urban areas of the state by 2017.
- Achievement of SLB norms for sewerage as outlined by MoUD in Urban Agglomerations (population greater than 100,000) by 2017 and in all urban areas in the state by 2022.

Solid waste management

Chennai Urban Agglomeration

- Compliance with SWM Rules 2000 in all areas within Chennai UA by 2017.
- Implementation of door-to-door collection and source segregation in all areas within Chennai UA by 2017
- Renewal of Kodungaiyur and Perungudi along with operational waste processing / landfill facilities by 2015



- Creation of two integrated waste processing and landfill sites by 2017.
- Mandating localized bio-degradable waste processing in all existing and new apartment complexes by 2013 as part of building guidelines and rules on the lines of Rainwater harvesting guidelines introduced for Chennai city.

Rest of Tamil Nadu

- Compliance with SWM Rules 2000 in all urban areas in the State by 2017 including
- Implementation of door-to-door collection and source segregation in all urban areas in the State by 2017
- Agglomeration based approach for creation and operationalisation of waste processing and landfill facilities on a regional basis in all urban areas by 2017.
- Mandating localized bio-degradable waste processing in all existing and new apartment complexes by 2013 as part of building guidelines and rules on the lines of rainwater harvesting guidelines introduced in larger Urban Agglomerations
- Mandating localized bio-degradable waste processing in all existing and new apartment complexes by 2013 as part of building guidelines and rules on the lines of rainwater harvesting guidelines introduced for Chennai city.

8.3 Institutional framework

The institutional framework for the urban sector at the State level covers three separate departments which handle different aspects and functions:

1. The **Municipal Administration & Water Supply Department (MAWS)** is the nodal department for municipal administration and provision of water supply to urban areas in Tamil Nadu.
 - a. At the local level, there are 10 Municipal Corporations, 125 Municipalities and 529 Town Panchayat in the state.
 - b. The Chennai Corporation comes under the direct administrative control of MAWS.
 - c. The **Commissionerate of Municipal Administration (CMA)** is the nodal state agency for Urban Local Bodies (ULBs), other than Chennai Corporation.
 - d. The **Directorate of Town Panchayat (DTP)** is the nodal state agency for Town Panchayats.
 - e. The Chennai Metropolitan Water Supply and Sewerage Board (CMWSSB) is responsible for the provision of water supply and underground sewerage in the Chennai Metropolitan Area.
 - f. The **New Tiruppur Area Development Corporation Limited (NTADCL)** caters to the water supply and industrial water needs of Tiruppur and nearby areas.
 - g. The **Tamil Nadu Water Supply Drainage Board (TWAD Board)** is responsible for the provision of water supply and underground sewerage in the rest of the State.
 - h. The **Tamil Nadu Urban Infrastructure and Financial Services Limited (TNUIFSL)** and **Tamil Nadu Urban Finance and Infrastructure Development Corporation Limited (TUFIDCO)** are urban financial intermediaries providing access to financing through capital markets, lines of credit from external agencies and schemes of Government of India and GoTN.
 - i. The Tamil Nadu Institute of Urban Studies, Coimbatore works develops and disseminates knowledge on urban governance and urban development by conducting training, seminars etc., in addition to research studies and consultancy services in urban management.



The **Housing and Urban Development Department (HUD)** holds responsibility for urban planning and housing functions. The HUD is responsible for various planning activities including preparation of Master Plans and Regional Plans and also for initiatives relating to provision of Housing

- a. The Chennai Metropolitan Development Authority is responsible for master planning within and infrastructure development in the Chennai Metropolitan Area
- b. The Department of Town and Country Planning (DTCP) is responsible for preparation of master plans for urban areas other than the Chennai Metropolitan Area.
- c. The Tamil Nadu Housing Board was formed in the year 1961 with the objective of providing housing for all.
- d. The Tamil Nadu Slum Clearance Board has been formed to implement schemes for ameliorating the living conditions of urban poor.

The Transport Department is the nodal department for managing State Transport Undertakings that provides city and inter-city bus services. It is also the nodal agencies for other urban transport initiatives.

Tamil Nadu's Institutional framework for the urban sector thus comprises multiple departments and a number of parastatal agencies. The parastatal agencies and State departments continue to play a coordinating role in planning and execution of various functions envisaged for full transfer to Local Bodies following the 74th Constitutional Amendment Act of Government of India (74th CAA). GoTN has also initiated a number of measures to address capacity strengthening in ULBs. It has also created special municipal services cadre including the TN Municipal Commissioners Service, Municipal Commissioners' Sub-ordinate Service, Municipal Engineering Services, Public Health Service rules, etc. Filling higher technical posts with qualified personnel and introduction of technology are also under implementation. Inter-agency co-ordination and accountability are achieved in the district with the help of District Planning Committee (DPC).

8.4 Proposed Projects

A. Chennai Agglomeration

S. No.	Sector	Projects	Investment (Rs. Crore)
8.4.1	Water Supply	24x7 Ready Water Supply in Extended Areas	2,000
8.4.2	Water Supply	24x7 Water Supply in Chennai City	1,500
8.4.3	Waste-water	Sewerage in Extended areas	2,000
8.4.4	Waste-water	Plugging outfalls and improvements in core areas	500
8.4.5	Waste-water	Waste Water Reclamation Programme	750
8.4.6	Water sources	New Water Reservoir in Tiruvallur District	500
8.4.7	Water sources	Strengthening/ Augmenting reservoir storage capacity	500
8.4.8	Water sources	Desalination Plant (400 MLD)	2,000
8.4.9	Water sources	Creation / Restoration of Water Bodies	500
8.4.10	Water sources	Chennai river restoration project and beautification of Marina beach	10,000
8.4.11	SWM	Remediation/Closure of Perungudi and Kodungaiyur	150
8.4.12	SWM	Greenfield Regional Landfill & Waste Processing facility	150
8.4.13	SWM	Programme: Integrated Waste Collection and Transport	200
8.4.14	Sanitation	Programme: 100% Sanitised and Open Defecation free city	300
8.4.15	Urban Transport	World Class Arterial Roads Programme	3,750



8.4.16	Urban Transport	Integrated Urban Road Development Programme	10,000
8.4.17	Urban Transport	Expansion of Mass Transit Public Transport - I	16,000
8.4.18	Urban Transport	Expansion of Mass Transit Public Transport - II	15,000
8.4.19	Urban Transport	Organised Parking	1,000
8.4.20	Urban Transport	City Bus Terminals	250
8.4.21	Urban Transport	Inter-city Bus Terminals	250
8.4.22	Housing	Slum-free City Programme	25,000
8.4.23	Other Services	Area Development Plan for selected areas in city	400
8.4.24	Other Services	Efficient Street Lighting	250
8.4.25	Other Services	Park Development and Improvement Programme	250
8.4.26	Other Services	Development of Municipal Schools	150
Total			93,350

B. World Class cities programme

The World Class cities programme would cover 10 cities including Chennai, Coimbatore-Tiruppur, Madurai, Trichy, Salem-Erode, Tirunelveli, Tuticorin, Vellore-Ranipet, Cuddalore and Hosur. Since projects for Chennai has already been separately addressed, the following profiles reflect programs to be implemented in the other cities listed above. The growth of population in urban agglomeration correlates with a proportionate higher investments, particularly in urban transport and housing sectors.

Sl. No	Sector	Programs	Investment (Rs. Crore)
8.4.27	Water Supply	24x7 Ready Water Supply	6,500
8.4.28	Waste water	100% Sewerage coverage	8,000
8.4.29	Water sources	Strengthening and Augmenting water storage capacity	1,000
8.4.30	Water sources	Creation / Restoration of Water Bodies in each city	1,000
8.4.31	Water Supply	200 MLD Desalination plant in Tuticorin	1,000
8.4.32	Waste water	Waste-water reclamation programme	750
8.4.33	Sanitation	100% Sanitised Cities - Open Defecation free city	500
8.4.34	Solid Waste	100% Sanitised Cities - Clean and Green Garbage free city	5,000
8.4.35	Urban Transport	Integrated Urban Road Development Plan	15,000
8.4.36	Urban Transport	Mass Public Transit Systems for second tier cities	50,000
8.4.37	Urban Transport	Organised Parking	500
8.4.38	Urban Transport	Modern Inter and Intra City Bus Terminals	750
8.4.39	Other Services	Efficient Street Lighting	500
8.4.40	Other Services	Modernisation / Upgradation of Municipal Schools	750
8.4.41	Other Services	Creation and Modernisation of Parks in each city	750
8.4.42	Housing	Slum Free Cities Programme	25,000
Total			117,000



C. Rest of Urban Tamil Nadu

These programmes pertain to implementation of urban infrastructure projects in rest of urban Tamil Nadu (other than Chennai and cities covered under the World Class cities Programme).

The top ten urban agglomerations (including Chennai) cover nearly 50% of urban population but grew faster than rest of urban TN. Population in Corporations grew by 49% and in Municipalities by 9% during 2001-11, it declined in Town Panchayats by 15% during this period. Apart from the high growth the larger cities also disproportionately higher investments in mass transit systems and housing for urban poor.

Therefore investment for Chennai (accounting for 25% of urban population is pegged at Rs. 93,350 crore. The programs for other top tier cities that are envisaged to be made world-class is estimated at Rs. 116,000 crore. Investments for the rest of urban Tamil Nadu are pegged at Rs. 53,000 crore.

Sl. No	Sector	Programs	Investment (Rs. Crore)
8.4.43	Water Supply	Piped Water Supply	7,500
8.4.44	Waste water	Appropriate Waste-water management systems	10,000
8.4.45	Water sources	Strengthening and Augmenting water storage capacity	2,000
8.4.46	Water sources	Creation / Restoration of Water Bodies in each city	750
8.4.47	Sanitation	100% Sanitised Cities - Open Defecation free city	750
8.4.48	Sanitation	100% Sanitised Cities - Clean and Green Garbage free city	1,250
8.4.49	Urban Transport	Integrated Urban Road Development Plan	12,000
8.4.50	Urban Transport	Organised Parking	750
8.4.51	Urban Transport	Modern Inter and Intra City Bus Terminals	750
8.4.52	Other Services	Efficient Street Lighting	750
8.4.53	Other Services	Modernisation / Upgradation of Municipal Schools	750
8.4.54	Other Services	Creation and Modernisation of Parks in each city	750
8.4.55	Housing	Slum-Free Cities Programme	15,000
Total			53,000



A. Chennai Agglomeration

8.4.1 24x7 ready Water Supply in extended areas

Name of the Project: 24x7 ready Water Supply in Extended Areas		Location: Chennai Areas: Recent annexed areas of Chennai Corporation
Investment: Rs. 2,000 Crore		Time Frame: 2017
Mode of Finance	Grants from GoTN / Gol and Loans. Performance based PPP contracting may also be explored.	Implementing Agency: CMWSSB
Description:		
<p>This project envisages provision of universal, equitable, affordable piped water supply (progressively moving to pressurised continuous supply) in the 42 extended areas of Chennai Corporation that have been brought under the operational jurisdiction of CMWSSB.</p> <p>Of the 42 areas, Kathivakkam and Valasaravakkam and Porur already have water supply schemes. Water supply schemes in 6 areas namely Thiruvottiyur, Maduravoyal, Nerkundram, Ullagaram-Puzhuthivakkam, and the balance area of Ambattur are in progress. The work relating to improvement of existing water supply system in Alandur area is in progress. The water supply scheme for Madhavaram is has been taken up implementation.</p> <p>Under this project, CMWSSB would comprehensively prepare and implement a project to enable equitable and universal provision of piped water supply in all these areas. The Project would also comprehensively address gaps in service levels in areas that already have 'access' but fall short vis-à-vis best-in-class service level benchmarks.</p>		
Targeted Impact:		
<p>The Project will help address the disparity between the core area of Chennai Corporation and the newly added areas and will enable universal, affordable, consistent and piped water supply with best-in-class services levels across all parts of Chennai city and progressively realise the goal of continuous pressurised water supply as outlined in TN Vision 2023.</p> <p>The project will deliver service level outcomes comprehensively on all dimensions including i) universal coverage, ii) continuous, pressurised and supply, iii) consistent water quality at door step, iv) seamless complaint and consumer management systems and v) achievement of cost recovery and collection efficiency targets. The project will be implemented in the context of mainstreaming of accompanying reform initiatives including wider dissemination of service levels, reduction in non-revenue water (NRW), setting / achieving targets for cost recovery, rationalisation of user charges (while keeping costs for life-line supply for urban poor low and factoring affordability considerations) to enable sustainable, equitable water supply with improved service levels.</p>		
Implementation Strategy:		
<p>The implementation of this project will be preceded by rigorous project development and preparatory studies which would be completed by FY 2013 and implementation will be completed by 2017. The project would be funded largely through Government grants (both from GoTN and Gol) and concessional loans and lines of credit. CMWSSB would however, actively explore options for Performance Based Contracting and PPP approaches to usher in best-in-class utility management and operating practices.</p>		



8.4.2 24x7 ready Water Supply in core area

Name of the Project:		Location: Chennai Corporation
24x7 Water Supply in Chennai city		Areas: Core Areas of city
Investment: Rs. 1,500 Crore		Time Frame: 2020
Mode of Finance	Grants from GoTN / Gol and Loans. Performance based PPP contracting may also be explored.	Implementing Agency: CMWSSB
Description:		
<p>The project will help translate the water supply service levels in the core area of Chennai Corporation to enable best-in-class services level benchmarks and help realise the goal of continuous pressurised water supply as outlined in TN Vision 2023.</p> <p>This project is envisaged in two phases. In Phase I, a pilot area with about 50,000 connections in the core area of Chennai city, covering the 174 sq.km of erstwhile limits of Chennai Corporation where CMWSSB has an extensive coverage of its network, service standards would be improved to world class pressurised and 24x7 water supply. In Phase II, the service outcomes would be scaled up to achieve 24x7 pilot project in the entire core area of Chennai city. The focus of the project will be to rehabilitate and modernise the existing network to enable achievement of world class service levels including 24x7 pressurised supply to deliver universal, equitable consistent and affordable water supply in the entire core area through a comprehensive network and performance improvement and investment programme.</p>		
Targeted Impact:		
<p>The Project will help translate the water supply service levels in the core area of Chennai Corporation to enable best-in-class services level benchmarks and help realise the goal of continuous pressurised water supply as outlined in TN Vision 2023.</p> <p>The project will deliver service level outcomes comprehensively on all dimensions including i) universal coverage, ii) continuous, pressurised supply, iii) consistent water quality at door step, iv) seamless complaint and consumer management systems and v) achievement of cost recovery and collection efficiency targets</p> <p>The Project will be implemented in the context of mainstreaming of accompanying reform initiatives including wider dissemination of service levels, reduction in non-revenue water (NRW), achieving targets for cost recovery, rationalisation of user charges (while keeping costs for life-line supply for urban poor low and factoring affordability considerations) to enable sustainable, equitable and affordable water supply with improved service levels.</p>		
Implementation Strategy:		
<p>The implementation of this project will be preceded by rigorous project development and preparatory studies with strong focus on service level outcomes rather than just asset creation. The project would be funded largely through Government grants (both from GoTN and Gol) and concessional loans / lines of credit. CMWSSB would actively explore PPP options to bring in best-in-class utility management and operating practices. The target is to achieve 24x7 pressurised water supply in the entire Chennai metropolitan region by 2020</p>		



8.4.3 Sewerage systems in Extended areas

Name of the Project:		Location: Chennai Corporation
Sewerage system in extended areas		Areas: Extended areas of city
Investment: Rs. 2,000 Crore		Time Frame: 2017
Mode of Finance	Grants from GoTN/Gol and Loans	Implementing Agency: CMWSSB
Project Description and status:		
<p>This project envisages provision of sewerage network and connections in the 42 extended areas of Chennai Corporation that have been brought under the operational jurisdiction of CMWSSB. Of the 42 areas, sewerage schemes out of the 42 newly added areas included within the Chennai Corporation limits, Valasaravakkam and Alandur already have sewerage schemes. Sewerage schemes in 8 erstwhile local bodies namely Thiruvottiyur, Madhavaram, Ambattur, Maduravoyal, Porur, Ullagaram-Puzhuthivakkam, Perungudi and Pallikaranai areas are under progress. Action has been initiated for part commissioning of some of these schemes for the immediate benefit of the public. For newly added 18 local bodies, Detailed Project Reports have already been prepared. For the remaining 14 newly added areas, the Detailed Project Reports are under preparation.</p>		
Targeted Impact:		
<p>The Project will help address the disparity between the core area of Chennai Corporation and the newly added areas and will enable universal, affordable and reliable sewerage systems with best-in-class services levels across all parts of Chennai city. The project will deliver service level outcomes comprehensively on all dimensions including i) universal coverage, iii) consistent treated wastewater quality iv) seamless complaint and consumer management systems and v) achievement of cost recovery and collection efficiency targets.</p> <p>The Project will be implemented in the context of mainstreaming of accompanying reform initiatives including wider achievement of service levels, setting / achieving targets for cost recovery, rationalisation of user charges (while keeping costs for life-line supply for urban poor low and factoring affordability considerations) to enable sustainable, equitable waste-water management services to citizens of Chennai.</p>		
Implementation Strategy:		
<p>The implementation of this project will be preceded by rigorous project development and preparatory studies with strong focus on service level outcomes rather than just asset creation. The Project would be funded largely through Government grants (both from GoTN and Gol) and concessional loans / lines of credit. CMWSSB may also explore options for PPP approaches in sewerage treatment development and in operations & maintenance</p>		





8.4.4 Plugging outfalls and system improvements in core area

Name of the Project:		Location: Chennai Corporation
Plugging outfalls in covered areas of Chennai City		Areas: Existing Sewered areas
Investment: Rs. 500 Crore		Time Frame: 2016
Mode of Finance	Budgetary outlays and Loans	Implementing Agency: CMWSSB
Description		
<p>CMWSSB manages an extensive sewerage system covering a network of over 2677 km of sewer mains with over 6.11 lakh sewer connections. This Project aims to protect the waterways and water bodies from pollution caused by untreated sewage being let into them.</p> <p>All the water ways within Chennai city have been perambulated and 105, 183 and 49 (a total of 337) sewage outfalls have been identified in the Cooum river basin, the Buckingham canal and the Adyar river basin respectively. The project would help to plug all the 337 outlets to prevent untreated sewage from entering into the Chennai City Waterways and to treat this sewage before letting it out, at a cost of Rs.300 Crore.</p>		
Targeted Impact:		
<p>The project will help substantially plug point sources of pollution across the city leading to direct waste-water discharge into the water ways and will help in their sustainable clean-up. It will also be an important pre-requisite for the wider river restoration projects that are being envisaged by GoTN.</p>		
Implementation Strategy:		
<p>The Project would be funded largely through Government grants (both from GoTN and GoI) and concessional loans / lines of credit and would be implemented by CMWSSB.</p>		





8.4.5 Waste water reclamation Programme

Name of the Project: Waste-water reclamation		Location: Chennai Corporation
Investment: Rs. 750 Crore		Time Frame: 2020
Mode of Finance	Public Private Partnership	Implementing Agency: CMWSSB/SIPCOT
Description		
<p>There is growing pressure on available water resources given the burgeoning demand for water in Chennai city. GoTN recognises that it is critical to explore and tap all available sources of water including rain water, groundwater, surface sources, desalination and waste-water re-use. With the comprehensive expansion of sewerage networks across the city and availability of secondary treated water from existing and proposed sewage treatment plants, waste-water reclamation could potentially be a significant source for meeting water requirements especially for non-potable applications including industrial use.</p> <p>The CMWSSB would set up a 45 MLD Tertiary Treatment Plant in Koyambedu initially which will be used to meet the industrial water demands in the industrial areas in the vicinity of Chennai city. This would be followed by a scale up of the programme to achieve waste water re-use of 300 MLD.</p>		
Targeted Impact:		
<p>The initiative will be scaled up through expansion of capacity of waste-water reclamation and would be an important source of water for addressing non-potable water demand in the city. The project and the subsequent scaled up initiatives are expected to significantly reduce the stress on fresh water sources and would help in water conservation and augmentation efforts of GoTN.</p>		
Implementation Strategy:		
<p>The programme would be implemented through a series of appropriately structured Public Private Partnership (PPP) projects on a Design-Finance-Build-Operate and Transfer (DFBOT) model. The exact locations and capacities of the projects would be decided through a detailed preparatory feasibility study which will be undertaken concurrent with the implementation of the proposed 45 MLD Tertiary Treatment Plant at Koyambedu and the programme would be scaled to achieve a used water reclamation capacity of nearly 300 MLD</p>		





8.4.6 New Water Reservoir in Tiruvallur District

Name of the Project: New Water reservoir in Tiruvallur District		Location: Chennai Corporation
Investment: Rs. 500 Crore		Time Frame: 2016
Mode of Finance	GoTN Budgetary outlay	Implementing Agency: PWD
Description		
<p>In line with the goal set in TN Vision 2023 to double water storage capacity, GoTN intends to create a new water reservoir near Kannankottai and Thervaikandigai villages in Gummidipoondi Taluk of Tiruvallur District.</p> <p>The new reservoir is expected to have a water-spread area of nearly 1,100 acres and will be located 14 km from Uthukottai, the inter-state border of the Kandaleru-Poondi canal. The preliminary work for this scheme including efforts for land acquisition and preparatory works including initiation of Environment Assessment is underway. The reservoir is also planned to be linked with the Kandaleru Poondi canal, to divert Krishna water to the new reservoir.</p>		
Targeted Impact:		
<p>The project will help augment the water storage capacity to meet the needs of Chennai city and will help more efficiently store and use the water made available from the Telugu Ganga project allocation. The proposed reservoir will be able to store one thousand million cubic feet of water, which will add nearly 9% to the existing storage capacity of 11 TMC feet</p> <p>Further the new reservoir is also expected to help recharge groundwater in several villages, including Karadiputhur, Poovalambedu and Periapuliyur.</p>		
Implementation Strategy:		
<p>The Project would be funded largely through Government grants (both from GoTN and Gol) and concessional loans / lines of credit and would be implemented by PWD. The project is expected to be commissioned by 2016.</p>		





8.4.7 Strengthening and augmenting existing storage capacity

Name of the Project: Programme to strengthen and augment existing storage capacity		Location: Chennai and adjoining areas
Investment: Rs. 500 Crore		Time Frame: 2016
Mode of Finance	GoTN Budgetary outlay	Implementing Agency: PWD
Description		
<p>In line with the goal set in TN Vision 2023 to double water storage capacity, GoTN intends to augment capacity in the existing reservoirs in and around Chennai city</p> <p>As part of Phase I of this programme, water storage capacity in four tanks namely Cholavaram, Porur, Nemam and Ayanambakkam Tanks will be augmented from the current level of 1,474 mc ft to 2,042 mc ft, which will imply an incremental 570 mc ft and an amount of Rs. 130 crore has been allocated for the same.</p> <p>Similar initiatives will be undertaken in the other reservoirs to further expand storage capacity within the existing reservoirs.</p>		
Targeted Impact:		
<p>This programme will help augment the water storage capacity to meet the needs of Chennai city and will help more efficiently store water and enable recharge of ground water in nearby areas</p>		
Implementation Strategy:		
<p>The project would be funded largely through Government grants (both from GoTN and GoI) and concessional loans / lines of credit and would be implemented by PWD. The project is expected to be commissioned by 2016.</p>		





8.4.8 Desalination Plant

Name of the Project: Desalination Plan 400 MLD		Location: Chennai and adjoining areas
Investment: Rs. 2,000 Crore		Time Frame: 2020
Mode of Finance	Public Private Partnerships	Implementing Agency: CMWSSB
Description		
<p>Chennai has successfully initiated implementation of two large-scale 100 MLD desalination plants (one of which is already operational and the other one is in advanced stage of construction) at Minjur and Nemeli. Given the ambitious economic growth targets under TN Vision 2023, it is critical to undertake initiatives to achieve water security and in this regard CMWSSB proposes to undertake additions to desalination capacity to the extent of 400 MLD in the medium to long-term.</p>		
Targeted Impact:		
<p>Even though desalination is indeed an expensive option, given the context of extremely high dependence on non-perennial surface sources and also on rain fed reservoirs, it is critical for Chennai to look at desalination as a water security issue and as an insurance to guard itself from the vagaries of weather and climate change effects. Therefore, as a long-term initiative, GoTN intends to add another 400 MLD of desalination capacity during the Vision period.</p>		
Implementation Strategy:		
<p>The Project would be implemented on a Public Private Partnership. However, the project would be supported with significant viability gap grants from GoTN /Gol sources would be used to ensure financial sustainability of CMWSSB and affordable water services to citizens.</p>		





8.4.9 Creation / Restoration of Water Bodies

Name of the Project:		Location: Chennai and adjoining areas
Creation and Restoration of Water Bodies		
Investment: Rs. 500 Crore		Time Frame: 2020
Mode of Finance	Grants from GoTN / Gol and Loans. PPP approaches may also be explored to partly augment financing needs	Implementing Agency: CMWSSB / CoC and PWD
Description		
<p>Chennai's burgeoning population has put its water bodies under severe strain. While several lakes and water bodies have vanished due to construction and urbanisation, many others are polluted due to dumping of waste and waste water and have become pollution hotspots. Building on a preparatory study being already undertaken by TNUIFSL on water bodies, GoTN will implement a structured programme to identify and restore water bodies in the city.</p> <p>While the programme will be implemented following a detailed inventorisation of existing and potential locations for creating / restoring water bodies and a comprehensive implementation to rejuvenate at least 25 water bodies in Chennai by 2020, the programme implementation would be initiated with rejuvenation and clean-up efforts of some of the larger polluted water bodies in the city including Ambattur, Korattur and Madhavaram lakes.</p> <p>Apart from a comprehensive clean-up and restoration, the programme will also promote beautification and appropriate recreational activities around these water bodies (including jogging tracks, landscaping and water sports) to ensure that these water bodies also receive patronage and support from citizens to maintain them post restoration.</p>		
Targeted Impact:		
The project is expected to have significant positive environmental, hygiene and health impacts and also contribute to aesthetic aspects of Chennai city		
Implementation Strategy:		
The programme will be implemented to address the larger/more polluted water bodies on priority and would be implemented through budgetary outlays and with support from developmental agencies that are keen on promoting positive environmental projects such as KfW and JICA. The Programme will be rolled out in FY 2013. Three large water bodies would be restored by 2016 and about 20 water bodies in Chennai city would be created/ restored by 2020.		





8.4.10 Programme for Restoration of Chennai Water ways

Name of the Project: Restoration of Chennai Waterways		Location: Chennai and adjoining areas
Investment: Rs. 10,000 Crore		Time Frame: 2023
Mode of Finance	Grants from GoTN / Gol and Loans. PPP approaches may also be explored to partly augment financing needs	Implementing Agency: CoC, PWD, TNSCB, CMWSSB, DTP, Forest Department and Chennai River Restoration Trust
Description: <p>The condition of waterways namely, Cooum, Adyar, Kothalayar and Buckingham Canal stretches, in Chennai was reasonably healthy and pollution free till the middle of the last century. But, the current condition of these waterways is highly deplorable on account of severe pollution and reduced carrying capacities. This can be attributed to cumulative effects of more than a century of settlement and land use, and the resultant urban pressures on the waterways.</p> <p>The programme would focus on restoring and rehabilitating these four water ways of Chennai to improve their flushing capacity to discharge pollutants into the sea and to improve their carrying capacity during high floods and low flows. Achieving and sustaining positive impact from these strategies is contingent on the effectiveness of reducing point source pollution caused by sewage, storm water and solid waste which are being targeted through other complementary projects and programs.</p>		
Targeted Impact: <p>The project is expected to have significant positive environmental, hygiene and health impacts and also contribute to aesthetic aspects of Chennai city</p>		
Implementation strategy: <p>The Programme will be implemented to address the larger / more polluted water bodies on priority and would be implemented through budgetary outlays and with support from developmental agencies that are keen on promoting positive environmental projects such as KfW and JICA. The Programme will be rolled out in FY 2013.</p> <p>Given the long gestation nature of the programme and linkages with other complementary projects relating to solid waste, sewerage and storm drains, the Programme will be carried through the Vision Period and will target quick win initiatives to demonstrate visible and tangible improvements along the water ways from 2016 onwards.</p>		

The initial focus of this program would be reduce the point sources of pollution through the following initiatives:

1. A comprehensive rehabilitation and re-settlement program to remove encroachments along the water ways.
2. Complete elimination of dumping of Municipal Solid Waste along the water ways
3. Developing greenery and landscaping along the water ways corridor
4. Curbing pollution due to disposal of sewage and sullage into the water bodies by plugging point sources through a combination of connectivity to sewerage networks and setting up decentralised treatment facilities where sewerage networks cannot reach.



8.4.11 Remediation / closure of Perungudi and Kodungaiyur dumpyard

Name of the Project:		Location: Chennai
Remediation / closure of Perungudi / Kodungaiyur dumpyard		
Investment: Rs. 150 Crore		Time Frame: 2016
Mode of Finance	Grants from GoTN / Gol and Loans. PPP will be used to develop and implement project	Implementing Agency: CoC
Description:		
<p>The generation of municipal solid waste in Chennai City after its expansion has increased to 4,000 metric tonnes per day. To cope with this, the Corporation of Chennai is taking several new initiatives. One of the proposals is to undertake scientific closure / remediation of the existing dumping yards at Perungudi and Kodungaiyur and evaluate the possibility of setting up processing / landfill facilities at these sites.</p>		
Targeted Impact:		
<p>The project is expected to contribute to significant positive environment and hygiene impacts and when the landfill / processing projects are completed, will help in sustainable handling and management of waste.</p>		
Implementation strategy:		
<p>Expressions of Interest (EoIs) have been called for the three distinct components:</p> <ul style="list-style-type: none"> A) Setting up integrated SWM processing facilities B) Remediation and closure of Kodungaiyur and Perungudi C) Street cleaning of Municipal Solid waste and door-to-door collection, transportation to processing facilities in zones / divisions assigned by CoC in a phased manner. <p>The Bids are expected to be called for later this year and the project is expected to be completed by 2016.</p>		



8.4.12 Green-field Regional Landfill and Waste Processing Facility

Name of the Project: Greenfield Regional Landfill and Waste Processing Facility		Location: Chennai
Investment: Rs. 150 Crore		Time Frame: 2016
Mode of Finance	Grants from GoTN / Gol and Loans. PPP approaches would be explored for development and implementation	Implementing Agency: CoC
Description: The generation of municipal solid waste in Chennai City after its expansion has increased to 4,000 metric tonnes per day. To cope with this, the Corporation of Chennai is taking several new initiatives. With the filling up of Kodungaiyur and Perungudi sites, one of the proposals is to set up single / multiple greenfield waste-processing facilities and landfill sites to deal with this waste.		
Targeted Impact: The project is expected to contribute to significant positive environment and hygiene impacts and if landfill / processing is undertaken could facilitate sustainable handling and management of waste.		
Implementation strategy: 100 acres of land at Kuttambakkam and 67 acres of land at Minjur-Vallur have been identified as sites for putting up the new solid waste management facility and permission to use these lands is expected to be given to Corporation of Chennai shortly. This project will be implemented as part of the ongoing initiative of Chennai corporation under which Expressions of Interest (Eols) have been called for the three distinct components: <ul style="list-style-type: none"> a) Setting up integrated SWM processing facilities b) Remediation and closure of Kodungaiyur and Perungudi c) Street cleaning of municipal solid waste and door-to-door collection, transportation to processing facilities in zones / divisions assigned by CoC in a phased manner. The bids are expected to be called for later this year and the project is expected to be completed by 2014.		





