

Vision Tamil Nadu



Strategic Plan for Infrastructure Development in Tamil Nadu



Government of Tamil Nadu



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J JAYALALITHAA
Chief Minister



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FOREWORD

Date 17.3.2012

A strategic plan for infrastructure development to catapult Tamil Nadu to a high growth plane has been developed for the first time. One of the key requirements for rapid economic growth in all sectors is quality infrastructure. It is the endeavour of my Government to ensure all benefits to all people.

In a modern globalised world, aspirations are unbridled and ambitions are high. It is incumbent on a democratically elected Government to provide the road map to channel these aspirations and ambition to their ultimate realization.

People in Tamil Nadu have a legitimate expectation that their quality of life should be as good as what is found in any developed economy.

The State Government is bound to work towards actuating this expectation.

We have embarked, for the first time in Tamil Nadu, on an exercise of preparing a Vision Document for the State as a strategic plan for infrastructure development. The goals and themes of the vision are determined as clearly perceivable outcomes which will impact the lives of the common citizens in the most direct manner possible — substantial increases in income through generation of fruitful employment; improvement in the quality of life through provision of high quality infrastructure and services; focused growth of sectors where the State has a competitive advantage and above all peace, prosperity and protection of the vulnerable.

A distant vision neither inspires nor challenges. We need stretch targets which will challenge us and are achieved within a timeframe that is not too remote. Hence, as we stand at the commencement of the 2012-2013 fiscal year, I have chosen a clear and challenging timeframe of ten fiscal years within which we set out to achieve ambitious goals.

Achieving the desired outcomes needs disciplined implementation of well laid down plans and I seek the co-operation of all the people and stake-holders in the State and urge them to wholeheartedly accept this vision and strive towards achieving it.

J JAYALALITHAA
Chief Minister of Tamil Nadu



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PREFACE

Tamil Nadu has been one of India's most progressive states and is amongst the top three on several economic and social indicators. Over the past few years, the state had lost its edge in terms of economic growth and fiscal position. In the Governor's address in June 2011, the newly elected government identified the need for formulating a succinct strategy for rejuvenation of economic and social growth of the state and to reclaim the top position. Such a strategic blue print for development should aim to achieve a consistent economic growth rate of over 10 percent per annum in a highly inclusive manner. The government envisaged the preparation of a 'Vision Document for Tamil Nadu' that would identify and remove the bottlenecks in development, prioritise critical infrastructure projects, and work to propel the state of Tamil Nadu to the forefront of development once again. The objective of achieving economic prosperity and employment generation with inclusive growth is sought to be achieved through the implementation of a coherent Vision.

The Budget for the year 2011-12 also listed the preparation of the Vision with a focus on developing a shelf of projects for strengthening infrastructure. The Budget also announced the establishment of the Tamil Nadu Infrastructure Development Board, under the Chairmanship of the Honourable Chief Minister, for facilitating the speedy implementation of critical infrastructure projects.

Government of Tamil Nadu with the support of Asian Development Bank has undertaken the preparation of the 'Tamil Nadu Vision' document addressing the following areas:

- I. Formulating a vision and growth strategy for the state of Tamil Nadu, with sector specific sub strategies.
- II. Identifying thrust areas for growth and the bottlenecks in such areas.
- III. Identifying critical projects in important sectors including power, roads, port development, agriculture, irrigation, housing, health, higher education, urban development, public transport, industry and tourism.
- IV. Formulating institutional mechanisms for removing administrative delays in implementation of projects.

Government of Tamil Nadu and ADB appointed experts from ICRA Management Consulting Services Limited (IMaCS) to undertake a study to prepare the "Tamil Nadu Vision document" on the basis of extensive research, data collection and discussions with stakeholders including all state government departments and industry. The Study is being conducted in three phases as follows:

1. Phase I - Vision formulation
2. Phase II - Detailed sector reports and project profiles
3. Phase III - Implementation road map

This document covers Phase I of the exercise and outlines the contours of Vision Tamil Nadu 2023 and a summary of the proposed infrastructure initiatives for Tamil Nadu.



ABBREVIATIONS

1 Billion	One Hundred Crore	MMR	Maternal Mortality Rate
1 Crore	One Hundred Lakh	MNC	Multi National Corporation
1 Lakh	One Hundred Thousand	MSME	Micro, Small and Medium Enterprises
1 Million	Ten Lakh	MTPA	Million Tonnes Per Annum
1 US\$	INR 45	MW	Mega Watt
BRT	Bus Rapid Transit	NGO	Non Government Organisation
CAGR	Compounded Annual Growth Rate	O&M	Operation and Maintenance
CDS	Current Daily Status	OFC	Optical Fibre Cable
COE	Centre of Excellence	PCPIR	Petro Chemical and Petroleum Investment Region
EDL	Essential Drug List	PHC	Primary Health Centre
FD	Fiscal Deficit	PPP	Public Private Partnership
FRBM	Fiscal Responsibility and Budget Management Act	R&D	Research and Development
FY	Financial Year (April to March)	RD	Revenue Deficit
GDP	Gross Domestic Product	RE	Revised Estimates
GSDP	Gross State Domestic Product	SEZ	Special Economic Zone
ha	Hectare	SIDCO	Small Industries Development Corporation
HDI	Human Development Index	SIPCOT	State Industries Promotion Corporation of Tamil Nadu
ICT	Information and Communication Technology	SME	Small and Medium Enterprises
IFC	International Finance Corporation	TEU	Twenty Foot Equivalent Unit
IMR	Infant Mortality Rate	UMI	Upper Middle Income
IPR	Intellectual Property Rights	Under 5 MR	Under five years Mortality Rate
IT	Information Technology	UNESCO	United Nations Educational, Scientific and Cultural Organisation
ITES	Information Technology Enabled Services	UNFCCC	United Nations Framework Convention on Climate Change
Kbps	Kilo bytes per second	US\$	United States Dollar
Km	Kilometre	Vision 2023	A Vision for the State of Tamil Nadu till the year 2023
LNG	Liquified Natural Gas		
Mbps	Mega bytes per second		



1. Executive Summary

The vision for Tamil Nadu for 2023 is to become India's most prosperous and progressive state with no poverty, and where its people enjoy all the basic services of a modern society and live in harmonious engagement with the environment and with the rest of the world.

Vision 2023 Tamil Nadu ("Vision 2023") sets the plan for infrastructure development for the state to reach the desired outcomes by 2023. The three outcomes of Vision 2023 are:

- (1) The per capita income of Tamil Nadu's residents will reach US \$10,000¹ per annum (at 2010 prices) – the present median income of Upper Middle Income countries - by 2023,
- (2) Tamil Nadu will attain a high standard of social development, with the Human Development Index of the state matching those of developed countries by 2023, and
- (3) Tamil Nadu would provide to its residents, high quality infrastructure all over the state comparable with the best in the world.

Crucial to achieving Vision 2023 is identifying the infrastructure requirements² of Tamil Nadu and the strategies to develop the required facilities. This Vision document addresses the inter-play amongst three key components of development, namely (a) What should be the long term growth objectives of Tamil Nadu ("The Outcomes")?; (b) What are the inputs required in terms of infrastructure, investments, and policies?; and (c) What should be the targeted output mix in terms of economic income, sectoral composition and pace of growth? How should the benefits be distributed in society? What should be the balance between development and environment?

Key facets of Vision 2023 include Tamil Nadu's enhanced economic dynamism, best in class human development indicators, a well developed infrastructure that provides universal access to basic services, an investment climate that compares with the best in Asia, and the evolution into India's foremost knowledge and innovation hub.

1 1 US\$ = Rs. 45

2 The list sectors covered as part of infrastructure are enclosed in Appendix 1. The list catalogues the sectors identified by the Government of Tamil Nadu as key to achieving the Vision



BOX 1: TEN VISION THEMES

Vision 2023 Tamil Nadu identifies ten themes for the state as follows:

1. Tamil Nadu will be amongst India's most economically prosperous states by 2023, achieving a six-fold growth in per capita income (in real terms) over the next 11 years to be on par with the Upper Middle Income³ countries globally.
2. Tamil Nadu will exhibit a highly inclusive growth pattern – it will largely be a poverty free state with opportunities for gainful and productive employment for all those who seek it, and will provide care for the disadvantaged, vulnerable and the destitute in the state.
3. Tamil Nadu will be India's leading state in social development and will have the highest Human Development Index (HDI) amongst all Indian states.
4. Tamil Nadu will provide the best infrastructure services in India in terms of universal access to Housing, Water & Sanitation, Energy, Transportation, Irrigation, Connectivity, Healthcare, and Education.
5. 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.
6. 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.
7. Tamil Nadu will ensure Peace, Security and Prosperity for all citizens and business, enabling free movement and exchange of ideas, people and trade with other Indian states and rest of the world.
8. Tamil Nadu will preserve and care for its ecology and heritage.
9. Tamil Nadu will actively address the causes of vulnerability of the state and its people due to uncertainties arising from natural causes, economic downturns, and other man-made reasons and mitigate the adverse effects.
10. Tamil Nadu will nurture a culture of responsive and transparent Governance that ensures progress, security, and equal opportunity to all stakeholders.

Any visioning exercise has three essential defining points – the starting position, the targeted outcomes, and the trajectory to be traversed. Today, Tamil Nadu is a mid-sized state in the Indian union, with a good standing on many economic and social parameters. It scores amongst the top three states on many dimensions and does well on most others including infrastructure provision. The sweep of Vision 2023 is bold, and seeks to be an aspirational statement for the people and Government of Tamil Nadu to catapult the state into the league of developed regions of the world and to the top of the league tables of Indian states.

The world has become more complex, volatile and unpredictable in the past few decades than it has

ever been in history, and it is likely to remain so in the future. Therefore, any visioning exercise has to contend with the uncertainties that will affect us in the future. Accordingly, contingency plans and alternatives have to be thought through and that calls for a responsive and capable government at the helm of the state at all times. Vision 2023 accordingly, addresses the differential requirements of various stakeholders in the state with a view to enabling high rates of growth and economic development that is highly inclusive and sensitive to potential downsides by conferring resilience to the state's economic and social fabric.

³ Refer to Appendix 2 for a list of Upper Middle Income countries



A. The Ten Themes of Vision 2023

Theme 1: Economic prosperity

Tamil Nadu will increase its per capita income (at current prices) by 6 times from Rs. 73,278 (US\$ 1628)⁴ in 2010-11 to Rs. 4,50,000 (US\$ 10,000) in 2023, in line with per capita income of Upper Middle Income (UMI) countries. Over the next 11 years, Tamil Nadu, given its factor endowments and the combination of strengths and opportunities, will aim to grow its GSDP at 11% or more per annum - about 20% more than the expected growth rate of India's GDP over the same period. Given the expected increase in population of 15% over the next 11 years, the increase in per capita income would amount to 6 times over this period. Several countries in Asia (in particular, Thailand, Malaysia and China) have grown at around 7% to 10% per annum for more than 20 years during the 1980s and later. The fast growing states of India, namely Maharashtra and Gujarat, have grown at double digit rates over the past 10 years. Considering the aspiration to increase real incomes by six times and the fact that several countries in Asia and a few states in India have consistently grown at high rates, the aspiration for Tamil Nadu is to grow its economy at over 11% per annum (in real terms) over the next 11 years and become a prosperous state.