8.4.13 Integrated Waste collection and transfer

Name of the Project:		Location: Chennai
Integrated Waste Collection and Transfer		
Investment: Rs. 200 Crore		Time Frame: 2016
Mode of Finance	Grants from GoTN / Gol and Loans. PPP will be used to develop and implement project	Implementing Agency: CoC
Description:		
<p>The generation of municipal solid waste in Chennai City after its expansion has increased to 4,000 metric tonnes per day. To cope with this, the Corporation of Chennai is taking several new initiatives. Chennai Corporation has tendered out waste collection and transfer in three zones to a private service provider. Though CoC is handling the waste collection and transfer in other zones on its own, it plans to progressively engage private service providers to undertake waste collection and transfer in other zones as well and in this regard has called for Expressions of Interest in this regard.</p>		
Targeted Impact:		
<p>The project is expected to contribute to significant positive environment and hygiene impact. When this is combined with landfill / processing, it will facilitate sustainable handling and management of waste.</p>		
Implementation strategy:		
<p>This project will be implemented as part of the ongoing initiative of Chennai corporation under which Expressions of Interest (EoIs) have been called for the three distinct components:</p> <ul style="list-style-type: none"> A) Setting up integrated SWM processing facilities B) Remediation and closure of Kodungaiyur and Perungudi C) Street cleaning of municipal solid waste and door-to-door collection, transportation to processing facilities in zones / divisions assigned by CoC in a phased manner. <p>The Bids are expected to be called for later this year and the project is expected to be completed by 2014</p>		





8.4.14 100% sanitised and open defecation free city

Name of the Project: 100% sanitised and open defecation free city		Location: Chennai
Investment: Rs. 300 Crore		Time Frame: 2016
Mode of Finance	Grants from GoTN / Gol and Loans. Complementary financing through PPPs, Community participation and CSR efforts will also be explored.	Implementing Agency: CoC
Description:		
<p>One of the key goals of TN Vision 2023 is to make cities in TN open defecation free. Census 2011 showed a 16% incidence of open defecation in urban areas in Tamil Nadu and GoTN is committed to eliminate this practice. This Programme will involve a series of efforts which will be initiated and implemented in a mission mode, complementary to other programs to enable waste-water management and universal sewerage access and would cover:-</p> <ul style="list-style-type: none"> • Identification and mapping of pollution and open defecation hotspots. • Comprehensive communication and awareness programs with community participation and involvement of all stakeholders to educate people and reinforce good sanitation habits • Development of individual toilets and community toilets in urban poor settlements • Structured programme to develop and maintain public toilets in commercial areas • ‘Closing the loop’ projects to address water supply, solid waste and waste-water management service gaps all of which contribute to poor hygiene. <p>CoC intends to erect 2000 nos of modern shell toilet units in a phased manner with user and environment friendly designs with water supply, connectivity to sewerage and power supply.</p>		
Targeted Impact:		
<p>The 100% sanitised cities programme will run complementary to other water-sanitation projects and will aim to make Chennai open-defecation free and 100% sanitised by 2016.</p>		
Implementation strategy:		
<p>The implementation of this programme will also be backed by review, articulation and implementation of a state sanitation strategy and development of standards for toilet construction, development and maintenance. Changes to building regulations will also be incorporated to implement minimum standards for provision of toilets in various types of buildings. The programme would be initiated in FY 2013 and with the objective of making Chennai open defecation free by 2016. The programme would be implemented with GoTN budgetary support. Partial financing in development and management of community / public toilets through private sector participation (BOT models), NGOs, CSR initiatives will also be explored.</p>		



8.4.15 World Class Arterial Roads Programme

Name of the Project:		Location: Chennai
World Class Arterial Roads Programme		
Investment: Rs. 3,750 Crore		Time Frame: 2020
Mode of Finance	Grants from GoTN / Gol and Loans. PPP approaches would be explored for development and implementation	Implementing Agency: CoC
Description:		
<p>Post expansion of its city limits, Chennai Corporation has nearly 369 km of arterial bus route roads. A very small portion of these roads are concrete roads. These arterial bus route roads carry very heavy traffic.</p> <p>This project will seek to transform these bus route roads into world class roads and would incorporate design standards and planning for developing these roads into a seamless transportation grid. The roads will incorporate features including road layout re-design for safety, and pedestrian movement (with focus on differently abled people), proper laning for streamlined vehicle movement, ducting for utilities (water, sewerage, telecom & electric cables), storm drains, grade-separators and underpasses where required, earmarked vendor spaces, greening and land-scaping, energy efficient lighting, modernized bus-bays, earmarked parking spaces, arrangements for segregated waste collection and transfer, public conveniences and intelligent signalling.</p>		
Targeted Impact:		
<p>Apart from providing an international look to the city, the initiative is expected to significantly reduce accidents and promote pedestrianisation. By providing comprehensive and integrated ducting for utilities, the initiative will also minimise the need to dig the roads for repair. The initiative is also expected to contribute to greening of the city by facilitating minimisation of traffic pile-ups and through landscaping and creation of green spaces on the arterial corridors.</p> <p>The implementation would be undertaken in the context of wide-ranging reform and regulation of para-transit systems, regulated spaces for posters and hoardings, earmarked spaces and tariffs for organised parking to ensure sustainability of actions undertaken. The project would also make the city roads 100% sanitised and litter free.</p>		
Implementation strategy:		
<p>The first phase of implementation covering about 40 km of arterial roads would be completed by 2016. The scale-up of the project would be completed in a phased manner by 2020. The project will build on the studies undertaken by various agencies and would also implement various components identified under the Comprehensive Traffic and Transportation Study undertaken by CMDA.</p> <p>While the project would be funded largely through GoTN outlays and concessional loans/lines of credit, PPP approaches (covering a combination of performance contracts and annuity / VGF based approaches) would be adopted to ensure that the road assets created under this initiative are maintained to the standards envisaged. The project would also aim to monetize revenues from public spaces.</p>		



8.4.16 Integrated Urban Road Development Programme

Name of the Project:		Location: Chennai
Integrated Urban Road Development Programme		
Investment: Rs. 10,000 Crore		Time Frame: 2020
Mode of Finance	Grants from GoTN / Gol and Loans. PPP approaches would be explored for development and implementation	Implementing Agency: CoC
Description:		
<p>Post expansion of its city limits, Chennai Corporation has nearly 5563 km of arterial interior roads. This project will seek to transform these interior roads to world class standards and would incorporate design standards and planning for developing these roads. The roads will incorporate features including road layout re-design for safety, and pedestrian movement (with focus on differently abled people), proper laning for streamlined vehicle movement, ducting for utilities (water, sewerage, telecom & electric cables), storm drains, earmarked vendor spaces, avenue trees, greening and land-scaping, energy efficient lighting, earmarked parking spaces, and intelligent signalling.</p>		
Targeted Impact:		
<p>Apart from providing an international look to the city, the initiative is expected to significantly reduce accidents and promote pedestrianisation and cycling. By providing comprehensive and integrated ducting for utilities, the initiative will also minimise the need to dig the roads for repair.</p> <p>The initiative is also expected to contribute to greening of the city by facilitating minimisation of traffic pile-ups and through landscaping and creation of green spaces. The implementation would be undertaken in the context of wide-ranging reform and regulation of para-transit systems, regulated spaces for posters and hoardings, earmarked spaces and tariffs for organised parking to ensure sustainability of actions undertaken.</p>		
Implementation strategy:		
<p>The Project would be completed in a phased manner by 2020. While the project would be funded largely through GoTN outlays and concessional loans/lines of credit, PPP approaches (covering a combination of performance contracts and annuity / VGF based approaches) would be adopted to ensure that the road assets created under this initiative are maintained to the standards envisaged. The project would also aim to monetize revenues from public spaces.</p>		





8.4.17 Expansion of Mass Transit Public Transport - I

Name of the Project: Expansion of Mass Transit Public transport - I		Location: Chennai
Investment: Rs. 16,000 Crore		Time Frame: 2017
Mode of Finance	PPP	Implementing Agency: Transport Department
Description: To ease the traffic congestion in Chennai Metropolitan Area, Government decided to introduce Mass Rapid Transit Rail System through metro / mono-rail systems Four corridors have been identified namely (i) Vandalur to Velachery (via) Perungalathur, Irumpuliyur (East), Tambaram (East), Camp Road, Kamaraj Nagar, Sembakkam, Gowriwakkam, Medawakkam, Pallikaranai, Narayanapuram, Kamatchi Hospital, Madippakkam Junction for a distance of 23 Kilometres (ii) Poonamallee to Kathipara Junction (via) Kumanan Chavadi, Karaiyan Chavadi, Kattuppakkam, Ayyappanthangal, Ramachandra Hospital, Porur, Mugaliwakkam Junction, Ramavaram, Nandambakkam Butt Road for a distance of 16 Kilometres (iii) Poonamallee to Vadapalani Junction (via) Kumananchavadi, Karaiyan Chavadi, Saveetha Dental College, Velappan Chavadi, Madhuravoyal, Alappakkam, Valasarawakkam, Virugambakkam for a distance of 18 Kilometres and (iv) Vandalur to Puzhal (via) Perungalathur, Irumpuliyur, Tambaram, MEPZ, Chromepet, Pallavaram, Pammal, Anagaputtur, Andalkuppam, Kunrathur, Kollacherry, Maangadu, Kumanan Chavadi, Karaiyan Chavadi, Melpakkam, Paruthippattu, Govardhanagiri, Avadi Market, Avadi, Thirumullaivoyal, Ambattur (OT), Pudur, Kallikuppam, Soorappet, Puzhal, Kathirvedu for distance of 54 Kilometres.		
Targeted Impact: The project will complement the on-going Metro rail implementation and would provide a world-class public transit system for improved connectivity to the extended areas and fast growing areas of Chennai city.		
Implementation strategy: The Project will be implemented for the entire distance in a restructured form. The work will be taken up initially in the first 3 corridors by 2017 and subsequently, the work will be taken up in the fourth corridor by 2020. The Project is to be implemented under DBFOT basis (Design, Build, Fund, Operate and Transfer) on PPP basis. Multinational Companies have participated in this tender. The bidding process is under progress.		





8.4.18 Expansion of Mass Transit Public Transport - II

Name of the Project: Expansion of Mass Transit Public transport - II		Location: Chennai
Investment: Rs. 15,000 Crore		Time Frame: 2023
Mode of Finance	GoTN/Gol grants and concessional Loans. PPP approaches will also be explored	Implementing Agency: Transport Department/ CUMTA / CMRL
Description: The objective of this programme would be to prepare and implement a plan for comprehensive coverage of Chennai city and its extended areas with modern public transit systems. The programme will build on the on-going rail transit projects that are under construction/planning and will serve to expand the reach of these networks to the hitherto unserved parts of the city. The choice of the public transit system (metro-rail vs. mono-rail vs. BRTS) would be evaluated through a detailed study and appropriate systems would be implemented taking into account synergies with on-going and proposed mass transit system initiatives.		
Targeted Impact: The Programme will complement the on-going /planned projects and would help world-class public transit system and seamless connectivity among different regions of Chennai city.		
Implementation strategy: The implementation strategy would be finalized following a rigorous preparatory study that would be carried out along the arterial corridors and fast developing localities of the extended areas of Chennai city. The project would be implemented in phases following ongoing and proposed mass transit system by 2023. A combination of Government funding and PPP approaches would be explored for implementing the project.		





8.4.19 Programme - Organised Parking

Name of the Project: Organised Parking Programme		Location: Chennai
Investment: Rs. 1,000 Crore		Time Frame: 2020
Mode of Finance	GoTN/Gol grants and concessional loans. PPP approaches will also be explored	Implementing Agency: CoC
Description: <p>To be implemented in conjunction with the Arterial Road development programme and the Integrated Urban Roads Development Project, this Project will build on the recommendations of various studies done for creating organized parking spaces in Chennai (including the CMDA CTTS study and TNUISL led multi-level car parking studies and T.Nagar re-development plan) etc. to comprehensively plan and implement a series of multi-level car parking and street level car parking facilities.</p> <p>The project would provide infrastructure and earmarked parking spaces for different categories of vehicles (two-wheeler, four-wheeler, para-transit vehicles like cabs and autos) with focus on streamlining parking in Chennai city through a series of infrastructural and regulatory interventions.</p>		
Targeted Impact: <p>The Project will help regulate and earmark parking space and help eliminate haphazard parking and availability of road space for freer vehicle movement. The programme would also be undertaken in the context of underlying reform covering strict enforcement of no-parking zones, regulated parking areas and transparent tariffs and fees for parking in different areas in the city.</p>		
Implementation strategy: <p>The project would be implemented in conjunction with other road development and public transit development programs / projects to ensure synchrony. PPPs would be explored for implementation of select components of the project including multi-level car parking and outsourcing of parking fee automation and collection.</p> <p>Priority projects identified under the earlier studies would be taken up for implementation before 2017 and the programme would be implemented in a phased manner by 2020 following a review of the recommendations of CTTS and preparation of detailed feasibility report / DPRs for these projects.</p>		





8.4.20 Programme - City Bus Terminals

Name of the Project: City Bus Terminals modernisation programme		Location: Chennai
Investment: Rs. 250 Crore		Time Frame: 2020
Mode of Finance	GoTN/Gol grants and concessional Loans. PPP approaches will also be explored	Implementing Agency: CoC, MTC and Transport Department
Description: The Metropolitan Transport Corporation has 25 bus depots and had a fleet of more than 3200 buses as of March 2012. Of these, T.Nagar and Tiruvanmiyur bus depots have already been identified for modernization through PPP route. In addition 16 new bus depots have been planned. This programme seeks to comprehensively address the present and future bus transport requirements of the city and shall seek to expand and upgrade bus depot capacities (both existing and new) to meet these requirements.		
Targeted Impact: The programme shall enable increase in terminal/depot requirements commensurate with the requirements of the expansion in bus fleet. Further the programme would also help modernize the bus terminus facilities with better citizen amenities and re-align traffic movement within and adjoining the bus depots/terminals.		
Implementation strategy: The Programme would be implemented with a combination of budgetary outlays of Government of Tamil Nadu and through Public Private Partnerships depending on locations / viability of specific projects. The programme would be crystallised by FY 2013. Phase I roll-out would be completed by 2016 and Phase II roll-out by 2020.		



8.4.21 Programme - Inter-city Bus Terminals

Name of the Project: Inter-city Bus Terminals		Location: Chennai
Investment: Rs. 250 Crore		Time Frame: 2016
Mode of Finance	GoTN/Gol grants and concessional Loans. PPP approaches will also be explored	Implementing Agency: CoC, MTC and Transport
Description: <p>During the Budget session for the year 2011-12 it was announced that two Satellite Intercity Bus Terminals would be developed, one at Velachery in a site near the MRTS station measuring about 12 acres and the other at Madhavaram in a site within MBTT measuring 8 acres, in order to relieve the traffic congestion generated within the Chennai Mofussil Bus Terminal (CMBT) at Koyambedu. It is now proposed to add one more terminal at the Southern end of the city at Vandalur in an area of 50 acres. Preparation of Detailed Feasibility Report and Detailed Project Report is in progress for the satellite bus terminal at Madhavaram. The programme will build on these proposals and seek to develop and implement the three satellite bus terminals for inter-city bus traffic movement</p>		
Targeted Impact: <p>The programme shall enable increase in terminal/depot requirements commensurate with the requirements of the expansion in bus fleet and transportation requirements. Further the programme would also help modernize the bus terminus facilities with better citizen amenities and re-align traffic movement within and adjoining the bus depots/terminals</p>		
Implementation strategy: <p>The programme would be done on a combination of budgetary outlays of Government of Tamil Nadu and through Public Private Partnerships depending on locations / viability of specific projects.</p> <p>Apart from Madhavaram, one more location will be crystallised by FY 2013. The two satellite bus terminal projects will be completed by FY 2016.</p>		



8.4.22 Slum-free City Programme for Chennai

Name of the Project: Slum-free city programme		Location: Chennai
Investment: Rs. 25,000 Crore		Time Frame: 2023
Mode of Finance	GoTN/Gol grants and concessional Loans. PPP approaches will also be explored	Implementing Agency: TNSCB and H&UD Department
Description:		
<p>Chennai's City Development Plan prepared in 2009 quoting a TNSCB pre-feasibility study in 2006 estimates that there are nearly 475,000 people living in slums on Government land (objectionable and non-objectionable). In addition, another 600,000 people are estimated to live in slums on private land. Overall 200,000 to 250,000 families are estimated to live in slum areas.</p> <p>GoTN has enunciated three strategies to deal with and rehabilitate people living in slum areas namely, a) in-situ site development, b) tenement schemes and c) rehabilitation and re-settlement. It is programmed to make the cities / towns slum free under the Rajiv Awas Yojana envisaging the holistic development of urban slums within a time frame. Storeyed tenement houses, developed plots with houses and land tenure for all the slum families in Chennai are proposed.</p> <p>This programme will be implemented under the slum free cities programs of Rajiv Awas Yojana by utilizing 50% grant assistance from Government of India, 40% grant assistance from State Government and the remaining 10% as beneficiary contribution. During the first phase of this programme, 1 lakh houses at a cost of Rs.7500 Crore will be constructed during 2012-16.</p> <p>As a prelude, socio economic survey of the slums in 9 cities including Chennai is in progress and will be completed during this year. Soon after the completion of this survey, a slum free city action plan for each city will be prepared and sent to Government of India. After getting the sanction from the Government of India the programme of construction of 1 lakh tenements /houses in urban areas of Tamil Nadu will commence.</p>		
Targeted Impact:		
The programme shall seek to realize the goal of making cities slum-free that is enunciated in TN Vision 2023.		
Implementation strategy:		
The programme would be done on a combination of budgetary outlays of Government of Tamil Nadu and through Public Private Partnerships depending on locations / viability of specific projects		



8.4.23 Area Development Plans for select locations / areas in City

Name of the Project:		Location: Chennai
Area Development Plans for select locations		
Investment: Rs. 400 Crore		Time Frame: 2020
Mode of Finance	GoTN/Gol grants and concessional Loans. PPP approaches will also be explored	Implementing Agency: Corporation of Chennai
Description:		
<p>Recently, a detailed study for integrated re-development of T.Nagar has been completed by GoTN and TNUIFSL. The study proposes 10 key projects with the objective of increasing space for pedestrian circulation, create space for vendors and decrease congestion on roads. Projects proposed include pedestrianisation in select areas, elevated skywalks, dedicated hawker zones, re-design of Panagal Park, integrated traffic signalling and car parks and improvement in road and other civic infrastructure. The proposals made under this study are under examination.</p> <p>Given that Chennai is among the oldest and most densely populated cities, several areas in the core parts of the city would require a very specific and comprehensive review of development plans to ensure that local and contextual heritage of some of these places are preserved while enabling better movement of people and vehicles in these areas.</p> <p>This programme will seek to identify and implement re development and improvement initiatives required in four or five areas within Chennai city while ensuring that the distinctiveness and local heritage of these areas are preserved and protected.</p>		
Targeted Impact:		
<p>The programme seeks to bring a bottom-up perspective to city planning through a consultative approach to developing older parts of the city, idea being to ensure that the heritage and distinctiveness of these parts of the city are preserved, even as the legacy problems relating to infrastructure, transportation and parking are addressed.</p>		
Implementation strategy:		
<p>The areas to be taken up under this programme will be identified by FY 2013 and Detailed Project Reports for each of the areas selected will be prepared by December 2013. The Projects will be taken up for implementation in a phased manner till FY 2020.</p>		



8.4.24 Efficient Street Lighting

Name of the Project: Efficient Street Lighting Programme		Location: Chennai
Investment: Rs. 250 Crore		Time Frame: 2016
Mode of Finance	GoTN/Gol grants and concessional Loans. PPP-ESCO models will be explored	Implementing Agency: CoC and TANGEDCO
Description:		
<p>Provision of street lighting for public safety is an important responsibility and function of ULBs in India. The Bureau of Energy Efficiency, based on Central Electricity Authority statistics, has estimated gross energy consumption for public lighting to be 6,131 million kWh in India for the year 2007-2008. Quite often, street lighting is poorly designed and inadequately maintained by ULBs, and uses obsolete lighting technology. Lighting can account for 10 to 38% of the total energy bill in typical cities worldwide (NYCGP 2009).</p> <p>Chennai Corporation is estimated to have more than 2.2 lakh streetlights of which the extended areas have only about 88,000 street lights. Chennai Corporation has already been initiating several measures to bring down the electricity costs while improving coverage of street lighting in all parts of the city.</p> <p>This programme would seek to undertake a comprehensive study of the lighting requirements of the city (after taking into account the new road proposals including the Integrated Urban Roads programme and the Arterial Roads Programme) and shall implement a road map to phase out all old lighting with aesthetic energy efficient lighting in all parts of the city. A smart street lighting system to monitor defects in streetlights from a control room and take early remedial measures would also be implemented as part of this programme.</p>		
Targeted Impact:		
<p>The first phase of this programme under implementation by Chennai Corporation is expected to bring down its level of energy costs by 25 per cent. Coverage of the entire city in this manner would be in keeping with Chennai Corporation objective to emerge among the cleanest and greenest cities in India.</p>		
Implementation strategy:		
<p>Components of this programme are already under implementation. As part of this initiative, Chennai Corporation will undertake a detailed zone wise coverage and enumeration of streetlights and put out a planned phasing in of energy efficient street lighting by FY 2016.</p> <p>Chennai Corporation has commenced the replacement of sodium vapour lamp street light fittings with LED street fittings. Following a pilot project of providing 101 numbers of 40 watt LED street light fittings under BOT, it is proposed to provide 33,000 LED street light fittings during 2013-14, 66,000 fittings in 2014-15 and 1,21,000 fittings during 2013-14.</p>		



8.4.25 Park Development and Improvement Programme

Name of the Project: Park Development and Improvement Programme		Location: Chennai
Investment: Rs. 250 Crore		Time Frame: 2023
Mode of Finance	GoTN/Gol grants and concessional Loans. PPP-ESCO models will be explored	Implementing Agency: CoC
Description: As against WHO norm of 9 sq.mtr per capita, reported per capita green space in Chennai is low, at 0.41 sq. mtr. which is also less than most other large cities in India. While the Chennai Corporation has over 260 parks and has announced plans to create another 100 parks in extended areas of the city, this still falls short of the international standards that are being aspired for. This programme shall seek to map the existing parks and land available to improve green cover over Chennai city in a structured and time bound manner to increase the per capita green space available in the city to comparable national and international benchmarks.		
Targeted Impact: The programme is expected to substantially improve green cover over Chennai city and will target to increase its green cover from current levels		
Implementation strategy: The programme will build on the recent initiative of Chennai Corporation to develop 100 new parks for extended areas and rejuvenation of 122 existing parks that is currently under progress. As part of this programme, Chennai Corporation and CMDA will undertake a comprehensive mapping of locations of existing parks and available freehold locations (under OSR and other locations) available for park development and set targets to improve green cover in the city given international standards, local population growth and required green cover and availability of land for development. Based on this, an implementation roadmap will be prepared for creation and development of parks in specific locations. The ongoing initiative of development of 100 parks will be completed by FY 2015. While the cost of land and development of the parks would be undertaken by Chennai Corporation, various CSR and PPP models would be explored for sustainable maintenance of the same.		





8.4.26 Development of Corporation Schools

Name of the Project: Corporation Schools - Facilities modernisation & management programme		Location: Chennai
Investment: Rs. 150 Crore		Time Frame: 2023
Mode of Finance	GoTN/Gol grants and concessional Loans. Outsourcing of facilities management through private sector participation will be considered	Implementing Agency: CoC
Description: The Chennai corporation maintains 286 schools of its own and another 336 Government schools. This programme will seek to improve the infrastructure and facilities in these schools to best in class standards. The objective would be to upgrade and modernize facilities at schools maintained by the Corporation appropriate with the category of the school (primary, secondary, high school etc.).		
Targeted Impact: The objective here would be to map and benchmark facilities in the schools covering infrastructure (namely, building, class room infrastructure, dining hall etc.), academic facilities (computer centre, library etc.), recreation and physical activity (sports equipment, playground etc) and sanitation (bathrooms, toilets etc.) and to undertake a systematic upgradation of the schools on these indicators. The focus of this programme is on the infrastructure and facilities		
Implementation strategy: A comprehensive set of indicators and targets would be set to improve infrastructure facilities and service levels in schools and a comprehensive zero-base mapping of facilities in schools managed by Chennai Corporation would be undertaken to identify the specific gaps vis-à-vis these indicators. Based on this assessment, a comprehensive and prioritized development programme would be rolled out in a phased manner to address the infrastructure and facility gaps and to maintain them. The programme would be implemented in a phased manner by 2020.		





B. World Class Cities Programme

8.4.27 24x7 ready Water Supply

Name of the Project: 24x7 ready Water Supply		Scope: Cities covered under the World-Class cities Programme
Investment: Rs. 5,000 Crore		Time Frame: 2017
Mode of Finance	Grants from GoTN / GoI and Loans. Performance based PPP contracting may also be explored.	Implementing Agency: CMA / TWAD / ULBs
Description: This project envisages provision of universal, equitable, affordable piped water supply (progressively moving to pressurised continuous supply) in the cities selected under the World Class Cities programme. This programme aims to cover comprehensively preparation and implementation of equitable and universal provision of piped water supply in all these areas.		
Targeted Impact: The project will enable universal, affordable, consistent and equitable piped water supply with best-in-class services levels in all areas of cities covered under the World Class cities programme and progressively realise the goal of continuous pressurised water supply as outlined in TN Vision 2023. The project will deliver service level outcomes comprehensively on all dimensions including i) universal coverage, ii) continuous, pressurised supply, iii) consistent water quality at door step, iv) seamless complaint and consumer management systems and v) achievement of cost recovery and collection efficiency targets The project will be implemented in the context of mainstreaming of accompanying reform initiatives including wider dissemination of service levels, reduction in non-revenue water (NRW), setting / achieving targets for cost recovery, rationalisation of user charges (while keeping costs for life-line supply for urban poor low and factoring affordability considerations) to enable sustainable, equitable water supply with improved service levels.		
Implementation strategy: The implementation of this project will be preceded by rigorous project development and preparatory studies which would be completed by FY 2013 and implementation will be completed by 2017. The project would be funded largely through Government grants (both from GoTN and GoI) and concessional loans lines of credit. TWAD and CMA would explore options for Performance Based Contracting and PPP approaches to usher in best-in-class utility management and operating practices.		





8.4.28 100% Sewerage Coverage

Name of the Project: 100% Sewerage Programme		Scope: Cities covered under the World-Class cities Programme
Investment: Rs. 7,000 Crore		Time Frame: 2013 - 2017
Mode of Finance	Grants from GoTN / GoI and Loans	Implementing Agency: CMA / TWAD / ULBs
Project Description and status:		
<p>This programme envisages provision of sewerage network and connections in all the areas of cities selected under the World Class Cities Programme.</p>		
Targeted Impact:		
<p>The programme will enable universal, affordable and reliable sewerage systems with best-in-class services levels across all the selected cities.</p> <p>The programme will deliver service level outcomes comprehensively on all dimensions including i) universal coverage, iii) consistent treated wastewater quality iv) seamless complaint and consumer management systems and v) achievement of cost recovery and collection efficiency targets</p> <p>The programme will be implemented in the context of mainstreaming of accompanying reform initiatives including wider achievement of service levels, setting / achieving targets for cost recovery, rationalisation of user charges (while keeping costs for life-line supply for urban poor low and factoring affordability considerations) to enable sustainable, equitable waste-water management services in the cities covered in this programme</p>		
Implementation strategy:		
<p>The implementation of this project will be preceded by rigorous project development phase covering capture of baseline service levels along with preparation of Detailed Project Reports with focus on service level outcomes rather than just asset creation.</p> <p>The preparatory work in terms of Detailed Project Reports would be completed by December 2013 and the Programme would be completed by FY 2017.</p> <p>The programme would be funded largely through Government grants (both from GoTN and GoI) and concessional loans / lines of credit. CMA and TWAD may also explore options for PPP approaches in development and in Operations & Maintenance of Sewage Treatment Plants.</p>		



8.4.29 Strengthening and Augmenting Water Storage Capacity

Name of the Project: Programme to strengthen /augment water storage capacity		Scope: Cities covered under the World-Class cities Programme
Investment: Rs. 1,000 Crore		Time Frame: 2020
Mode of Finance	GoTN Budgetary outlay	Implementing Agency: PWD
Description: In line with the goal set in TN Vision 2023 to double water storage capacity, GoTN intends to augment capacity in the existing reservoirs in the cities covered under the world class cities programme on the lines of the projects being taken up in Chennai.		
Targeted Impact: This programme will help augment the water storage capacity to meet the needs of all the cities covered under this programme and will help more efficiently store water and enable recharge of ground water in nearby areas.		
Implementation strategy: The projects would be funded largely through Government grants (both from GoTN and GoI) and concessional loans / lines of credit and would be implemented by PWD. The project is expected to be commissioned by 2020.		





8.4.30 Creation / Restoration of Water Bodies in each City

Name of the Project: Creation and Restoration of Water Bodies		Scope: Cities covered under the World-Class cities Programme
Investment: Rs. 500 Crore		Time Frame: 2020
Mode of Finance	Grants from GoTN / Gol and Loans.	Implementing Agency: CMWSSB / CoC and PWD
Description: <p>The rapid urbanisation in the larger urban agglomerations in Tamil Nadu has put its water bodies under severe strain. While several lakes and water bodies have vanished due to construction and urbanisation, many others are polluted due to dumping of waste and waste water and have become pollution hotspots.</p> <p>GoTN will implement a structured programme to identify and restore water bodies in the city. The programme will be implemented following a detailed inventorisation of existing and potential locations for creating / restoring water bodies and a comprehensive implementation to rejuvenate at least 100 water bodies in the cities (other than Chennai) selected under the World Class cities programme.</p> <p>Apart from a comprehensive clean-up and restoration, the programme will also promote beautification and appropriate recreational activities around these water bodies (including jogging tracks, landscaping and water sports) to ensure that these water bodies also receive patronage and support from citizens to maintain them post restoration.</p>		
Targeted Impact: <p>The programme is expected to have significant positive environmental, hygiene and health impacts and also contribute to aesthetic aspects of the cities covered.</p>		
Implementation strategy: <p>The programme will be implemented to address the larger / more polluted water bodies on priority and would be implemented through budgetary outlays and with support from developmental agencies that are keen on promoting positive environmental projects such as KfW and JICA.</p> <p>The programme will be rolled out in FY 2013. 30 large water bodies would be restored by 2016 and about 100 water bodies would be created / restored by 2020.</p>		





8.4.31 Desalination Plant

Name of the Project: Desalination Plan 200 MLD		Location: Tuticorin and adjoining areas
Investment: Rs. 1,000 Crore		Time Frame: 2020
Mode of Finance	Public Private Partnerships	Implementing Agency: TWAD Board/ CMWSSB
Description: Chennai has successfully implemented two large-scale 100 MLD desalination plants, both of which are already operational at Minjur and Nemeli. Given the ambitious economic growth targets under TN Vision 2023, it is critical to undertake initiatives to achieve water security and in this regard, The Government proposes to undertake desalination projects in the Tuticorin area where water is scarce and has a large industrial requirement.		
Targeted Impact: Even though desalination is an expensive option, given the context of extremely high dependence on non-perennial surface sources and also on rain fed reservoirs, it is critical for Tamil Nadu to look at desalination as a water security issue and as an insurance to guard itself from the vagaries of weather and climate change effects. Therefore, as a long-term initiative, GoTN intends to add 200 MLD of desalination capacity during the Vision period in the Tuticorin region.		
Implementation strategy: The project would be implemented on a Public Private Partnership. However, the project would be supported with significant viability gap grants from GoTN /GoI sources and would be used to ensure financial sustainability of TWAD Board and the local municipal corporations and affordable water services to citizens.		