Economic prosperity

Tamil Nadu will be amongst India's most economically prosperous states by 2023



4 Source: CSO Estimates, Base year 2004-05, US\$ conversion rate - Rs. 45 per US\$)



Theme 2: Inclusive growth

Along with a high rate of economic growth, Vision 2023 also seeks to simultaneously reduce inequality of incomes across the state. Any growth that only caters to the aspirations of the upper crust and leaves behind some sections of society is not only morally wrong but practically unsustainable. Enabling widespread access to physical and social infrastructure services enhances equitable growth, and this lies at the heart of Tamil Nadu's growth strategy. Tamil Nadu Vision 2023 places substantial emphasis on inclusive growth by channelling considerable resources to the lowest income groups and ensuring that Tamil Nadu becomes poverty free. Being poverty free means no person in the state is deprived of any basic needs such as food, clothing and shelter and any resident of Tamil Nadu, who seeks employment, will be able to find gainful and productive employment commensurate to his/her capabilities. To those sections of society who are too old, helpless and destitute, the state will provide through its social security net, the necessary helping hand in terms of income support, food, shelter and healthcare so that there is no fundamental deprivation at any level in the state. *Tamil Nadu Vision 2023 resolves that by 2023 nobody in Tamil Nadu will be left behind.*



Inclusive growth

Tamil Nadu will exhibit a highly inclusive growth pattern - it will largely be a poverty free state with opportunities for gainful and productive employment for all those who seek it, and will provide care for the disadvantaged, vulnerable and the destitute in the state.



Theme 3: Health for all

At present, Tamil Nadu scores reasonably well on social indicators vis-a-vis most states of India. This can be seen particularly in the case of Human Development Indicators, in which Tamil Nadu has made considerable further progress during the past decade. Vision 2023 seeks an ambitious goal for key parameters such as, crude birth and death rates, MMR, IMR and Under 5MR, where, the performance of the state will be ranked as the best in the country. *Essentially, Vision 2023 envisages Tamil Nadu to become not only the numero uno State in India in terms of social indicators, but also reach the levels attained by developed countries in human development by ensuring universal access to health facilities.*

Health for all

Tamil Nadu will be India's leading state on social development and will have the highest Human Development Index (HDI) amongst all Indian states.





Theme 4: **World class infrastructure**

The heart of Vision 2023 is provision of world class infrastructure to all the residents of Tamil Nadu irrespective of their economic status. The accent on infrastructure in Vision 2023 is necessitated on two counts – (a) Infrastructure development is investment intensive and in its own right generates significant employment opportunities and economic growth; (b) More importantly, infrastructure development creates huge positive externalities in the economy by providing a fillip to economic and social development across all sectors. Historically, spending on infrastructure development in Tamil Nadu has been 4% to 5% of GSDP, while the requirement (as dictated by Vision 2023) is to increase the annual spending on infrastructure to about 10% of GSDP from 2015 onwards and further to 11.5% from 2019 onwards. The infrastructure sector includes Power, Water & Sanitation, Transportation, Irrigation, Ports, Airports, Connectivity, Housing, Healthcare and Education. Infrastructure creation in multiple sectors on this scale not only calls for substantial financial outlays but also significant regulatory reforms (e.g. tariff changes, cost recovery, viability gap funding, consumer protection, institutional realignment, and independent regulation) and to the extent that revenues of these projects do not cover expenses, there has to be ongoing financial support from the state. The total investment to enable universal access to infrastructure services over the 11 year period is estimated at Rs 15 lakh crore (approximately US\$ 330 billion). A high level description of new infrastructure required across different sectors is as follows:



- a. Water & Sanitation: Tamil Nadu shall provide piped and pressurised 24x7 water supply to 100% of its residents and ensure that all of them have access to safe sanitation including open defecation free and garbage free environment.
- b. Housing: 25 lakh affordable houses need to be constructed to create hut free villages and slum free cities.
- c. Healthcare: Provision of quality healthcare facilities to all is the goal
- d. Education: Achieve universal secondary education, increase enrolment in colleges (including vocational education) to over 50%.
- e. Roads & highways: Tamil Nadu to get 2000 km of 6-8 lane expressways, 5000 km of 4 lane highways, and all highways being at least double-laned and with paved shoulders
- f. Ports: Incremental capacity of ports in Tamil Nadu to exceed 150 million tonnes per annum including 15mn TEU of container capacity
- g. Railways: All urban nodes with population of over 500,000 to be connected with high speed rail corridors for both freight and passenger traffic.
- h. Airport: Total capacity to handle 80m passengers per annum across all airports in the state, with Chennai alone accounting for half the capacity
- i. Telecommunication: Every village will be connected with high speed Optical Fibre Cable (OFC) network enabling broadband connectivity at a grass root level across the state
- j. Urban transport: Putting in place a system of integrated multimodal urban transport including mass transit systems for faster mobility in cities



World class infrastructure

Tamil Nadu will provide the best infrastructure services in India in terms of universal access to Housing, Water & Sanitation, Energy, Transportation, Irrigation, Connectivity, Healthcare, and Education.



Theme 5: **Healthy investment climate**

Given the quantum of investments required for the infrastructure sector in Tamil Nadu and considering the need for providing efficient services, more than two-thirds of the financing has to come from non state governmental sources, particularly the private sector. Therefore, improving the standing of Tamil Nadu on the investment climate sweepstakes is one of the key planks of Vision 2023. While Tamil Nadu already enjoys a good position in India from the perspective of investment flows, Vision 2023 envisages Tamil Nadu becoming one of the top three destinations for investment in Asia, and also be the most attractive state for investments in India. The key to being internationally competitive is highly efficient and responsive governance. Vision 2023 seeks to propel Tamil Nadu to the topmost position in terms of attractiveness as a destination for investment based on such fundamental strengths and not by short term measures like extending aggressive tax concessions which are unsustainable and sap the fiscal strength of the state. Attaining a top three position in Asia would tantamount to benchmarking Tamil Nadu with countries such as South Korea, Thailand and Malaysia, which are ranked 8, 17 and 18 respectively in the world by International Finance Corporation in its study on Ease of Doing Business⁵.



Healthy investment climate

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.

⁵ Source: Doing Business 2012, IFC and World Bank



Theme 6: Knowledge hub and Innovation capital of India

For growing GSDP at a sustained pace of 11% per annum for the next 11 years, all three sectors of the economy, namely, Agriculture, Manufacturing and Services, need to grow at a high rate. Agricultural output would need to grow by 5% per annum over the next 11 years despite no increase in cultivable area; manufacturing sector would have to grow by about 14% per annum, while the Service sector would grow at 11% per annum. Innovation is key to achieving such ambitious growth rates and Vision 2023 envisions Tamil Nadu becoming the “Knowledge Capital” and “Innovation Hub” of the country. This requires the creation and nurturing of an appropriate atmosphere that aids innovation and sustenance of knowledge. Some enabling conditions are:

a. The establishment of a dynamic information infrastructure that increases the access to information universally and makes decision making faster, transparent and efficient.

- b. Ensuring that every youth of Tamil Nadu is sufficiently skilled at his/her job.
- c. Creation of an ecosystem of knowledge – including the physical availability of research organisations, universities, think tanks, and business organisations whose success depends on how information is converted to knowledge.
- d. Establish and strengthen ten or more centres of excellence in Tamil Nadu - these would essentially be world class organisations that are at the cutting edge in their respective domains. These domains include automotive, solar and clean technology, bio technology, agricultural practices, water conservation, construction, life style diseases, aero space, basic sciences and nano-technologies.
- e. An economic and institutional regime that incentivises creation of new knowledge and entrepreneurship to use that knowledge
- f. An environment conducive for protecting Intellectual Property Rights and celebrating success in innovations, thus fostering a risk taking culture.
- g. Setting up an innovation fund that rewards innovation by students, businesses, academic institutions and others.

Knowledge hub and innovation capital

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.





Theme 7: Creating conducive environment for human development

A secure, peaceful and conducive environment is an essential pre-requisite for trade and industry to flourish in the state and for its people to attain their potential by providing opportunities for skill upgradation, enhancing employability and mobility. Towards this end, Tamil Nadu will integrate seamlessly with other states of India and the rest of the world on multiple dimensions, such as, increasing the flow of workforce and goods/services across its borders, enhancing the levels of exchange of ideas and culture with other regions, and facilitating the natural movement of people to and from Tamil Nadu.

Peace, security and prosperity

Tamil Nadu will ensure peace, security and prosperity for all citizens and business, enabling free movement and exchange of ideas, people and trade with other Indian States and rest of the World





Nurturing heritage and preserving ecology

Tamil Nadu will preserve and care for its ecology and heritage.

Theme 8: Nurturing a rich heritage and preserving the ecology

Preserving, and wherever possible, improving the quality of the environment and nurturing the cultural heritage of the state would be an essential ingredient of Vision 2023. Environmental preservation would encompass the entire ecological footprint of human activity and would include increasing forest cover, protection of wetlands, conserving groundwater and rivers and other water bodies, protection of the coastal zones and fragile ecosystems, conservation of the zoological and botanical diversity of the state, protection of soil and other natural formations from

abuse on account of human activity, efficient recycling of solid waste ensuring minimal impact on the environment, minimising atmospheric pollution and in general maintaining the ecological balance across the entire state. Tamil Nadu has a rich cultural history and heritage that spans several areas such as literature, art, music, dance, drama, architecture, sculpture, paintings, and folk forms. All of these need to be preserved for posterity as they remind the citizens of the state of its greatness and contribute to the feeling of achievement. In some areas (e.g. classical music and dance forms, temples, and beaches) Tamil Nadu has world class splendours to showcase, which need to be nurtured, packaged and appropriately promoted to support the branding and economic outcomes that Tamil Nadu Vision 2023 seeks to achieve.



Protection against vulnerability

TamilNadu will actively address the causes of vulnerability of the state and its people to uncertainties arising from natural causes, economic downturns, and other man-made reasons and mitigate their adverse effects

Theme 9: Protecting against vulnerability

Implementing measures to reduce the vulnerability of the state and its residents to unfavourable events (natural or otherwise) and their consequences, is a key objective of Vision 2023. A lot of the progress and good work can come unstuck in the event of natural disasters or other man-made disturbances such as accidents, unrest, economic downturns and the like. While improving the economic lot of society enhances the ability to bear shocks better, there are several other steps that need to be strategically and consciously taken to reduce the vulnerability of the state. Such steps include the following:

- a. Protection of coastal districts from cyclonic storms and flooding
- b. Preparation of disaster management plans and procedures consciously at all levels in the government and regionally in the state including creation of higher capabilities, capacities and preparedness of medical facilities and security establishment across the state for handling emergencies of various kinds
- c. Improving the fiscal position of the state government in a conscious manner to build a buffer for contingent expenses, in particular, to help the poor and destitute who have low intrinsic capabilities to face calamities of any kind.



Theme 10: Improving the quality of institutions and governance

This is both an outcome desired and also a fundamental enabling factor for implementing Vision 2023. Successful implementation of Vision 2023 will not happen in the “business as usual” mode. The role of Government of Tamil Nadu has to change in a comprehensive manner for the Vision 2023 to succeed. Some of the changes that need to be brought about in the role and functions of Government are:

- a. Government’s role in the economic sector needs to change from service delivery to facilitation and oversight of private sector activity in the state, and provision of subvention to the needy as required.
- b. Development of technical capacity and administrative capabilities to meet 21st century challenges amongst government employees and organisations – this has to be a continuous activity, with a substantial thrust in the initial period of Vision 2023, to derive maximum benefit.
- c. Segregation of Planning, Service delivery and Regulation functions within the Government set-up. While service delivery is generally amenable to competition (and therefore efficiencies can be gained by participation of the private sector), planning and regulation are best retained in the public domain. Tamil Nadu will seek to be exemplary in the quality of its planning and regulation in the state.

- d. Procurement processes in Government need to be re-engineered within the existing rule framework to ensure that private sector’s expertise and capital can be brought to bear efficiently in provision of services to consumers.
- e. Review roles of departments and institutions to enhance role clarity: In line with the changes in role of Government (state and local levels) and the systems, there have to be changes in roles of departments and the processes and in the way institutions work and interact with each other and other stakeholders, making them citizen centric.
- f. Fully reap the benefits of use of Information and Communication Technology in Government with an ambitious e-Governance policy. Implementation of the e-governance policy will remove intermediaries thereby taking governance closer to people.
- g. Create forums for contract enforcement and speedy dispute resolution

Improving the quality of institutions and governance

Tamil Nadu will nurture a culture of responsive and transparent Governance that ensures progress, security, and equal opportunity to all stakeholders.





B. Growth Strategy

The ten themes of Tamil Nadu Vision 2023 as described in the previous section are the aspirational outcomes and enablers that are sought over the next 11 years. To achieve them, the Government of Tamil Nadu will adopt multiple strategies that energise various slivers of the economy and create a virtuous circle of enhanced competitiveness, efficiency and vibrancy in all sectors and galvanise the citizens and other stakeholders to march towards the targets in unison. Strategy for development is about building on the strengths of the state to exploit opportunities while simultaneously protecting the vulnerabilities that could arise due to intrinsic weaknesses and threats in the environment. Accordingly, Vision 2023 identifies ten thrust areas which form the basis of acceleration in the economy and achievement of the long term goals. The ten thrust areas are described below:

Strategic initiative 1 - Increasing the share of manufacturing in the state's economy:

Change in composition of the state GDP to reflect factor endowments: At present (2010-11), the composition of the GSDP of Tamil Nadu is Primary sector 12.6%, Secondary sector 25.8% and Tertiary Sector 61.6%. Agriculture & allied activities comprise the bulk of the Primary sector, while in the Secondary sector the break-up is Manufacturing sector (17%) and Non-manufacturing sector (9%)⁶. The Tertiary sector comprises a multitude of service activities. Given the strong accent in Vision 2023 to accelerate growth in overall GSDP and per capita incomes, it is imperative that all the three sectors grow at high rates as shown in the table below:

Sector	2004-05	2010-11	2022-23	Average annual Growth rate (%)
Primary	12%	12.6%	7%	5.1%
Manufacturing	20%	16.6%	22%	13.8%
Non manufacturing	11%	9.2%	8%	9.5%
Services	57%	61.6%	63%	11.1%
Total	100%	100%	100%	10.9%

⁶ Non-manufacturing sector is mostly constituted by Construction, Mining, and Electricity generation.

Strategic initiative 2 - Making SMEs vibrant

The objective behind giving a big thrust to the manufacturing sector is to increase the footprint of high value adding activities in the state in line with its natural and human endowments and more importantly, to enhance the level of direct and indirect employment. A highly developed manufacturing sector necessarily needs a vibrant and dynamic SME sector which forms the base for providing essential goods and services. Therefore, one of the strategic initiatives underlying Vision 2023 is to boost the creation and sustenance of several SME clusters across the state. This will have the dual benefit of a geographically diversified growth in the state and high employment generation, the latter being a characteristic of the SME sector. Even as of today, Tamil Nadu is one of the leading bases for small businesses in India, with a leadership position in several industries such as leather and leather goods, engineering goods, automotive components, castings, pumps and readymade garments.

Strategic initiative 3 - Making Tamil Nadu the Knowledge Capital and Innovation hub of India

Tamil Nadu is not amongst the lowest cost locations for manufacturing activities when compared to many other states in India; neither is the demographic profile of Tamil Nadu's workforce the most favourable in India. Therefore, it is imperative for Tamil Nadu to enhance its factor productivity significantly if it is to compete with other destinations in India and East Asia to grow its investments, output and employment in manufacturing and service sectors. This enhanced productivity can be achieved only if all organisations in Tamil Nadu make knowledge and innovation the centrepiece of their activities. This thrust on innovation has to happen across the board of economic activity in the state including services, manufacturing, agriculture, administration, and financing. This needs coordinated and deliberate action along the following lines:



- a. Ushering in a revolution in Skill Development aimed at skilling 20 million persons across the state over the next 11 years
- b. Establishing best in class institutions as Centres of Excellence in various fields that will attract the best talent from across the globe
- c. Fostering a social climate and institutional structure that will encourage free movement of people to and from other states of India and other parts of the world.
- c. Audio and Video production and post production: Chennai is already recognised as India's leading audio and video production centre, with several post-production processing activities such as digital recording, mastering, dubbing, and animation being undertaken for several films made all over India. Given the scalability of the operations, the cost advantage that India enjoys globally, and the reputation for quality that Chennai has developed in this area, there is no reason why this service cannot be extended to Hollywood and other major film producing countries of the world.

Strategic initiative 4 - Specialisation in service offerings

While Vision 2023 articulates all round growth and development, a good strategy also calls for specialisation in some areas. The adage of “putting one’s best foot forward” is apt here, and Tamil Nadu shall strive to be world class in a few areas, which will make “Tamil Nadu” a brand of excellence, and enable it to stand apart in a crowded and increasingly noisy world. In the Services sector, Tamil Nadu is already a leader in India in a few industries such as Financial services, Information Technology, IT enabled services for back-office operations, Engineering Design, Healthcare, Publishing, Film production, and Higher education. The growth in the Services sector is largely predicated on a significant spurt in these industries besides others such as Transportation, Urban services, and Research & Development. Under Vision 2023, the Government will aggressively position Tamil Nadu as a global leader in the following industries and activities:

- a. Back-office capital of the world: Tamil Nadu shall aim to be a global leader in attracting large scale back-offices for knowledge-intensive businesses such as banks, insurance companies, financial services companies, consultancies, engineering, accounting, architecture, law firms, design firms, scientific research, data management & analytics, telecommunication, technology and media.
- b. Healthcare capital of South Asia: Given that Tamil Nadu is already renowned for healthcare facilities (hospitals in Chennai, Coimbatore, Vellore and Madurai are popular with patients from all over the country and outside), Tamil Nadu will aggressively position itself as the medical tourism destination of South Asia.

- d. Tourism: Tourism has very high potential for local employment generation and Tamil Nadu has considerable natural endowments that enable tourism as an industry to flourish. Vision 2023 gives significant thrust to the development of this sector to its potential over the next 11 years. Tamil Nadu's tourism industry is the second biggest in India and is built on several attractive propositions including beaches, hill resorts, architecture, and heritage sites.

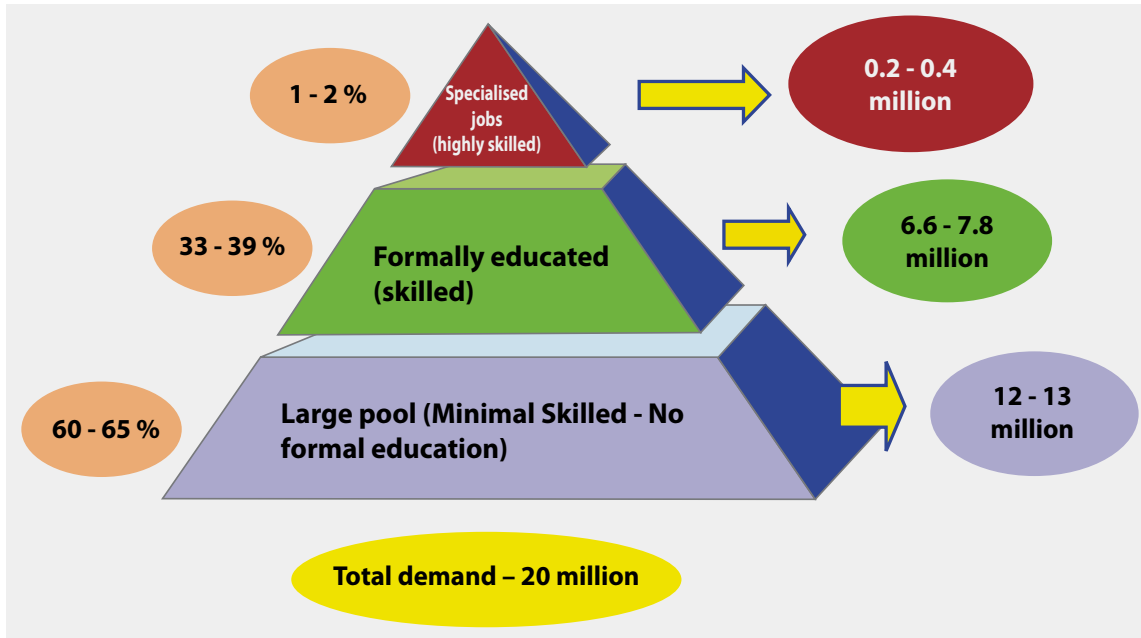
Strategic initiative 5 - Thrust on skill development

The single most important resource for the success of Vision 2023 is the availability of trained, knowledgeable and skilled manpower in Tamil Nadu. Without a body of sufficiently skilled and balanced workforce, no economy can hope to develop to its potential. Vision 2023 envisages training and skilling 20 million persons over the next 11 years. This will include 15 million people entering the job market and 5 million who are already part of the working population. 65% of the persons targeted for skill development (these persons would have studied until secondary school) would be provided with training for basic skills for a variety of livelihoods, about 33% would be persons who have undergone formal education as part of vocational training programmes or in colleges, while the top 2% would be top echelon professionals. Vision 2023 aims to achieve universal secondary education and more than 50% enrolment in higher education (comprising of vocational and college education). The



skills pyramid for Tamil Nadu (indicating the requirement of jobs over the next 11 years in the

categories of highly skilled, formally skilled and semi-skilled) is shown in the diagram below:



The objective of Tamil Nadu's skill development vision is to confer basic skills to the persons at the bottom of the pyramid, numbering approximately 10 million as on date and increasing by about 0.8 million each year for the next 11 years. In addition to this, about 5 million people who are already in the workforce would be subject to re-skilling (upgrading of skills). These "minimal" skills would be aimed at making the concerned persons suitable for the large number of entry level jobs in various sectors and industries that will open up as the economy grows at high rates. The job openings in the middle layer of the pyramid are meant for persons with formal education, including vocational and/or college education, while in the highest layer, the openings are targeted towards specialists and experts.

Strategic initiative 6 - Improving agricultural productivity

Agriculture and allied activities provide subsistence for around 40% of Tamil Nadu's population and contribute to about 13% of the GSDP. The share of agriculture in the state's GSDP has dropped from 40% in 1960s to 12.6% in 2010-11 in real terms. After robust growth of 8-10% during the period 2000-2005, the agriculture sector witnessed negative growth during 2007-08 and 2008-09. The

agriculture sector's growth turned positive in 2009-10 and is poised to sustain growth owing to the increased thrust on improving productivity. Vision 2023 has a three pronged strategy covering:

- i) Improving productivity by introducing scientific agricultural methods and building an institutional network to support the continued adoption of the same.
- ii) Ensuring timely irrigation by intelligent use of available water by adopting effective recharging mechanisms, drip/sprinkler irrigation systems, timely cleaning and deepening of tanks and canals, and adopting appropriate cropping pattern based on water availability.
- iii) Developing suitable post harvest infrastructure to maximise the benefits of value addition and timely marketing of produce. The state will also extend agricultural extension activities to cover the entire farming community.