8.4.32 Waste-water Reclamation Programme

Name of the Project: Waste-water reclamation		Scope: Cities covered under the World-Class cities Programme
Investment: Rs. 500 Crore		Time Frame: 2023
Mode of Finance	Public Private Partnerships	Implementing Agency: TWAD, TWIC and ULBs
Description:		
<p>There is growing pressure on available water resources given the burgeoning demand for water in Tamil Nadu. GoTN recognises that it is critical to explore and tap all available sources of water including rain water, groundwater, surface sources, desalination and waste-water re-use.</p> <p>With the comprehensive expansion of sewerage networks across the city and availability of secondary treated water from the existing and proposed sewage treatment plants, waste-water reclamation could potentially be a significant source for meeting water requirements especially non-potable applications including industrial use.</p>		
Targeted Impact:		
<p>The initiative will be scaled up through expansion of capacity of waste-water reclamation and would be an important source of water for addressing non-potable water demand in the city. The project and the subsequent scaled up initiatives are expected to significantly reduce the stress on fresh water sources and would help in water conservation and augmentation efforts of GoTN.</p>		
Implementation strategy:		
<p>The programme would be implemented through a series of appropriately structured Public Private Partnership (PPP) projects on a Design-Finance-Build-Operate and Transfer (DFBOT) model. The exact locations and capacities of the projects would be decided through a detailed preparatory feasibility studies by TWAD, TWIC and CMA.</p>		





8.4.33 100% Sanitised And Open Defecation Free Cities

Name of the Project: 100% Sanitised and Open Defecation Free Cities		Scope: Cities covered under the World-Class cities Programme
Investment: Rs. 250 Crore		Time Frame: 2016
Mode of Finance	Grants from GoTN / Gol and Loans. Complementary financing through PPPs, Community participation and CSR efforts will also be explored.	Implementing Agency: CMA / ULBs
Description: <p>One of the key goals of TN Vision 2023 is to make cities in TN open defecation free. Census 2011 showed a 16% incidence of open defecation in urban areas in Tamil Nadu and GoTN is committed to eliminate this practice. This programme will involve a series of efforts which will be initiated and implemented on a mission mode and complementary to other programs to enable waste-water management and universal sewerage access and would cover</p> <ul style="list-style-type: none"> • Identification and mapping of pollution and open defecation hotspots. • Comprehensive communication and awareness programs with community participation and involvement of all stakeholders to educate people and reinforce good sanitation habits • Development of individual toilets and community toilets in urban poor settlements • Structured programme to develop and maintain public toilets in commercial areas • 'Closing the loop' projects to address water supply, solid waste and waste-water management service gaps all of which contribute to poor hygiene 		
Targeted Impact: <p>GoTN is committed to eliminate Open Defecation on a war footing and on a mission mode. The 100% sanitised cities programme will run complementary to other water-sanitation projects and will aim to make urban Tamil Nadu open-defecation free and 100% sanitised by 2016.</p>		
Implementation strategy: <p>The implementation of this programme will also be backed by review, articulation and implementation of a state sanitation strategy and development of standards for toilet construction, development and maintenance. Changes to building regulations will also be incorporated to implement minimum standards for provision of toilets in various types of buildings. The programme would be initiated in FY 2013 and will run through the Vision Period with the objective of making urban areas in TN Open-Defecation Free by 2016. The programme would be implemented with GoTN budgetary outlay. Partial financing in development and management of community / public toilets through private, NGOs, CSR initiatives will also be explored.</p>		



8.4.34 100% sanitised - Clean and Garbage Free Cities

Name of the Project: 100% Sanitised – Clean and Garbage Free cities		Scope: Cities covered under the World-Class cities Programme
Investment: Rs. 5,000 Crore		Time Frame: 2017
Mode of Finance	Grants from GoTN / Gol and Loans. Complementary financing through PPPs, Community participation and CSR efforts will also be explored.	Implementing Agency: CMA/ULBs
Description:		
<p>Tamil Nadu has traditionally been a pioneer in Solid Waste Management in the 1990s when Chennai Corporation was the first large municipal corporation to implement PPP for SWM and cities like Pammal and Namakkal achieving 100% door-to-door collection and source segregation. However, efforts relating to processing and safe disposal of waste have been negligible. While there have been some positive developments such as development of integrated SWM in cities like Coimbatore and collection efforts have improved in most ULBs, compliance to SWM Rule 2000 laid down by Hon'ble Supreme Court is yet to be fully achieved. Given the pollution and environmental implications and potential to show transformational changes in a short while (SWM requires least capital investment per capita among urban services to improve service levels), there is a need for a significant push in terms of implementation of initiatives during the 12th Five Year Plan.</p> <p>This programme seeks to review and initiate planned and systematic investment to improve service levels in SWM and achieve the following:</p> <ul style="list-style-type: none"> • Compliance with SWM Rules 2000 in all urban areas in the state • Implementation of door-to-door collection and source segregation • Regional approach to creation and operationalisation of waste processing and landfill facilities. • Mandating localized bio-degradable waste processing in existing and new apartment complexes as part of building guidelines and rules in larger Urban Agglomerations <p>In addition, GoTN would develop and implement an active Information, Education and Communication (IEC) strategy covering a combination of i) A state level mass media campaign for adoption of source segregation/ door-to-door collection, decentralized composting and reduce-re-use-recycle principles and b) Support to local campaigns at the ULB level that involves working through activation of ward level committees and residents involvement.</p>		
Targeted Impact:		
The project is expected to contribute to significant positive environment and hygiene impacts and when the landfill / processing projects are completed will help in sustainable handling and management of waste.		
Implementation strategy:		
<p>The programme will be taken on mission mode with identification of land for creation of land-fill / processing sites on priority. The Commissionerate of Municipal Administration has initiated steps to create 6 regional landfill sites and processing facilities. The programme will be rolled out with initiation of a rigorous preparatory phase (during FY 2013) with implementation followed immediately thereafter.</p> <p>A combination of GoTN /Gol grants, concession loans/line of credit and PPPs would be used to finance the programme.</p>		



8.4.35 Integrated Urban Road Development Programme

Name of the Project: Integrated Urban Road Development Programme		Scope: Cities covered under the World-Class cities Programme
Investment: Rs. 10,000 Crore		Time Frame: 2023
Mode of Finance	Implementing Agency: CMA/ULBs	Implementing Agency: CoC

Description:

The total length of roads in ULBs has increased to 21,282 Kms. This includes 4,350 Kms of CC roads, 13,207 Kms of BT roads, 1,266 Kms of WBM roads, 2,344 Kms of earthen roads and 115 Kms of other type of roads like cut-stone, pavement, paver block etc.

This project will seek to transform these roads in the selected cities to world class standards and would incorporate design standards and planning for developing these roads. The roads will incorporate features including road layout re-design for safety, and pedestrian movement (with focus on differently abled people), proper laning for streamlined vehicle movement, ducting for utilities (water, sewerage, telecom & electric cables), storm drains, grade-separators and underpasses where required, earmarked vendor spaces, greening and land-scaping, energy efficient lighting, modernized bus-bays, earmarked parking spaces, arrangements for segregated waste collection and transfer, public conveniences and intelligent signalling

Targeted Impact:

Apart from providing an international look to the city, the initiative is expected to significantly reduce accidents and promote pedestrianisation and cycling. By providing comprehensive and integrated ducting for utilities, the initiative will also minimise the need to dig the roads for repair.

The initiative is also expected to contribute to greening of the city by facilitating minimisation of traffic pile-ups and through landscaping and creation of green spaces. The implementation would be undertaken in the context of wide-ranging reform and regulation of para-transit systems, regulated spaces for posters and hoardings, earmarked spaces and tariffs for organised parking to ensure sustainability of actions undertaken.

Implementation strategy:

The project would be completed in a phased manner by 2023. While the project would be funded largely through GoTN outlays and concessional loans/lines of credit, PPP approaches (covering a combination of performance contracts and annuity / VGF based approaches) would be adopted to ensure that the road assets created under this initiative are maintained to the standards envisaged. The project would also aim to monetize revenues from public spaces.





8.4.36 Mass Public Transit Systems for Madurai and Coimbatore

Name of the Project: Public Mass Transit System for Madurai, Coimbatore, Tiruppur, Trichy and Salem		Scope: Cities covered under the World-Class cities Programme
Investment: Rs. 50,000 Crore		Time Frame: 2023
Mode of Finance	GoTN/GoI grants and concessional Loans. PPP approaches will also be explored	Implementing Agency: Transport Dept/ CUMTA / CMRL
Description: While Coimbatore and Madurai are already million plus UAs, Tiruppur, Trichy and Salem UAs have a population of more than 900,000 as of Census 2011. Given the growth potential for these cities, GoTN recognizes the need to plan for appropriate public mass transit systems for these cities. The objective of this programme would be to prepare and implement a plan to implement modern public transit systems for Coimbatore, Madurai, Tiruppur, Trichy and Salem. The choice of the public transit system (metro-rail vs. mono-rail vs. BRTS) would be evaluated through a detailed study and appropriate systems would be implemented taking into account synergies with on-going and proposed mass transit system initiatives.		
Targeted Impact: The programme will complement other urban transport initiatives in these cities and would help world-class public transit system and seamless connectivity among different regions of these cities		
Implementation strategy: The programme would initially prioritise and develop projects for Madurai and Coimbatore given their larger size. Development of Projects for other cities would be commenced sequentially following initiation of implementation of projects in Madurai and Coimbatore and completion of the same by 2020. The implementation strategy would be finalized following a rigorous preparatory study that would be carried out along the arterial corridors and fast developing localities of the extended areas of these cities. A combination of Government funding and PPP approaches would be explored for implementing the project.		





8.4.37 Organised Parking

Name of the Project: Organised Parking Programme		Scope: Cities covered under the World-Class cities Programme
Investment: Rs. 500 Crore		Time Frame: 2020
Mode of Finance	GoTN/Gol grants and concessional Loans. PPP approaches will also be explored	Implementing Agency: CoC
Description: To be implemented in conjunction with the Urban Road development programme, this programme will provide infrastructure and earmarked parking spaces for different categories of vehicles (two-wheeler, four wheeler, para-transit vehicles like cabs and autos) with focus on streamlining parking in these cities through a series of infrastructural and regulatory interventions.		
Targeted Impact: The programme will help regulate and earmark parking space and help eliminate haphazard parking and availability of road space for freer vehicle movement. The programme would also be undertaken in the context of underlying reform covering strict enforcement of no-parking zones, regulated parking areas and transparent tariffs / fees for parking in different areas in the city.		
Implementation strategy: The programme would be implemented in conjunction with other road development and public transit development programs / projects to ensure synchrony. PPPs would be explored for implementation of select components of the project including multi-level car parking and outsourcing of parking fee automation and collection. Priority projects identified under the earlier studies would be taken up for implementation before 2016 and the programme would be implemented in a phased manner by 2020 following a review of the recommendations of CTTS and preparation of detailed feasibility report / DPRs for these projects.		





8.4.38 Modern Inter and Intra City Bus Terminals

Name of the Project: City Bus Terminals Modernisation Programme		Scope: Cities covered under the World-Class cities Programme
Investment: Rs. 750 Crore		Time Frame: 2020
Mode of Finance	GoTN/Gol grants and concessional Loans. PPP approaches will also be explored	Implementing Agency: CMA, ULBs and Transport department
Description: This programme seeks to comprehensively address the present and future bus transport requirements of the city and shall seek to expand / upgrade bus depot capacities (both existing and new) for both inter-city and intra-city bus transport requirements.		
Targeted Impact: The programme shall enable increase in terminal/depot requirements commensurate with the requirements of the expansion in bus fleet. Further the programme would also help modernize the bus terminus facilities with better citizen amenities and re-align traffic movement within and adjoining the bus depots/terminals.		
Implementation strategy: The Programme would be implemented with a combination of budgetary outlays of Government of Tamil Nadu and through Public Private Partnerships depending on locations / viability of specific projects. The programme would be crystallised by FY 2013. Phase I roll-out would be completed by 2016 and Phase II roll-out by 2020.		





8.4.39 Efficient Street Lighting

Name of the Project: Efficient Street Lighting Programme		Scope: Cities covered under the World-Class cities Programme
Investment: Rs. 500 Crore		Time Frame: 2016
Mode of Finance	GoTN/Gol grants and concessional Loans. PPP-ESCO models will be explored	Implementing Agency: ULBs and TANGEDCO
Description:		
<p>Provision of street lighting for public safety is an important responsibility and function of ULBs in India. The Bureau of Energy Efficiency, based on Central Electricity Authority statistics, has estimated gross energy consumption for public lighting to be 6,131 million kWh in India for the year 2007-2008. Quite often, street lighting is poorly designed and inadequately maintained by ULBs, and uses obsolete lighting technology. Lighting can account for 10 to 38% of the total energy bill in typical cities worldwide (NYCGP 2009).</p> <p>There are about 7,25,000 street lights, of which 5,20,000 are Fluorescent Tube Lights (FTL) and 1,80,000 are Sodium Vapour Lamps (SVL) in ULBs in the state. Street lighting expenditure forms 25 to 30 % of the electricity bill of the urban local bodies, which is a heavy burden on the financial resources of the ULBs. The office of CMA has already been initiating several measures to bring down the electricity costs while improving coverage of street lighting in all parts of the cities.</p> <p>This programme would seek to undertake a comprehensive study of the lighting requirements of the ULBs (after taking into account the new road proposals including the Integrated Urban Roads programme and the Arterial Roads Programme) and shall implement a road map to phase out all old lighting with aesthetic energy efficient lighting in all parts of the city. A smart street lighting system to monitor defects in streetlights from a control room and take remedial measures at the earliest would also be implemented as part of this programme.</p>		
Targeted Impact:		
The objective of this programme is to reduce energy costs for the ULBs covered while also reducing their carbon footprint from prevalent levels		
Implementation strategy:		
Some components of this programme are under implementation. As part of this initiative, all ULBs will undertake a detailed zone wise coverage and enumeration of streetlights and put out a planned phasing in of energy efficient street lighting by FY 2016.		





8.4.40 Modernisation / Upgradation of Municipal Schools

Name of the Project: Corporation Schools - Facilities Modernisation & Management programme		Scope: Cities covered under the World-Class cities Programme
Investment: Rs. 500 Crore		Time Frame: 2020
Mode of Finance	GoTN/Gol grants and concessional Loans. Outsourcing of facilities management through private sector participation will be considered	Implementing Agency: CMA, ULBs and Education department
Description: This Programme will seek to improve the infrastructure and facilities in these schools to best in class standards. The objective would be to upgrade and modernize facilities at schools maintained by the ULBs commensurate with the requirements of the category of the school (primary, secondary, high school etc.).		
Targeted Impact: The objective here would be to map and benchmark facilities in the schools covering infrastructure (namely, building, class room infrastructure etc.), academic facilities (computer centre, library etc.), recreation and physical activity (sports equipment, playground etc.) and sanitation (bathrooms, toilets etc.) and to undertake a systematic upgradation of the schools on these indicators. The focus of this programme is on the infrastructure and facilities		
Implementation strategy: A comprehensive set of indicators and targets would be set to improve infrastructure facilities and service levels in schools and a comprehensive zero-base mapping of facilities in schools managed by the ULBs would be undertaken to identify the specific gaps vis-à-vis these indicators. Based on this assessment, a comprehensive and prioritized development programme would be rolled out in a phased manner to address the infrastructure and facility gaps and to maintain them. The programme would be implemented in a phased manner by 2020.		





8.4.41 Creation and Modernisation of Parks in each city

Name of the Project: Park development and improvement programme		Scope: Cities covered under the World-Class cities Programme
Investment: Rs. 500 Crore		Time Frame: 2023
Mode of Finance	GoTN/Gol grants and concessional Loans. Outsourcing models through private sector participation /CSR will be considered	Implementing Agency: ULBs and CMA
Description: As against WHO norm of 9 sq.mtr per capita, the per capita green space in many cities in Tamil Nadu is low. This Programme shall seek to map the existing parks and land available to improve green cover in all cities in a structured and time bound manner to increase the per capita green space available in the city to comparable national and international benchmarks.		
Targeted Impact: The programme is expected to substantially improve the quality and expand the area of green cover in the selected cities from current levels.		
Implementation strategy: As part of this programme, the ULBs will undertake a comprehensive mapping of locations of existing parks and available freehold locations (under OSR and other locations) available for park development and set targets to improve green cover in the city given international standards, local population growth and required green cover and availability of land for development. Based on this, an implementation roadmap will be prepared for creation and development of parks in specific locations. In development and sustainable maintenance of parks in the selected ULBs, various CSR and PPP models would be explored.		





8.4.42 Slum Free Cities Programme

Name of the Project: Slum-free city programme		Scope: Cities covered under the World-Class cities Programme
Investment: Rs. 25,000 Crore		Time Frame: 2023
Mode of Finance	GoTN/Gol grants and concessional Loans. PPP approaches will also be explored	Implementing Agency: TNSCB CMA and H&UD Department
Description: <p>As per the Census 2011, over 59 lakh people in Tamil Nadu live in slums. GoTN has enunciated three strategies to deal with and rehabilitate people living in slum areas namely: a) In-situ site development, b) Tenement schemes and c) Rehabilitation and Re-settlement.</p> <p>It is programmed to make the cities / towns slum free under Rajiv Awas Yojana envisaging the holistic development of the urban slums within a time frame. This programme will be implemented under the slum free cities programmes of Rajiv Awas Yojana by utilizing 50% grant assistance from Government of India, 40% grant assistance from State Government and the remaining 10% beneficiary contribution.</p> <p>As a prelude, socio economic surveys of the slums in select cities is in progress and will be completed during this year. This exercise will be extended to all cities covered under this Programme. After the completion of this survey slum free city action plan for each city will be prepared and sent to Government of India. After getting the sanction from the Government of India the programme of construction of housing for low income households in the urban areas of Tamil Nadu will be commenced.</p>		
Targeted Impact: <p>The programme shall help realize the goal of making cities slum-free as enunciated in TN Vision 2023.</p>		
Implementation strategy: <p>The programme would be financed by a combination of budgetary outlays of Government of Tamil Nadu and through Public Private Partnerships depending on locations / viability of specific projects and would be implemented in a phased manner by 2023.</p>		



C. Rest of Urban Tamil Nadu

8.4.43 Piped Water Supply

Name of the Programme: Piped Water Supply		Scope: Cities other than those covered under World Class cities programme and Chennai Agglomeration programme
Investment: Rs. 7,500 Crore		Time Frame: 2018
Mode of Finance	Grants from GoTN / GoI and Loans. Performance based PPP contracting may also be explored	Implementing Agency: CMA / TWAD / ULBs
Description: This programme envisages provision of universal, equitable, affordable piped water supply, progressively moving to pressurised continuous supply. This programme aims to cover comprehensively the preparation and implementation of equitable and universal provision of piped water supply in all these areas. It would also comprehensively address gaps in service levels in areas.		
Targeted Impact: The programme will enable universal, equitable, affordable, consistent piped water supply with best-in-class services levels in all areas of cities covered under this programme and progressively realise the goal of continuous pressurised water supply as outlined in TN Vision 2023. The programme will deliver service level outcomes comprehensively on all dimensions including i) universal coverage, ii) continuous, pressurised supply, iii) consistent water quality at door step, iv) seamless complaint and consumer management systems and v) achievement of cost recovery and collection efficiency targets The programme will be implemented in the context of mainstreaming of accompanying reform initiatives including wider dissemination of service levels, reduction in non-revenue water (NRW), setting / achieving targets for cost recovery, rationalisation of user charges (while keeping costs for life-line supply for urban poor low and factoring affordability considerations) to enable sustainable, equitable water supply with improved service levels.		
Implementation strategy: The implementation of this project will be preceded by rigorous project development and preparatory studies which would be completed by FY 2013 and implementation will be completed by 2020. The programme would be funded largely through Government grants (both from GoTN and GoI) and concessional loans and lines of credit. TWAD and CMA would actively explore options for Performance Based Contracting and PPP approaches to usher in best-in-class utility management and operating practices.		



8.4.44 100% Sewerage coverage

Name of the Programme:		Scope: Cities other than those covered under World Class cities programme and Chennai Agglomeration programme
Appropriate Waste-water Management System		
Investment: Rs. 10,000 Crore		Time Frame: 2018
Mode of Finance	Grants from GoTN / Gol and Loans.	Implementing Agency: CMA / TWAD / ULBs
Description:		
<p>This programme envisages provision of conventional sewerage network and connections in larger urban centres and implementation of onsite and decentralised approaches in very small urban habitations. The objective is to provide comprehensive waste-water management systems in all urban habitations by 2018.</p>		
Targeted Impact:		
<p>The programme will enable universal, affordable and reliable waste-water systems with best-in-class services levels across all the selected cities/town. The programme will deliver service level outcomes comprehensively on all dimensions including i) universal coverage, iii) consistent treated wastewater quality iv) seamless complaint and consumer management systems and v) achievement of cost recovery and collection efficiency targets for sewerage systems.</p> <p>The programme will be implemented in the context of mainstreaming accompanying reform initiatives including incorporation of septage management guidelines (including guidelines for licensing of service providers for septage collection transfer and treatment), wider achievement of service levels, setting / achieving targets for cost recovery, rationalisation of user charges (while keeping costs for life-line supply for urban poor low and factoring affordability considerations) to enable sustainable, equitable waste-water management services.</p>		
Implementation strategy:		
<p>The implementation of this project will be preceded by rigorous project development phase covering capture of baseline service levels along with preparation of Detailed Project Reports with focus on service level outcomes rather than just asset creation. The DPRs would evaluate a range of options including decentralised systems and on-site systems for effective waste-water management and disposal.</p> <p>The preparatory work in terms of Detailed Project Reports would be completed by December 2013 and the Programme would be completed by FY 2018.</p> <p>The programme would be funded largely through Government grants (both from GoTN and Gol) and concessional loans / lines of credit. CMA and TWAD may also explore options for PPP approaches in development and in operations & maintenance of sewage treatment plants.</p>		



8.4.45 Strengthening and augmenting water storage capacity

Name of the Programme: Programme to strengthen /augment water storage capacity		Scope: Cities other than those covered under World Class cities programme and Chennai Agglomeration programme
Investment: Rs. 2,000 Crore		Time Frame: 2017
Mode of Finance	GoTN Budgetary outlay	Implementing Agency: PWD
Description: In line with the goal set in TN Vision 2023 to double water storage capacity, GoTN intends to augment capacity in the existing reservoirs in the cities / towns covered under this Programme		
Targeted Impact: This programme will help augment the water storage capacity to meet the needs of these cities and will help more efficiently store water and enable recharge of ground water in nearby areas		
Implementation strategy: The programme would be funded largely through Government grants (both from GoTN and GoI) and concessional loans / lines of credit and would be implemented by PWD. The project is expected to be commissioned by 2016.		





8.4.46 Creation / Restoration of Water Bodies in each city

Name of the Programme: Creation and Restoration of Water Bodies		Scope: Cities other than those covered under World Class cities programme and Chennai Agglomeration programme
Investment: Rs. 750 Crore		Time Frame: 2020
Mode of Finance	Grants from GoTN / Gol and Loans.	Implementing Agency: TWAD/ ULBs and PWD
Description: <p>The rapid urbanisation in the larger urban agglomerations in Tamil Nadu has put its erstwhile water bodies under severe strain. While several lakes and water bodies have vanished due to construction and urbanisation, many others are polluted due to dumping of waste and waste water and have become pollution hotspots.</p> <p>GoTN will implement a structured programme to identify and restore water bodies in these cities/ towns. The programme will be implemented following a detailed inventerisation of existing and potential locations for creating / restoring water bodies and a comprehensive implementation to rejuvenate at least 100 water bodies in these cities / towns.</p> <p>Apart from a comprehensive clean-up and restoration, the programme will also promote beautification and appropriate recreational activities around these water bodies (including jogging tracks, landscaping and water sports) to ensure that these water bodies also receive patronage and support from citizens to maintain them post restoration.</p>		
Targeted Impact: <p>The programme is expected to have significant positive environmental, hygiene and health impacts and also contribute to aesthetic aspects of the cities covered.</p>		
Implementation strategy: <p>The programme will be implemented to address the larger / more polluted water bodies on priority and would be implemented through budgetary outlays and with support from developmental agencies that are keen on promoting positive environmental projects such as KfW and JICA.</p> <p>The programme will be rolled out in FY 2013. 25 large water bodies would be restored by 2016 and about 100 water bodies would be created / restored by 2020.</p>		



8.4.47 100% sanitised and open defecation free city

Name of the Programme: 100% sanitised and open defecation free city		Scope: Cities other than those covered under World Class cities programme and Chennai Agglomeration programme
Investment: Rs. 750 Crore		Time Frame: 2016
Mode of Finance	Grants from GoTN / Gol and Loans. Complementary financing through PPPs, Community participation and CSR	Implementing Agency: CMA / ULBs
Description: One of the key goals of TN Vision 2023 is to make the state of Tamil Nadu open defecation free. Census 2011 showed a 16% incidence of open defecation in urban areas in Tamil Nadu and GoTN is committed to eliminate this practice. This programme will involve a series of efforts which will be initiated and implemented in mission mode and complementary to other programmes that would enable waste-water management and universal sewerage access and would cover:- <ul style="list-style-type: none"> • Identification and mapping of pollution and open defecation hotspots. • Comprehensive communication and awareness programmes with community participation and involvement of all stakeholders to educate people and reinforce good sanitation habits • Development of individual toilets and community toilets in urban poor settlements • Structured programme to develop and maintain public toilets in commercial areas • 'Closing the loop' projects to address water supply, solid waste and waste-water management service gaps all of which contribute to poor hygiene 		
Targeted Impact: The 100% sanitised cities programme will run complementary to other water-sanitation projects and will aim to make all the cities open-defecation free and 100% sanitised by 2016.		
Implementation strategy: The implementation of this programme will also be backed by review, articulation and implementation of a state sanitation strategy and development of standards for toilet construction, development and maintenance. Changes to building regulations will also be incorporated to implement minimum standards for provision of toilets in various types of buildings. The programme would be initiated in FY 2013 and will run through the Vision Period with the objective of making urban areas in TN Open-Defecation free by 2017 and 100% sanitised including universal sewerage coverage by 2020. The programme would be implemented with GoTN budgetary outlay. Partial financing in development and management of community / public toilets through private, NGOs, CSR initiatives will also be explored.		



8.4.48 100% sanitised - clean and garbage free city

Name of the Programme: 100% sanitised – clean and garbage free city		Scope: Cities other than those covered under World Class cities programme and Chennai Agglomeration programme
Investment: Rs. 1,250 Crore		Time Frame: 2017
Mode of Finance	Grants from GoTN / Gol and Loans. Complementary financing through PPPs, Community participation and CSR efforts will also be explored.	Implementing Agency: CMA/ULBs
Description: <p>Tamil Nadu has traditionally been a pioneer in Solid Waste Management in the 1990s when Chennai Corporation was the first large municipal corporation to implement PPP for SWM and cities like Pammal and Namakkal achieving 100% door-to-door collection and source segregation. However, efforts relating to processing and safe disposal of waste have been negligible. While there have been some positive developments such as development of integrated SWM in cities like Coimbatore and collection efforts have improved in most ULBs, compliance to SWM Rules 2000 laid down by Hon'ble Supreme Court is yet to be fully achieved. Given the pollution and environmental implications and potential to show transformational changes in a short while (SWM requires least capital investment per capita among urban services to improve service levels), there is a need for a significant push in terms of implementation of initiatives during the 12th Five Year Plan.</p> <p>This programme seeks to initiate planned and systematic investment building on ongoing schemes / programmes to improve service levels in SWM and achieve the following:</p> <ul style="list-style-type: none"> a. Compliance with SWM Rules 2000 in all urban areas in the state a. Implementation of door-to-door collection and source segregation b. Regional approach to creation and operationalisation of waste processing and landfill facilities. c. Mandating localized bio-degradable waste processing in existing and new apartment complexes as part of building guidelines and rules in larger Urban Agglomerations <p>In addition, GoTN would develop and implement an active Information Education and Communication (IEC) strategy covering a combination of i) A state level mass media campaign involving celebrities and senior political leaders actively campaigning for adoption of source segregation/door-to-door collection, decentralized composting and reduce-re-use-recycle principles and b) Support to local campaigns at the ULB level that involves working through activation of ward level committees and residents involvement.</p>		
Targeted Impact: <p>The project is expected to contribute to significant positive environment and hygiene impacts and when the landfill / processing projects are completed will help in sustainable handling and management of waste.</p>		
Implementation strategy: <p>The programme will be taken up on a mission mode with identification of land for creation of land-fill / processing sites on priority. The Commissionerate of Municipal Administration has initiated steps to create 5 Regional Landfill sites and processing facilities. The programme will be rolled out with initiation of a rigorous preparatory phase (during FY 2013) with implementation followed immediately thereafter. A combination of GoTN /Gol grants, concession loans/line of credit and PPPs would be used to finance the programme.</p>		



8.4.49 Integrated Urban Road Development Plan

Name of the Programme: Integrated Urban Road Development Programme		Scope: Cities other than those covered under World Class cities programme and Chennai Agglomeration programme
Investment: Rs. 12,000 Crore		Time Frame: 2020
Mode of Finance		Implementing Agency: CMA / ULBs
Description: <p>The total length of roads in ULBs has increased to 21,282 Kms. This includes 4,350 Kms of CC roads, 13,207 Kms of BT roads, 1,266 Kms of WBM roads, 2,344 Kms of earthen roads and 115 Kms of other types of roads like cut-stone, pavement, paver block etc.</p> <p>This programme will seek to transform these roads in the selected cities to world class standards and would incorporate design standards and planning for developing these roads. The roads will incorporate features including road layout re-design for safety, and pedestrian movement (with focus on differently abled people), proper laning for streamlined vehicle movement, ducting for utilities (water, sewerage, telecom & electric cables), storm drains, grade-separators and underpasses where required, earmarked vendor spaces, greening and landscaping, energy efficient lighting, modernized bus-bays, earmarked parking spaces, arrangements for segregated waste collection and transfer, public conveniences and intelligent signalling</p>		
Targeted Impact: <p>Apart from providing an international look to the city, the initiative is expected to significantly reduce accidents and promote pedestrianisation and cycling. By providing comprehensive and integrated ducting for utilities, the initiative will also minimise the need to dig the roads for repair. The initiative is also expected to contribute to greening of the city by facilitating minimisation of traffic pile-ups and through landscaping and creation of green spaces. The implementation would be undertaken in the context of wide-ranging reform and regulation of para-transit systems, regulated spaces for posters and hoardings, earmarked spaces and tariffs for organised parking to ensure sustainability of actions undertaken.</p>		
Implementation strategy: <p>The programme would be completed in a phased manner by 2020. While the programme would be funded largely through GoTN outlays, ULB resources and concessional loans/lines of credit, PPP approaches (covering a combination of performance contracts and annuity / VGF based approaches) would be adopted to ensure that the road assets created under this initiative are maintained to the standards envisaged. The project would also aim to monetize revenues from public spaces.</p>		



8.4.50 Organised Parking

Name of the Programme: Organised Parking Programme		Scope: Cities other than those covered under World Class cities programme and Chennai Agglomeration programme
Investment: Rs. 750 Crore		Time Frame: 2020
Mode of Finance	GoTN/Gol grants and concessional Loans. PPP approaches will also be explored	Implementing Agency: CMA / ULBs
Description: To be implemented in conjunction with the Urban Road development programme, this programme will provide infrastructure and earmarked parking spaces for different categories of vehicles (two-wheeler, four wheeler, para-transit vehicles like cabs and autos) with focus on streamline parking in these cities through a series of infrastructural and regulatory interventions.		
Targeted Impact: The programme will help regulate and earmark parking space and help eliminate haphazard parking and availability of road space for freer vehicle movement. The programme would also be undertaken in the context of underlying reform covering strict enforcement of no-parking zones, regulated parking areas and transparent tariffs / fees for parking in different areas in the city.		
Implementation strategy: The programme would be implemented in conjunction with other road development and public transit development programmes / projects to ensure synchrony. PPPs would be explored for implementation of select components of the project including outsourcing of parking fee automation and collection. While multi-level car parking facilities would be considered as relevant in specific cases, the focus under this programme would largely be on road-side and within-premises facilities.		





8.4.51 Modern Inter and Intra City Bus Terminals

Name of the Programme: City Bus Terminals modernisation programme		Scope: Cities other than those covered under World Class cities programme and Chennai Agglomeration programme
Investment: Rs. 750 Crore		Time Frame: 2020
Mode of Finance	GoTN/Gol grants and concessional Loans. PPP approaches will also be explored	Implementing Agency: CMA / ULBs and Transport department
Description: This programme seeks to comprehensively address the present and future bus transport requirements of the cities / towns and shall seek to expand / upgrade bus depot and terminals capacities (both existing and new) for both long distance and local bus transport requirements.		
Targeted Impact: The programme shall enable increase in terminal/depot requirements commensurate with the requirements of the expansion in bus fleet. Further the programme would also help modernize the bus terminus facilities with better citizen amenities and re-align traffic movement within and adjoining the bus depots/terminals.		
Implementation strategy: The programme would be done on a combination of budgetary outlays of Government of Tamil Nadu, ULB resources and through Public Private Partnerships depending on locations / viability of specific projects. The programme would be crystallised by FY 2013. Phase I roll-out would be completed by 2016 and Phase II roll-out by 2020.		





8.4.52 Efficient Street Lighting

Name of the Programme: Efficient Street Lighting Programme		Scope: Cities other than those covered under World Class cities programme and Chennai Agglomeration programme
Investment: Rs. 750 Crore		Time Frame: 2016
Mode of Finance	GoTN/Gol grants and concessional Loans. PPP-ESCO models will be explored	Implementing Agency: ULBs, TEDA and TANGEDCO
Description:		
<p>Provision of street lighting for public safety is an important responsibility and function of ULBs in India. The Bureau of Energy Efficiency, based on Central Electricity Authority statistics, has estimated gross energy consumption for public lighting to be 6,131 million kWh in India for the year 2007-2008. Quite often, street lighting is poorly designed and inadequately maintained by ULBs, and uses obsolete lighting technology. Lighting can account for 10-38% of the total energy bill in typical cities worldwide (NYCGP 2009).</p> <p>As reported by MAWS in its policy notes for 2012-13, there are about 7,25,000 Street lights, of which 5,20,000 are Fluorescent Tube Lights (FTL) and 1,80,000 are Sodium Vapour Lamps (SVL). Street lighting expenditure forms 25-30 % of the electricity bill of the urban local bodies, which is a heavy burden on the financial resources of the ULBs. The office of CMA has already been initiating several measures to bring down the electricity costs while improving coverage of street lighting in all parts of the city.</p> <p>This programme would seek to undertake a comprehensive study of the lighting requirements of the cities / towns (after taking into account the new road proposals) and shall implement a road map to phase out all old lighting with aesthetic energy efficient lighting in all parts of the cities / towns. A smart street lighting system to monitor defects in streetlights from a control room and take remedial measures at the earliest would also be implemented as part of this programme.</p>		
Targeted Impact:		
This programmatic effort towards energy efficient street lighting would translate to significant cost savings for the municipalities and reduced energy consumption in our cities.		
Implementation strategy:		
Some components of this Project are under implementation. As part of this initiative, all ULBs will undertake a detailed zone wise coverage and enumeration of streetlights and put out a planned phasing in of energy efficient street lighting by FY 2016.		



8.4.53 Modernisation / Upgradation of Municipal Schools

Name of the Programme: Municipal Schools - Facilities modernisation & management programme		Scope: Cities other than those covered under World Class cities programme and Chennai Agglomeration programme
Investment: Rs. 750 Crore		Time Frame: 2023
Mode of Finance	GoTN/Gol grants and concessional Loans. Outsourcing of facilities management through private sector participation will be considered	Implementing Agency: CMA, ULBs and Education department
Description: This programme will seek to improve the infrastructure and facilities in these schools to best in class standards. The objective would be to upgrade and modernize facilities at schools maintained by the ULBs commensurate with the requirements of the category of the school (primary, secondary, high school etc.).		
Targeted Impact: The objective here would be to map and benchmark facilities in the schools covering infrastructure (namely, building, class room infrastructure, dining hall etc.), academic facilities (computer centre, library etc.), recreation and physical activity (sports equipment, playground etc.) and sanitation (bathrooms, toilets etc.) and to undertake a systematic upgradation of the schools on these indicators. The focus of this programme is on the infrastructure and facilities		
Implementation strategy: A comprehensive set of indicators and targets would be set to improve infrastructure facilities and service levels in schools and a comprehensive zero-base mapping of facilities in schools managed by the ULBs would be undertaken to identify the specific gaps vis-à-vis these indicators. Based on this assessment, a comprehensive and prioritized development programme would be rolled out in a phased manner to address the infrastructure and facility gaps and to maintain them. The programme would be implemented in a phased manner by 2020.		