Strategic initiative 7 - Transforming ten cities into world class cities that become the nodes of growth across the state



Tamil Nadu is already the most urbanised state in the country (48% is classified as Urban), and Chennai urban agglomeration accounts for 25% of the total urban population in the state. While a number of towns have been categorised as 'Urban' based on the population figures, infrastructure services are found wanting in most of these towns. Vision 2023 envisages developing ten world class cities (essentially existing towns whose infrastructure is to be upgraded significantly including provision of access to 24x7 water supply, efficient mass transit systems while making them open-defecation free and garbage free) which will become the nuclei and engines for economic growth, thereby facilitating regional and balanced development across the state.

Strategic initiative 8 - Thrust on social welfare programmes to ensure inclusive growth

Tamil Nadu has been in the forefront of implementing social welfare measures benefitting the under-privileged and vulnerable sections of the society. The state was the first in India to introduce the mid-day meal scheme for school children, an old age pension scheme and has many other welfare measures to its credit. Vision 2023 envisages that the vulnerable and disadvantaged sections will be extended protection by the state and will be equipped to take advantage of the benefits of the economic growth.

Strategic initiative 9 - Signature Projects

Vision 2023 envisages a few large infrastructure projects, which would create huge positive externalities and open up possibilities of rapid growth for the economy. Most of these projects call for significant capital expenditure and an active role of the State government in facilitation. The signature projects that define the infrastructure creation ambition underlying Vision 2023 are given in Box 2:

BOX 2: SIGNATURE PROJECTS

- i. Develop world class Centres of Excellence in at least 10 areas that act as nuclei of innovation
- ii. Set up two medical cities in southern and western Tamil Nadu
- iii. Double water storage capacity across the state
- iv. High speed broadband connectivity to be reached to every village
- v. Two supercritical and other power projects of cumulative 20000 MW capacity
- vi. Gas grid connecting ten large cities
- vii. 2000 km of 6/8 lane highways
- viii. High speed rail connecting Chennai - Coimbatore - Madurai - Kanyakumari
- ix. Development of industrial corridors between Chennai - Hosur, Chennai - Tiruchirapalli, Coimbatore - Madurai, Coimbatore - Salem and Madurai - Thoothukudi.
- x. Three greenfield ports and 5 minor ports with total cargo handling capacity of 150 million tonnes per annum
- xi. Greenfield airport near Chennai with an annual capacity of at least 40 million passengers

Strategic initiative 10 - Encourage PPP in infrastructure project creation and /or service provision

The total investment requirement for infrastructure over the 11 year period is estimated at Rs 15,00,000 crore (~US\$ 330 billion). Given that the present annual capital expenditure of Government of Tamil Nadu is of the order of Rs 14,000 crore, which even allowing for increase in the future, cannot be expected to contribute to more than one third of the required investment of annual infrastructure creation. Therefore, a substantial portion of the financing for infrastructure has to be

obtained from non-governmental sources, including private sector organisations, banks, and foreign direct investment. The Government will play the central role of a procurer of infrastructure services on behalf of the people of Tamil Nadu and will facilitate private investment and service delivery in infrastructure sector. Under the PPP mode, the Government will play the role of a change agent and will originate infrastructure projects in line with Vision 2023, and will also focus on the important functions of regulation and overall governance. Implementation of Vision 2023 will call for significant institutional reform to accelerate infrastructure development in PPP mode.



C. Sectoral plan and investment targets

The investment target for the six broad groups of infrastructure sectors are as follows:

Energy

	Capacity (MW)	Amount (Rs Crore)
Total investment		450,000
New thermal generation capacity	20,000	110,000
Incremental renewable capacity	10,000	80,000
- Including solar power	5,000	
Transmission and Distribution		200,000
LNG terminal, gas grid and smart grid	5 MTPA, 10 cities	60,000

Transportation

	Facilities	Amount (Rs Crore)
Total investment		370,000
Highway improvement	2000 km of 6/8 lane highway, 5,000 km of four lane highway and two-laning of all other highways with paved shoulder	133,000
Port development	Three Greenfield ports and 5 minor ports with cumulative capacity to handle 150 million tonnes of cargo	15,000
Rail projects	High speed rail between Chennai - Coimbatore - Madurai - Kanyakumari Dedicated freight corridor between Chennai and Thoothukudi	132,000
City Transport	Metro/Mono rail/BRT	65,000
Airports	Greenfield airport near Chennai Upgrading other airports	25,000

Industrial & Commercial infrastructure

	Facilities	Amount (Rs Crore)
Total investment		160,000
Industrial Infrastructure	Chennai - Ranipet - Hosur corridor, Chennai - Trichy corridor, Coimbatore - Madurai corridor, Coimbatore - Salem corridor, Madurai - Thoothukudi corridor, Petro Chemical and Petroleum Investment Region (PCPIR), Expansion of SIPCOT and SIDCO industrial estates	150,000
Tourism Infrastructure	Creation of new hotels and resorts, development of heritage locations, development of theme parks and beach resorts	10,000



Urban Infrastructure

	Facilities	Amount (Rs Crore)
Total investment		275,000
Chennai city development	Providing 24x7 water supply, sanitation facilities including tertiary treatment of sewage, and solid waste management projects to ensure open defecation free and garbage free environment	50,000
Transforming 10 cities into world class		100,000
Urban development for other cities		50,000
Housing (including housing for economically weaker sections)	2.5 million houses over the next 11 years	75,000

Agriculture

	Projects/Programmes	Amount (Rs Crore)
Total investment		40,000
Improving water resources	Restoration of wells, tanks and canals and Micro irrigation	16,000
Agro- processing and Value Addition	Horticulture parks, Agro processing Zones	13,000
Other projects	Cold storages, grain storage complexes, perishable air cargo complex, gamma irradiation facility and Terminal market complexes	11,000

Human development

a. Health

	Projects/Programmes	Amount (Rs Crore)
Total investment ⁷		11,000
Creation of new medical facilities	Medi-cities, medical colleges in each district, Specialty centres for geriatrics, mental health, cancer, etc	7,900
Upgrading medical facilities	Strengthening of PHCs, Upgradation of Taluk and Non-Taluk Hospitals, Upgrading infrastructure in the existing medical colleges	1,500
Other projects	Quality improvement of Public Health Institutions, Skill development, Electronic medical record facility, Laboratory/collection centres, Trauma care services etc	1,600

⁷ Does not include recurring expenses on training, maintenance and quality improvement



b. Education:

	Projects/Programmes	Amount (Rs Crore)
Total investment ⁸		19,000
School improvement	Facility improvements in primary, middle and high schools	5,000
Centres of Excellence	Setting up 10 Centres of Excellence	3,000
Skill Development	Skilling/re-skilling 20 million persons	11,000

Total Investments

Sector	Investment Requirement Rs. Crore
Energy	450,000
Transport	370,000
Industrial and Commercial	160,000
Urban Infrastructure	275,000
Agriculture	40,000
Human development (Health & Education)	30,000
Sub-total	13,25,000
General and Social infrastructure projects	100,000
Capital improvements to existing projects	75,000
Sub-total	175,000
Grand Total	15,00,000

Conclusions

Tamil Nadu Vision 2023 is an aspirational and ambitious statement that aims to propel Tamil Nadu to attain her potential along multiple dimensions of economic prosperity, social progress, inclusiveness, cultural plurality, and environmental sustainability. It builds on the strengths of Tamil Nadu that exist due to natural endowments, the hard work of her citizens, and the results of good governance. The focus of this document is on the physical, social and institutional infrastructure that needs to be established in Tamil Nadu if the growth rates in various sectors envisaged under Vision 2023 are to be achieved. It is important to realise that the goals set and the actions required are part of a

wholesome package with inter-linkages amongst them. Taken in part or implemented piecemeal, they are not likely to succeed. The goals set are achievable but call for a stretch by all stakeholders – the state government, the urban and rural local bodies of Tamil Nadu, political leaders, civil servants, corporate entities, small and medium enterprises across the state, the academic institutions, the NGOs, and the residents of the state – to go the extra mile to attain the goals. Finally, it should be remembered that the specific goals of Tamil Nadu Vision 2023 are not rigid targets, but are essentially directional polestars for the decision makers and people of the state to measure their progress. The journey towards these goals is as important as reaching the destination.

⁸ Does not include recurring expenses on training, maintenance and quality improvement



This section describes the key outcomes (themes) that the Vision envisages to attain. Each theme is a goal in itself and is also entwined with other themes, and they have to be pursued together in unison to realise the overall vision.

2.1 Vision Themes

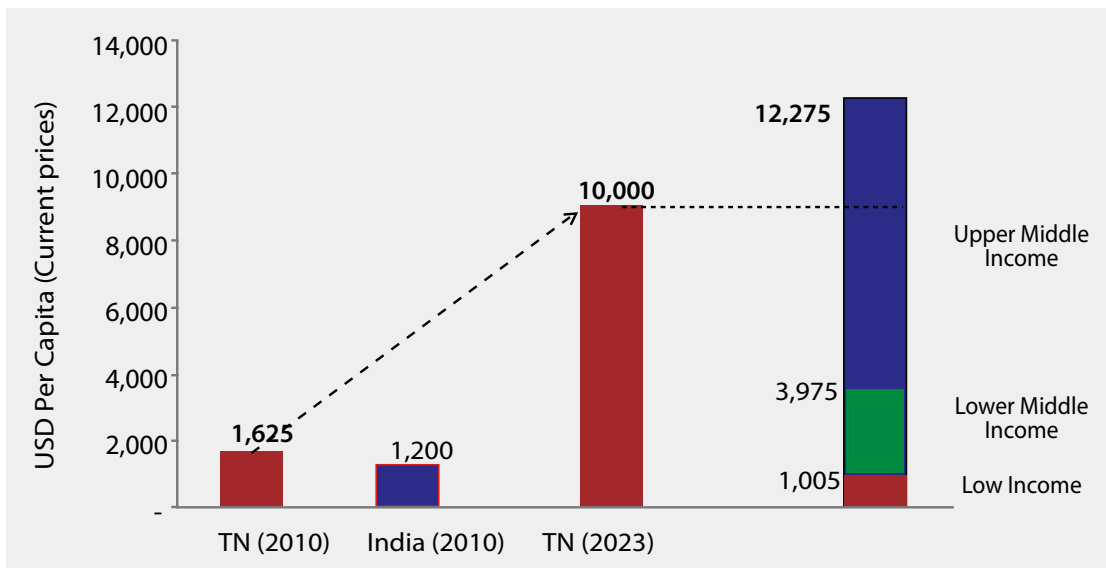
Theme 1: Tamil Nadu will be amongst India's most economically prosperous states by 2023, by achieving a six fold growth in per capita income (in real terms) over the next 11 years to be on par with the Upper Middle Income countries globally.

Theme 2: Tamil Nadu will exhibit a highly inclusive growth pattern – it will largely be a poverty free state with opportunities for gainful and productive employment for all those who seek it, and will provide care for the disadvantaged, vulnerable and the destitute in the state.

The thrust of Vision 2023 is to enable Tamil Nadu attain a per capita income on par with the median of Upper Middle Income countries in 11 years and an improvement in social development to be on par with the developed world on major social indicators. The following are the major social and economic objectives for Tamil Nadu under Vision 2023:

- ◆ Become Poverty free by 2023 - there will be no starvation or destitution in the state
- ◆ Achieve an average growth rate in GSDP of 11% per annum
- ◆ Improve per capita income to US\$ 10,000
- ◆ Employment for all willing persons
- ◆ Care for the disadvantaged and vulnerable sections

Vision 2023 expects to increase the per capita income to US\$ 10,000 on par with the median income of the Upper Middle Income nations of the world.