8.4.54 Creation and Modernisation of Parks in each city

Name of the Programme: Park development and improvement programme		Scope: Cities other than those covered under World Class cities programme and Chennai Agglomeration programme
Investment: Rs. 750 Crore		Time Frame: 2023
Mode of Finance	GoTN/Gol grants and concessional Loans. Outsourcing models through private sector participation /CSR will be considered	Implementing Agency: ULBs and CMA
Description: As against WHO norm of 9 sq.mtr per capita, the per capita green space in many cities in Tamil Nadu is low. This Programme shall seek to map the existing parks and land available to improve green cover in all ULBs in a structured and time bound manner to increase the per capita green space available in the cities /towns to comparable national and international benchmarks.		
Targeted Impact: The programme is expected to substantially improve green cover over the selected cities and will target to increase its green cover from current levels		
Implementation strategy: As part of this programme, the ULBs with the assistance of CMA will undertake a comprehensive mapping of locations of existing parks and available freehold locations (under OSR and other locations) available for park development and set targets to improve green cover in the city given international standards, local population growth and required green cover and availability of land for development. Based on this, an implementation roadmap will be prepared for creation and development of parks in specific locations. While the cost of land and development of the parks would be undertaken by the selected ULBs, various CSR and PPP models would be explored for sustainable maintenance of the same.		





8.4.55 Slum Free Cities Programme

Name of the Programme: Slum-free city programme		Scope: Cities other than those covered under World Class cities programme and Chennai Agglomeration programme
Investment: Rs. 15,000 Crore		Time Frame: 2023
Mode of Finance	GoTN/Gol grants and concessional Loans. PPP approaches will also be explored	Implementing Agency: TNSCB CMA and H&UD Department
Description:		
<p>As of Census 2011, over 59 lakh people in Tamil Nadu live in slums. GoTN has enunciated three strategies to deal with and rehabilitate people living in slum areas namely, a) In-situ site development, b) Tenement schemes and c) Rehabilitation and Re-settlement.</p> <p>It is programmed to make the cities / towns slum free under Rajiv Awas Yojana envisaging the holistic development of the urban slums within a time frame. This programme will be implemented under the slum free cities programmes of Rajiv Awas Yojana by utilizing 50% grant assistance from Government of India, 40% grant assistance from State Government and the remaining 10% beneficiary contribution.</p> <p>As a prelude, socio economic survey of the slums in 9 cities is in progress and will be completed during this year. This exercise will be extended to all cities / towns covered under this Programme. Soon after the completion of this survey slum free city action plan for each city will be prepared and sent to Government of India. After getting the sanction from the Government of India the programme of construction of housing for low income households in the urban areas of Tamil Nadu will be commenced.</p>		
Targeted Impact:		
The programme shall help realize the goal of making cities slum-free as enunciated in TN Vision 2023.		
Implementation strategy:		
The programme would be done on a combination of budgetary outlays of Government of Tamil Nadu and through Public Private Partnerships depending on locations / viability of specific projects.		

VISION TAMIL NADU



STRATEGIC PLAN FOR
INFRASTRUCTURE DEVELOPMENT
IN TAMIL NADU

Agriculture and Irrigation Sector





9. Agriculture and Irrigation Sector

9.1 Sector Overview

Tamil Nadu contributes approximately 3% of the food grain production, 7% of vegetable production, 12% of fruit production and 24% of flower production in India. Tamil Nadu produced 83.51 Lakh MT of food grains and 128.76 Lakh MT of vegetables, fruits and other horticultural produce during 2012-13¹¹. The target for 2013-14 is set at 112 Lakh MT of food grains and 171.64 Lakh MT of horticultural produce.

Produce/Year	2011-12		2012-13 (I Advance Estimate)		2013-14 (Programmed)	
	Area	Production	Area	Production	Area	Production
	Lakh ha	Lakh MT	Lakh ha	Lakh MT	Lakh ha	Lakh MT
Food Grains	32.11	101.52	32.97	83.51	41.14	112
Fruits, Vegetables and Horticultural Crops	8.56	127.56	9.67	128.76	10.94	171.64

Tamil Nadu has only 6 percent of India's population, 4 percent of the area and only 3 percent of the water resources. Tamil Nadu receives an annual average rainfall of 921.5 mm and 48 percent of this rain is received during the North East monsoon months of October, November and December. There are 17 river basins but none are perennial rivers except Tamiraparani and Cauvery, of which Cauvery is an interstate river. The limited availability of water is creating a huge strain in the irrigation capability of the State. Fallow lands in the State were 7.59 Lakh ha in 2005-06 increased to 11.17 Lakh ha in 2009-10, during the same period the net cultivated area reduced from 52.44 Lakh ha to 48.92 Lakh ha. The net irrigated area has declined from 29.31 Lakh ha in 2008-09 to 28.64 Lakh ha in 2009-10. The key challenges in the sector are:

R&D	Inputs	Production	Post Harvest	Distribution	Retail
<ul style="list-style-type: none"> Limited R&D capacity Innovation to suit local needs 	<ul style="list-style-type: none"> Limited availability of quality seeds of annual horticultural Crops Limited irrigation and water shed development Quality of inputs 	<ul style="list-style-type: none"> Low productivity in Pulses, Oil and certain Millets Fragmented farming Low level of mechanisation 	<ul style="list-style-type: none"> Storage constraints Limited value addition through processing Post harvest Losses 	<ul style="list-style-type: none"> Logistics bottle necks Poor quality of storage facilities 	<ul style="list-style-type: none"> Limited market linkage Price discovery issues

¹¹ Estimated production for 2012-13, final numbers not released yet.



Agriculture though contributing to only 12% of the Gross Domestic Product of the State (GSDP) provides subsistence to approximately 40 per cent of the work force in the state. Hence it is very much imperative to sustain growth in the agricultural sector and the Government of Tamil Nadu has resolved to usher in Second Green Revolution to propel the agricultural output of the state. The thrust areas of this programme are:

- Soil health care and increasing the productivity per unit area
- Providing access to quality inputs
- Bringing fallow lands under cultivation
- Increasing the cropping and irrigation intensity
- Promoting Micro Irrigation to increase Water Use Efficiency
- Massive farm mechanisation to meet labour shortage
- Speedy transfer of information through ICT enabled extension
- Strengthening and improving agriculture infrastructure including market infrastructure and paving way for market led agriculture
- Raising the income of farmers

9.2 Sectoral Target

The Vision 2023 targets agriculture sector in Tamil Nadu to achieve 5 per cent annual average growth. The objective for the agriculture sector to achieve the Vision 2023 target will be ***“To achieve the best in class productivity in key agricultural produces and to be a global supplier with robust infrastructure”***. This vision imperative calls for setting up of robust support infrastructure for planning, production, processing, storage, distribution, marketing and sales of agricultural produce.

Strategic Initiatives

- Improving the Productivity

Tamil Nadu intends to achieve world class productivity in its major food crops, vegetables and fruits by 2023. High productivity can be achieved by farming high yielding varieties of crops through proper farm management. The State would assist in improving the productivity through targeted interventions in:

- a) Timely provision of quality inputs
- b) Improving soil health
- c) Promotion of organic farming
- d) Farm mechanisation for seed to seed agricultural operations
- e) Supply of quality seeds
- f) Supporting micro irrigation for increasing water use efficiency
- g) Empowering farmers in farm level planning through effective extension and market information



To support the above strategies, Tamil Nadu will promote research and development in agricultural and horticultural crops to meet the market demand. A Centre of Excellence for agriculture will be created by TNAU with focus on following research activities:

- a) Plant breeding and genetics
- b) Mechanization of agriculture
- c) IPM based crop protection
- d) Cost effective précised crop production techniques for improving quality of production
- e) Utilization of GIS and remote sensing for region specific soil and crop oriented activities
- f) Agricultural market information

- *Promote market driven agricultural produce*

The evolving demographic and socio economic changes in India and world over is resulting in change in consumption pattern of processed, partially processed and unprocessed food. Hence to achieve better economic output from the primary sector market driven production and processing is imperative. The Government will proactively support food processing industry in the state to derive higher economic output from agricultural produce.

- *Agri Marketing Intelligence and Business Promotion Centre (AMI&BPC)*

For speedy transfer of latest information and technologies, a new initiative viz., **Farm Crop Management System (FCMS)** has been developed for effective farm level planning, availability and management of inputs and speedy transfer of extension activities on AGRISNET platform through mobiles. The farmers need to be empowered with knowledge on price forecasting, period of high price, best price market, quality parameters, pre and post harvest technologies for different agricultural commodities, export opportunities, etc., to enable them to realize better returns and to switch over to market-led Agriculture. As an innovative step, an institutional mechanism 'Agri Marketing Intelligence and Business Promotion Centre (AMI&BPC)' at Trichy would be linked with the Farm Crop Management System (FCMS) besides interlinking all the Regulated Markets and Market Committees with AMI&BPC, for giving crop advisory and disseminating market information to farmers in time. In addition, a comprehensive study on identification of potential crops suitable for various locations, market infrastructure facilities required and the gap at present will also be done to enable the farmers for effective decision making on market led agriculture.

- *Accelerating Innovation and Extension Mechanism*

Propagation of innovation and research activities is important to realise economic value of the same. Apart from the ongoing extension mechanisms, the Government will establish demonstration farms across the State in State seed farms, State horticulture farms and temple farms. These demonstration farms will be an exposition of the latest technology, mechanisation, farming techniques, irrigation methodologies etc. These demonstration farms will be localised in each district and potential agricultural and horticultural crop innovative technologies will be demonstrated.

- *Functional consolidation of land holdings*

Fragmentation of land holdings in Tamil Nadu is one of the main limiting factors for delivering innovative cost effective technologies for increasing the crop productivity. Under this scenario, functional consolidation of land is imperative to achieve increased production and productivity in the State. Tamil Nadu will take all the necessary policy and regulatory steps to ensure functional consolidation of agricultural land through co operative farming, contract farming, farmer groups and joint liability groups.



- *Emphasis on farm mechanisation*

Agricultural mechanisation is vital to improve productivity, address the reducing farm labour availability, to carry out agricultural operations in time, to increase the area under production, to bring in uniformity of agricultural practice and to reduce the material handling wastages. The Government will support mechanisation in the state through its existing subsidy schemes and through innovative PPP models for mechanisation of agriculture for small and marginal farmers. Private entrepreneurs, organised associations/cooperatives, and farm equipment manufacturers will be encouraged in partnering with the Government for ensuring availability of required machinery at village level.

- *Creating a robust supply chain*

A robust post harvest supply chain is essential for economic realisation of the agricultural production. The Government will invest in development of the supply chain assets and will invite private sector participation wherever possible. The supply chain facilities will include:

- Cluster level storage godowns (cold storage where applicable) which will have all the necessary technology tools for grading, sorting, packing and primary processing at farm level,
- Setting up of regional Terminal Complexes in needy places based on the agricultural commodities produced,
- Logistics network for transportation of goods with cold storage facilities,
- Computerised trading platform connecting all godowns,
- Agro export zones in ten locations,
- Air cargo complex for perishables in Chennai, Madurai and Coimbatore.

This network of supply chain assets will promote mechanisation, motivate farmers for higher productivity and production as better value is realised besides transparent information dissemination and through co-ordinated marketing and sales effort.

- *Assurance of timely irrigation*

Timely irrigation is necessary for proper crop growth and yield. Tamil Nadu has limited supply of perennial water and hence will invest in innovative projects for:

- Conservation of available resources
- Augmenting the watershed capacity
- Effective flood control and flood water utilisation
- Increasing the efficiency of water transportation and reducing wastage
- Rehabilitation of dams, tanks and other reservoirs
- Providing piped water supply for irrigation
- Interlinking of rivers

These measures are aimed towards the Government's motto of "More Crop per Drop" pertaining to irrigation. The Government will also create a Centre of Excellence for Water Management, the CoE will co-ordinate research and extension activities in:



- a) Soil and moisture conservation techniques
- b) Watershed development
- c) Surface and ground water management
- d) Hydrology and Geology of water management
- e) Urban water management
- f) Study of dams, tanks and other aquifers
- g) Irrigation systems in the state
- h) Micro irrigation, drip irrigation, fertigation and related
- i) Economics of irrigation
- j) Training of farmers and water users

- *Capacity Building in agriculture*

Capacity building is becoming highly essential in agriculture due to the radical developments intended in mechanisation, crop management, post harvest management, food processing and marketing of agricultural produce. The Centres of Excellence for agriculture and water management will act as the nodal agencies for developing the curriculum and extension methodologies and the demonstration farms will act as the ground for practical training. The Government will also invite private training providers to engage in skill development activities across the State.

9.3 Institutional Structure

Agriculture Department

The Tamil Nadu State Department of Agriculture is headed by a Minister and the operations are managed by a Secretary and Agriculture Production Commissioner. The Agriculture Department is involved in all facets of agriculture including support in seed procurement and distribution, research and dissemination, mechanisation, harvest, post harvest storage and distribution.

The agriculture department has six departments as follows:

1. Department of Agriculture
2. Department of Horticulture and Plantation Crops
3. Department of Agricultural Engineering
4. Department of Agriculture Marketing and Agri Business
5. Department of Seed Certification and Organic Certification, and
6. Department of Sugar



The Agriculture Department also has the following institutions/agencies attached to it:-

1. Tamil Nadu Agricultural University
2. Tamil Nadu Horticulture Development Agency
3. Tamil Nadu Horticultural Producers Co-operative Enterprises Limited
4. Tamil Nadu Watershed Development Agency
5. Tamil Nadu State Agricultural Marketing Board
6. Tamil Nadu Coconut Farmers Welfare Board

The Department of Agriculture promotes technologies to increase the area and production of food grain crops, oil seeds, sugarcane and cotton. The Department of Horticulture and Plantation Crops promotes horticultural and plantation crops in the State. Tamil Nadu Horticulture Development Agency (TANHODA) was set up as a special purpose vehicle under Horticulture Department in 2004 to implement various schemes like the National Horticulture Mission, National Mission on Micro Irrigation, National Mission on Medicinal Plants, and National Bamboo Mission. Tamil Nadu Horticultural Producers Co-operative Enterprises Limited (TANHOPE) is a primary Horticultural Co-operative Society formed in 1995 to benefit the small and marginal horticultural farmers in 1995: It is involved in procurement of fruits and vegetables from horticultural producers for institutions, hotels etc at reasonable price. The Agricultural Engineering Department was set up in 1981 and the scope of its functions includes soil and water conservation, watershed development, water management and agricultural mechanisation.

Seed Certification and Organic Certification Department is responsible for ensuring the quality of seeds produced, distributed and utilised in the State. The functions of the department includes seed certification, seed quality control, seed testing and training of the department and farmers. The Tamil Nadu Organic Certification Department (TNOCD) was established in 2007-08 to carry out inspection and certification of organic production system in accordance with NPOP (National Programme for Organic Production) norms. The Department of Sugar was set up in 1969 to promote sugarcane cultivation and establishment of sugar mills in the state. The department co-ordinates directly with public and private sugar mills.

The Department of Agricultural Marketing was established in 1977 and was renamed as Department of Agricultural Marketing and Agri Business in 2001. The focus of the department is to establish post harvest infrastructure for storage and value addition of agricultural commodities, food processing and export. The Tamil Nadu State Agricultural Marketing Board is an apex body of the market committees for ensuring uniformity in practice and procedure in the day to day administration of market committees.

Tamil Nadu Watershed Development Agency (TAWDEVA) is involved in implementation of wasteland programmes, watershed development programmes like National Watershed Development Project for Rain fed Areas (NWDPR), Watershed Development Fund (WDF) and Integrated Watershed Management Programme (IWMP), Western Ghats Development Programme (WGDP). TAWDEVA also functions as a Nodal Agency for various State / Central schemes such as NADP, National Food Security Mission (NFSM), Agriculture Technology Management Agency (ATMA), AGRISNET and National Project on Management of Soil Health & Fertility.



Tamil Nadu Agricultural University was established in 1971, is one of the largest agricultural universities in the world with 11 constituent colleges and six affiliated colleges offering 13 undergraduate programmes, 30 post graduate programmes and 27 doctoral programmes. The university provides programmes in plant breeding and genetics, horticulture, sericulture, agricultural engineering, plant molecular biology, natural resources management, crop management, plant protection, rural development studies, extension education, home science, seed management and water management etc.

Irrigation Department

Irrigation in Tamil Nadu is regulated by the Water Resources Organisation (WRO) operating under the Public Works Department (PWD). The PWD is headed by a Minister and is administered by a Principal Secretary, and the WRO is managed by the Engineer - in - Chief. The WRO is divided into four regions Chennai, Pollachi, Tiruchirapalli and Madurai for administrative purposes based on river basins. Each region is headed by a Chief Engineer, who leads a team of Superintending Engineers, Executive Engineers, Assistant Engineers, Junior Engineers and other staff. This organisation is involved in:

1. Identification and formulation of viable and feasible irrigation projects;
2. Maintenance of structural and non structural irrigation facilities;
3. Development of new projects;
4. Implementation of irrigation projects;
5. Development and maintenance of inland navigation; and
6. Other watershed management activities

The WRO also has five functional units supporting in:

1. Plan formulation - Identify, formulate and estimate viable and feasible irrigation projects and support policy decisions
2. State Ground and Surface Water Resources Data Centre - Periodically measure and maintain database of state ground water and water resources capacity and availability for project planning and implementation
3. Design Research and Construction Support - Assist in investment estimates, research in new construction technologies, materials and techniques
4. Operation and Maintenance - To maintain irrigation structures including dams, canals, pipelines etc
5. Institute for Water Studies - To undertake research in groundwater/rain water/surface water potential of Tamil Nadu, assessment of water potential of river basins in Tamil Nadu, preparation of master plan for river basins, evaluate water needs of the state, support in water policy and law, identification of methods of augmenting and conserving the water resources, conducting training programmes and publication of water bulletins.

The Tamil Nadu Irrigation Management Training Institute (IMTI) under the WRD was formed in 1984. The objective of IMTI is to provide capacity development and training of Government staff and farmers in irrigation and water management. The Directorate of Boilers also operates under WRD, it is responsible for regulation of boilers production and operation in the State as per the Boilers Act 1923, Tamil Nadu Boiler Attendants' Rules 1964 and Tamil Nadu Boiler Operation Engineers' Rules 1965.



9.4 Proposed Projects

S. No	Name of the Project	Location	Investment (Rs. Crore)
9.4.1	Infrastructure set-up for seed supply chain	Across Tamil Nadu, in Government farms and TNAU research stations	2,000
9.4.2	Programme for Soil Quality Improvement and Wasteland Rehabilitation	Across Tamil Nadu	2,000
9.4.3	Strengthening of Seed Farms, Horticultural Farms and establishment as demonstration farms	Across Tamil Nadu	2,000
9.4.4	Horticulture Development Programme	Across Tamil Nadu	400
9.4.5	Propagation of Micro Irrigation	Across Tamil Nadu	20,000
9.4.6	Agricultural mechanisation	Across Tamil Nadu	20,000
9.4.7	Integrated Market Development and Post Harvest Supply Chain	Across Tamil Nadu	20,000
9.4.8	Infrastructure support for Agro Food Processing Industry	Across Tamil Nadu	5,000
9.4.9	Infrastructure for dairy processing	Across Tamil Nadu	5,250
9.4.10	Infrastructure for poultry processing	Across Tamil Nadu	2,000
9.4.11	Integrated fish processing centres and fish landing stations/ fishing harbours	Across Tamil Nadu	1,500
Subtotal for Agriculture			80,150
9.4.12	Rehabilitation of tanks and wells	Across Tamil Nadu	22,500
9.4.13	Infrastructure development to conserve North East Monsoon drainage water, Coastal zone and Cauvery Delta Irrigation Development Plan	Across Tamil Nadu	3,000
9.4.14	Lining of major canals in Tamil Nadu	Across Tamil Nadu	5,000
9.4.15	Dam Rehabilitation and Improvement Project	Across Tamil Nadu	750
9.4.16	Interlinking of Rivers	Across Tamil Nadu	10,000
Subtotal for Irrigation			41,250
Total			121,400



9.4.1 Infrastructure Set Up for Seed Supply Chain

Name of the Programme: Infrastructure Set Up for Seed Supply Chain		Location: Across Tamil Nadu, in Government farms and TNAU research stations
Investment: Rs. 2,000 Crore		Time Frame: Continuing process
Mode of Finance	Public Private Partnership	Implementing Agency: Agriculture Department

Description:

Availability of quality certified seed is essential for getting better yield with tolerance to pests and diseases. In the current scenario most seeds are produced and distributed by Government agencies and a few private players.

The Government under the Vision 2023 intends to set up an integrated supply chain for seeds and nurseries, under this model the nucleus and breeder seeds will be produced by TNAU. The Department of Horticulture and Department of Agriculture will produce the foundation seeds through the 41 State Seed Farms, 56 State Horticulture Farms and 81 seed processing units. Private agencies will be encouraged to produce and distribute certified seeds across the State.

The project aims to set up appropriate infrastructure by the Government for seed production (nucleus, breeder and foundation), nursery breeding and associated storage and supply chain. The seed farms and processing centres will be strengthened by investing in,

1. Increasing the area under seed farms
2. Enabling micro irrigation and related systems
3. Laboratory infrastructure
4. Infrastructure for Organic manure production
5. Enabling micro irrigation and related systems
6. Seed sorting and grading equipments
7. Cold storage of seeds
8. Logistics infrastructure for transportation of seeds

The industry will have to set up the facilities required for producing certified seeds, storage, distribution and supply chain associated with it.

A Technical Advisory Group comprising of representatives from TNAU, Horticulture and Agriculture departments and the industry will be formed, which will spearhead the research and development activities of seed production appropriate for the agro climatic zones of Tamil Nadu. This group will consider the food security objectives of the Government, besides promotion of seed processing industry. The Government will continue to produce and distribute a part of the certified seeds in the State to maintain supply consistency.



Targeted Impact:

Providing quality seeds/saplings enables better farm returns through,

1. Timely availability of high yielding variety of seeds/saplings
2. Better planning of resources required for farming
3. Improved mechanisation
4. Reduced expenditure on plant protection
5. Conservation of native breeds and generation of better yielding breeds
6. Improved returns to farmers

Implementation strategy:

The Government intends to build/strengthen the State infrastructure immediately, in parallel the existing production standards for seeds and nurseries will be streamlined into the system envisaged. Private participation in the project is expected to start in 2013 and it would be an ongoing process. Standards for private participation would be laid down by 2013 and the reaching out to farmers through the new system is expected from 2014 onwards. Private participation would be through both PPP and stand alone industry mode.





9.4.2 Programme for Soil Quality Improvement & Wasteland Rehabilitation

Name of the Programme: Programme for Soil Quality Improvement and Wasteland Rehabilitation		Location: Across Tamil Nadu
Investment: Rs. 2,000 Crore		Time Frame: Continuing process
Mode of Finance	Multimodal - Government, Public Private Partnership	Implementing Agency: Agriculture Department

Description:

Practices such as improper and imbalanced utilisation of fertilisers, intensive mono cropping, soil erosion, land and water pollution have resulted in the impoverishment of the soil quality in the State. This directly impacts the ability of the soil to support certain crops and the associated yield. Soil health management is aimed at conserving the fertility of soil through green manuring, usage of bio-fertilisers and organic fertilizers, micronutrient management, recycling of farm waste, reclamation of problem soils and abatement of pollution in farming areas. This project will be effected through multiple strategies including:

1. Distribution and periodic updation of Farmers Integrated Handbook
2. Strengthening of the State infrastructure for conducting soil analysis
3. Implementation of ICAR's Soil Test Crop Response based Integrated Plant Nutrition System in all laboratories and undertaking farmer dissemination
4. Intensifying the usage of green manuring and bio-char by promoting industries which are involved in green manure production and distribution of the same through the established Government distribution supply chain
5. Promoting bio fertiliser production units in the State, especially liquid fertilisers, which have better shelf life and can be used easily through fertigation and other techniques
6. Utilisation of uzhar sandhai waste, recyclable municipal waste and sugar factory waste for green organic manure production
7. Using remote sensing technique for crop acreage and ground assessment
8. Building a dynamic block level soil map for effective crop management
9. Promoting vermi hatchery and azolla production in each district for organic manure production
10. Implement effective quality control, certification and accreditation mechanism for bio fertiliser, green manure and organic manure





Type of Soil	Location (Districts)	Potential Crops after Reclamation
Acidic Soil - 2.8 Lakh ha	Nilgiris, Kodaikanal, Kanyakumari, parts of Pudukottai, Dindigul, Tanjavur and Coimbatore	Maize, Sorghum, Groundnut & Pulses.
Saline Soil - 1.53 Lakh ha	Nagapattinam, Kanchipuram, Namakkal, Tiruvarur, Tiruvallur, Cuddalore, Villupuram, Tuticorin and Ramanathapuram	Cotton, Ragi, Chillies, Rice, Guava, Sapota and Pomegranate
Sodic Soil - 2.82 Lakh ha	Kanchipuram, Tiruvannamalai, Nagapattinam, Pudukottai, Ramanathapuram and Trichy districts	Rice, cotton, Sunflower, Ragi, chillies and forages
Soil with physical Constraint - 15 Lakh ha	Surface crusting Soil – 4.51 Lakh ha in Pudukottai Thanjavur and Sivagangai	Crops that suit the region
	Subsoil hard pan soils - 10.54 Lakh ha in Coimbatore, Madurai, Vellore, Ramanathapuram and Tirunelveli	

Targeted Impact:

The effects of the same would directly result in,

1. Increase in farm yield
2. Increase in quality of the produce
3. Reduction in dependence on chemical fertilizers
4. Increase in total cropped area
5. Better economic return for the farmers
6. Reduced cost of cultivation





Implementation Strategy:

Soil Quality Improvement

Conservation of soil health is a long term process that needs concerted effort of the Government, farmers and private industries. The Government will spearhead the activities with active participation of private sector through PPP mode.

Name of the project	Government/PPP/Private
Farmers Integrated Hand book	Government has initiated the project and shall be done on PPP basis in future
Strengthening of Soil Testing Laboratories	1. Government shall strengthen the existing laboratories 2. Private laboratories shall be established at all sugar mills and clustered Primary Agricultural Co-operative Credit Societies (PACCS) level on PPP mode
Green manure, bio fertiliser, bio char, azolla, vermin hatchery units, waste recycling	Government shall initiate the pilot and shall involve private/PPP for the same in future
Quality control of bio fertilisers and green manure	Government
Soil mapping of the state	Government

The feasibility of the programme and the technical evaluations will be conducted by the Government right away, and from 2013 onwards the Government shall initiate various projects.

Wasteland Rehabilitation

Waste lands and degraded lands which are capable of being reclaimed will be identified. In specific locations a cluster of lands will be identified and the soil reclamation practices will be adopted.

A pre-project survey will be conducted to identify the parcels of land that are amenable to development. The project will be an integrated one covering proper micro irrigation facilities, farm ponds for water harvesting, dairy and/or poultry farming to provide supplementary income to the farmers. Forward and backward linkages and the demand conditions will be identified to support the crop that will be cultivated after reclamation. The demonstration project will be taken up by the state and the roll out will be on PPP basis.



9.4.3 Strengthening of Demonstration Farms

Name of the Programme: Strengthening of Seed Farms, Horticultural Farms and establishment as demonstration farms		Location: Across Tamil Nadu
Investment: Rs. 2,000 Crore		Time Frame: Continuing process
Mode of Finance	Government/Public Private Partnership	Implementing Agency: Agriculture Department, Horticulture Department, and TNAU
Description: <p>Demonstration farms act as a powerful tool for extension activities. For a variety of crops, vegetables and fruits, the Government establishes demonstration farms for explaining to the farmers the merits of scientific agricultural methods. Under this programme, the Government intends to modernise all Seed Farms, State owned farms, Horticultural Farms and temple owned farms.</p> <p>All these farms with the assistance of TNAU and other appropriate private agencies will be upgraded by the following methods:</p> <ol style="list-style-type: none"> 1. Soil Health Improvement 2. Adequate mechanisation 3. Drip irrigation & fertigation 4. Usage of bio fertilisers and appropriate nutrient management techniques 5. High yield variety breeds 6. Dry land agricultural techniques 7. Reclamation of waste land 8. Other scientific agricultural practices <p>The farms will be selected for the regional variety of crops/vegetables/fruits and the appropriate technologies will be demonstrated for farmers. The income generated from the farms will be used for sustainable development of the farms and the surplus would be deposited with the Government/temple accounts.</p>		
Targeted Impact: <p>Demonstration is the most powerful extension technique, farmers from the locality get firsthand information and adoption of these technologies for incremental farm output besides reduction in cost of cultivation and usage of chemical fertilisers. This would encourage the farmers to adopt these techniques which provide better returns for their investments, this also would encourage farmers towards functional consolidation of land/cluster formation which is essential for mechanisation, implementation of scientific agricultural methods and to generate higher yields</p>		
Implementation strategy: <p>The Government has an ongoing budgeted scheme for strengthening of demonstration farms for different crop initiatives. This would be strengthened and private participation would be brought in through PPP methods. A feasibility study on the type of farms available with the Government and the methods of modernisation that can be brought in relation with the local region and produce would be conducted by 2013. Based on this study interested and capable private partners would be invited for establishing the demonstration farms.</p>		



9.4.4 Horticulture Development Programme

Name of the Programme: Horticulture Development Programme		Location: Across Tamil Nadu
Investment: Rs. 400 Crore		Time Frame: Continuing process
Mode of Finance	Government/Public Private Partnership/ Private	Implementing Agency: TNAU, Horticulture Department
Description:		
<p>Horticulture generates higher revenue in agriculture and also enables setting up of food processing centres. The varied agro climatic zones of Tamil Nadu helps to promote cultivation of variety of fruits, vegetables, flowers, medicinal crops, spices and plantation crops. During 2010-11, horticultural crops were grown over an area of 10.66 Lakh ha which is approximately one fifth of the total area under agriculture in Tamil Nadu. In 2010-11, 187.99 Lakh MT of horticultural crops were produced; in 2011-12 it is estimated in 11.08 Lakh ha with a production of 202.64 Lakh MT, and in 2012-13 the state expects a coverage of 12.55 Lakh ha and production of 243.43 LMT.</p> <p>Tamil Nadu aims to double the output of horticultural crops over the next seven years. This has to be undertaken through a series of measures involving scientific production technologies, increasing productivity, and increasing of area under production. The state is operating various programmes for promotion of horticultural crops with forward and backward linkages. These programmes will be strengthened and new projects would be undertaken. Interventions will be provided in the following areas:</p> <ol style="list-style-type: none"> 1. The State would assist farmers in establishment of horticultural farms and polygreen houses so that high production and productivity under controlled conditions can be achieved 2. Establishment of forward and backward linkages through an effective cold chain, seed chain, fertilizer programme, and food processing centres 3. Promotion of organic farming techniques 4. Promotion of organic farm manure production (Liquid) 5. Support for establishment of micro irrigation and fertigation techniques 6. Support to farm mechanisation for horticulture 7. Research on farm mechanisation 8. R&D in horticultural crops 9. Database development for germplasm and improved crop varieties 10. Effective extension mechanism 11. Geographic Indication of popular horticultural crops of TN including Erode Turmeric, Mutlur Onion, Chettinad Brinjal, Madurai Malligai, Kanyakumari Matti Banana, Vripakshi hill banana, Krishnagiri Mango, Perambalur Onion, Kulithalai Betel vine, Panruti Jack fruit, Ramanathapuram Chillies, Tirunelveli Senna, Madurai Vattal, etc. 		



Targeted Impact:

Horticultural crops have high economic value but low shelf life, hence it is imperative that the forward and backward linkages for horticultural crops need to be robust and flexible to adapt to market demands and supply. By enabling the above programmes, horticulture farmers and the supply chain will be assisted to generate better quality production, productivity and market returns.

Implementation strategy:

The programme will be implemented through multiple modes of financing including Government funding, PPP format and private investment.

The Government shall promote horticultural parks and poly green houses through suitable financing modes to encourage public participation. Private and PPP investments will be welcome by Government through enabling policies and regulatory mechanisms to establish horticultural farms and contract farms.

The Government will start the process by strengthening the state horticultural farms and selected demonstration farms of public across the state in 2013. Participatory guidelines for private firms will be framed in 2013 and investments would be welcomed following that.





9.4.5 Propagation of Micro Irrigation

Name of the Programme:		Location: Across Tamil Nadu
Propagation of Micro Irrigation		
Investment: Rs. 20,000 Crore		Time Frame: Continuing process
Mode of Finance	Government/Private	Implementing Agency: TTNAU, Department of Horticulture and Department of Agriculture
Description:		
<p>The average rain fall of Tamil Nadu is only 921.5mm, which is less than the National average of 1200 mm. Tamil Nadu is endowed with only 3 per cent of the country's water resources. Tamil Nadu has 17 major river basins and 127 sub basins. The total surface water potential is assessed at 853 TMCft including the 261 TMCft from Karnataka, Kerala and Andhra Pradesh. The net ground water availability is assessed at 729.65 TMCft, of which the present ground water requirement for irrigation is 519.83 TMCft. About 80% of the available ground water has been exploited and out of the 385 blocks in the state, 142 are categorised as over exploited, 33 as critical, 57 as semi critical, 145 as safe and 8 under other categories</p> <p>The net cultivated area in Tamil Nadu is 49.54 Lakh ha of which only 59% is irrigated and the rest is rain fed. Well irrigation forms 56% of all irrigation, canal and tank irrigation form 26% and 18% respectively. Thus there is a high strain on availability of adequate water for irrigation in the state, and this is forcing the State towards sustainable use of restricted water while improving the productivity.</p> <p>Micro irrigation (MI) techniques have proved successful in providing irrigation for horticulture crops, and have been tested successfully for paddy and sugarcane as well. The Government of Tamil Nadu is providing 100% subsidy for small and marginal farmers for installation of MI systems and 75% for other farmers. During 2011-12 48,296 ha were brought under MI through Government aid and in 2012-13 another 49,567 ha is envisaged under the scheme. Tamil Nadu Horticulture Development Agency (TANHODA) is also engaged in micro irrigation initiatives under the National Mission on Micro Irrigation programme. The target for 2012-13 is to cover 37,200 ha at a cost of Rs 250 Crore.</p> <p>The Government of Tamil Nadu will extend these activities for the next 10 years and will aim at covering at least 50% of the net cultivated area under micro irrigation techniques under this programme.</p>		
Targeted Impact:		
<p>The objective of the programme is to promote micro-irrigation thereby improving productivity and generating more crop per unit of water. Micro irrigation would also enable fertigation techniques which would provide for calculated, timely and controlled fertilisation of crops. The cost of delivering the fertiliser also gets reduced this way.</p>		
Implementation strategy:		
<p>The programme will be implemented through multiple modes of financing including Government funding, PPP mode and private investments.</p> <p>The Government shall provide direct funding/subsidy to small and marginal famers and would encourage private projects for large areas under irrigation. Private investment in micro irrigation will be encouraged through regulation of reliable organisations and technologies for micro irrigation. Action has been initiated to maintain the transparency and supply of quality materials for MI systems.</p>		



9.4.6 Agricultural Mechanisation in Tamil Nadu

Name of the Programme:		Location: Across Tamil Nadu
Agricultural Mechanisation		
Investment: Rs. 20,000 Crore		Time Frame: Continuing process
Mode of Finance	Government/Public Private Partnership	Implementing Agency: TNAU, Department Agriculture, Department of Agricultural Engineering and Cooperation
Description:		
<p>Agricultural mechanisation has become need of the day because of the following reasons:</p> <ol style="list-style-type: none"> 1. Need for improving productivity through scientific cultivation technologies, which require mechanisation 2. Reduced availability and increasing cost of farm labour 3. Need for increasing the area under cultivation 4. Need to bring in uniformity in agriculture operations 5. Reduced harvest losses due to better material handling techniques <p>Enabling agricultural mechanisation requires multi pronged interventions such as increasing the area under crops, usage of quality seeds which yield crops/vegetables/fruits which support mechanisation, rationalised multi cropping, standardisation of irrigation and fertiliser application, availability of machinery at the time of requirement, support system for maintenance and up-gradation of machinery, promotion of groups for seed to seed activities, on line farm machinery booking system ,skill development and extension activities.</p> <p>The Government of Tamil Nadu currently supports mechanisation by:</p> <ol style="list-style-type: none"> 1. Purchase of heavy machinery through the Agriculture Engineering Department and providing it on custom hiring to farmers 2. Procurement of medium and small equipment through Primary Agriculture Cooperative Credit Societies and providing it on custom hiring to farmers and 3. Provision of subsidy to farmers, self help groups to acquire small agro machinery. <p>The Government intends to expand its scope of assisting the farmers in mechanisation through the above methods and by encouraging PPP investments in agricultural mechanisation.</p>		
Targeted Impact:		
<p>Every farmer from small and marginal to large land holding requires mechanisation of different levels. Implementation of farm mechanisation is expected to bring in the following changes:</p> <ol style="list-style-type: none"> 1. Improved productivity through reduced wastage and optimisation of resources 2. Reduced manpower cost 3. Helps in timely agricultural operations 4. Improved fertilizer use efficiency 		



Implementation strategy:

The programme will be implemented through multiple modes of financing including Government funding, PPP format and Private investments.

The Government will continue its subsidy schemes for small and marginal farmers and will encourage PPP mechanism for supporting mechanisation of large land holdings. Private entrepreneurs, organisations and farm equipment makers will be encouraged in partnering with the Government in providing farm equipments for farm preparation, cultivation, crop management, harvesting, and material handling.





9.4.7 Integrated Post Harvest Supply Chain Establishment

Name of the Programme:		Location: Across Tamil Nadu
Integrated Post Harvest Supply Chain Establishment		
Investment: Rs. 20,000 Crore		Time Frame: 2013-2020
Mode of Finance	Government owned/Public Private Partnership/Private	Implementing Agency: Agriculture Department – Department of AM&AB
Description:		
<p>An integrated post harvest supply chain inclusive of logistics network, storage yards, cold storage chains, sorting, grading and certification mechanism, primary, secondary and tertiary processing, reliable market information, market for sale of produced goods is imperative for realising the maximum value of agricultural produce.</p> <p>The Government has set up 21 Market Committees, and 277 Regulated Markets, 10 Rural Business Hubs for ensuring proper market place for farmers. This apart, 50 modern godowns with a total capacity of 16.4 Lakh MT are being set up in 15 Districts and all 21 Market Committees, 184 Regulated markets are connected through computer for disseminating prevailing market rates, and 20 regulated markets are being integrated in this information network this year. The Government has set up 'Agri Marketing Intelligence and Business Promotion Centre' (AMI & BPC) for giving crop advisory and disseminating market information to farmers in time besides creating market facility with cold storage for mangoes in Krishnagiri, market complex with cold storage for tomatoes in Dharmapuri and Salem, for grapes in Theni, for onions in Tiruppur, for coconuts in Ponnavaarayankottai in Tiruppur district, for onions and vegetables in Perambalur, for hill vegetables in Coimbatore and banana ripening chambers in Trichy, Srivaikundam, Chinnamanur, and Mohanur. Additional cold storages with 1,000 MT capacity each are being set up for Banana in Tiruchendurai, for vegetables at Erode, for Tamarind in Dharmapuri and for chillies in Tirunelveli and cold storage of 200 MT capacity for lemons at Kadaiyanallur in Tirunelveli; and 100 MT cold storage capacity for vegetables in five regulated markets. Three terminal market complexes are being set up in Perundurai, Chennai and Madurai. At present, the State has a private cold storage facility for 2.27 Lakh MT.</p> <p>The storage infrastructure in the State is not sufficient considering the horticultural production target of 171.64 Lakh MT and food grain production target of 112 Lakh MT for the year 2013-2014. The lacunae in the supply chain have resulted in excessive wastage to the tune of 30-40% in horticultural produces alone. To establish reliable agri business involved in primary, secondary and tertiary processing of agricultural produce it is imperative to have a reliable supply chain and cold chain. The major crops/vegetables/fruits grown in Tamil Nadu and their leading production districts are as listed below,</p>		



Crop/ Vegetable/ Fruit	Leading Production Districts
Paddy	Thiruvarur, Villupuram, Nagapattinam, Thanjavur, Tirunelveli, Kancheepuram, Tiruvannamalai, Cuddalore, Tiruchirapalli, Tiruvallur
Maize	Dindugul, Thirupur, Salem
Ragi	Krishnagiri, Dharmapuri
Jowar	Theni, Dindigul, Thoothukudi
Pulses	Thiruvarur, Nagapattinam, Cuddalore, Thoothukudi, Thanjavur, Krishnagiri
Chillies	Thoothukudi, Sivagangai, Tirunelveli, Ramanathapuram, Virudhunagar, Dindigul, Tiruchirapalli
Turmeric	Erode, Salem, Dharmapuri, Namakkal, Coimbatore, Krishnagiri
Tamarind	Dindigul, Theni, Thiruppur, Madurai, Krishnagiri
Tapioca	Namakkal, Salem, Dharmapuri, Villupuram, Erode, Tiruchirapalli
Potato	Dindigul, Nilgiris, Krishnagiri
Tomato	Dharmapuri, Krishnagiri, Coimbatore, Dindigul, Theni, Salem
Onion	Perambalur, Tiruchirapalli, Thiruppur, Namakkal, Dindigul, Tirunelveli, Erode
Banana	Thoothukudi, Theni, Coimbatore, Tiruchirapalli, Erode, Vellore, Tirunelveli, Karur, Kanyakumari
Mango	Krishnagiri, Dindigul, Vellore, Dharmapuri, Theni, Tiruvallur, Madurai, Tirunelveli, Salem, Tiruchirapalli
Gauva	Dindigul, Madurai, Virudhunagar, Vellore
Grapes	Theni
Cashew nut	Cuddalore, Ariyalur, Theni
Ground nut	Villupuram, Tiruvannamalai, Vellore, Kancheepuram, Tiruvallur, Namakkal, Cuddalore, Salem,
Coconut	Coimbatore, Dindigul, Thanjavur, Theni, Kanyakumari, Krishnagiri, Vellore

Setting up an integrated supply chain with private sector participation to augment the existing infrastructure will involve:





1. Establishment of cluster level cold storage/godowns across the state
 - a. At least one storage per 20 revenue villages whose primary employment is agriculture dependent will be created (Transportation of goods more than 25km without storage may not be feasible as the transportation, loading, unloading and administrative charges would be high)
 - b. The Government targets to create at least 500 such storage facilities across the state at an average cost of Rs 25 Crore each
 - c. The first priority would be for the perishable produces and districts which represent the maximum perishable produce
 - d. These storage complexes would be of capacity from 50MT to 5000MT depending upon the extent of aggregation, number of crop cycles, duration of storage, and availability and accessibility to primary, secondary and tertiary processing centres
 - e. The storage godowns will be with modern facilities for storage, retrieval, packing and material handling
 - f. These storage centres will have the necessary technology tools for cleaning, washing, drying, grading, sorting, packing and primary processing wherever required.
2. Establishment of three regional Terminal Market Complexes (TMC) (in addition to the existing three under construction) at a cost of Rs 300 crore per centre, one each in Krishnagiri, Vellore and Tiruchirapalli. The TMCs will also act as aggregation centres for goods and will be equipped with required facilities for sorting, grading and temporary cold/normal storage
3. Computerised integration of cluster level cold storage/godowns with the TMCs will be established at a cost of Rs 1000 crore
4. Establishment of hub and spoke logistics integration between cluster level cold storage/godowns with the TMCs
5. Enabling goods trading from the TMCs through computers
 - a. A transparent and a real time procurement system will be established by the Government
 - b. Farmers, storage godown operators will be educated on online procurement
6. Agro produce export zone and the related equipments including gamma irradiation/ electronic beam facility, grading, sorting and packing facility etc will be established in 10 locations at an investment of Rs 100 Crore each (including Krishnagiri, Coimbatore, Tiruchirapalli, Dharmapuri, Dindigul, Thiruvarur, Erode, Perambalur, Thoothukudi, and Theni). These centres will act as aggregating, sorting, quality control, packing and forwarding regions for export trade.
7. Logistics back bone to support the storage facilities and trading will be established on private investment of Rs 200 Crore
8. Air cargo terminals for perishables in Chennai, Madurai and Coimbatore at an investment of Rs 300 crore each
 - a. The air cargo terminals will have cold storage facility
 - b. Establishing liaison with international goods carriers



Targeted Impact:

Provision of post harvest supply chain will enable,

1. Targeted reduction of at least 80% wastage
2. Establishment of agri business units in the State
3. Employment generation due to agri business development
4. Increased returns in agricultural for the farmers
5. Increased contribution of agriculture in the GSDP of the state

Implementation Strategy:

The Government intends to strengthen the state's post harvest infrastructure in participation with the industry. The Government will encourage private investment and PPP investment in:

Establishment of cold chain/godowns:

1. Terminal Market Complexes
2. Air cargo complex for perishables
3. Establishment of logistics network for goods transportation

Farmers would have the flexibility and option to store their goods as per market availability. The farmers can store their goods availing the facilities, receive a challan towards its quantity and quality and can use the challan for trading of the goods stored. The storage facilities can also act as financing agents for farmers towards post harvest goods.

A State level governing body will be formed for framing the rules of operating the storage facilities and governing the trading of goods at the TMC and cluster godowns. Suitable policy initiatives would be established for trading of goods and to avoid profiteering based on information asymmetry. The State will establish the framework for this operation by June 2013 and shall start the establishment of infrastructure immediately.





9.4.8 Infrastructure support for Agro Food Processing Industry

Name of the Programme:		Location: Across Tamil Nadu	
Project for Promotion of Agro Food Processing Industry			
Investment: Rs. 5,000 Crore		Time Frame: Continuing process	
Mode of Finance	Government/Private/Public Partnership	Private	Implementing Agency: TNAU, Agriculture Department- Department of AM & AB
Description:			
<p>Tamil Nadu has around 4000 vegetable and fruit processing industries with an average employed capital Rs.1.7 Crore. Tamil Nadu exported agro processed food worth Rs. 4782 Cr in 2007-08¹². Nearly 30% of crops produced in India get wasted in the post harvest supply chain of storage, logistics and handling.</p> <p>The Government of Tamil Nadu is promoting four agri export zones which are being set up by private industries for cut flowers, mango and cashew. Primary processing of the produce is to be done in these areas. Food processing industries are also being promoted under the National Mission on Food Processing and through farmer participation by the State Government.</p> <p>The Government intends to bring in at least a Rs. 2000 Crore investment in food processing industry by promoting primary, secondary and tertiary industries in Namakkal, Salem, Dharmapuri, Villupuram, Erode, Tiruchirapalli, Dindigul, Nilgiris, Krishnagiri, Coimbatore, Dindigul, Theni, Perambalur, Tiruchirapalli, Thiruppur, Erode, Thoothukudi, Kanyakumari, Krishnagiri, Vellore, Dharmapuri, Tiiruvallur, Madurai, Tirunelveli districts for processing of tomato, potato, tapioca, guava, coconut, oil seeds, mango, banana and other horticultural crops. These processing industries will be backward linked with farmers producing the respective crop thereby ensuring steady supply for processing industries and reliable market for farmers.</p>			
Targeted Impact:			
<p>Processing of agro products multiplies the value of produc grown several times. The farmers would be able to realise better returns for their produce. Existence of processing industries will encourage farmers to engage in high productive farming techniques and maximise the output of their farms. Existence of processing centres would encourage cold storage and thereby reducing wastage in supply chain.</p>			
Implementation Strategy:			
<p>The programme will be implemented through multiple modes of financing including Government funding, PPP format and private/entrepreneur.</p> <ol style="list-style-type: none"> 1. The Government will continue its subsidy based schemes for primary processing by small and marginal farmers to support their subsistence. 2. The Government would encourage large and medium food processing industry by formulating supportive policies and enabling infrastructure. 3. The Government will encourage PPP by involving PACCS and farm co-operatives to work with industry in setting up primary and secondary processing industries in the districts mentioned above. <p>The Government will frame food processing industry promotion schemes and guidelines by 2013 and will promote private participation immediately. The Government will also conduct a detailed feasibility study for PPP in food processing by 2013 and shall implement feasible projects in this mode.</p>			

¹² Source : “Enhancing Competitiveness of Indian Manufacturing Industry : Assistance in Policy Making” by National Manufacturing Competitiveness Council



9.4.9 Infrastructure for Dairy Processing

Name of the Programme:		Location: Across Tamil Nadu
Infrastructure for dairy processing		
Investment: Rs 5,250 Crore		Time Frame: On going
Mode of Finance	Public Private Partnership	Implementing Agency: Animal Husbandry, Dairying and Fisheries Department
Description:		
<p>India is the largest milk producer in the world and achieved a production of 121.8 Million tonnes in 2010-11; Tamil Nadu is the eighth largest milk producer in India contributing 5.61% of the production. Through various successful interventions Tamil Nadu increased its production from 49.9 Lakh MT in 2001-02 to 68.34 Lakh MT in 2011-12. The State Government has called for a second white revolution and aims to double the milk production capacity of Tamil Nadu to 150 Lakh MT by 2023.</p> <p>The Government through various schemes is augmenting the livestock population in the State to increase household incomes. But only 39 percent of the milk production is handled by the organised sector, 49 per cent is handled by the unorganised sector and the remaining 12 percent is consumed locally. Tamil Nadu has an average daily milk production capacity of 145 lakh litres but it has only 20 Union and Federation dairies with a handling capacity of 30.72 llpd (lakh litres per day) and 42 registered private dairies with a handling capacity of 30.5 llpd. These facts highlight the need for augmenting the state's dairy processing capacity. The State's target of 150 Lakh MT converts to approximately 410 llpd, and hence there is a need to fast track creation of dairy processing capacity in the state.</p> <p>The Government will support creation of dairy processing centres across the State especially in high production districts like Tirunelveli, Vellore, Tiiruvannamalai, Salem, Madurai, Coimbatore, Namakkal, Thoothukudi and Villupuram.</p>		
Targeted Impact:		
<p>The dairy processing centres will focus not only on primary processing and distribution of milk but on manufacture of value added products like flavoured milk, milk powder, ghee, paneer, butter, cheese, khoa and others as processed milk products generate better returns. The creation of milk production capacity and linking of farmers with the processing units will aid in economic development of the milk producers, processors and assist in increasing the milk consumption in the State.</p>		
Implementation Strategy:		
<p>The Government intends to create these dairy processing centres through private and Public Private Partnership mode. Private industry will be welcome to assist the State to augment its milk production and processing capacity. Farmers through unions will be encouraged on PPP in dairy processing plants thereby providing them assured economic returns</p>		





9.4.10 Infrastructure for Poultry Processing

Name of the Programme: Infrastructure for poultry processing		Location: Across Tamil Nadu
Investment: Rs. 2,000 Crore		Time Frame: Continuing process
Mode of Finance	Private and PPP	Implementing Agency: Animal Husbandry, Dairying and Fisheries Department
Description:		
<p>Tamil Nadu is the second largest producer of eggs (18.27%) in India. The State which produced 4,223 million eggs in 2001-02 increased its capacity to 11,514 million in 2011-12 thereby increasing the per capita availability from 68 to 171 eggs. Tamil Nadu also accounts for 19.74% of the poultry population in the country. Backyard poultry provides profitable subsistence to rural livelihood, but only 3.35% of the egg production is from this source.</p> <p>Though Tamil Nadu and India have been traditionally strong in poultry farming, less than 6 per cent of the poultry is consumed in processed form. The rest is consumed in form of either fresh cut chicken or fresh eggs. But with the surge of organised retail and demand for quality and choice poultry meat, the market for dressed and processed poultry meat is growing at a rate of 20-25 per cent; and the processed meat commands a cost premium of a minimum of 20 per cent over unorganised channels.</p> <p>Similarly processed egg consumption is very limited in Tamil Nadu and India. Processed egg in powder, liquid and mixture form is used primarily for bakery foods, ice creams and other processed ready to eat food. With an enviable egg production capacity, Tamil Nadu has the capacity to emerge as a worldwide supplier of processed eggs. The Government under the Vision 2023 intends to promote poultry meat processing and egg processing industry through intensive private investment and Public Private Partnerships.</p>		
Targeted Impact:		
<p>The creation of processing infrastructure for poultry meat and egg, and establishment of a supply chain integrating marginal farmers and small and medium hatcheries (similar to dairy sourcing) would result in tremendous economic returns for them. The establishment of the industry will also bring in best practices and norms in poultry farming, handling, and processing.</p>		
Implementation Strategy:		
<p>The Government would promote private industry and Public Private Partnerships in the poultry processing and egg processing industry. Favourable investment climate will be created for private investors who are willing to invest in the sector. The Government will also assist marginal famers and small and medium hatcheries in modernising their production methods and quality requirements, thereby preparing them for Public Private Partnerships in the sector. The initial promotion efforts will be in the chicken and broiler districts belt of Tamil Nadu including Namakkal, Karur, Dharmapuri, Dindigul, Sivagangai, Tirunelveli, Villupuram, Virudhunagar, Coimbatore, Tiruppur, Erode, Salem and Krishnagiri, and then will be extended to other districts.</p>		





9.4.11 Integrated Fish Processing Centres

Name of the Programme:		Location: Across Tamil Nadu
Integrated fish processing centres and fish landing stations/ fishing harbours		
Investment: Rs. 1,500 Crore		Time Frame: On-going
Mode of Finance	Public Private Partnership	Implementing Agency: Agriculture Department and Animal Husbandry
Description:		
<p>Tamil Nadu with a 1,076 km long coast line stretching over 13 districts has 591 fishing villages and 3.73 lakh hectares of inland fishing resources. Tamil Nadu produced 5.97 Lakh tonnes of fish in 2011-12 and exported 73,991 tonnes. Tamil Nadu is the fifth largest producer of fish in India. Tamil Nadu has an Exclusive Economic Zone of 1.9 lakh sq. Km and continental shelf of 41,412 sq. Km. The inshore resources in Tamil Nadu are overfished whereas offshore resources are yet to be fished to the optimum level.</p> <p>The Government through its various schemes is promoting mechanised and deep sea fishing to increase economic returns and reduce exploitation of inshore regions. Inadequate availability of fish processing centres and inadequate cold storage facility is hindering fishermen from undertaking deep sea fishing. The Government under the Vision 2023 intends to create a network of world class fish storage, processing and distribution centres in Tamil Nadu.</p> <p>Fish processing plants will be established in every district of Tamil Nadu as a part of this programme. In the first phase, Nagapattinam and Cuddalore have been selected for establishment of the fish processing parks. This will be extended to Chennai and other districts gradually on PPP mode. To support deep sea fishing with processing facilities, the Government intends to set up mother-ships which will undertake mid sea processing and distribution to Indian and international markets. Landing stations/fishing harbours will also be constructed where required and infrastructure in the existing ones will be improved.</p>		
Targeted Impact:		
<p>The fish processing centres will assist in timely cleaning, sorting and hygienic storage of fish thereby extending its shelf life and economic returns for fishermen. The fish processing centres will also assist in reducing the wastage during fish handling, create economic opportunities and promote entrepreneurship in the state.</p>		
Implementation Strategy:		
<p>The Government has prepared a detailed project report for construction of fish processing parks at Cuddalore and Nagapattinam on PPP mode. The process will be replicated for the other eleven districts of the state in a phased manner. Detailed project report is under preparation for mid sea mother-ship processing centre. The first processing centres are expected to start operation by 2014; the centres other districts and mother ship will start operations by 2017.</p>		





9.4.12 Rehabilitation of Tanks and Wells

Name of the Programme:		Location: Across Tamil Nadu
Rehabilitation of tanks and wells		
Investment: Rs. 22,500 Crore		Time Frame: 2013-2023
Mode of Finance	Government	Implementing Agency: WRO-PWD, Panchayati Raj
Description:		
<p>Tamil Nadu has around 13,699 tanks under the supervision of Water Resources Organisation of PWD and number of tanks under Panchayati Raj administration. These tanks act as water catchment areas, reservoirs and aid in recharging the ground water level of the state.</p> <p>These tanks are being regularly de-silted and cleaned to protect the water holding capacity through ongoing programmes and through the IAMWARM project. These project will be extended in future and the following initiatives will be taken up:</p> <ol style="list-style-type: none"> 1. Reclamation of tanks 2. Reclamation and revitalisation of watershed area 3. De-silting and cleaning of tanks 4. Stone bunding of large tanks under PWD 5. Establishment of recharge tanks in urban areas 6. Piped water supply from tanks to nearby areas 		
Targeted Impact:		
<p>Through reclamation and restoration of tanks the Government proposes to double the storage capacity of surface water in Tamil Nadu. The project will also improve the much vulnerable ground water levels of the state. The project will provide employment for the rural people thereby improving their livelihood.</p>		
Implementation Strategy:		
<p>The programme will be implemented by the Government through the PWD and Panchayati Raj institutions. The Government has prepared a detailed remote sensing map of the tanks in Tamil Nadu; this will be used in conjunction with the existing revenue record details to identify the areas for rehabilitation. The master plan for tank rehabilitation will be prepared in 2013 and the works will start in 2014.</p>		



9.4.13 Effective Utilisation of North East Monsoon Drainage Water, Coastal zone and Cauvery delta irrigation development plan

Name of the Programme: Infrastructure development to conserve North East monsoon drainage water, Coastal zone and Cauvery delta irrigation development plan		Location: Across Tamil Nadu
Investment: Rs. 3,000 Crore		Time Frame: 2013-2019
Mode of Finance	Government	Implementing Agency: WRO-PWD
Description: <p>The North East monsoon extends from October to November during which Tamil Nadu receives about 48 per cent of its annual rainfall. The coastal areas witness 60 per cent and interiors about 40 per cent of their annual rainfall during this short period. The monsoon occurs in spells of three to four days at a time, and the heavy rains during this limited time period often results in drainage of most of the rain water into the sea.</p> <p>The objective of this project is to develop network of catchment areas, drainage areas, storage tanks, transportation channels, check dams and other infrastructure to arrest the wastage of water happening during the season.</p> <p>Distribution of tanks, barrages and watershed is limited along the coastal areas. The coastal areas of Tamil Nadu also get affected by cyclones and heavy rains during the North East Monsoon in the months of October, November and December. The coastal zone irrigation plan is aimed at developing sustainable sources of irrigation for the coastal region of Tamil Nadu. The plan will establish planned watershed areas, barrages, tanks along the water drainage locations of coastal areas and will provide piped water supply for irrigation and other requirements. Cauvery Delta area modernisation will be done in parallel integrating the delta region and coastal region. A climate change adaptation programme in the Cauvery Delta has been planned with the assistance of Asian Development Bank.</p> <p>The whole project will be designed in conjunction with “Effective utilisation of North East monsoon drainage water” project. Barrages will be built across Cauvery between Mettur and Grand Anicut, and across Coleroon between Grand Anicut and Lower Anicut. These barrages apart from providing water storage will also provide hydro electric power. Similarly barrages will be constructed just before the confluence of the river into the sea and piped irrigation system will be provided for the coastal districts</p>		
Targeted Impact: <p>Through effective storage and transportation of excess water during North East monsoon season, Tamil Nadu will be able to provide for the farming and household needs of the State. The project will also provide means for generating hydro electric energy for the state.</p> <p>The project will provide sustainable irrigation and potable water for the districts of Kanchipuram, Villupuram, Nagapattinam, Cuddalore, Pudukottai, Ramanathapuram, Tuticorin, Tirunelveli and Kanyakumari.</p>		
Implementation Strategy: <p>The programme will be implemented by the Government through the PWD department. A detailed remote sensing map of the watershed areas and water bodies has been prepared which will be used as base data for development of necessary irrigation mechanisms in the coastal areas. The master plan for the project will be prepared in conjunction with the NE monsoon drainage water project in 2013; and the developmental work will start in 2014 and is expected to be completed by 2019.</p>		



9.4.14 Lining of major Canals in Tamil Nadu

Name of the Programme: Lining of major canals in Tamil Nadu		Location: Across Tamil Nadu
Investment: Rs. 5,000 Crore		Time Frame: 2013-2018
Mode of Finance	Government	Implementing Agency: WRO-PWD,
Description:		
<p>Tamil Nadu has 2,237 canals of a total length of 9736 km. Vellore, Cuddalore, Villupuram, Erode, Tiruchirapalli, Tirunelveli, Theni, Thiruvarur, Nagapattinam, Kanyakumari, Tiruppur, Coimbatore, Salem, Karur and Thanjavur districts have 1695 canals among them of a total length of 8307km.</p> <p>Canals provide irrigation from dams, barrages, tanks etc to 7.57 lakh hectare area out of the total irrigated area of 28.64 Lakh hectares in Tamil Nadu. Some of the canals are lined with stones and the rest have mud bunds. This results in frequent silting of the canals and reduction of their storage and transportation capacity. Transmission losses occur in canals through evaporation and absorption by the earth. This compounded with the limited release of water for irrigation results in inadequate transmission efficiency.</p> <p>The Government of Tamil Nadu aims to provide stone, concrete, precast slab or HDPE lining for the major canal systems in the State to limit the transmission losses. Piped water supply will be provided to fields adjacent to the canals to compensate for the loss of natural recharge</p>		
Targeted Impact:		
<p>Through lining of the canals, the water seepage losses can be avoided to a great extent, silting of the canals can be limited, and the expenditure on repeated desilting of canals every few years can be avoided.</p>		
Implementation Strategy:		
<p>The programme will be implemented by the Government through the PWD. The Government will identify the major canals where stone or HDPE lining is possible during 2013 and shall decide on the technical specifications. The work will start in 2014 and is expected to be completed by 2018.</p>		





9.4.15 Dam Rehabilitation and Improvement Project

Name of the Programme: Dam Rehabilitation and Improvement Project		Location: Across Tamil Nadu
Investment: Rs. 750 Crore		Time Frame: 2012-2018
Mode of Finance	Government	Implementing Agency: WRO-PWD, TANGEDCO/TNEB
Description: Tamil Nadu has 85 large dams and 4 small dams in the State with a combined storage capacity of 238.58 TMCft, of which Mettur dam is the largest with an original capacity of 93.47 TMCft. To increase the strength and improve the safety and operational performance of the dams in a sustainable manner, the Government of Tamil Nadu has an ambitious programme of rehabilitating dams. The Dam Rehabilitation and Improvement Project will be taken up with the assistance of World Bank over a period of six years starting 2012-13. The project includes the following components: <ol style="list-style-type: none"> 1. Structural strengthening, arresting seepage, and associated appurtenances 2. Dam safety studies, sedimentation studies, de-silting, MIS creation etc The project covers 66 dams of Water Resources Organisation (WRO), and 38 of Tamil Nadu Generation and Distribution Corporation Ltd (TANGEDCO).		
Targeted Impact: Desilting operations would improve the operational capacity of the dams which have accumulated silt, dirt and crop growth over the years. The strength and life of dam would be improved through structural strengthening and leakages of the dam would be arrested. This project will also provide an extensive compendium on the maintenance of dams and associated structures for Tamil Nadu.		
Implementation Strategy: The programme will be implemented by the Government through the combined effort of WRO of PWD, and TANGEDCO. An empowered committee has been constituted under the Chief Secretary and agreement has been signed with the World Bank towards funding of the project. The State project management unit is functional and the works are underway.		





9.4.16 Improvement of existing irrigation assets and Interlinking of Rivers

Name of the Programme:		Location: Across Tamil Nadu
Improvement of existing irrigation assets and Interlinking of Rivers		
Investment: Rs.10,000 Crore		Time Frame: 2012-2022
Mode of Finance	Government	Implementing Agency: WRD-PWD
Description:		
<p>Tamil Nadu receives most of its rains during the North East monsoon months of October to December and most of this is wasted into the sea. The Government in addition to the "Effective use of North East Monsoon drainage water" project has decided to interlink the rivers of the state to:</p> <ol style="list-style-type: none"> 1. Transfer water from water surplus areas to water deficit areas 2. Inter basin/ sub basin transfer of water 3. To divert flood waters 4. Provide pumped water for all terrains <p>The Government is executing the following river links under the project:</p> <ol style="list-style-type: none"> 1. Pennaiyar (Krishnagiri Reservoir) to Palar 2. Pennaiyar (Sathanur Dam) to Palar 3. Cauvery (Mettur Dam) - Sarabanga (Namakkal District) 4. Athikadavu - Avinashi Flood Canal Project 5. Cauvery (Kattalai Barrage) to Gundar <p>In addition to this the Government has identified three more projects,</p> <ol style="list-style-type: none"> 1. Vellar - Swethanathi - Koneri - Cauvery - Kattalai barrage link 2. Cholayarupatti - Agniar link 3. Tamirabarani - Gadana - Chithar - Uppodai - Kallar link <p>Further, the programme targets the improvement of existing irrigation assets as well.</p>		
Targeted Impact:		
<p>Upon completion, the combined savings and distribution of water will be in excess of 15 TMCft, and would enable direct irrigation of more than 2.7 lakh acres. This would augment the agricultural output of the areas covered by the programme and improve the livelihood of farmers.</p>		
Implementation Strategy:		
<p>The programme is under various stages of implementation. Interlinking of Cauvery, Manimuthar, Vaigai and Gundar is under progress through construction of a barrage across the Cauvery river 250 metre below from the existing Kattalai bed regulator in Karur district. Flood carrier canal from the Kannadian Channel to drought prone areas of Sathankulam and Thisaiyanvilai by interlinking Tamiraparani, Karumeniyar and Nambiyar Rivers in Tirunelveli and Thoothukudi Districts is under progress. Detailed project reports of other projects are under various stages of preparation and approval from the State and Central Governments. The State Government intends to complete the interlinking of rivers within the next ten years.</p>		

VISION TAMIL NADU



STRATEGIC PLAN FOR
INFRASTRUCTURE DEVELOPMENT
IN TAMIL NADU

Health Sector





10. Healthcare Sector

10.1 Sector Overview

Tamil Nadu is one of the top three states in the country in terms of health indicators and health infrastructure penetration. In the past decades Tamil Nadu has made huge progress in improving the healthcare conditions in the State through diligent implementation of public programmes, promotion of the private health sector and introduction of innovative schemes like the Dr Muthulakshmi Reddy Maternity Benefit Scheme, Chief Minister's Comprehensive Health Insurance Scheme etc. For example through the aggressive intervention programme for AIDS, Tamil Nadu was able to reduce the prevalence rate from 1.13% in 2001 to 0.25% in 2007.