Growth of State GDP (GSDP) at an average rate of 10.9% (reaching 11.5% over the next ten years) over a sustained period will be an important contributor to reduce the average level of poverty. With the state having reached replacement level fertility, the pressure on account of population will not be severe

and this will also contribute to increasing the per capita income. The State, through specific outreach programs and welfare measures, will reach out to sections of society who by themselves would not be able to obtain the benefits of economic growth and prosperity.



Ensuring gainful employment to all is important in ensuring poverty reduction. According to information compiled by Department of Evaluation and Applied Research, Government of Tamil Nadu, the unemployment level, as computed under the Current Daily Status (CDS) approach, in 2004-05 was about 12.3% of the labour force. The rate was lower (8%) in urban areas, while rural unemployment rate was at 15%. Growth that is employment intensive is key to improving per capita income in an inclusive manner. Vision 2023 therefore focuses on generating employment opportunities by providing significant thrust to Manufacturing and Service sectors, and on creating the necessary physical and social infrastructure required to stimulate growth. Widespread skill development initiatives are planned to equip the workforce with the necessary skills to take advantage of the opportunities that emerge in both Manufacturing and Services sectors. Besides equipping persons with high end skills and capabilities, the skill development initiatives will specifically focus on providing “minimal skills” to the less educated persons⁹ with an objective of enabling them to be considered for the new job opportunities in the Manufacturing and Service sectors that will emerge as the economy grows. The objective is to ensure that all members of the labour force find opportunities for gainful employment in accordance with their skills and capabilities.

Despite the best of efforts in skill development, education and upliftment, it would be impractical to expect all persons in the state to become capable and take advantage of opportunities that arise. There are bound to be some (weaker) sections of society who because of their intrinsic disadvantages and handicaps will not be in a position to take advantage of job opportunities that arise in an economy that posts robust growth. The State shall ensure that such vulnerable sections are taken adequate care of in terms of their basic requirements of food, shelter and healthcare. Vision 2023 envisages that the forecast growth in State GDP will provide the financial surplus to the government to spend on these welfare measures.

Theme 3: Tamil Nadu will be India’s leading state on social development and will have the highest Human Development Index (HDI) amongst all Indian states

Tamil Nadu fares well on most of the Human Development Indicators as compared to other Indian states, second only to Kerala. However, Tamil Nadu needs to improve further on a few indicators, particularly in MMR, IMR and Under 5 MR¹⁰.

The following table provides a comparison of Tamil Nadu on key Health indicators with all India averages and Kerala:

Parameters	Kerala	India	TN
Population in Crore	3.33	121	7.21
Annual Growth Rate	0.48%	1.64%	1.46%
Sex Ratio	1084	940	995
Total Fertility Rate	1.7	2.6	1.7
Crude Birth Rate 2009	14.7	22.5	16.3
Crude Death Rate 2009	6.8	7.3	7.6
MMR 2007-09	81	212	97
IMR 2009	12	50	28
Under 5 MR	14	64	33

⁹ These are persons entering the workforce without the full 12 years of schooling or those persons already in the workforce but who are not sufficiently educated or trained.

¹⁰ IMR - Infant Mortality Rate, MMR - Maternal Mortality Rate; Under 5 MR - Under 5 years Mortality Rate



Vision 2023 focuses on improving the performance of Tamil Nadu with respect to the HDI parameters by strengthening primary and secondary care centres and upgrading tertiary care hospitals to best in class. Tamil Nadu will seek to achieve the premier position in the country in Human Development Indicators and will match the level of developed countries.

The state will also ensure availability of items on the Essential Drug List (EDL) to all citizens. The report of the High Level Expert Group on Universal Health Coverage in India instituted by the Planning Commission cites availability of items on the EDL at 88% in Tamil Nadu with Namakkal district achieving 100% and Nagapattinam and Thoothukudi districts at the lower end of the spectrum at 77%. The state will ensure 100% availability of drugs at all locations.

The primary and secondary health network will be strengthened in such a manner that a referral centre is available within a maximum distance of five kilometres from every Sub-Centre. All primary and secondary hospitals will be connected by all-weather black topped road and bus connectivity will be ensured at least twice every day from every village to the nearest Sub Centre and referral hospital. To ensure round the clock availability of doctors and nurses, all Primary Health Centres will be provided with good residential accommodation for at least one doctor and three staff nurses.

Special focus will also be provided on non-communicable diseases like diabetes, hypertension, cardiovascular diseases and cancer which are emerging as major causes of morbidity and mortality. A two pronged strategy will be adopted to tackle these diseases. While awareness creation for prevention through lifestyle changes will be taken up at various levels, infrastructure facilities for early detection and treatment will be created. All district hospitals will have a teaching hospital attached to ensure availability of the doctors and provide the comprehensive suite of services for secondary care. The state will also establish 10 super specialty hospitals across the state and tertiary care will be available within a distance of 150 kms from any location in the state. The trauma and disaster management systems will be strengthened across the state to provide relief services within one hour of receipt of information.

The objective of Vision 2023 is to build a healthy society that will be able to take part in and share the fruits of economic development.

Theme 4: Tamil Nadu will provide the best infrastructure services in India in terms of universal access in Housing, Water & Sanitation, Energy, Transportation, Irrigation, Connectivity, Healthcare, and Education

Apart from the contribution of Infrastructure development to economic growth, Tamil Nadu also recognizes the specific role of Infrastructure development as an anti-dote to poverty by making economic growth more inclusive. The heart of Vision 2023 is therefore to provide best in class infrastructure facilities focused on providing universal, equitable and affordable services to all residents

Tamil Nadu has already created the Tamil Nadu Infrastructure Development Board, which will be the nodal agency for the Infrastructure Development and shall steer specific high impact projects on a Mission mode. It will launch a comprehensive capacity building program to strengthen key line agencies and departments that are responsible for delivering infrastructure in various areas. Specifically, high priority would be accorded to

- Provision of universal housing for all sections of society while making Tamil Nadu slum-free
- 24 hour water supply
- Achieve energy and water security while enabling broad band access and E-governance services to all its residents
- Seamless and affordable connectivity and transportation within the state and with rest of India and the World.

Theme 5: Tamil Nadu will be among the top three preferred investment destinations in Asia and the most preferred in India with a reputation for efficiency and competitiveness

Industrial investment is an important contributor to the growth of state GDP and to provide employment to the growing workforce. It is therefore imperative that Tamil Nadu is in the forefront of attracting industrial investments. Providing incentives,



particularly for large industries has become a norm in most states in India. While the industrial policy of Tamil Nadu provides for certain incentives, the focus of Vision 2023 will be on ensuring an environment that fosters efficiency and enables a competitive environment.

Attracting investment is dependent on providing the right environment to run a business efficiently. While availability of the necessary infrastructure such as power, water, connectivity, port facilities etc., are the key drivers that attract investments, administrative and procedural issues which result from regulatory and institutional arrangements also play an important in attracting investments.

The International Finance Corporation (IFC), World Bank Group, publishes a report annually on 'Doing Business' which evaluates the regulations and institutional issues that enhance or constrain business covering more than 180 countries. IFC also publishes country specific reports which compare the performance of the various states/provinces on the identified parameters. The parameters evaluated are:

- i) Starting a business
- ii) Dealing with construction permits
- iii) Employing workers
- iv) Registering Property
- v) Getting credit
- vi) Protecting investors
- vii) Paying taxes
- viii) Trading across borders
- ix) Enforcing contracts
- x) Closing a business

India and Tamil Nadu lag behind many investment destinations on most parameters. There are a number of areas where the state can work towards facilitating a faster and smoother conduct of business. The state shall become the best in India in terms of speed and efficiency in the conduct of business and achieve performance levels comparable to countries such as Thailand and South Korea.

Theme 6: 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

Attracting large investments in manufacturing and services is an imperative to achieve the vision targets. Given the demographic profile of the state, the current cost and income levels, the education and skill availability, the focus would be on attracting and developing industries that foster innovation and provide high value addition. The key enablers that facilitate innovation and knowledge creation are:

- ◆ Availability of a dynamic information architecture
- ◆ Skilled workforce
- ◆ Knowledge Ecosystem comprising of research organisations, universities, think tanks, and business organisations that focus on converting information into knowledge and create new knowledge
- ◆ An economic and institutional regime that incentivises creation of new knowledge and entrepreneurship to use that knowledge
- ◆ A legal and regulatory system that recognises and protects Intellectual Property Rights

The vision envisages the establishment of several Centres of Excellence (COE) in the following areas to foster innovation and knowledge creation:

- ◆ Automotive technologies
- ◆ Solar and clean energy technologies
- ◆ Biotechnology
- ◆ Agricultural practices
- ◆ Water resources management
- ◆ Construction management
- ◆ Lifestyle diseases
- ◆ Aerospace
- ◆ Basic sciences
- ◆ Nano technology
- ◆ Social sciences



Under this initiative, the government will take the lead in establishing Centres of Excellence for each of the sectors identified by upgrading existing centres of research and higher learning (where such a centre exists) and by establishing new centres. The COEs would impart the leading-edge skills required for the sector concerned to grow and remain competitive. In addition to imparting specialised skills, the COEs would focus on research and development (R&D), faculty development initiatives for other institutions in the State, and curriculum development for courses relating to the respective industries. The COEs will also network with other COEs to carry out work in interdisciplinary areas. The COEs will be developed on a Public-Private Partnership (PPP) model, with funding and participation by the industries concerned.

Theme 7: Enabling free movement and exchange of ideas, people and trade with other Indian states and rest of the world

The rapid growth and development that the vision envisages requires a high degree of cooperation between various sections of the society such as the Government, business, and labour. Tamil Nadu will be seen as a state that is open to welcoming new ideas and cultures and ensures assimilation of new ideas. The state will be proactive in inviting knowledge and innovation from other states in India as well as from other countries.

Tamil Nadu lost about 700,000 person-days in 2009 on account of strikes and lock outs in industrial establishments. While loss of person-days due to strikes and lock-outs cannot be avoided, the state will ensure that such disruption is at a minimum and a peaceful working environment is ensured for citizens and business. In addition to being a welcoming destination for people and business, Tamil Nadu will also establish strong relationships with other centres of innovation and knowledge through the institutions in the state to facilitate interaction and exchange of ideas.

Theme 8: Preservation of ecology and heritage

While Tamil Nadu focuses on industrial development at a pace faster than the national average, it will not lose sight of the need to preserve the environment and its heritage. Efforts will be made to ensure that

the environmental protection regulations are on par with the best in the world and deliberate and focused efforts will be made to ensure that the environment is protected.

Tamil Nadu is also home to one of the world's oldest cultures. Its heritage is rich in history and culture and the state houses a number of historical monuments and sites. The cultural richness spans a number of areas covering art, literature, dance, drama, architecture, sculpture, paintings etc. Tamil Nadu is home to some of the most outstanding temple architecture and has two clusters of World Heritage sites (the group of monuments at Mamallapuram, and the Great Chola Living Temples - Brahadeswara temples in Thanjavur and Gangaikondacholapuram and the Airavatesvara temple in Darasuram). The state is also home to the renowned dance form of Bharatanatyam.

The state witnessed an inflow of over 111 million domestic tourists and 2.80 million foreign tourists during 2010. The annual rate of growth of domestic and foreign tourists has been 15% over the last decade. However, less than 75,000 tourists visit Mamallapuram annually, which is only 50 km from Chennai – clearly pointing to the potential to increase tourism. Vision 2023 proposes a concerted plan to promote these sites with a view to attracting 15 million foreign tourists annually by 2023.