A snap shot of the health related parameters of Tamil Nadu in comparison with the national average and the best performing state Kerala is as below:

Parameter	Kerala	India	Tamil Nadu
Population in Cr	3.33	121	7.21
Annual Growth Rate	0.48	1.64%	1.46%
Sex Ratio	1084	940	995
Total Fertility Rate	1.8	2.4	1.7
Crude Birth Rate	15.2	21.8	16.9
Crude Death Rate	7.0	7.1	7.4
MMR 2007-09	81	212	97
IMR	12	44	22
Under 5MR	13	55	25
Female Literacy Rate	91.98%	65.46%	73.86%

All Figures are for 2011 unless mentioned otherwise

10.2 Sectoral Targets

Tamil Nadu has achieved 99.8% institutional delivery rate, 90%+ immunisation coverage, near zero cases in diphtheria and pertussis 100% achievement of cataract surgery targets, 80% reduction in malaria cases in 2009 compared to 1990, zero deaths due to Japanese encephalitis and less than one prevalence rate of leprosy. The State targets to achieve UMI country status in the following basic health indicators by 2023.

Parameter	India Current	MDG Target for 2015	Tamil Nadu Current	Target 2012-2017	Target 2017-2023
MMR	212	109	97	45	25
IMR	44	27	22	13	10
U5MR	55	41	25	28	22
Total Fertility Rate	2.4	-	1.7	1.6	1.4
Birth Rate	22.1~	-	15.9~	14	12

~ SRS 2010 data

Tamil Nadu is one of the leading states in the country in terms of the number of health workers, There are about 91,000 allopathic doctors, 13,000 dental surgeons, 190,000 nurses and 155,000 pharmacists employed in the State (Projections based on CBHI 2010 reports). The Government hospitals employ 13,421 doctors and 16,627 nurses as

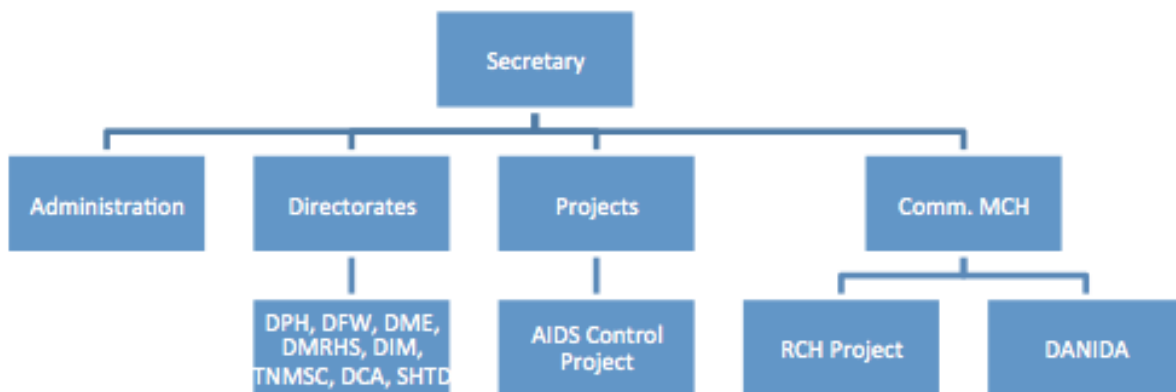


of March 2010. Tamil Nadu has 18 Government run medical colleges offering 2145 MBBS seats and 14 self financing medical colleges offering 1860 MBBS seats. Tamil Nadu has an average of 1.4 allopathic doctors, 2.6 nurses and 2.1 pharmacists per 1000 population, and hence is comfortably placed in terms of availability of health personnel.

The Integrated Disease Surveillance Program report on Non Communicable Diseases in Tamil Nadu published in 2009 highlights that 13.7% of the population smoke, 11% use smokeless tobacco, 14.7% are current drinkers, 98.9% have less than five servings of fruits and vegetables daily, 65.8% have low physical activity, 17.8% have been observed as Stage I and Stage II hypertensive, 3% have been diagnosed with diabetes mellitus, and 22.6% are overweight. The WHO reports that urbanisation in Tamil Nadu is impacting the occurrence/prevalence of non-communicable diseases. Urban men are three and a half times more prone to smoking, urban persons are three times less physically active than rural, urban persons had 7 times more BMI than rural and urban men are twice as likely to have blood pressure. The focus of the state would be to control non-communicable diseases through effective preventive and curative programmes.

It is observed that Tamil Nadu is one of the top performing states in the country in terms of health indicators and availability of health infrastructure. Moving forward, the objectives of the Health Department will be to bring essential health indicators to upper middle income country levels, promotion of preventive healthcare, continuously reduce the incidence of life style diseases, ensure universal availability of tertiary health care and achieve 100% health insurance coverage.

10.3 Institutional Structure





10.4 Proposed Projects

S.No	Name of the Project	Location	Investment (Rs. Crore)
10.4.1	Medi city	Chennai	3,000
10.4.2	Medi city	Madurai & Perundurai	2,000
10.4.3	Centre for Excellence for Cancer Cure	Chennai, Madurai, Coimbatore, Thanjavur and Tirunelveli	500
10.4.4	Government Medical colleges in all districts	All districts	1,000
10.4.5	Ten new private medical colleges	Across the State	1,500
10.4.6	Five World Class Nursing Training Institutes	Chennai, Coimbatore, Thanjavur, Madurai, and Tirunelveli	250
10.4.7	Strengthening Indian System of Medicine	Across the State	250
10.4.8	State Disaster Management And Trauma Care Network	Across the State	500
10.4.9	Strengthening of the PHC/UHC/CHC/ Taluka Hospitals	Across the State	1,500
10.4.10	Strengthening of existing medical colleges	All existing medical colleges	750
10.4.11	Preventive Management for Non Communicable Diseases	Across the State	1,000
Total			12,250





10.4.1 Medi City at Chennai

Name of the Project:		Location: To be finalised
Establishment of Medi City at Chennai		
Investment: Rs. 3,000 Crore		Time Frame: 2015
Mode of Finance	Public Private Partnership	Implementing Agency: Health and Family Welfare Department, Interested Private Sector/ Corporate Groups
Description:		
<p>A medi-city will be established in the suburbs of Chennai, with direct connectivity from the Chennai city airport, proposed international airport and railway stations. The medi-city will host high end medical services and hospitality service catering to the medical tourism market in South India. Chennai is the gateway for international tourists for Tamil Nadu and South India; the Medi-city will target both international and national medical tourists wanting cutting edge care comparable to the best in class across the world.</p> <p>The medi-city will have a bed strength of 10000 beds and shall host world class medical and surgical services in basic specialties and super specialties including oncology, cardiology, urology, nephrology, endocrinology, rheumatology, genetics, pathology, plastic surgery etc. Apart from cure and care, the medi-city will also focus on research in the medical field owing to the extensive facilities available on campus.</p> <p>The medi-city will be established in participation with international medical care and research institutions. Private hospitals will be welcome to establish their centres of treatment excellence. The campus shall be accredited to NABH, JCI and other international standards. Hospitality, entertainment and logistics facilities in the medi-city will be enabled by private organisations and a range of facilities catering to all types of population will be promoted.</p>		
Targeted Impact:		
<p>The medi-city will provide high end diagnostic, curative medicine for international and national medical tourists expecting world class care and leisure. The centre will also act as a hub for research in medical streams and generation of treatment protocols.</p>		
Implementation Strategy:		
<p>The project shall be operated on PPP mode; the Government will provide the enabling infrastructure including land, utilities connection and master plan for the medi-city. International investors are welcome to establish their hospitals/ hospitality centres on PPP mode.</p> <p>The detailed project report will be completed and partner identification will be done 2013; the facility is expected to start its operation by 2015.</p>		





10.4.2 Medi Cities at Perundurai & Madurai

Name of the Project:		Location: Perundurai, Erode and Madurai
Establishment of Medi Cities at Perundurai and Madurai		Area: 358 Acres in Perundurai, 500 Acres in Madurai
Investment: Rs. 2,000 Crore		Time Frame: 2016
Mode of Finance	Public Private Partnership	Implementing Agency: Health and Family Welfare Department, Interested Private Sector/ Corporate Groups

Description:

Two medi-cities will be established at the existing Institute of Road Transport Medical College Campus at Perundurai, Erode and in suburban Madurai. The medi-cities will host high end medical services and hospitality service catering to the medical tourism market of South India. Perundurai is strategically located on the NH-47 and is 80 km from Coimbatore and Salem and is 20 km from Erode. Coimbatore is a nerve centre of tourist activity in Tamil Nadu and acts as a gateway to Western Ghats and to Kerala for tourism, the Coimbatore airport is located just 40km from Perundurai and is well connected by national highways.

Madurai is well connected by an international airport and roads with the rest of Tamil Nadu and India. It is the major tourist hub in south Tamil Nadu and is a prominent agricultural and industrial area.

Each medi-city will have bed strength of at least 5,000 beds and shall host medical and surgical services in basic specialties and super specialties including oncology, cardiology, urology, nephrology, endocrinology, rheumatology, genetics, pathology, and plastic surgery etc. Apart from cure and care, the medi-cities will also focus on research in the medical field owing to the extensive facilities available on campus.

The existing medical colleges will be upgraded and one more private medical college will be promoted in the campus. Private hospitals will be welcome to establish their centres of treatment excellence. The campus shall be accredited to NABH, JCI and other international standards. Hospitality, entertainment and logistics facilities in the medi-city will be enabled by private organisations and a range of facilities catering to all types of population will be promoted..

Targeted Impact:

The medi-cities will provide affordable high end diagnostic, curative medicine for the needy patients of Tamil Nadu, Kerala, Karnataka and Andhra Pradesh. With the host of medical facilities at one location this will act as a hub for research in medical streams and generation of treatment protocols.

Implementation Strategy:

The project shall be operated on PPP mode; the Government will provide the enabling infrastructure including land, utilities connection and master plan for the medi-cities. Private investors are welcome to establish their hospitals/ hospitality centres on PPP mode.

The detailed project report will be completed and partner identification will be done 2013; the first facility is expected to start its operation by 2015.



10.4.3 Centres for Excellence for Cancer Cure

Name of the Project: Establishment of Centre for Excellence for Cancer Cure		Location: Chennai, Madurai, Coimbatore, Thanjavur and Tirunelveli
Investment: Rs. 500 Crore		Time Frame: 2018
Mode of Finance	Public Private Partnership	Implementing Agency: Health and Family Welfare Department, Government of Tamil Nadu

Description:

The National Cancer registry programme of Indian Council of Medical Research reports 8,00,000 new cancer cases every year across the country and most of these are tobacco related to men and tobacco, cervix, breast and ovarian cancer for women. In developed countries like Korea, Japan etc, cancer is identified as the leading non-communicable disease resulting in death, WHO reports that 7.6 million people across the world died of cancer in 2010, which is 13% of all deaths. Hence, the Government has embarked on an ambitious mission to arrest the growth of cancer cases in Tamil Nadu and to provide relief to affected patients requiring immediate medical and surgical cure.

The centre for excellence for cancer cure will be established in five locations across Tamil Nadu, to augment diagnostic, curative, and surgical capability of the public healthcare system. The centre for excellence will be established in partnership with cancer care institutions of international repute and process excellence.

The centres will act as hub for cancer treatment for selected districts around them; diagnostic facilities will be extended to the selected public healthcare facilities in the districts associated with each centre. Patients requiring medical and surgical care will be referred to these centres of excellence.

Targeted Impact:

Each cancer cure excellence centre will serve five to six districts surrounding it and effectively the citizens of Tamil Nadu and districts of nearby states. Early detection and treatment of cancer effectively increases the survival rate, hence the focus will be on early screening of cancer and treatment. The successful implementation of the project is expected to increase the survival rate and provide affordable care for the public.

Implementation Strategy:

The Government hospitals will be encouraged to partner with reputed medical institutions with long standing diagnostic, curative and surgical capabilities in cancer care, the project will be on PPP mode where the partnering institution will provide the requisite capabilities and research and the Government will provide the necessary capital, patients, regulatory and institutional support for developing mutual capabilities and serving the public.

The detailed project report is expected to be completed by 2013 and the first centre is targeted to start operation in 2014, every year one new centre will be initiated and by 2018 all five centres are expected to be operational.





10.4.4 Establishment of Government Medical Colleges in District Hospitals

Name of the Project: Establishment of Government Medical Colleges in District Hospitals		Location: All districts
Investment: Rs. 1,000 Crore		Time Frame: 2023
Mode of Finance	Government budget	Implementing Agency: Health and Family Welfare Department, Government of Tamil Nadu

Description:

Tamil Nadu has established a strong and reliable primary healthcare network, and this has to be supported by a reliable secondary and tertiary public health system. Though Tamil Nadu has an extensive network of Taluka Hospitals, District Hospitals and General Hospitals, there is a felt need to strengthen the system with advanced specialties, modern diagnostic facilities, extended geographic reach of secondary care, providing additional preventive, curative and surgical capabilities and the need to ensure the much needed speciality care.

The project aims at establishing a Government medical college in every district in the state. This will strengthen the medical system by bringing in additional specialties and specialists, increase in manpower to support a medical college, penetration of advanced laboratory and diagnostic cure infrastructure, adoption of advanced treatment methodologies, reducing referral and travel difficulties for patients, and the reduction in the cost of cure to the state/public.

In addition to the above benefits, it also builds the medical manpower availability in the State resulting in further penetration of medical specialists in the rural areas. The Government will also consider allocating additional seats for other state candidates thereby providing trained manpower to less endowed states in the country.

The State shall provide administrative and financial support to these institutions to achieve NABH, ISO 9001:2008, JCI standards and certifications to achieve international healthcare quality standards.

Targeted Impact:

The project will benefit the residents of the respective districts and the nearby districts in a number of ways such as:

- People will need to travel less for treatment
- Availability of secondary and tertiary care improves
- Penetration of doctors is enhanced and
- Allows critical volume of patients to enable research and development activities.

Each of these medical colleges will have an intake capacity of 100 students every year. This would result in an annual addition of at least 1700 medical professionals every year to the country when all the colleges are established.

Implementation Strategy:

The medical colleges will be established at district hospitals by the Government with its own funds, but the Government will also look at strategic partnerships with established medical establishments to strengthen a particular stream of medicine.

The Government aims to start at least one medical college every year and achieve the target of one Government medical college in each district latest by 2023, if not earlier.



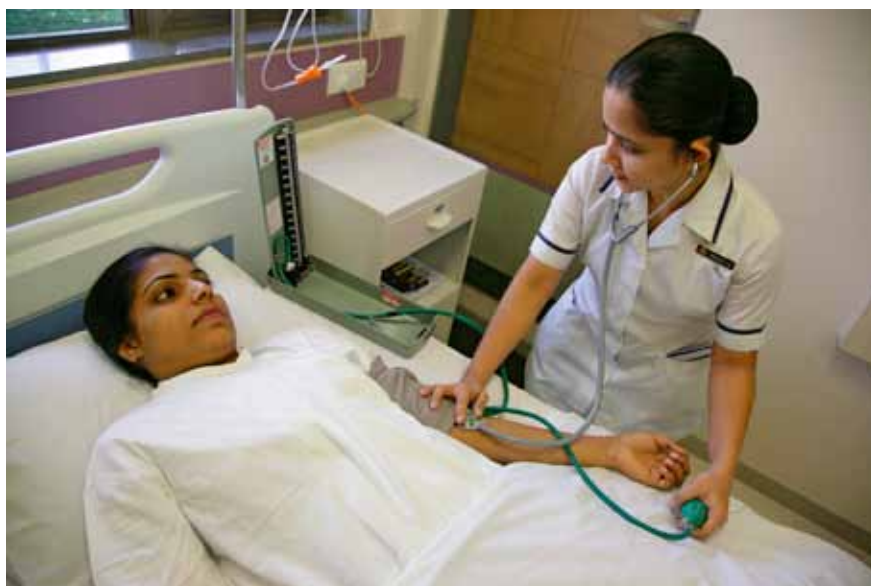
10.4.5 Establishment of Ten New Private Medical Colleges

Name of the Project: Establishment of ten new private medical colleges		Location: To be identified, will be outside Chennai area distributed across the State
Investment: Rs. 1,500 Crore		Time Frame: 2023
Mode of Finance	Private	Implementing Agency: Private Education Institutions
Description:		
<p>The Government expects that at least ten new private medical colleges will be established in the State in the next eleven years. These institutions will be promoted outside the Chennai Metropolitan area and would be distributed across the State.</p> <p>Established international medical schools, reputed hospitals and medical research organisations will be welcome to operate medical colleges in the State and world class medical education and treatment would be provided. The State would promote participation of the international and national student community to create an international setting for delivery of world class medical education. Each of these medical colleges shall have a minimum intake capacity of 100 students every year and shall support the basic specialties and selected higher specialties as per the regional requirement and as per the strength of the participating partner.</p> <p>These medical institutions will provide secondary and tertiary medical care to the public and shall strive in medical research. The State shall provide administrative and financial support to these institutions to achieve NABH, ISO 9001:2008, JCI standards and certifications and this shall be a mandatory requirement to be fulfilled by all private medical educational institutions in the State.</p>		
Targeted Impact:		
<p>These medical colleges would enable provision of much needed secondary and tertiary medical care to the public of Tamil Nadu and neighbouring states. These would also help to increase the number of medical graduates much required for the country. Each medical college shall provide 100 qualified medical professionals to the international community every year</p> <p>By inviting international medical colleges and encouraging participation of international students in these medical colleges, the State would strive to bring in world class standards in medical education delivery and medical care. The project would also result in creation of medical professionals of international calibre</p>		
Implementation Strategy:		
<p>The medical colleges will be promoted by private players comprising of established medical colleges, research organisations, hospitals with established medical education capabilities. The State would provide all the support required to create an educational system of international standard and would promote participation of international community in the delivery process.</p> <p>The State expects the first institution to start operation by 2015, and expects four more institutions by 2020, the rest are expected to be operational by 2023.</p>		



10.4.6 Establishment of Five Global Quality Nursing and Para Medical Training Institutes

Name of the Project: Establishment of Five World Class Nursing Training Institutes		Location: Chennai, Coimbatore, Thanjavur, Madurai, and Tirunelveli
Investment: Rs. 250 Crore		Time Frame: 2020
Mode of Finance	Private	Implementing Agency: Private Education Institutions
Description: The State would encourage establishment of nursing and paramedical training institutions of international standards for supporting the evolving ecosystem in healthcare delivery. This workforce would support the medi cities, and the proposed new private medical colleges. The workforce trained from these institutions would be of international calibre with multiple linguistic and cultural skills to serve the global demand for nursing and paramedical cadres. These institutions may be started as a part of new private medical colleges to aid their ecosystem. The state expects at least five such world class institutes will be established over the next ten years.		
Targeted Impact: The objective of the project is to create world class workforce capable of serving international hospitals and establishments. Each of these institutions is expected to produce at least 200 nurses, 100 pharmacists, 100 radiographers, 100 lab technicians and 50 medical record technicians annually. The project would bring in world class standards in training and capacity building of nursing and paramedical work force; this would in turn increase the standard and quality of such training in the state as whole. This increased quality of workforce would improve the quality of healthcare delivery and capability of the institutions as whole.		
Implementation Strategy: The nursing and paramedical colleges will be promoted by private players comprising of established medical colleges, hospitals with established medical education capabilities. The State would provide all the support required to create an educational system of international standard and would promote participation of international education community in the delivery process. The State expects the first institution to start operation by 2015; the other four institutions are expected to start their operation by 2020.		





10.4.7 Strengthening Indian System of Medicine

Name of the Project:		Location: All Districts
Strengthening of Indian System of Medicine		
Investment: Rs. 250 Crore		Time Frame: 2016
Mode of Finance	PPP	Implementing Agency: Health and Family Welfare Department, Government of Tamil Nadu
Description:		
<p>The Indian Systems of Medicine (ISM) are an ethnic and integral part of the healthcare delivery system in our country. The ISM encompasses not only Siddha, Ayurveda, Yoga and Naturopathy but also Unani and Homoeopathy systems. Most of the medicines administered under the Indian Systems are prepared from herbal plants grown widely in rural areas. These systems have therefore remained a reliable and economical form of treatment available locally. According to World Health Organization over 70% of world population rely on such ethnic systems of health care specific to the geographies across the globe.</p> <p>In Tamil Nadu, ISM practitioners are available in 30 District Headquarters Hospitals, 231 Taluk Hospitals and Non-Taluk Hospitals and 954 PHCs including the 300 wings opened under NRHM during the year 2009-10 and the 175 wings started under NRHM during the year 2010 -11.</p> <p>Given the importance of ISM, the Vision 2023 propose to strengthen the ISM through set of strategies covering the following:-</p> <ul style="list-style-type: none"> • Increase the accessibility to ISM by opening ISM wings/hospitals at various levels in all the districts. • Establishing and encouraging the growth of educational infrastructure in the public and private sector in Siddha, Ayurveda, Unani, Yoga & Naturopathy and Homoeopathy. • Quality and standardisation of knowledge base • Knowledge management system to track and document ISM • Promoting cultivation of medicinal plants and processing and preserving raw drugs • Encouraging the manufacture and sale of high quality ISM drugs • Promoting Research and Development in ISM • Standardisation and strengthening of drug testing laboratory 		
Targeted Impact:		
The ISM helps in reducing the overall cost of healthcare delivery and retains traditional knowledge base.		
Implementation Strategy:		
The project will be operated on PPP mode; the Government will provide the enabling infrastructure including land, utilities connection and master plan for the promotion of R&D and Manufacturer of high quality ISM drugs.		



10.4.8 Strengthening of the State Disaster Management and Trauma Care Network

Name of the Project: Strengthening of the State Disaster Management And Trauma Care Network		Location: Across the state
Investment: Rs. 500 Crore		Time Frame: 2018
Mode of Finance	Government	Implementing Agency: Health and Family Welfare Department, Government of Tamil Nadu

Description:

Tamil Nadu has an extensive network of trauma care and disaster care institutions, ambulances and 108-ambulance facility, but the capacity and capability of these institutions has to be augmented to support the increasing road density, vehicle population, and changing social and industrial eco system.

Tamil Nadu is also prone to various natural calamities such as cyclonic and tropical storms in its coastal belt, flooding in the Cuddalore, Nagapattinam belt, earthquake in the Chennai zone, and landslides in the Western Ghats. The State is keen on developing its infrastructure to face such occurrences.

The trauma care network has to be developed to international standards with exclusively trained manpower, nodal treatment centres with specialised treatment infrastructure and process capabilities. The State will establish trauma care centres of varying capacity and caliber across the National and State highways of Tamil Nadu. An efficient tele calling facility, private and public ambulance network and air ambulance facility to move across long distances within short duration will support these centres.

Targeted Impact:

The trauma care network will assist the State in establishing responsive and high end quality care to its citizens. The State will strive to provide medical relief within 15 minutes of information reception within city/town limits and within 30 minutes on the highways.

By establishing such trauma care network the State will become more responsive to natural and manmade disasters. This system would also bring in effective standards and norms in building, transportation planning and city planning thereby resulting in world class infrastructure for the state.





Implementation Strategy:

The Government will be the lead sponsor in the establishment of the trauma care network, but private participation will be encouraged in some parts of the service delivery such as ambulance network, call centre activity, hospital network.

The network shall be set up in three tiers:

Tier 1	Identified Referral Hospitals (Government Hospitals and Private) in Chennai, Coimbatore, Tiruchirapalli, Madurai and Tirunelveli	Providing higher order trauma care involving plastic surgery, organ replacement, cancer cure etc
Tier 2	All District Hospitals and identified Private Hospitals	Trauma care centre will be established in each district hospital, and will be networked with Advanced Life Saving Ambulances operated by trauma care specialists. Will provide service for all trauma cases, including surgical, medical and rehabilitative care
Tier 3	Taluka and CHC hospitals	Hospital staff will be trained in basic trauma care practices and these shall serve as primary centre where essential trauma care services including broken bones, basic burns, emergency child birth, snake bite etc will be treated

Each Tier 1 centre shall have designated Tier 2 centres affiliated to them and in turn each Tier 2 centre will have affiliated Tier 3 centres forming a robust referral chain.

The first phase of the coverage will be done in the 10 major cities along the national highways of the state, and this shall be completed by 2015. Coverage along the state highways will be done in two phases scheduled to be completed in 2018 and 2020. The air ambulance transportation facility is expected to be initiated during the first phase of the project.



10.4.9 Programme for Strengthening of the SC/PHC/UHC/CHC/Taluka Hospitals

Name of the Project: Strengthening of the PHC/UHC/CHC/Taluka Hospitals		Location: Across the State
Investment: Rs. 1,500 Crore		Time Frame: 2018
Mode of Finance	Government and Public Private Partnership	Implementing Agency: Health and Family Welfare Department, Government of Tamil Nadu
Description:		
<p>Tamil Nadu has 8709 Sub Centres (SCs) and 1539 Primary Health Centres (PHCs), 155 Taluk hospitals, 76 non Taluk hospitals, TB clinics, leprosy hospitals and maternity hospitals in the State. This network provides the much required primary health, preventive healthcare, immunisation and public health.</p> <p>The Indian Public Health Standard (IPHS) norms sets the minimum infrastructure requirements for these centres, most of the State's public health facilities do not meet the IPHS requirements. The State shall set up exclusive state norms in the lines of IPHS as it suits the local condition and shall upgrade all these primary and secondary healthcare centres to a common standard across the State. Apart from infrastructure standardization, the programme will also aim at standardizing the process and quality of medical care delivery in the public health institutions across the State.</p> <p>This move shall establish standard quality of care and cure across the State there by avoiding costly referral and complications during the process of healthcare delivery. The public health institutions upon infrastructure augmentation and process streamlining will be encouraged to undergo process and infrastructure certifications viz., ISO 9001:2008, NABH, NABL etc.</p>		
Targeted Impact:		
<p>The project will yield immediate benefits to be public of Tamil Nadu, the primary health network penetration being strong already, strengthening of the infrastructure and process standardisation would bring in better standards of cure and care in the public health institutions. Better care by the public health system will decrease the reliance on private health thereby bringing down the share of out of pocket spend; this increased care would also increase the productivity of the public by reducing their sick unproductive days thereby directly increases their economic potential.</p>		
Implementation Strategy:		
<p>The Government shall establish the norms for state public health institutions by the end of 2013. The process of upgrading the public health institutions shall start immediately and the process shall be distributed across the State evenly so as to provide equitable care. Selected number of taluka shall be identified each year from every district and all public health institutions in the taluka shall be upgraded in that year. The Government will complete the up gradation of infrastructure and standardisation of process by 2018.</p>		





10.4.10 Programme for Strengthening of the Existing Medical Colleges

Name of the Project: Programme for strengthening of existing medical colleges		Location: All existing medical colleges
Investment: Rs. 750 Crore		Time Frame: 2018
Mode of Finance	Government & Public Private Partnership	Implementing Agency: Health and Family Welfare Department, Government of Tamil Nadu
Description:		
<p>As on date, Tamil Nadu has seventeen Government medical colleges. These institutions have been established either as medical colleges or upgraded from existing district hospitals, which has resulted in uneven availability of infrastructure, treatment capability, and manpower availability leading to skewed utilization of the institutions.</p> <p>The State public health system shall establish minimum norms for infrastructure in the lines of IPHS standards to suit the local requirements shall upgrade all the existing medical colleges to the standard. Selected departments in each medical college shall be strengthened to suit the local requirement of the district and as per research capabilities.</p> <p>Standard treatment protocols and operating procedures shall be developed and shall be standardized across the state, this will result in uniformity of medical care across the State, ensure maximum utilization of medical assets, reduce incidence of antibiotic resistance and reduce the out of pocket expenditure of the patients.</p> <p>The State shall provide administrative and financial support to these institutions to achieve NABH, ISO 9001:2008, JCI standards and certifications to achieve international healthcare quality standards.</p>		
Targeted Impact:		
<p>The infrastructure development will increase the service capabilities of the medical colleges thereby increasing the number of people served by the institution; the district gets benefited as whole. Developing the infrastructure provides the much necessary tools and methodologies for practising doctors to augment their treatment and research capabilities. The project reduces the out of pocket expenditure by the patients.</p>		
Implementation Strategy:		
<p>The Government shall be the lead sponsor in strengthening the medical colleges, but shall involve private participation in selected areas like high end diagnostics, laboratories, dialysis etc where the operational efficiency of the private partner is tested and proved. The norms for standardisation shall be established by 2013 and augmentation of the infrastructure shall be started immediately. Standardisation of infrastructure and process of all Government medical colleges shall be effected before 2018. Every year at least one department of all the medical colleges shall be strengthened across the state, and this shall be done in a uniform fashion thereby reducing the cost of infrastructure augmentation.</p>		





10.4.11 Programme for Preventive Management of Non Communicable Diseases

Name of the Project: Programme for Preventive Management for Non Communicable Diseases		Location: Across the state
Investment: Rs. 1,000 Crore		Time Frame: Starting 2013
Mode of Finance	Public Private Partnership	Implementing Agency: Health and Family Welfare Department, Government of Tamil Nadu
Description: <p>The programme aims at systematic reduction of non communicable diseases including hypertension, diabetes, cancer, renal failure in the state. The components of the programme include:</p> <ol style="list-style-type: none"> 1. IEC activities for promoting healthy lifestyle towards preventing NCDs 2. 100% screening of the State population against NCDs 3. Health cards for all citizens of the State which provides for annual preventive screening in public and selected private hospitals 4. Training and capacity building of public health workers in NCDs 5. Establishment of NCD registry in the State 6. Integration with the State health insurance scheme <p>The programme will be integrated under the “Nalamana Thamizhagam” project being currently promoted under the Tamil Nadu Health Sector Project.</p>		
Targeted Impact: <p>The programme is expected to impact the whole population of the State, the objective of the programme is to improve the health status of the citizens and create successive generations which are cognizant of healthy lifestyle.</p>		
Implementation Strategy: <p>The programme will be spearheaded by the Government, and private participation will be promoted in the activities. PPPs will be encouraged in IEC activities, screening, treatment and capacity building activities. The programme will be initiated in the year 2013 after preliminary studies and shall be executed on a phased manner.</p>		



VISION TAMIL NADU



STRATEGIC PLAN FOR
INFRASTRUCTURE DEVELOPMENT
IN TAMIL NADU

Education Sector





11. Education, Human Resources Development and Skill Development Sector

11.1 Sector Overview

The transition towards a global economy based on the acquisition and application of knowledge depends largely on the availability of human resources. In this regard, the demand for human resources possessing appropriate and high level skills has increased dramatically over the past several years and will continue to do so over the next decades.

Innovation, robust economic growth and social outcomes for a country can only be achieved by building national intellectual and skills capacity. Increased investment in school and higher education, and skill development is the key to building that capacity. How and where funding is allocated is critical to addressing human resources development, increasing innovation and global competitiveness.

We also need to take cognizance of the following factors influencing education, human resources development and skills development:

- Sustaining a competitive, productive economy which delivers prosperity to all requires an adequate supply of human resources.
- There is a direct relationship between the scale of innovation and the scale of research and development. Research must be supported by world class infrastructure, which also enhances teaching and learning outcomes.
- Poverty is a significant barrier to participation and retention in education, and to the development of a skilled workforce. Increased flexibility is necessary to ensure that skill development initiatives are delivered to those below the poverty line as well.
- Simple and consistent regulation is necessary to enable flexibility to respond swiftly to changing national and international labour market demands.
- Encouraging participation from all stakeholders is necessary to ensure the scope and scale of skill development initiatives

Given this background, the Govt. of Tamil Nadu has unveiled the vision for education, human resources development and skills development.

“Tamil Nadu will be known as the Innovation hub and knowledge capital of India, on the strength of World Class Institutions in various fields and the best human talent”.

The Tamil Nadu Vision 2023 envisages the growth of 11% per annum for the next 11 years. In order to achieve this growth, all three sectors of the economy namely Agriculture, Manufacturing and Services, need to grow at a higher rate. To achieve such ambitious target, the single most important component is the availability of trained, knowledgeable and skilled human resources in Tamil Nadu. Without a body of sufficiently skilled and balanced workforce, no economy can hope to develop its potential. Vision 2023 envisions Tamil Nadu becoming the “Knowledge Capital” and “Innovation Hub” of the country. This requires creation and nurturing of an appropriate atmosphere that aids innovation and sustenance of knowledge. Some of the enabling conditions are: -



- The establishment of a dynamic information infrastructure that increases the access to information universally and makes decision making faster, transparent and efficient.
- Ensuring that every youth of Tamil Nadu is sufficiently skilled
- Establish and strengthen ten or more centres of excellence
- An economic and institutional regime that incentives creation of new knowledge and entrepreneurship to use that knowledge
- Setting up an innovation fund
- Creation of a knowledge ecosystem including protection for IPR

Given this background, the sectoral vision, strategies and projects are outlined for education, human resources and skill development.