Theme 9: Reducing vulnerability of the state and its people to uncertainties arising from natural causes, economic downturns, and other man-made reasons

The state has been a victim of natural calamities such as cyclones, tsunamis, and floods in some years and severe drought in certain years. According to the National Institute of Disaster Management, 13 districts of Tamil Nadu are vulnerable to high or very high cyclonic impact and flooding. There are at least seven districts in the state which are regularly impacted by drought conditions.

A comprehensive plan for reducing the impact of the natural disasters and creating a dynamic response mechanism to natural calamities is part of Vision 2023. Environmental measures such as mangrove plantations in coastal areas prone to cyclonic storms will be developed. Mechanism



for relief measures such as disaster management group will be formed at each taluk.

Theme 10: Responsive and transparent Governance ensuring progress, security, and equal opportunity to all stakeholders

Improving the quality of governance and transparency in the working of the government institutions is both an outcome of the vision and an important enabler in achieving the vision. The role of the government would be one of a policy maker, facilitator and regulator. Tamil Nadu will create strong and independent institutions that ensure the regulation and management of the different sectors.

The state will also have a strong e-governance framework where the web will be the interface between the citizen and the government. All

transactional and information requirements of the citizens will be satisfied through an electronic interface obviating the necessity to visit government offices.

The state will also bridge the urban - rural digital divide by providing high speed broadband connectivity to every village. The common service centres operating in rural areas will be extended to cover the entire state facilitating easy interface between the citizen and the government.

The objective of the e-governance system is to ensure responsive and transparent governance which will ensure that all citizens are provided with equal opportunities and the means to access the facilities.



3. Growth Strategies

The achievement of Vision 2023 is predicated on devising appropriate strategies to implement the various projects and programmes. Vision 2023 has set stretch targets to be achieved in terms of economic and human development indicators. The Vision envisages infrastructure building to be the tool for delivering the growth opportunities. The quantum of investments is of an order of magnitude not attempted in the past by Tamil Nadu and requires a multi pronged strategy encompassing identification of projects, modes of investment, the necessary institutional and regulatory structure etc. Vision 2023 has identified Ten specific strategic initiatives to be focused on to achieve the objectives. This section explains each strategic initiative required to achieve Vision 2023.

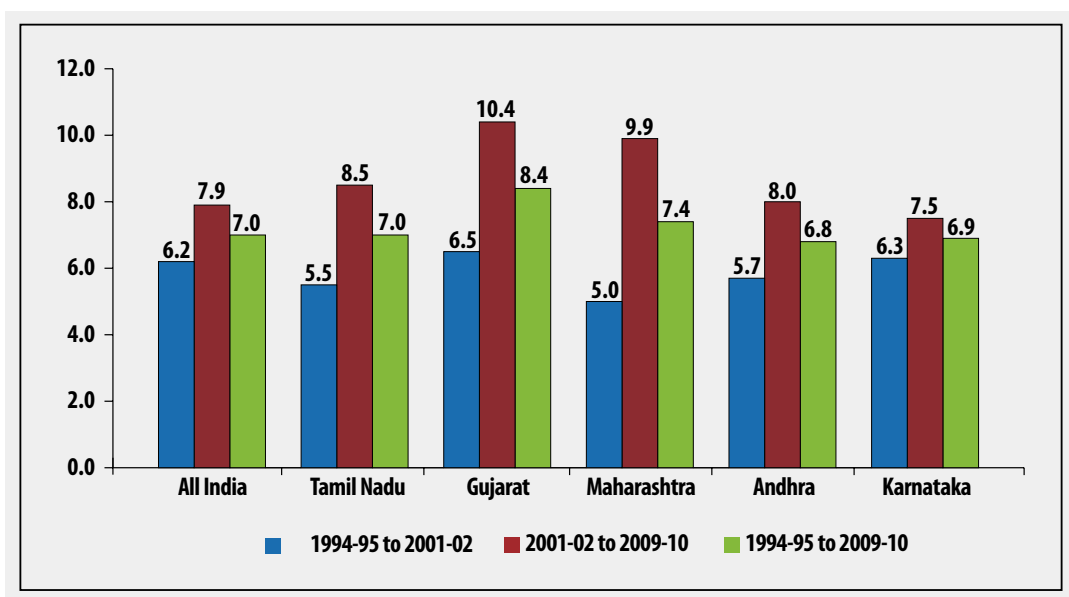
3.1 Overall fiscal strategy

Vision 2023 envisages an expenditure on physical infrastructure of Rs. 15 lakh crore over 11 years (average of Rs. 1,35,000 crore per annum). Given that the annual expenditure on Capital account of Government of Tamil Nadu in 2011¹¹ was about Rs. 14,000 crore, it is important to understand how infrastructure creation is going to be financed. This is more so in the context of fiscal tightening that is

called for under the Fiscal Responsibility and Budget Management Act (FRBM) that stipulates that the Revenue Deficit (RD) of the state government shall be eliminated by FY2012 and that the Fiscal Deficit (FD) shall not exceed 3% of GSDP after FY2012.

Under Vision 2023, the funding for infrastructure will mainly come from four sources, as follows:

1. The Government of Tamil Nadu will fund its share of the infrastructure requirement from the fiscal space created within the fiscal deficit of 3% of GSDP.
2. By carrying out sectoral reform as appropriate, to make the infrastructure services self-financing and sustainable by ensuring suitable cost recovery.
3. The Government of Tamil Nadu will seek Central government funding to the extent it can.
4. Government of Tamil Nadu will be seeking participation from private sector (including FDI, domestic investments, and bank funding) in infrastructure projects including under PPP mode



Source: CSO, IMaCS Analysis

11 Revised Estimates 2010-11



The following paragraphs describe the fiscal management strategy the Government of Tamil Nadu will adopt as it implements Vision 2023 over the next 11 years.

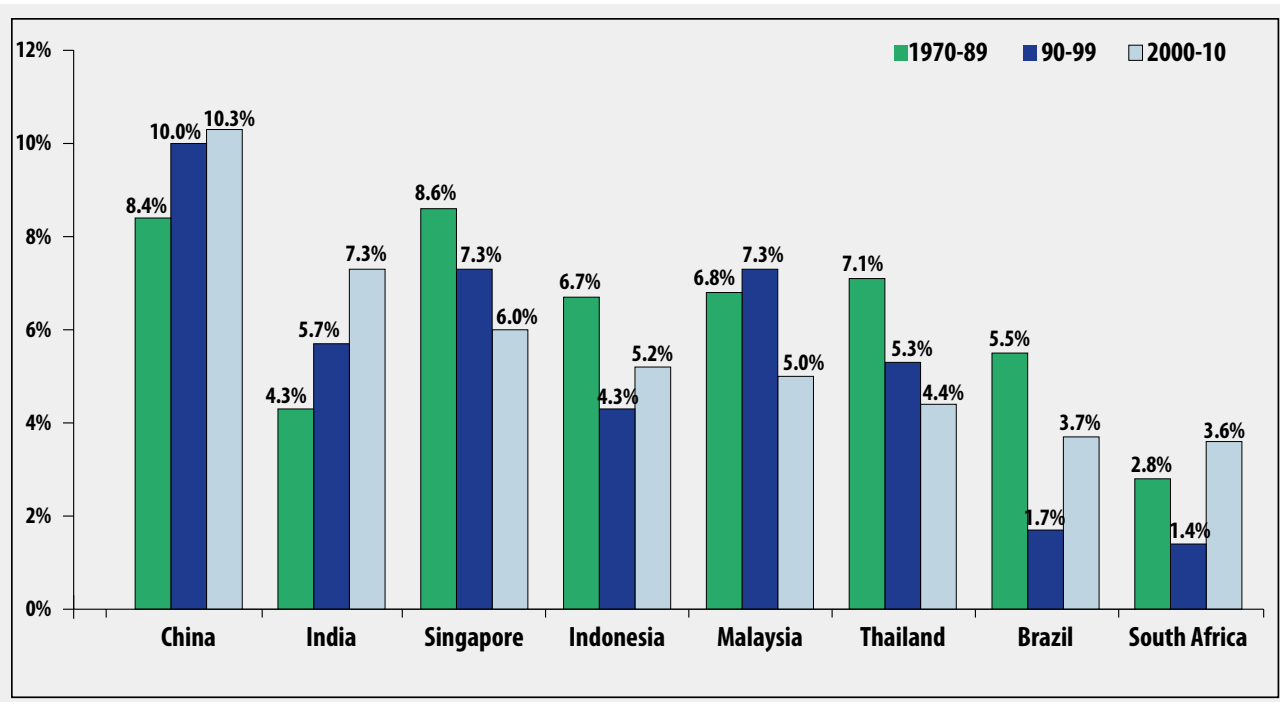
1. Relative historical growth rates: When we analyse the growth patterns of Tamil Nadu's economy over the past 15 years (1995-2010) in comparison with those of India's economy and four other benchmark states (Maharashtra, Gujarat, Karnataka, and Andhra Pradesh), the following conclusions can be drawn:

a) Tamil Nadu has grown at a similar rate (7% per annum) that India has grown at during 1995-2010; Gujarat and Maharashtra have grown at significantly higher rates than Tamil Nadu, while AP and Karnataka have grown at a slower pace.

b) During the first half of the comparison period, Tamil Nadu grew slower than India, but in the second half, growth rate of Tamil Nadu has been significantly higher.

c) During the second half of the comparison period, Maharashtra and Gujarat have grown significantly faster than Tamil Nadu, while Tamil Nadu has grown faster than AP and Karnataka.

2) The chart below indicates the average annual growth rates of several developing countries during three periods, 1970-89, 1990-99 and 2000-10. Most of the Asian nations have maintained high growth rates for more than two decades although they slipped during the 1997 crisis. Both China's and India's growth rates have shown a healthy



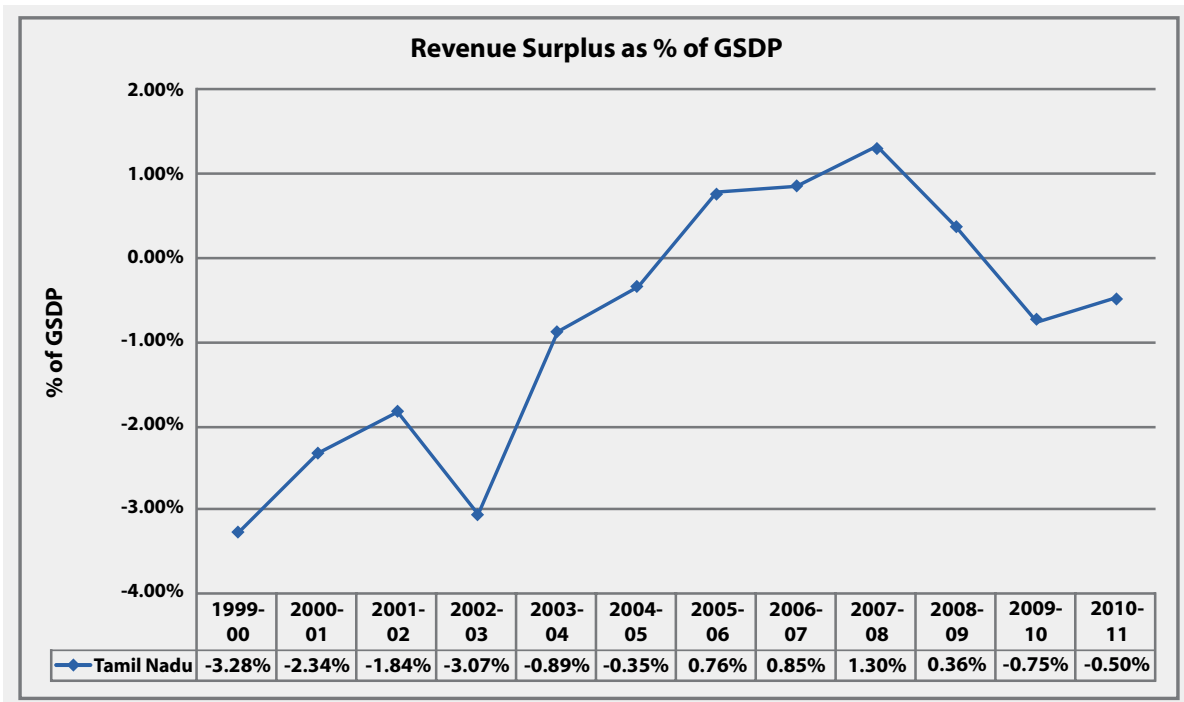
increase over the past four decades. The Planning Commission is aiming for an annual growth rate of 9% per annum in GDP for the XII Five Year Plan Period. Most analysts and economists believe that in the long term India can sustain an annual growth rate of 8-9% per annum.

3) Given that Tamil Nadu has grown at a higher rate than India in the past 10 years, and that two other states, namely Gujarat and Maharashtra, have posted double digit growth rates during this period,

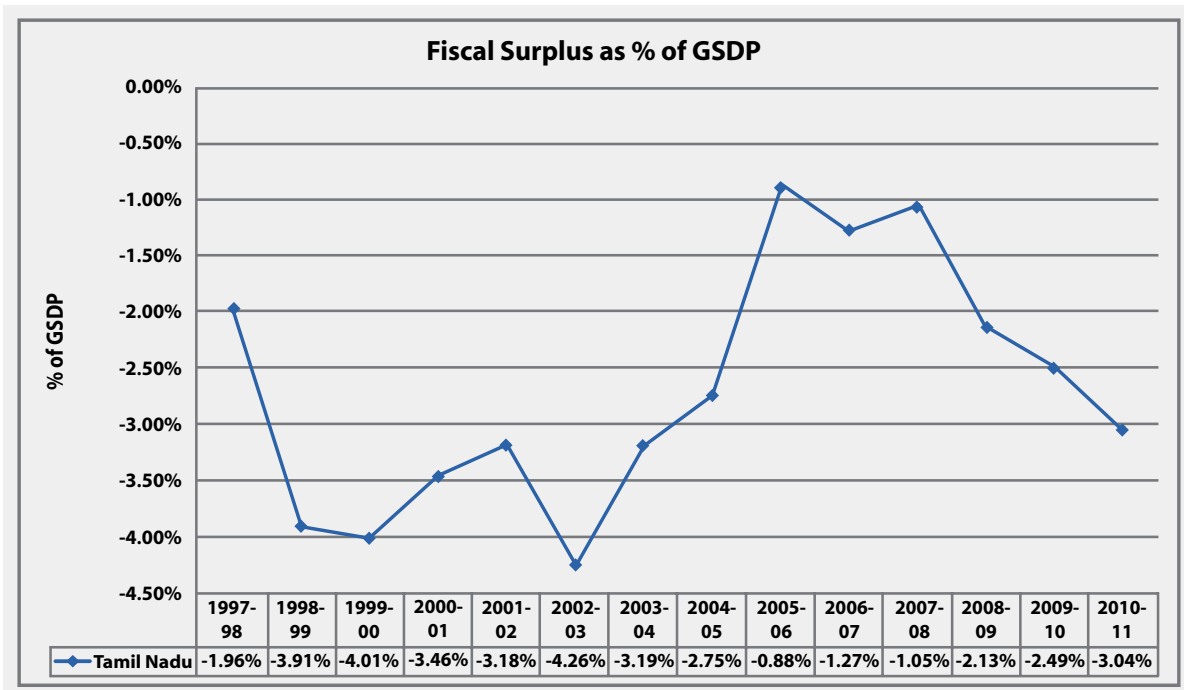
Tamil Nadu seeks a stretch target for growth that is 20% above the national growth rate. Accordingly, the target annual growth rate that Tamil Nadu seeks to achieve under Vision 2023 is 11%¹² in real terms.

4) Tamil Nadu enjoyed a Revenue Surplus for a few years (2004 through 2009) as shown in the chart below. The Fiscal Deficit improved from a level of (-)4% of GSDP in 2002-03 to (-)1% in 2007-08 and thereafter has worsened to (-)3% in 2011.

¹² Tamil Nadu's target growth rate of 11% per annum would be attained by 2016-17; accordingly, the average annual growth rate over the next 11 years is about 11% per annum, which is about 20% higher than the expected long term growth rate of India.



Source: Government of Tamil Nadu, IMaCS Analysis



Source: Government of Tamil Nadu, IMaCS Analysis

The FRBM Act requires all states to eliminate their RD completely by 2012 and curtail their FD at (-3%) of GSDP. Vision 2023 envisages that Tamil Nadu will improve its Revenue Surplus to a level of (+) 1.5% of GSDP and limit its FD to (-)3% of GSDP and maintain these limits till 2023, and ensure that its economy grows at the target rate of 11% per annum from 2016-17 onwards.

5) The Own Tax Revenue of Tamil Nadu is estimated to increase from 8.7% of GSDP in 2011 to 10% by 2012, and to 11% by 2016-17. Similarly, non-tax revenue as a proportion of GSDP is estimated to increase from the present six year average value of 12.4% to 13% of Own tax revenue of the state by 2012. The share of Central taxes is pegged at



2.58% of GSDP in line with the recommendations of the Thirteenth Finance Commission.

- 6) The expenditure on infrastructure creation in Tamil Nadu has been estimated at 5% of GSDP at present (this includes infrastructure creation by government and the private sector). The XII Five Year Plan is targeting an infrastructure creation at the all India level at 10% of India's GDP. In line with this, Vision 2023 seeks to increase the annual infrastructure spend¹³ in Tamil Nadu to 10% of GSDP to be achieved by 2015 and further to 12% from 2021 onwards and maintain thereafter at this level.
- 7) The following table captures the above governing assumptions for the economy of Tamil Nadu and the investments in infrastructure sector over horizon of Vision 2023 (2012-2023)

	GSDP at 2010-11 prices Rs. Crore	Investment in infrastructure Rs. Crore
2011-12	634,829	25,393
2012-13	694,503	41,670
2013-14	767,426	61,394
2014-15	848,006	84,801
2015-16	937,046	93,705
2016-17	1,040,122	114,413
2017-18	1,154,535	126,999
2018-19	1,281,534	147,376
2019-20	1,428,910	164,325
2020-21	1,593,235	191,188
2021-22	1,776,457	213,175
2022-23	1,980,749	237,690
Total	14,137,352	15,02,129
Rounded off		15,00,000

Key Assumptions	Present	Projected
Revenue surplus (estimates for 2011-12)	-0.25%	1.5% (by 2015)
Fiscal Deficit	3.04%	3% (by 2012)
GSDP Growth (estimates for 2011-12 at constant prices)	9.4%	11% (by 2017) 11.5% (by 2020)
State own tax revenue to GSDP	8.7%	10% (by 2012) 11% (by 2017)
Non tax revenue as a % of tax revenue	9.7%	13%
Share of central taxes as a % of GSDP (13th Finance commission)	2%	2.58%
Infrastructure investment to GSDP	5% (approx)	10% (by 2015) 12% (by 2021)

- 8) The projected GSDP, Investment in infrastructure for Tamil Nadu based on the above assumptions are shown in the following table:

- 9) The investments planned under the six heads of Infrastructure under Vision 2023 are as follows:

Sector	Investment Requirement Rs. Crore
Energy	450,000
Transport	370,000
Industrial and Commercial	160,000
Urban Infrastructure	275,000
Agriculture	40,000
Human development (Health & Education)	30,000
Sub-total	13,25,000
General and Social infrastructure projects	100,000
Capital improvements to existing projects	75,000
Sub total	175,000
Grand Total	15,00,000

¹³ Infrastructure spend refers to investments made in creating physical infrastructure and facilities for social infrastructure. It does not include revenue expenditure in the Social sector or towards O&M of infrastructure assets created.



The above amounts are aggregate value of investments over the period 2012-2023.

10) Funding the infrastructure creation: At present, the three major sources of funding infrastructure are State government (60%), Central Government (25%) and private sector (15%)¹⁴. Going forward, the share of the private sector is expected to increase while that of the state and central government will correspondingly be readjusted. The expected funding mix of the infrastructure plan under Vision 2023 is as follows:

Year	Investment in Infrastructure (Rs. crore)	State Government (%)	Central Government (%)	Private Sector (%)
2010	25,000	60%	25%	15%
2016	93,705	33%	30%	37%
2023	237,690	28%	30%	42%

The state government will resort to deficit financing (limiting its Fiscal Deficit to 3% of GSDP) and the Revenue surplus (of 1.5% of GSDP) for funding its share of the infrastructure and for funding the social programmes (welfare, subsidies, and other transfer payments) that the State government would have on its agenda.

3.2 Strategic initiative 1: Thrust on manufacturing

The share of Manufacturing in Tamil Nadu's GSDP declined to 17% in 2009-10 from 20% in 2004-05. The present (2010) composition of the economic output of Tamil Nadu is Primary sector - 12.6%, Secondary sector - 25.8% and Tertiary Sector - 61.6%. Tamil Nadu does not have any significant mineral resources and therefore Agriculture and allied activities comprise the bulk of the Primary sector, while in the Secondary sector, manufacturing activities contributes to 16.6% and Non-manufacturing activities constituting construction and electricity generation contribute to 9.2% of GSDP. The balance makes up the Tertiary sector comprising a multitude of service sectors, the key ones being financial services, transport, tourism and trade. Given the strong accent in Vision 2023 to accelerate growth in terms of

overall GSDP and per capita incomes, it is imperative that all the three sectors need to grow at high rates as shown in the table below:

Sector	2004-05	2010-11	2022-23	Average annual Growth rate (%)
Primary	12%	12.6%	7%	5.1%
Manufacturing	20%	16.6%	22%	13.8%
Non manufacturing	11%	9.2%	8%	9.5%
Services	57%	61.6%	63%	11.1%
Total	100%	100%	100%	10.9%

The growth of the manufacturing sector will be a major force in achieving the targets under Vision 2023. Manufacturing not only creates a large number of jobs, but is also the key to the growth of the Services sector. The relative share of manufacturing sector in Tamil Nadu's GSDP would increase from the present 17% to 22% over the next 11 years. This requires the manufacturing output in the state to grow at a CAGR of 14%. Increasing the share of the manufacturing output in this manner calls for specific policy interventions that would channelize investments to the Manufacturing sector and enable its footprint to grow disproportionately. A point in this regard is that the Manufacturing sector will be consciously linked to the Agriculture sector at one end and seamlessly entwined with the Services sector at the other to ensure that the different sectors of the economy feed into each other's growth.

Increasing economic income and to do this in an equitable manner can be best achieved by providing a fillip to the Manufacturing sector which will create more jobs (including many in the Services sector) to absorb the overflow of the agricultural surplus workforce. The growth rate in the Services sector tends to increase disparity in income given the pattern of skills available and their requirement, and therefore the Manufacturing sector has to have a higher growth rate than in the past, not only to boost GSDP but also to enable equitable growth. Therefore, one of the essential strategies underlying Vision 2023 is to enhance the depth and solidity of the Manufacturing sector in Tamil Nadu substantially.