Education Structure

The education structure of Tamil Nadu is based on the national level pattern with 12 years of schooling consisting of eight years of elementary education, followed by secondary and higher secondary education of two years each. Subsequent to completion of higher secondary school, the students can pursue higher education in Universities or Colleges in general academic streams and in technical and professional courses such B.E., B.Tech, and MBBS. On successful completion of graduation, students may work for M.Phil/Ph.D degree. Alternatively, students can also pursue a trade certification in Industrial Training Institute (ITI) or diploma programme in Polytechnics after high school.

School Education

Tamil Nadu is one of the top ranked states in India in the school education sector. Recognizing the importance of quality education, The Government of Tamil Nadu has supported school education with effective policies and this has gained impetus after the Right to Education Act, 2009. Some of the notable achievements of Tamil Nadu in the school education arena include

- The Net Enrolment Ratio of 99.69 per cent at primary level and 99 per cent in upper primary level achieved as of 2012 - 13.
- The dropout rate at the primary level was 0.93 per cent and at the upper primary level 1.7 per cent in 2012 -13
- 710 middle schools were upgraded to high schools and 100 high schools were upgraded to higher secondary schools in 2011-12, keeping in line with the vision of Universal Secondary Education
- Students in the higher secondary level have been provided with laptops
- Increase in teacher posts
- Introduction of the continuous evaluation system in schools
- Increasing importance to sports and infrastructure upgradation in schools
- Thrust on teachers' development



There are about 55,667 schools across Tamil Nadu. These schools are managed by the Government, private bodies with Government aid and without aid

District-wise schools distribution

District	Primary	Upto upper primary	Upto Higher	Upto Higher secondary	Total
Ariyalur	456	135	87	56	734
Chennai	697	203	206	448	1,554
Coimbatore	1,090	307	185	306	1,888
Cuddalore	1,320	394	179	180	2,073
Dharmapuri	937	362	141	119	1,559
Dindigul	1,267	292	135	167	1,861
Erode	986	357	146	176	1,665
Kancheepuram	1,384	434	283	291	2,392
Kanyakumari	569	183	201	193	1,146
Karur	639	186	91	85	1,001
Krishnagiri	1,235	344	202	136	1,917
Madurai	1,314	332	172	257	2,075
Nagappatinam	923	277	130	111	1,441
Namakkal	812	209	110	177	1,308
Perambalur	269	97	51	57	474
Pudukottai	1,254	345	155	123	1,877
Ramanathapuram	1,054	234	112	102	1,502
Salem	1,402	445	213	231	2,291
Sivagangai	986	339	120	120	1,565
Thanjavur	1,307	313	190	182	1,992
Nilgiris	423	111	113	83	730
Theni	519	193	77	101	890
Thiruchirappalli	1,260	350	187	199	1,996
Thirunelveli	1,786	437	178	251	2,652
Tiruvallur	1,459	363	300	261	2,383
Tiruvannamalai	1,563	426	238	165	2,392
Tiruvarur	771	264	94	94	1,223
Thoothukudi	1,185	341	114	150	1,790
Tiruppur	1,119	306	129	153	1,707
Vellore	2,025	555	252	286	3,118
Villupuram	1,787	553	263	228	2,831
Virudhunagar	1,073	282	113	172	1,640
Total	34,871	9,969	5,167	5,660	55,667

Source: Department of School Education, Govt of Tamil Nadu



These schools are home to about 1.3 crore children who are enrolled from standard I to standard XII. The number of children enrolling has been on the rise for the last few years. Some of the key challenges faced by school education are:

- Reduce drop-out rates from secondary to higher secondary
- Provisional basic infrastructure facilities such as toilets, drinking water, classrooms, appointment of teachers, clean and healthy environment etc.,
- Capacity development of teachers

Hence, the targets for the education and skill development are set based on the improvement of the school indicators and improving the overall quality of skill development.

Area	Impact Areas
Infrastructure Boost	<ul style="list-style-type: none"> • Fully IT enabled education system • Basic infrastructure requirements • Development of sporting facilities
Quality Education	<ul style="list-style-type: none"> • On par with national and international standards • Market oriented education or vocational training • Enhanced teacher training programmes and capacity building
Inclusive Education	<ul style="list-style-type: none"> • Increase the pass rate • Focus on girl child enrollment increase • Focus on disadvantaged sections.

On successful completion of school education, students may opt for higher education or alternatively, students can also pursue a trade certification in Industrial Training Institute (ITI) or diploma programme in Polytechnics after high school. However, for students who drop out or unable to pursue further education, limited opportunities are available for them to get back to mainstream education. However, the establishment of Tamilnadu Skill Development Mission and Sector Skill Council would help in moving minimally educated people to skilled resource category.

Vocational Education

Vocational education and training is responsibility of the Training Wing of Department of Employment and Training and it is delivered thorough network of Government ITIs and Private ITIs. The Director of Employment and Training is the Head of Department, supported by two Joint Directors in the State Headquarters and by Five Regional Joint Directors, namely Chennai, Trichy, Coimbatore, Madurai and Tirunelveli. The mandate of the department is to implement various skill development initiatives such as Craftsmen Training Scheme, Apprenticeship Training Scheme, Industrial Schools, Skill Development Initiative – Modular Employable Skills, Centres of Excellence –World Bank Scheme and Upgradation of Govt. ITIs under PPP mode and skilling activities under the Tamilnadu Skill Development Mission. Some of the key challenges faced by vocational education are:



- Low attractiveness of vocational education and training
- Lack of adequate supply
- Poor capacity utilization, student retention, and out-turn
- Need for modern machinery and industry linkage
- Less than adequate skilled faculty
- Limited mobility for vocational trained people
- Inadequate parity with school education

Higher Education

Tamil Nadu has established itself as the Numero Uno state in the field of higher education through network of higher education institutions, well known universities and various education initiatives. With policy level thrust, the number of higher education institutes have increased manifold. Indicators also point at the robust growth of the higher education sector in Tamil Nadu – with the Gross Enrolment Ratio (GER) being 18 per cent (in comparison with the national value of 13 per cent) and the human development index is 0.736 (in comparison with the national value of 0.619).

Tamil Nadu has 1328 colleges under different types of management. These institutes house about 9.0 lakh students. On the vocational front the state also has 464 polytechnic colleges and 553 engineering colleges.

The task at hand now is to enhance the quality of education and make Tamil Nadu the pioneer in higher education, not only in India but throughout the globe.

11.2 Sectoral Target

Vision 2023 aims to achieve:

- To achieve universal secondary education
- Increase outturn and strengthen the delivery of vocational education and training
- More than 50% enrolment in higher education including vocational education
- Establishing best in class institutions as Centres of Excellence in various fields that will attract the best talent from across the globe

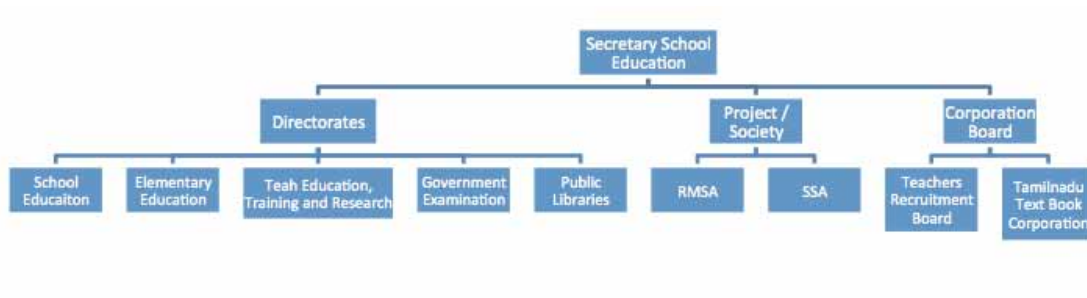
11.3 Institutional Structure

School Education

The Secretary, School Education Department is the nodal officer who assists the Education Minister in all functions related to school education in the State including planning, budgeting and administration. The Directorates implement the education policies in various aspects which are under the control of School Education Department.



Institutional Structure for School Education



The higher education is headed by the Principal Secretary (Higher Education). The various departments and the institutes are under the Higher Education Secretary. To achieve the above target, the following projects have been outlined in line with age and educational group (cohort approach).

11.4 Proposed Projects

a) School Education

S.No.	Name of Project	Amount Rs. Crore
11.4.1	Facility management in higher secondary schools	10,000
11.4.2	Upgradation and establishment of higher secondary schools	5,000
11.4.3	Vocational education and training to school drop-outs	6,000
Total (A)		21,000

b) Higher Education

S.No.	Name of Project	Amount Rs. Crore
11.4.4	International Centre for Research Facilitation and Training	50
11.4.5	Knowledge Hub in Madurai/Tirunelveli	1,000
11.4.6	Knowledge Hub in Coimbatore/Salem	750
11.4.7	Improve training quality in Educational Institutions	1,200
11.4.8	Facility Management in Colleges	3,000
Total (B)		6,000



c) Skill development projects

S.No.	Name of Project	Amount Rs. Crore
11.4.9	Large Scale Skill Development Programme to improve employability	6,000
11.4.10	Enhancing employability skills of Engineering Students	6,000
11.4.11	Employability programme for skilled workforce - Arts and Science	3,600
11.4.12	Trade Specialisation Centre	350
11.4.13	Entrepreneurship Development Centre for SME in Madurai	15
11.4.14	Entrepreneurship Development Centre for SME in Coimbatore	15
11.4.15	Entrepreneurship Development Centre for SME in Chennai	15
11.4.16	Mega Entrepreneurship Development Centre in Karur catering to Trichy and Erode	25
11.4.17	Skill Development Centre in Post Production activity in Media & Entertainment	20
Total (C)		16,040

c) Skill development projects

S.No.	Name of Project	Amount Rs. Crore
11.4.18	CoE in Auto and Automotive Technology	500
11.4.19	CoE in Non Communicable Disease	500
11.4.20	CoE in Agriculture Practices	400
11.4.21	CoE in Water Management	350
11.4.22	CoE in Nanotechnology	500
11.4.23	CoE in Solar and Clean Energy Technology	400
11.4.24	CoE in Biotechnology	400
11.4.25	CoE in Basic Sciences	150
11.4.26	CoE in Social Sciences	150
11.4.27	CoE in Construction Engineering	250
11.4.28	CoE in Aerospace	250
Total (D)		3,850
Total (A+B+C+D)		46,890



11.4.1 Facility management in higher secondary schools

Name of the Project:		Location: All schools
Facility management in higher secondary schools		
Investment: Rs. 10,000 Crore		Time Frame: Focus on backward districts
Mode of Finance	Public Private Partnership	Implementing Agency: Department of School Education
Description:		
<p>Facility management is an integral component of the operation of any institution, and this impacts the quality education delivery to a great extent in schools. Apart from the availability of good teachers, clean, quiet, safe, comfortable and healthy school environments are important components of successful teaching and learning.</p> <p>The objective of the project is to deliver all facility management services of the schools in a more comprehensive and efficient manner and ensure wider coverage and quality in delivery. The services could include sanitation (manpower and material), security, electricity, plumbing, water, transportation, repair and maintenance (building, furniture, laboratories etc.), gardening, landscaping, whitewashing, intercom, fire safety system, RO plant, power back-up etc. The project would help in</p> <ul style="list-style-type: none"> • Addressing the need for improving and developing non-academic services in schools. • Enable school management and staff to focus on education delivery alone. • Students will get more satisfied in terms of amenities available in the school, clean environment and safety. <p>Once successful, the model can be easily replicated in other schools and scaled up to include other districts as well.</p>		
Targeted Impact:		
<ul style="list-style-type: none"> • Areas of Focus: Facility management services • Population benefited: Higher Secondary Schools • Impact: Improve the overall HDI of state 		
Implementation Strategy:		
<p>The project will be funded through Public Private Partnership with private facility management companies at regional level.</p>		



11.4.2 Upgradation and establishment of higher secondary schools

Name of the Project: Upgradation and establishment of Higher secondary schools		Location: All districts
Investment: Rs. 5,000 Crore		Time Frame: backward districts
Mode of Finance	Government and Public Private Partnership	Implementing Agency: Department of School Education

Description:

There are about 55,000 schools across Tamil Nadu. These schools are classified as Government, Government aided and private (unaided).

Category	Government	Private -aided	Private - unaided	Total
Primary	23522	5071	6278	34871
Middle	7651	1608	710	9969
High	2844	543	1780	5167
Higher Secondary	2488	1044	2128	5660
Total	36505	8266	10896	55667

Source: Department of School Education, Govt of Tamil Nadu

Lack of sufficient higher secondary schools both in Government and the Private Sector is impacting the flow rate of students from primary to higher education. The problem is accentuated in backward districts of Tamil Nadu leading to increase in drop-out rates.

Targeted Impact:

- Areas of Focus: Upgradation and infrastructure creation for higher secondary schools
- Population benefited: Backward districts
- Impact: Improve the overall HDI of state

Implementation Strategy:

Phased upgradation of schools upto higher secondary schools will be taken up in the Government sectors. Private schools in backward areas will also be encouraged.





11.4.3 Employment linked vocational training programme to school children in the age group of 14 to 17

Name of the Project: Employment linked vocational training programme to school students in the age group of 14 to 17		Location: Industrial Clusters
Investment: Rs. 6,000 Crore		Time Frame: 2012-14
Mode of Finance	Government	Implementing Agency: <ul style="list-style-type: none"> Tamil Nadu Skill Development Mission Department of School Education
Description: The objective of this project is to provide employment linked vocational training to school students in the age group of 14 to 17. Under this project, school students in the age group of 14 to 17 will be identified, mobilised and put through rigorous 3 to 4 years of vocational training programme depending upon the age group. The training will be primarily focussing on manufacturing sectors. The training will enable them to move to gainful employment after the training. The training programme can be delivered through trade specialisation project (included as separate project).		
Targeted Impact: <ul style="list-style-type: none"> Areas of Focus: Training programme in manufacturing sector Population benefited: School drop-outs Impact: Employment generation 		
Implementation Strategy: The Government will provide the enabling infrastructure and land and the private sector will bring in necessary domain knowledge. The training will be delivered through NGOs and private training providers.		





11.4.4 International Centre for Research Facilitation and Training

Name of the Project: International Centre for Research Facilitation and Training		Location: Chennai and Regional Centres of Anna University
Investment: Rs. 50 Crore		Time Frame: 2013 – 2018
Mode of Finance	Government	Implementing Agency: Anna University
Description:		
<p>Research and Development in scientific, industrial and socio-economic activities has become an imperative need to propel the growth of the country. Governments support these activities with liberal funding to both academic institutions and Research establishments and also encourage collaborations through joint research with international organisations. Industries also support these research initiatives which lead to development of new technologies, processes and understanding of social issues. While a large number of universities and academic institutions avail this support, there is scope for associating more faculty members by ensuring a good research environment and infrastructural facilities for research.</p> <p>National institutions like IITs have established Centres for Industrial Consultancy and Sponsored Research or R&D centres through which they provide good research management support thereby creating opportunities to the faculty for research rather on routine administrative issues. Among the universities, Anna University has established a similar centre, which facilitates research opportunities through incentives, awards programmes and also organises meetings with industries and R&D establishments to create meeting of minds in identifying core areas of research. This centre also encourages students to get opportunities for innovation with financial support.</p> <p>Anna University has a Centre for Intellectual Property Rights which helps not the only faculty and students of the University, but also its affiliated colleges. This Centre is supported by the Centre for Technology Development and Transfer of the University. It is proposed that this centre at Anna University can function as nodal centre with regional centre located at its new Regional offices.</p>		
These Centres will :		
<ul style="list-style-type: none"> a) Organise meetings with leading scientists, researchers and industries as well as leaders in the field of socio economic research to create awareness among the faculty members, more particularly new faculty and help them to initiate research programmes in the fields of their interest. b) Provide research management facilities to the research community by coordinating with the sources of funding, conduct reviews and enable effective translation of these research programmes c) The technology /knowledge transfer of the research work, including protection of intellectual property shall be the responsibility of this Centre d) Towards this, the Centre shall train manpower in the specialised field of intellectual property protection. e) The Centre will also propagate research findings through publications, exhibitions and thereby create a healthy research environment through co-operative and collaborative research with national and international institutions. f) The Centre will have an access to international database, good computing and audio and video facilities. 		
Targeted Impact:		
<p>The project shall be operated on PPP mode with facility management service provider. The project will be implemented in pilot basis in central and northern district of Tamil Nadu</p>		



11.4.5 World Class knowledge Hub in Madurai / Tirunelveli

Name of the Project:		Location: Madurai/Tirunelveli
World Class knowledge Hub in Madurai / Tirunelveli		
Investment: Rs. 1,000 Crore		Time Frame: 2012-15
Mode of Finance	Public Private Partnership	Implementing Agency: Tamil Nadu Industrial Development Corporation
Description:		
<p>The higher and tertiary education scenario across the globe has undergone several changes in last 50 years. These changes have been across diverse genre and the trends that can be accumulated are qualitative that throw several indicators that show the world's progress towards knowledge based economic developments. Also, there is a marked trend of the Governments across the globe spending in more resources into the education sector which focuses on tertiary education. Tertiary education has been expanding worldwide, with 65 million more students enrolled in 2008 than in 1999¹³. Much of the growth has occurred in East Asia and the Pacific, with China alone increasing the number of tertiary level seats by more than 20 million from 2005 to 2010¹⁴.</p> <p>In line with global trend, the higher education sector in India, has witnessed a tremendous increase in its institutional capacity in the years since Independence. The number of universities/university-level institutions has increased 18 times. The number of colleges has also registered manifold increase from just 578 in 1950 to more than 30,000 in 2011. However, the higher education system in Indian has some challenges that it has to overcome. Some of these factors are:</p> <ul style="list-style-type: none"> • Inadequate number of institutions to hone researchers and academicians. During the period 2000-2010, growth in the number of doctorates has been 20 per cent in India ¹⁵ • Low employability of graduates • Low levels of public spending <p>Given this background, the establishment of knowledge city will directly tackle some of the above issues and convert them into opportunities to succeed.</p>		
Targeted Impact:		
<ul style="list-style-type: none"> • Areas of Focus: School and higher education • Population benefited: 1 lakh • Impact: Increase in GER and HDI 		
Implementation Strategy:		
<p>The project shall be operated on PPP mode; the Government will provide the enabling infrastructure and land and private sector will bring in necessary construction and design expertise and world class education partner</p>		

¹³ Source: Global Trends in Higher education - UNESCO

¹⁴ Source: Global Trends in Higher education - UNESCO

¹⁵ Knowledge Commission Report



11.4.6 Knowledge Hub in Coimbatore/Salem

Name of the Project:		Location: Coimbatore/Salem
World class knowledge hub at Coimbatore / Salem		
Investment: Rs. 750 Crore		Time Frame: 2020
Mode of Finance	Public Private Partnership	Implementing Agency: Tamil Nadu Industrial Development Corporation

Description:

The objective of the knowledge city is to develop Coimbatore / Salem as a destination for investments in higher education, position the knowledge city as a regional hub for learning and innovation serving the entire country, develop key initiatives with the help of speciality institutes to bridge the talent gap in region and build an ecosystem that is founded on synergy and creates a learning environment.

It would primarily serve as IT, ITES Hub and service sector Hub. Information Technology (IT) services like software development and product development and IT enabled services (ITES) like business process outsourcing and knowledge process outsourcing are envisioned to be set up in the region.

Targeted Impact:

The project's primary aim is to make Tamil Nadu the back-office capital of the world by attracting large scale information technology based back-offices for knowledge intensive businesses such as banks, insurance, financial services, consultancies, engineering, accounting, healthcare, architecture, law firms, design firms, scientific/economic/financial research, data management(real time/disaster recovery back up) & analytics, telecommunication, technology, media, desktop publishing, digital editing, animation, etc.

To support the above service industry, the high end training institutes focussing on product development, analytical services and incubation will be set up. In addition to these, an ecosystem has to be created that would enable a good work life balance for all the stakeholders who would be a part of the knowledge city.

Tamil Nadu would be able to leverage its large base of educated human resource pool with English speaking skills for scaling up these services and raise the level of service offerings in order to remain competitive with low cost countries like Philippines.

Implementation Strategy:

High speed connectivity and bandwidth are essential for increasing the productivity and competitiveness of the knowledge city. The state should take initiatives for increasing the internet speed from 0.8 MPBS to at least 17 MBPS, so as to be at par with East European Countries. The state should take initiatives to improve the social infrastructure in the state that will make immigrants feel at home.





11.4.7 Improve training quality in Educational Institutions

Name of the Project: Improve training quality in Educational Institutions		Location: All colleges
Investment: Rs. 1,200 Crore (Rs. 300 Crore once in 3 years for the next 11 years)		Time Frame: 2012-2014
Mode of Finance	Public Private Partnership	Implementing Agency: <ul style="list-style-type: none"> • Department of Higher Education • Tamil Nadu Skill Development Mission
Description: The objective of the project is to improve training quality in educational institutions by establishing interactive classrooms, language labs and soft skill lab. This would help in improving the employability of students in long term		
Targeted Impact: <ul style="list-style-type: none"> • Areas of Focus: Foreign language, E-learning of course content, soft skill lab • Population benefited: Engineering colleges, Arts & Science College • Employment/Livelihoods generated: Improvement in employability of students 		
Implementation Strategy: The project shall be operated on Public Private Partnership mode with specific service provider; the Government will provide the enabling infrastructure and initial corpus. Private sector shall provide necessary domain knowledge		





11.4.8 Facility Management in Colleges

Name of the Project: Facility management in Colleges		Location: All colleges
Investment: Rs. 1,200 Crore (Rs. 300 Crore once in 3 years for the next 11 years)		Time Frame: 50 colleges per district per year
Mode of Finance	Public Private Partnership	Implementing Agency: Department of Higher Education
<p>Description:</p> <p>Facility management is an integral component of the operation of any institution, and this impacts the quality education delivery to a great extent in schools. Apart from the availability of good teachers, a clean, quiet, safe, comfortable and healthy college environment is an important component of successful teaching and learning.</p> <p>The objective of the project is to deliver all facility management services of the colleges in a more comprehensive and efficient manner and ensure wider coverage and quality in delivery. The services could include sanitation (manpower and material), security, electricity, plumbing, water, transportation, repair and maintenance (building, furniture, laboratories etc.), gardening, landscaping, whitewashing, intercom, fire safety system, RO plant, power back-up etc. The project would help in</p> <ul style="list-style-type: none"> • Addressing the need for improving and developing non-academic services in colleges. • Enable school management and staff to focus on education delivery alone. • Students will get more satisfied in terms of amenities available in the colleges, clean environment and safety. <p>Once successful, the model can be easily replicated in other colleges and scaled up to include other districts as well.</p> <p>Targeted Impact:</p> <ul style="list-style-type: none"> • Areas of Focus: Facility management services • Population benefited: Engineering colleges and Arts & Science College • Impact: Improve the overall HDI of state <p>Implementation Strategy:</p> <p>The project shall be operated on PPP mode with facility management service provider. The project will be implemented in pilot basis in backward districts.</p>		





11.4.9 Large scale skill development programme

Name of the Project: Large scale skill development programme		Location: All colleges
Investment: Rs. 550 Crore (around Rs. 6000 Crore in next 11 years)		Time Frame: 0.6 million annually covering key industrial districts and backward districts
Mode of Finance	Public Private Partnership	Implementing Agency: Department of School Education Department of Higher Education Tamil Nadu Skill Development Mission
Description: This programme would be an initiative for skill development at the grass root level. This is envisaged to be a large-scale skill-development initiative, covering around 6 lakhs persons annually and seeking to impart basic training to unskilled labour (primarily agricultural workforce) so that they can take up jobs in the State's industrial and service sector units. Under this initiative, two forms of skill training, over a duration of one to two months, would be imparted: <ul style="list-style-type: none"> • General training, covering areas such as workplace culture, general rules, work timings, and safety habits. • Sector specific skill training, where training required for increasing employability in a specific industry would be imparted. The existing primary and secondary education infrastructure would be utilized for the purposes of this training. The project will be structured and realised through the following steps, <ul style="list-style-type: none"> • Skill mapping of the state and identification of sector wise skills • Development of appropriate course material for different skill levels and relevant training pedagogy for effective delivery • Inculcation of feedback system to constantly improvise and innovate the system 		
Targeted Impact: Areas of Focus: General training and sector specific training Population benefited: 6 lakh per annum minimally educated/unskilled persons Impact: Improve the overall HDI of state		
Implementation Strategy: The project shall be operated on PPP mode with a private training provider. The State wills set-up a skill challenge fund to drive this programme. The fund will be available for providing employment linked training programme.		



11.4.10 Enhancing Employability Skills of Engineering Students

Name of the Project: Enhancing Employability Skills of Engineering Students		Location: Chennai, Madurai, Trichy, Coimbatore & Tirunelveli
Investment: Rs. 6,000 Crore		Time Frame: 3 Years
Mode of Finance	University (Land), Colleges (per student basis) Industry	Implementing Agency: Anna University, Chennai

Description:

The aim of this project is to improve the employability skills of graduate engineers. Some of the skills the students need to possess include analytical skills, practical ingenuity, design creativity, communication skills, business and management skills, leadership skills, high ethical standards, strong sense of professionalism, lifelong learning skills, team building skills and agility & flexibility.

Given this background, it is required to educate and evaluate students on skills other than technical skills. The following are three components of the project.

1. Training:

- Targeted technical skill training (in coordination with Industry) – co-curricular activity
- Personality development and soft skills - co-curricular activity

2. Internship Website creation

- Internship website creation for internship registration by students and offering of internships by industry

3. Project Helpline

- Provide material and ideas and mentors to carry out good quality projects through a web site designed for the purpose

4. Workplace Simulation Lab (One lab and methodology developed for each specialization)

- Workplace simulation - curricular activity

Assets Created: Assets created will be

- Infrastructure set up for the workplace simulation lab.
- In addition a module wise curriculum, syllabus and workbook indicating methodology to be employed and teaching aids will be available for all training activities including workplace simulation

Details of Services Provided:

- Development of module wise curriculum, syllabus in consultation with all stakeholders – industry, Government, teaching and technical faculty, alumni and students.
- Identification of lectures, activities and practical work necessary for each module.
- Workbook and teaching aids to facilitate conduct of training.
- Identification of workplace simulation exercise to suit each specialization so as to mimic some of the activities and practices of the industry



- Workbook and teaching aids to facilitate workplace simulation.
- Internship website that would provide both students and industry with availability of internships, possible matches, registration and e-mail facility, confirmation facility etc.
- Enabling carrying out of Good quality projects by providing a web based helpline

Targeted Impact:

The industry training period can be reduced based on the modules that the student has undergone. This will result in reduced training costs for the industry. The project hopes to enhance the employability skills of all engineering students of Tamil Nadu so that they will be preferred for placement. The internship website will enable all students whether urban or rural to have equal opportunities in obtaining internships which in turn will enhance their placement opportunities. The project helpline will provide a forum for students, alumni, faculty and people from the industry to interact and discuss ideas and opportunities for carrying out good quality project work.

Implementation Strategy:

The project will be monitored by an advisory committee consisting of eminent industrialists, academicians and Government.

There will be a workgroups for each specialization consisting of industrialists, academicians, Government representatives, alumni and students. The following specializations are proposed

- Personality Development and Soft Skills
- Technical Skills and Workplace Simulation
 - ◆ Mechanical
 - ◆ Civil
 - ◆ Electrical
 - ◆ Electronics & Communication
 - ◆ Computer Science and IT
 - ◆ Biotechnology
 - ◆ Technology (Chemical, Textile & Leather)

It is proposed to set a workplace simulation lab at Anna University Chennai, and at each of the Regional Units of Anna University at Madurai, Trichy, Coimbatore and Tirunelveli.

Activities:

- I. Design of Curriculum and Syllabus
 - Identification of employability skill requirements by interaction and brainstorming with industry and Government agencies.
 - Development of module wise curriculum and syllabus in consultation with all stakeholders – industry, Government, teaching and technical faculty, alumni and students.
- II. Design and building of Infrastructure for Workplace Simulation Lab
 - Identification of infrastructure for integrated workplace simulation lab



- The workplace lab will have facilities to cater to all specializations and will have common facilities for all workplace activities. Building space will be provided by the parent institute. All site preparation, equipment and training facilities will be funded under the project.

III. Identification of activities, development of workbook and teaching aids & training the trainers

- Identification of lectures, activities and practical work necessary for each module.
- Development of workbook and teaching aids to facilitate conduct of training.
- Identification of workplace simulation exercise to suit each specialization so as to mimic some of the activities and practices of the industry – in coordination with industry, management department and associated faculty. Here a group of 15 students will be attached to a faculty, management faculty and a person from the industry. They will be trained through role play, design, seminar and other activities to carry out a live like project. Necessary infrastructure to carry out the project will be available at the workplace simulation Lab. Evaluation of such a project will be based on technical, managerial and soft skills.
- Development of workbook and teaching aids to facilitate workplace simulation.

IV. Website Design, Development and Maintenance

- Development of an internship website that would provide both students and industry with availability of internships, possible matches, registration and e-mail facility, confirmation facility etc.
- Development of project helpline function that provides a forum for students, alumni, faculty and people from the industry to interact and discuss ideas and opportunities for carrying out good quality project work.

Involvement of Multilateral Agencies: The project needs active involvement of following agencies:

- Anna University
- All colleges under the umbrella of Anna University
- All industries who recruit from Anna University (to provide funding for making students employable with less training)
- Government Agencies
- CII, NASCOM etc



11.4.11 Employability programme for skilled workforce

Name of the Project: Employability programme for skilled workforce - Arts and Science		Location: All colleges
Investment: Rs. 3,600 Crore (Rs. 1,000 Crore once in 3 years over 11 years)		Time Frame: 50 colleges per district per year
Mode of Finance	Public Private Partnership	Implementing Agency: Department of Higher Education
Description: This would be aimed at developing the skills of human resources coming out of formal education in developing service sector relevant skills, by linking educational institutions to service sector – BPO, IT analytics, banks and financial institutions, and insurance. The main contours of this programme include faculty development & training; facilitating development of teaching aids; providing assistance in drawing up training programmes; revamping curricula; assisting in employment of students through institution of a training and employment cell etc.		
Targeted Impact:		
<ul style="list-style-type: none"> • Areas of Focus: Soft skills and employment related domain skills in service sector • Population benefited: Arts and Science Colleges • Impact: Improve the overall HDI of state 		
Implementation Strategy:		
The project shall be operated on PPP mode with NSDC partners in service sector and Sector Skills Council in service sector. The project will be implemented in pilot basis in backward districts		





11.4.12 Trade Specialisation Centre

Name of the Project: Trade Specialisation Centre		Location: All districts
Investment: Rs. 10 Crore per trade specialisation centre. Total investment expected to be around Rs. 300 to Rs. 350 Crore		Time Frame: 2012 - 15
Mode of Finance	Government	Implementing Agency: Dept of Employment & Training and Dept of Industry
Description: The objective of this initiative is to develop Trade Specialisation Centres (TSC) at hubs around key centres of demand and this will enable students to work on latest machinery/equipment at the identified centres. This would involve: <ul style="list-style-type: none"> Identifying ITI/ITCs, called as 'Hub' ITIs, to host highly specialised equipment relevant to trades Identify the specialised equipment required for such trades Such ITIs, as well as equipment to be hosted, should be based on key demand areas These ITIs would serve as hubs where other ITIs in the region ('Spoke' ITIs) would be able to make use of such equipment for lab-work and modules requiring exposure to such specialised equipment. Existing and new courses can continue to be offered throughout the state. However, in case of specific modules/MES courses/lab-work requiring use of specialised equipment and courses offered at TSCs can be managed on a 'transfer of credit' basis Thus the student will continue to study at his ITI/ITC of choice but be able to access specialised courses/modules/equipment at TSC on a 'transfer of credit' basis These specialised equipment can also be shared with neighbouring small/medium industries for a) trials and testing, and b) training on a rental/'fee-per-use' basis, thereby making such Hub/TSC self-sustaining and revenue-generating 		
Targeted Impact: <ul style="list-style-type: none"> Areas of Focus: Availability of high end equipment to students and ensure availability of good faculty Population benefited: ITI Impact: Quality of training 		
Implementation Strategy: The project shall be operated on PPP mode with a leading industrial unit. The project will be implemented on a pilot basis in central and northern districts of Tamil Nadu		



11.4.13 Entrepreneurship Development Centre for SME - Madurai

Name of the Project: Entrepreneurship Development Centre for SME in select production clusters in association with Universities and Industry Association		Location: Madurai
Investment: Rs. 15 Crore per centre		Time Frame: 2012 – 2023
Mode of Finance	Public Private Partnership	Implementing Agency: <ul style="list-style-type: none"> • Department of Higher Education • Department of Industry • Tamil Nadu Skill Development Mission • Tamil Nadu Corporation for Development of Woman • ILO
Description: <p>The district has well known private sector organizations like TVS, Fenner, and Honeywell. The District offers opportunities in the area of floriculture, dairy and cold storage units, agro and herbal products, granite stones, blue metal jelly, chamber bricks, rubber and plastic based industries. To support the scaling up of units in and around Madurai and southern districts, it is proposed to set up an Entrepreneurship Development Centre (EDC) for SMEs. The EDC will focus on imparting specialised knowledge based training to SMEs to support them in economic activity in and around economic clusters of Madurai. The Madurai centre will focus on service related incubation support. The activities of the centre shall be as follows:</p> <ol style="list-style-type: none"> 1. Mapping of potential SME opportunities in southern districts 2. Screening of potential SMEs 3. Capacity building through local universities 4. Incubation support with help of financial institutions 5. Mentoring helpline 		
Targeted Impact: <ul style="list-style-type: none"> • Areas of Focus: Service Industry - engineering activity, rural BPO, business services support, tourism and healthcare services • Service coverage: Domain knowledge, business incubation and knowledge transfer, ICT training, financial training, project preparation and appraisal training, english training etc., • Employment/Livelihoods generated: 25,000 entrepreneurs in next 10 years 		
Implementation Strategy: <p>The project shall be operated on PPP mode; the Government will provide the enabling infrastructure including land and initial corpus. Private sector shall provide necessary domain knowledge and incubation support to 25000 entrepreneurs in next 10 years.</p> <p>Affiliation to Economic and Social Commission for Asia and the Pacific (ESCAP) network of Centres of Excellence for HRD Research and Training would help in networking opportunity with other potential entrepreneurs and interactive access to information on other 123 member institutions.</p>		



11.4.14 Entrepreneurship Development Centre - Coimbatore

Name of the Project: Entrepreneurship Development Centre for SME in select production clusters in association with Universities and Industry Association		Location: Coimbatore
Investment: Rs. 15 Crore per centre		Time Frame: 2012 - 2023
Mode of Finance	Government	Implementing Agency: <ul style="list-style-type: none"> • Department of Higher Education • Department of Industry • Tamil Nadu Skill Development Mission • Tamil Nadu Corporation for Development of Woman • ILO
Description: <p>Coimbatore contributes to 10% to Tamil Nadu's GSDP. Coimbatore city is famous as a engineering goods and major educational hub. Pollachi, Mettupalayam and Valparai are key centres for agro cultivation and trading centres for arecanut, betel, tea, coffee, pepper and coconut; Pongalur is a major poultry centre, Tiruppur and Udumalaipettai in the neighbouring dsistricts are famous for Paper Industry centres Given the diverse economic base and entrepreneurial nature of population, we propose setting-up of EDC for SMEs in Coimbatore. Entrepreneurship Development Centre will focus on imparting specialised knowledge based training to SMEs to support them in economic activity in and around economic clusters of Coimbatore. Coimbatore centre will focus on manufacturing and service related incubation support. Following are the broad activities of the centre:</p> <ol style="list-style-type: none"> 1. Mapping of potential SME opportunities in western districts 2. Mapping/Screening of potential SMEs 3. Capacity building through local universities 4. Incubation support with help of financial institutions 5. Mentoring helpline 		
Targeted Impact: <ul style="list-style-type: none"> • Areas of Focus: Auto and light engineering, agricultural, food processing , healthcare services and education and skill development • Service Coverage: Domain knowledge, business incubation and knowledge transfer, ICT training, financial training, project preparation and appraisal training and English training • Employment/Livelihoods generated: 10000 entrepreneurs in next 10 years. 		
Implementation Strategy: <p>The project shall be operated on PPP mode; the Government will provide the enabling infrastructure including land and initial corpus. Private sector shall provide necessary domain knowledge and incubation support to 10000 entrepreneurs in next 10 years. Affiliation to Economic and Social Commission for Asia and the Pacific (ESCAP) network of Centres of Excellence for HRD Research and Training would help in networking opportunity with other potential entrepreneurs and interactive access to information on other 123 member institutions.</p>		



11.4.15 Entrepreneurship Development Centre - Chennai

Name of the Project: Entrepreneurship Development Centre for SMEs in select production clusters in association with Universities and Industry Association		Location: Chennai
Investment: Rs.15 Crore per centre		Time Frame: 2012 - 2023
Mode of Finance	Public Private Partnership	Implementing Agency: <ul style="list-style-type: none"> • Department of Higher Education • Department of SMIE • Tamil Nadu Skill Development Mission • Tamil Nadu Corporation for Development of Women • ILO
Description: <p>The Chennai Metropolitan Area (CMA) comprises three districts of Tamil Nadu, namely Chennai district, part of Tiruvallur district, and part of Kancheepuram district. The CMA spans 1,189 sq. km. The GDP of Chennai Metropolitan Area accounts for 40% of Tamil Nadu's GDP, with the district itself contributing to about 11% of GSDP. In addition, Chennai and its neighbouring districts account for about 20 per cent of all SMEs in Tamil Nadu.</p> <p>Chennai has a diversified economic base anchored by the automobile, software services, medical tourism, hardware manufacturing and financial services. To support the diverse economic base of CMA, we propose setting up of entrepreneurship development centre for SME. Following are the</p> <p>broad activities of the centre:</p> <ol style="list-style-type: none"> 1. Mapping of potential entrepreneurship opportunities in northern districts 2. Mapping/screening of potential entrepreneurs 3. Capacity building through local universities 4. Incubation support with help of financial institutions 5. Mentoring helpline 		

Targeted Impact:

- Areas of Focus: Auto and Auto Components, Business Services Support, Healthcare Services and Training and Development
- Service Coverage: Domain knowledge, business incubation and knowledge transfer, ICT training, financial training, project preparation and appraisal training, English training etc.
- Employment/Livelihoods generated: 50000 entrepreneurs in next 10 years



Implementation Strategy:

The project shall be operated on PPP mode; the Government will provide the enabling infrastructure including land and initial corpus. Private sector shall provide necessary domain knowledge and incubation support to 50000 entrepreneurs in next 10 years.

Affiliation to Economic and Social Commission for Asia and the Pacific (ESCAP) network of Centres of Excellence for HRD Research and Training would help in networking opportunity with other potential entrepreneurs and interactive access to information on other 123 member institutions.





11.4.16 Mega Entrepreneurship Development Centre - Karur

Name of the Project: Mega Entrepreneurship Development Centre to support entrepreneurship development in Karur, Erode and Tiruchirappalli district in association with Universities and Industry Association		Location: Karur
Investment: Rs. 25 Crore per centre		Time Frame: 2012 - 2023
Mode of Finance	Public Private Partnership	Implementing Agency: <ul style="list-style-type: none"> • Department of Higher Education • Department of Industry • Tamil Nadu Skill Development Mission • Tamil Nadu Corporation for Development of Woman • ILO
Description: <p>Karur District is located centrally in Tamil Nadu bounded by Namakkal, Dindigul, Tiruchirappalli, and Erode districts. Karur famous for home textiles, bus body building and production of quality gemstones. At present, there are around 350 units and 75,000 persons engaged in the manufacture of home textiles. The main products are bed linen, kitchen linen, toilet linen, table linen, curtains, other made ups. In addition, there are about 40 small and large bus body builders in Karur, collectively building about 4500 to 5000 buses a year. It accounts for about 80% of the south Indian bus bodies being built here. Karur is also a major centre for High Density Polyethylene (HDPE) filament used in manufacture of mosquito nets. To improve the competitiveness of local units and cater to needs of adjoining districts of Namakkal, Trichy and Erode, it is proposed to set up an entrepreneurship development centre here. Following are the broad activities of the centre:</p> <ol style="list-style-type: none"> 1. Mapping of potential entrepreneurship opportunities in the central districts 2. Mapping/Screening of potential entrepreneurs 3. Capacity building through local universities 4. Incubation/SHG formation support with help of financial institutions 5. Mentoring helpline 		
Targeted Impact: <ul style="list-style-type: none"> • Areas of focus: Engineering, textiles, business services support, training and development • Service coverage: Domain knowledge, business incubation and knowledge transfer, ICT training, financial training, project preparation and appraisal training, English training etc., • Employment/Livelihoods generated: Karur centre 10000 entrepreneurs in next 10 years 		
Implementation Strategy: <p>The project shall be operated on PPP mode; the Government will provide the enabling infrastructure including land and initial corpus. Private sector shall provide necessary domain knowledge and incubation support to 10000 entrepreneurs in next 10 years.</p>		



11.4.17 Skill Development Centre in post production activity in Media & Entertainment

Name of the Project: Skill Development Centre in post production activity in Media & Entertainment		Location: Chennai
Investment: Rs. 25 Crore per centre		Time Frame: 2012 - 2023
Mode of Finance	Public Private Partnership	Implementing Agency: <ul style="list-style-type: none"> Tamil Nadu Skill Development Dept of Higher Education With support from Media & Entertainment Sector Skill Council
Description: <p>Post production activities are an integral part of the film making and video production process. Post production work is involved in film making, advertisements, radio programs, animation, etc. It involves editing, colour correction, addition of music and sound, etc. Advancement in technology has moved the editing process from conventional "tape to tape" editing process to computer based editing process using various commercial software.</p> <p>Tamil cinema industry produces one of the highest number of movies among Indian languages and Chennai is a growing market for the media and entertainment industry which has a huge requirement of post production activities. Qualified and skilled manpower is required to meet the current and potential demand of the industry specifically in areas such as Roto, Compositing, Matte Painting, Visual Effects, 3D and Match Moving.</p>		
Targeted Impact: <ul style="list-style-type: none"> Areas of Focus: Media and Entertainment Population benefited: 1 lakh Impact: Incremental employment creation and upskilling opportunities for existing employees 		
Implementation Strategy: <p>The project shall be operated on PPP mode; the Government will provide the enabling infrastructure including land and initial corpus. Private sector will provide domain knowledge with help of Media & Entertainment Sector Skill Council</p>		





11.4.18 Centre of excellence in auto and automotive technology

Name of the Project: Centre of Excellence in Auto and Automotive Technology		Location: Chennai
Investment: Rs. 500 Crore		Time Frame: 2017
Mode of Finance	Public Private Partnership	Implementing Agency: Dept of Industry and Dept of Higher Education
Description: CoE would impart the leading-edge skills required for the auto sector to grow and remain competitive. In addition to imparting specialised skills, the COEs would be required to focus on research and development (R&D), on faculty development initiatives for other institutions in the State, and on curriculum development for courses relating to their industries. The COEs should also network with other COEs to carry our work in inter-disciplinary areas		
Targeted Impact: Areas of Focus: auto and Automotive Industry Population benefited: 0.6 million per annum minimally educated people Impact: Improve the competitiveness of auto and auto component industry		
Implementation Strategy: The project shall be operated on PPP mode with leading international auto industry and educational. The State will set-up a skill challenge fund to drive this programme. The fund will be available for providing employment linked training programme		





11.4.19 Centre of Excellence for Research in Non Communicable Diseases

Name of the Project: Centre of Excellence for Research in Non Communicable Diseases		Location: Chennai
Investment: Rs. 500 Crore		Time Frame: 2017
Mode of Finance	Public Private Partnership	Implementing Agency: Health and Family Welfare Department, Government of Tamil Nadu

Description:

The Integrated Disease Surveillance Program report on Non Communicable Diseases in Tamil Nadu published in 2009 highlights that 13.7% of the population smoke, 11% use smokeless tobacco, 14.7% are current drinkers, 98.9% have less than five servings of fruits and vegetables daily, 65.8.8% have low physical activity, 17.8% have been observed as Stage I and Stage II hypertensive, 3% have been diagnosed with diabetes mellitus, and 22.6% are overweight. The WHO reports that the urbanisation of Tamil Nadu is influencing the occurrence/relevance of non-communicable diseases, urban men are three and a half times more prone to smoking, urban persons are three times less physically active than rural, urban persons had 7 times more BMI than rural and urban men are twice likely to have blood pressure. The focus of the state would be to control Non-communicable diseases through effective preventive/curative programmes and through effective research in the area resulting in better cure mechanisms.

The state will promote a Centre for Excellence for Non Communicable Diseases which will aim at, systematic reduction of Non Communicable Diseases including Hypertension, Diabetes, Cancer, Renal failure in the state through:

1. Research into the NCD diseases in the state and development of new treatment protocols
2. 100% screening of the state population against NCDs through hub a spoke model engaging the public and private hospital network
3. Establishment of NCD registry in the state
4. IEC activities for promoting healthy lifestyle towards preventing NCDs
5. Health cards for all citizens of the state which provides for annual preventive screening in public and selected private hospitals
6. Training and capacity building of public health workers in NCDs

The programme will be integrated under the "Nalmana Thamizhagam" project being currently promoted under the Tamil Nadu Health Sector Project.

Targeted Impact:

The programme is expected to impact the whole population of the State, the objective of the programme is to improve the health status of the citizens and create successive generations which are cognizant of healthy lifestyle.

Implementation Strategy:

The programme will be spearheaded by the Government, and private participation will be promoted in the activities. Established medical colleges and research organisations with established track record in NCD research will be welcome for participation in the Centre of Excellence for specific topics. The programme will be initiated in the year 2013 after preliminary studies and shall be executed on a phased manner.



11.4.20 Centre of Excellence for Agricultural Practices

Name of the Project: Centre of Excellence for Agricultural Practices		Location: TNAU, Coimbatore
Investment: Rs. 500 Crore		Time Frame: 2017
Mode of Finance	Public Private Partnership	Implementing Agency: TNAU under Agriculture Department

Description:

Tamil Nadu Agricultural University is the apex Government body engaged in research, development, education, and dissemination of agricultural knowledge in the State. The State seeks to augment the R&D capacity of the institutions through active investment in infrastructure, manpower, capacity building, and knowledge linkages with veritable institutions, knowledge exchange, experimental methodology, and extension activities.

The objective of the Centre of Excellence would be to bring in new technologies to improve the agricultural yield of the state in a sustainable manner. The CoE will involve in multi pronged research covering:

1. Plant molecular biology
2. Plant breeding and genetics
3. Mechanization of agriculture
4. IPM based crop protection
5. Cost effective crop production techniques for improving quality of produce
6. Utilization of GIS and remote sensing for region specific soil and crop oriented activities
7. Agricultural market information
8. Agricultural economy etc.

The eleven constituent colleges of TNAU, six affiliated colleges of TNAU and the thirty-six research stations will be strengthened to international standards under the project.

Targeted Impact:

The programme is expected to bring out sustainable solutions for improving the agricultural capability of the state, some of the visible outcomes of the project are:

1. Improved agricultural yield
2. Reduced input cost for agricultural production
3. Optimal irrigation requirement (Motto : More crop per drop)
4. Reduced wastage due to insects and weeds/fungal attack
5. Speedy transfer of technology and reporting mechanism which enable quick decision making and policy initiatives
6. Better storage, transportation and processing techniques which augment the economic value of the produce



Implementation Strategy:

The programme will be spearheaded by the TNAU with the active support of the Department of Agriculture. Established agricultural universities and research organizations will be invited to partner with TNAU for the project. Potential projects which are in pipeline for improving the agricultural productivity will be invested in immediately by the Government/private participant. The Government will conduct a pre feasibility study on the type of projects which can be taken up under the Centre of Excellence for agriculture by September 2013, following which institutional strengthening and strategic alliances would be built upon.





11.4.21 Centre of Excellence for Water Management

Name of the Project: Centre of Excellence for Water Management		Location: Tiruchirappalli/Chennai
Investment: Rs. 350 Crore		Time Frame: 2017
Mode of Finance	Government, Public Private Partnership	Implementing Agency: Public Works Department & Agriculture Department
Description:		
<p>Tamil Nadu is well endowed with multiple organizations involved in irrigation, ground water research, watershed management, extension services, and academic research. The institutes concerned are:</p> <ol style="list-style-type: none"> 1. State Ground & Surface Water Resources Data Centre 2. Institute for Water Studies, Chennai 3. Irrigation Management Training Institute, Tiruchirappalli 4. Institute of Hydraulics and Hydrology, Poondi 5. Centre for Water Resources, Anna University 6. Water Technology Centre, TNAU <p>An apex body, which will coordinate the research and extension activities of these centres, will be promoted as a Centre for Excellence. The objective of the CoE will be to research into sustainable watershed management, irrigation methodologies for the State and assist the State in undertaking policy decisions and implementable programmes/projects. The CoE will also act as the state referral authority for any issues relating to irrigation in the state. The CoE will co-ordinate research and extension activities in:</p> <ol style="list-style-type: none"> 1. Watershed development 2. State water ground and surface water management 3. Hydrology and Geology of water management 4. Study of dams, tanks and other aquifers 5. Irrigation systems in the state 6. Micro irrigation, drip irrigation, fertigation and related 7. Economics of irrigation 8. Training of farmers and water users 		



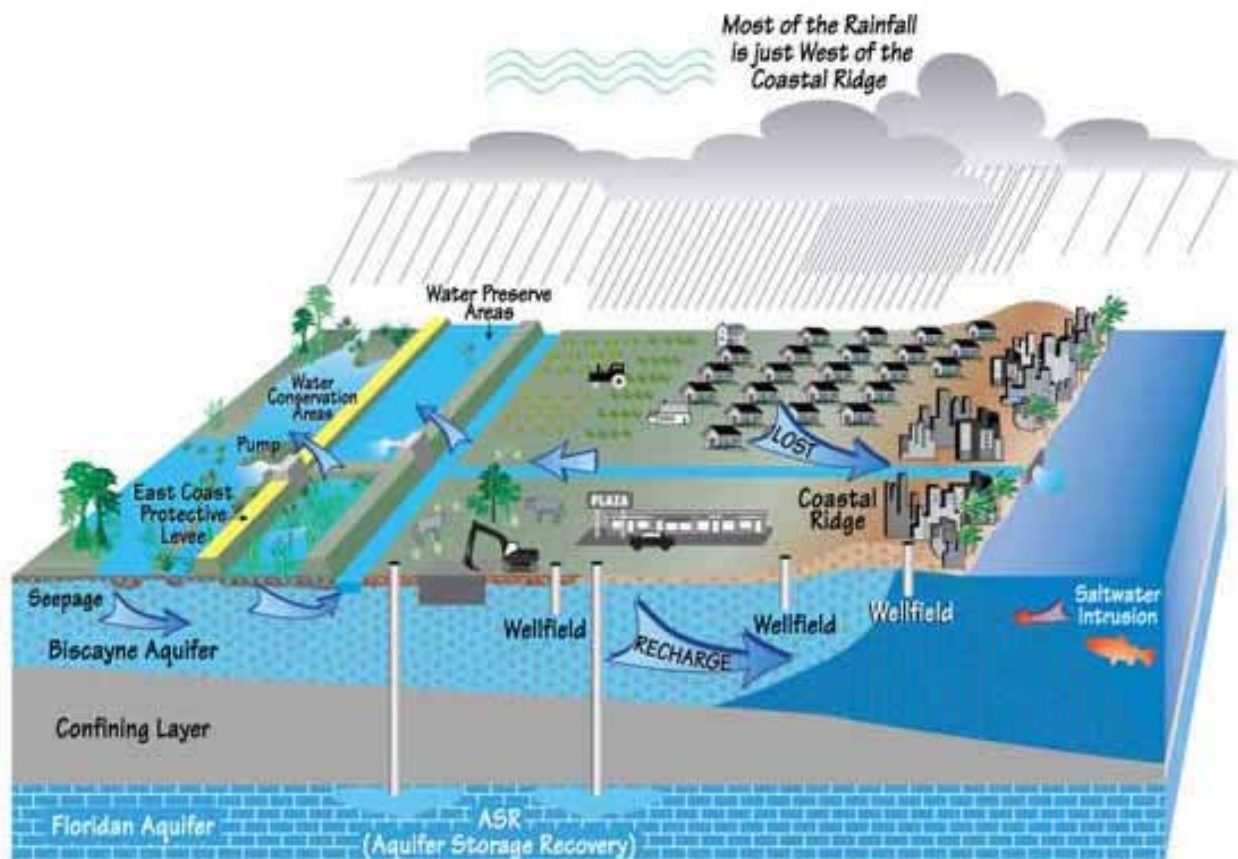
Targeted Impact:

The Centre of Excellence will generate research content on sustainable watershed and irrigation methodologies, some of the visible outcomes of the CoE are developing

1. Technologies for sustaining/improving the ground water level of the State
2. Technologies for reducing the water runoff during rainy season
3. Technologies for reduced water wastage due to seepage and evaporation during irrigation
4. Technologies for optimal water utilisation for irrigation
5. Training and capacity building of all TN farmers on proper irrigation systems

Implementation Strategy:

The programme will be spearheaded by the Government by formulation of an apex body that co-ordinates the research and development activities. Established water research institutions will be invited to participate in research and development activities. The apex body will be formed in 2013 and the integration of research, development and extension activities will start from 2014.

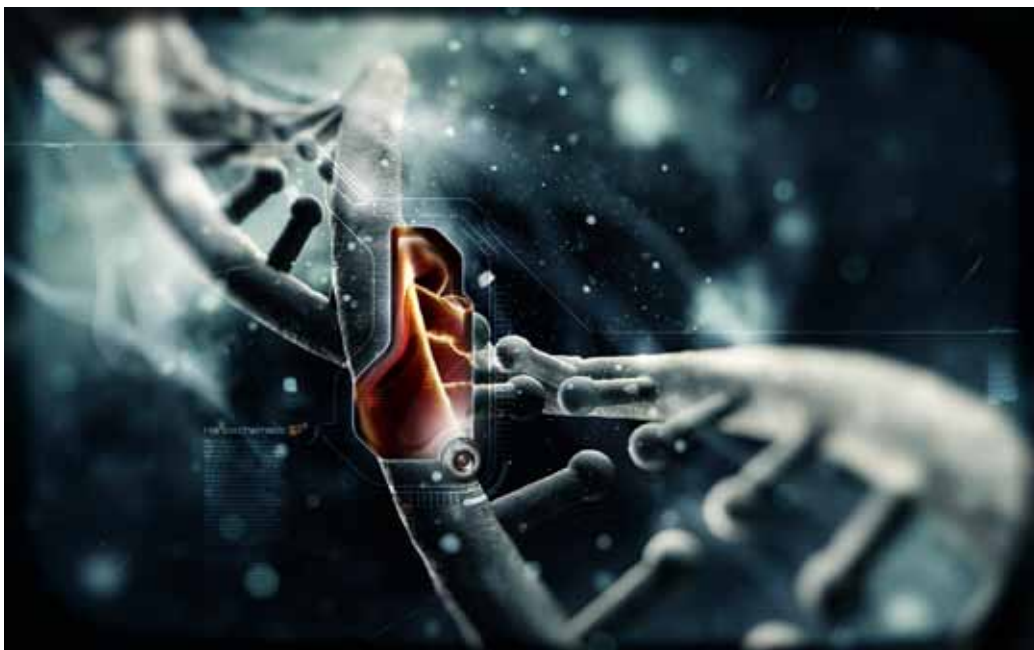


Interim Solution - Enhanced Water Supplies by returning Storage to the System



11.4.22 Centre of Excellence – Nanotechnology

Name of the Project: Centre of Excellence – Nanotechnology		Location: Chennai
Investment: Rs. 500 Crore		Time Frame: 2014
Mode of Finance	Public Private Partnership	Implementing Agency: Industry Department and Department of Higher Education
<p>Description:</p> <p>Nanotechnology is one of the key emerging sectors in India. Nanotechnology works with materials, devices, and other structures with at least one dimension sized from 1 to 100 nanometres. At this level the components exhibit diverse physical, chemical and biological properties due to their miniature size and this can be exploited for diverse application in medicine, electronics, engineering, construction, textile and IT etc., Given the importance and huge potential of nanotechnology, the human resources need to be trained in the emerging areas of nanotechnology. Given the importance of this area, the vision envisages setting-up of Centre of Excellence in Nanotechnology.</p>		
<p>Targeted Impact:</p> <ul style="list-style-type: none"> • Areas of Focus: CoE would impart the leading-edge skills required for the nanotechnology. The mandate of CoE is to facilitate world-class interdisciplinary research, support in development of application oriented products and technologies, facilitate development of high order skills • Population benefited: Diverse industries and higher education • Impact: Improve the overall competitiveness of industry 		
<p>Implementation Strategy:</p> <p>The project shall be operated on PPP mode with a leading international player along with higher education institution.</p>		





11.4.23 Centre of Excellence – Solar and clean energy Technology

Name of the Project: Centre of Excellence – Solar and clean energy Technology		Location: Chennai
Investment: Rs. 400 Crore		Time Frame: 2014
Mode of Finance	Government	Implementing Agency: TEDA, Energy Dept , Environment Dept, Industry Dept and Department of Higher Education
<p>Description:</p> <p>Green House Gas (GHG) emission is a major concern that the world is currently facing. The GHG emission has increased by 4% from 2009 to 2010 after witnessing a decrease of 1% following the economic slowdown in 2008. In emerging economies like China and India the GHG emission increased by 10% and 9% respectively from 2009 to 2010. Electricity and heat accounted for approximately 36% of the world GHG emission in 2010¹⁶ .</p> <p>With growing economies and increasing population the demand for electricity is expected to reach 7,272 gigawatt (GW) in 2035 from 4,968 GW in 2011¹⁷ . In order to cater to this expected demand without increasing GHG emission, shifting from conventional sources to renewable sources is imperative.</p> <p>India is emerging as a major player in green energy market. In year 2011, India was the fifth largest investor in new renewable capacity addition in the world. India's GDP is expected to increase at a pace of 8% in the coming years and the power sector is expected to grow at a rate of 5-7% to sustain the growth in the economy. The green energy sources play a critical role in reducing its dependence on the fast depleting conventional sources as well as meeting the environmental concerns ¹⁸.</p> <p>In order to meet the targets set out by National Action Plan for Climate Change, India has to add close to 87 GW in the next 8 years. India has the required renewable energy potential (estimated at 127 GW¹⁹) to meet the NAPCC target but is facing the many challenges. Given this background, the vision envisages, setting-up of Centre of Excellence in Clean Technology.</p>		
<p>Targeted Impact:</p> <p>Areas of Focus:</p> <ul style="list-style-type: none"> • The COEs would focus on research and development on new clean technologies including thin film solar cells, solid oxide fuel cells, hydrogen fuel, nano technology in clean energy and other relevant clean technologies • Testing of innovative clean technologies • Training of human resources in emerging technologies and energy auditing. • The COE will also network with other COEs in clean technology to carry out work in inter-disciplinary areas. 		
<p>Implementation Strategy:</p> <p>The project shall be operated on PPP mode with a leading international player with support from higher education institution.</p>		

¹⁶ United Nations Framework Convention for Climate Change website: <http://unfccc.int/di/FlexibleQueries.do>

¹⁷ U.S. Energy Information Administration (EIA), International Energy Statistics Database

¹⁸ Reserve Bank of India website: <http://rbi.org.in/scripts/PublicationsView.aspx?id=14217>

¹⁹ Ministry of New and Renewable Energy (MNRE)



11.4.24 Centre for Excellence in Bio-technology

Name of the Project: Centre of Excellence – Biotechnology		Location: Chennai
Investment: Rs. 400 Crore		Time Frame: 2014
Mode of Finance	Government	Implementing Agency: Industry Department and Department of Higher Education

Description:

The Indian biotechnology industry is one of the fastest growing knowledge sectors. From the period of 2004-05 to 2010-11, this sector has grown three-fold and reported revenue of US \$3 billion²⁰. The reasons that are oft cited for this growth and biotechnology boom are:

- Pool of scientists
- Educational institutions that churn out biotechnology graduates
- The interest in the youth to take this up as research field
- The institutional framework – in terms of the policies and the institutes of learning – that drive the sector
- The raw material present – in terms of the bio-diversity hot spots – that serve as the foundation on which this sector is built
- Cost effective practices

The Indian biotech scene can be broadly classified into five segments:

1. Bio-pharma: The segment that pertains to medicines and cures
2. Bio-services: The segment that deals with the research activities
3. Bio-agri: The usage of biotechnology to increase the yield in the agriculture
4. Bio-informatics: The application of information technology in molecular and other fields of biology
5. Bio-industrial: The usage of biotechnology principles for industrial purposes, including manufacturing, alternative energy (or “bioenergy”), and biomaterials. It includes the practice of using cells or components of cells like enzymes to generate industrially useful products
6. Food Bio technology: To develop nutraceuticals and value added food materials

Trained and educated researchers and scientists are required across these areas that are currently in vogue

Targeted Impact:

- Areas of Focus: The proposed Centre of Excellence would focus on bio-informatics, green biotechnology, agri biotechnology, genomics, marine biotechnology etc.,
- Impact: Improve the overall competitiveness of industry through quality human resource and innovative research capabilities in the field

Implementation Strategy:

The project shall be funded through Government with domain support from leading international player.

²⁰ Source : IBEF



11.4.25 Centre of Excellence in Basic Science

Name of the Project: Centre of Excellence – Biotechnology		Location: Chennai
Investment: Rs. 150 Crore		Time Frame: 2015
Mode of Finance	Government	Implementing Agency: <ul style="list-style-type: none"> The Institute of Mathematical Science University of Madras
Description: Basic science forms the basis of applied research and technology development. The objective of this CoE is to foster research in the area of basic sciences such as physics, chemistry, mathematics and life sciences through an inter-disciplinary approach. The Centre will contribute to the development of basic science through research and training, incubation support to start-ups, organizing meetings and workshop of students, faculty, academic institutions and other international centres in the area of basic sciences. This Centre may be set-up in association with the Institute of Mathematical Sciences.		
Targeted Impact: <ul style="list-style-type: none"> Areas of Focus: The proposed Centre of Excellence would focus on physics, chemistry, mathematics, life sciences Impact: Improve the overall competitiveness of industry 		
Implementation Strategy: The project shall be funded through Government with domain support from the Institute of Mathematical Sciences		





11.4.26 Centre of Excellence in Social Science

Name of the Project: Centre of Excellence in Social Science		Location: Chennai
Investment: Rs. 150 Crore		Time Frame: 2015
Mode of Finance	Government	Implementing Agency: Madras Institute of Development Studies
Description: The objective of this CoE is to act as a think tank in Social Studies by bringing in knowledge and learnings, and application of inter-disciplinary areas such as of economics, anthropology, geography, psychology, humanities and natural science, humanities etc. The centre will focus on high-quality research in areas or issues relevant to Tamil Nadu and India. The centre will provide necessary support in economic development and creating an inclusive society through participation of key stakeholders in Government, public, private and academic institutions. This centre may be established or incubated with support from the Madras Institute of Development Studies.		
Targeted Impact: <ul style="list-style-type: none"> • Areas of Focus: The proposed Centre of Excellence would focus on inter-disciplinary research spanning economics, anthropology, geography, psychology, humanities and natural science. • Impact: Policy advocacy in the area of social issues 		
Implementation Strategy: The project shall be funded through Government with domain support from Madras Institute of Development Studies.		





11.4.27 CoE in Construction Engineering

Name of the Project: Centre of Excellence in Construction Engineering		Location: Chennai
Investment: Rs. 150 Crore		Time Frame: 2014
Mode of Finance	Public Private Partnership	Implementing Agency: <ul style="list-style-type: none"> • Tamil Nadu Skill Development Mission • Dept of Labour and Employment • CREDAI • BAI • Tamil Nadu Construction Workers Welfare Board
Description: <p>The construction sector in India is the 2nd largest economic activity after agriculture and provides employment to around 35 million people. Tamil Nadu accounts for 8% of the national construction GDP. Construction industry has grown steadily at National and State level, employing around 35 million people and around 2 million in Tamil Nadu. The Incremental human resource requirement of Tamil Nadu would be 3 million workers by 2022 and will contribute to 18% of employable workforce. Given the employment potential of construction sector, it is proposed to set up a world class construction training centre. The configuration of construction training centre will cover industry partnership, training partnership, research & development, curriculum development, training the trainers, training delivery and certification. The certification will be given by Construction Sector Skill Council.</p>		
Targeted Impact: <ul style="list-style-type: none"> • Areas of Focus: Construction sector • Population benefited: 3 million in next 10 years • Impact: Incremental human resources requirement 		
Implementation Strategy: <p>The project shall be operated on PPP mode; the Government will provide the enabling infrastructure and land and Private Sector will bring in necessary construction domain knowledge. The training will be delivered through CREDAI and BAI network</p>		





11.4.28 CoE in Aerospace

Name of the Project: Centre of Excellence in Aerospace		Location: Chennai
Investment: Rs. 150 Crore		Time Frame: 2014
Mode of Finance	Public Private Partnership	Implementing Agency: <ul style="list-style-type: none"> • Tamil Nadu Skill Development Mission • Dept of Labour and Employment • DGCA • AAI
Description: Tamil Nadu aspires to achieve 30% of Indian aerospace business by 2020 and multiple projects will be taken up to reach the target. A special policy is under development for boosting investments in manufacturing of aerospace components, Maintenance Repair and Overhaul (MRO) activities, and education. Multiple projects those have been identified by TIDCO towards the course as follows: <ol style="list-style-type: none"> 1. Establishment of SEZ in Hosur for MRO activities 2. Establishment of MRO complex in Sriperumbudur adjacent to the proposed international airport 3. Establishment of aerospace component manufacturing units in Sriperumbudur Integrated aerospace park in Vellore for manufacturing of aerospace components and aero university for education, research and development in the sector. To support the above initiatives, an enabling investment of Rs 3,000 crore will be employed to rollout these projects. In addition, the CoE will be set-up to meet the human resources skills and training requirement.		
Targeted Impact: <ul style="list-style-type: none"> • Areas of Focus: Aerospace • Population benefited: 100,000 people will be benefited • Impact: Incremental human resources requirement and availability of high order skills to perform complex job roles 		
Implementation Strategy: The project shall be operated on PPP mode; the Government will provide the enabling infrastructure and land and private sector (specifically international player) will bring in necessary aerospace domain knowledge.		



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