¹⁴ Source: IMAcS analysis based on information available in public domain



Strengthening the Manufacturing sector further in Tamil Nadu will imply increasing the scale of more complex manufacturing processes and goods being made here, a higher value addition being captured in manufactured goods within Tamil Nadu's factories and supply chain, higher productivity in manufacturing supplemented by higher investments in manufacturing, and significant level of research and innovation driving the manufacturing sector. Some of these developments can be seen in the economies that have enjoyed high growth driven primarily by the manufacturing sector, such as South Korea, Thailand and Malaysia, not to speak of China and Japan. Even Tamil Nadu has witnessed some of this phenomena in its industrial clusters, for instance at Sriperumbudur. To replicate this success in Tamil Nadu on a wider scale and in a sustainable manner, it is important to factor in the economic and policy environment that prevails in India and more specifically in Tamil Nadu. Accordingly some of the points to be kept in mind for stepping up the gas on the manufacturing sector would be:

1) The Manufacturing sector will be consciously linked to the agriculture and allied sectors to maximise value addition to the output of the primary sector within the state. While the primary sector accounts for 13% of GSDP, it accounts for more than 40% of the workforce. As the employment intensity of the Agriculture sector declines going forward, the surplus workforce from the farm sector needs to be absorbed in the Manufacturing sector and in the related informal segments of the services sector¹⁵. It will be virtually impossible for the agricultural workforce to migrate to the high end services sector, which essentially comprise white collared jobs. Hence, to ensure equitable growth, rise in employment, and social harmony, it is inevitable that the manufacturing sector grows at a higher rate than the rest of the economy to absorb the excess workforce.

The value addition on agricultural produce through manufacturing at an all India level is just 2% while it has the potential to become 25%¹⁶. Linking manufacturing to agriculture sector has the additional advantage of increasing rural incomes and reducing income disparity – a core

objective of Vision 2023. Building linkages between manufacturing and agriculture (primary) sector would imply several steps along the following lines:

- a) Step up the emphasis on agro-processing and food processing industries. Tamil Nadu already has a leadership position in several commercial crops such as sugarcane (its productivity is among the highest in India), turmeric, cotton, bananas, and mangoes. The cooperation between industry and farmers has to be encouraged and incentivised through policy, formal and informal consultations, and economic regulation that would cover models such as contract farming, cooperative farming, and long term contracts.
 - b) There has to be a thrust on establishing a wide post-harvest supply chain infrastructure covering logistics, cold chains, warehouses and testing laboratories.
 - c) Marine exports: Given Tamil Nadu's long coast line and a history of fishing, there exists considerable potential to increase the production of marine products for domestic and export markets. Frozen shrimp is the largest export item from India in the marine sector, and there is considerable potential for the output of this to be increased in Tamil Nadu. Shrimp processing is employment intensive and also tends to employ a lot of women.
- 2) Encourage greater scale and depth in manufacturing industries where Tamil Nadu already enjoys leadership position. These industries would be Auto/Auto components, Cotton spinning, Ready-made garments, leather goods, heavy engineering and general engineering industries, where Tamil Nadu will aspire global leadership. Clearly, the production from Tamil Nadu is not only for the domestic Indian market, but for the markets outside India as well. Therefore, there must be substantial emphasis and linkages established between manufacturing investments, new technology, logistics infrastructure to move goods, availability of skilled workforce and the "Tamil Nadu" brand.

¹⁵ Construction industry also will absorb a large part of the farm labour that moves out of agriculture.

¹⁶ Source: National Manufacturing Competitiveness Commission report



- 3) Besides consolidating its position in industries where there is an established base, Tamil Nadu will aggressively target investments for setting up manufacturing bases in related industries such as aerospace, medical equipment, heavy engineering goods, and value added capital goods¹⁷. Tamil Nadu will also seek industrial bases for nationally important industries such as defence goods, aircraft manufacturing, etc. and also court MNCs with appropriate policies to take advantage of the requirements under offset obligations. Such industries will naturally seek destinations that offer good engineering talent, a sound manufacturing culture and ecosystem, strong base for design skills, excellent transport connectivity in terms of a sea port and airport, and a well developed tertiary sector that offers myriad services to support manufacturing. Tamil Nadu has these traits in good measure, and its success in attracting investments in electronics, glass and tele-communication equipment in the past few years is testimony to this. **Sunrise sectors such as biotechnology, solar and clean energy and nano technology based industries will be actively encouraged.** There will be close interaction between the proposed centres of excellence (COE) and these industries to facilitate smooth and quick adaptation of the latest technologies. The challenge is in raising the bar by widening the base of industries which can be attracted to Tamil Nadu.
- 4) Encouraging more investments from leading Indian industrial groups (and MNCs present in other states) to invest in Tamil Nadu. Not only do these investments in themselves count and aid in achieving the goals of Vision 2023, but these players along with the already present manufacturers, play the role of “receptors” for absorbing new technology that comes with FDI. Without local receptors who internalise the technology and build on that, foreign technology cannot scale in manufacturing. Therefore, for the manufacturing sector to achieve spectacular growth, it is imperative that Tamil Nadu’s industrial policy seeks the strong local presence in Tamil

Nadu of established manufacturing enterprises from other parts of India. Large industrial groups of India who have manufacturing facilities in other states of India, must be aggressively wooed to set up their second (or third as the case may be) base in Tamil Nadu on the basis of the advantages that Tamil Nadu confers.

- 5) Competitively priced utilities: It hardly needs any over-emphasising that efficient manufacturing can only occur if there is full assurance of supply of good quality water, electricity and sanitation facilities. Cost of power to the industrial and High Tension customer segment has been high in Tamil Nadu. While the process of unbundling the erstwhile Tamil Nadu Electricity Board has been completed, the sector needs significant reform and further restructuring to ensure that benefits of competition reaches the consumers.

The Government has to ensure that the cost of power to industry and service sector does not rise so high that it renders the manufacturing sector unviable in the state. Similarly, in the water sector, through appropriate policies, Government (including local governments) shall incentivise and mandate recycling of waste water at least for industrial and other non-drinking consumption. Significant reforms in the water sector from catchment strategies to distribution reform have to be ushered in to ensure that lack of water does not become a barrier to fresh investments coming in.

- 6) Approvals and clearances: To compete with progressive states and countries in attracting investments for manufacturing (or even services), the Government will re-engineer approval processes in the state to improve response times. Studies in ‘Ease of Doing Business’ by the International Finance Organisation (IFC) indicate that India has a poor rank of 132 out of some 183 countries for which the ranking was done. Further, the report of IFC indicates that the competing South East Asian countries such as South Korea, Thailand and Malaysia are ranked 8, 17 and 18 respectively in the same study.

¹⁷ These include Machine tools, heavy electrical equipment, heavy transport, and large earth-moving equipment



	Starting a Business		Building approval and utility connections		Property Registration		Statutory payments	Enforcing contracts
	Days	Cost as a % of per capita income	Number of procedures	Days	Cost (as a % of property value)	Days	Number of tax payments in a year	Time taken in courts
Tamilnadu	34	40%	15	143	10.1%	48	68	880
Best in India	30 (Mumbai)	38% (Patna)	15 (Chennai)	80 (Hyderabad)	5.4% (Ranchi)	24 (Jaipur)	59 (Bangalore)	600 (Guwahati)
South Korea	17	17%	13	34	5.1%	11	14	230
Malaysia	13	15%	25	261	2.5%	144	12	600
Thailand	33	5%	11	156	1.1%	2	23	479

Source: Source: Doing Business in India 2009, IFC and World Bank

From the table above the following can be inferred:

- a) On the parameter for how long or how expensive it is to start a business, Tamil Nadu scores fairly well domestically (being marginally behind Mumbai), but it is not as competitive as compared to South Korea and Malaysia.
- b) In terms of the number of procedures required to set up a business, Tamil Nadu (Chennai) is the best in India and is reasonably on par with Asian countries, but scores poorly in terms of waiting time, even vis-a-vis Hyderabad. A deeper analysis indicates that it is a couple of procedures that take inordinate time. If some process re-engineering is diligently done, Chennai can match up to South Korea, which is the best on this parameter.
- c) On the parameter of registration cost of property, Tamil Nadu scores below the best in India and is also lower than the Asian benchmarks.
- d) Tamil Nadu has more statutory payments (various taxes that businesses need to pay) than other cities in Asia, although it is close to the Indian best. Again, this is a parameter where there is scope for improvement by undertaking process re-engineering.
- e) The last parameter is the time taken in courts to enforce contracts, where the delays of our judicial system show up as significantly more when compared to Asian countries.

There are several other parameters besides the above that collectively give an indication of the ease of establishing and running a business enterprise in a given location. While Tamil Nadu/Chennai scores reasonably well with many other

Indian states / cities, there is room for improvement that Tamil Nadu needs to address for competing effectively with other countries such as Malaysia, Thailand and South Korea that aggressively woo global investments in the manufacturing sector.

- 7) Skill development: The “War for Talent”, a concept that emerged about 15 years back in some sectors at a global level (e.g. technology and telecommunications), quickly took on a global dimension and spread to many other industries also as a key success factor. As several emerging nations started to post consistently high growth rates over the past decade, and started to compete or work hand in hand with the developed world (thanks to the phenomena of global supply chains, outsourcing, off-shoring etc.), firms in the emerging world also started to require high quality talent, which was not readily available in adequate numbers. The booming growth that India (as also Tamil Nadu and other competing states) has enjoyed over the past ten years has hit hard on the human resource front. While India has the strength of numbers, the challenge lies in the quality of talent. As one of the most industrialised states in India, Tamil Nadu was one of the first to feel the shortage, and can claim credit for being one of the first states in initiating Skill development strategies, which has since become a mission in India.
- 8) The analysis of the skill requirement of Tamil Nadu for the next 11 years indicates that about 15 million fresh jobs are likely to be created across the economy, while the total number of people to be skilled afresh (the newcomers to the workforce) and re-skilled (those who are already in the workforce) would be about 20 million. Five industries would account for a significant part of the skill requirements namely, Textile, Construction, Automotive, Leather, and Engineering. About two



thirds of the number of people who need to be skilled are at the bottom of the “skills pyramid”, and comprise persons who have not received formal education (beyond junior or early middle school). They need to be imparted minimal skills that make them capable of handling low skilled work which abound in several manufacturing and supporting service sectors.

A significant reform of vocational education is needed so as to be able to absorb all those persons who have completed education upto secondary/higher school but do not wish to pursue higher education. A policy objective in this regard is to increase the proportion of students who enrol for vocational and higher education to over 50% (of the students who finish secondary school) to ensure that sufficiently skilled persons are available. The re-skilling initiative has to be undertaken on a large scale to re-train the existing work-force who will be forced to migrate from agriculture into other sectors or those who are un/underemployed in urban areas.

- 9) Green practices: In the quest to ensure high economic growth, it is important to ensure sustainability of growth with regards to environment, particularly energy efficiency, optimal use of natural resources, and restoration of damaged ecological system due to manufacturing activity. On account of the commitments that India makes at a global level to the comity of nations on the issue of Climate Change, all states and industries in India have to make changes in their practices to ensure that emissions of all green house gases come down to the required limits. There are multiple sources of funding green development including from the pacts under UNFCCC¹⁸, international donor agencies, voluntary cuts by countries and corporations, central government incentive schemes, and state government schemes. The government of Tamil Nadu will set up a cell that will assess the situation with respect to environmental issues (mainly climate change related issues) that impact Tamil Nadu and suggest policy inputs to

Government so that industry and society are able to move forward in a responsible and efficient manner.

In addition to building on the sectors where Tamil Nadu has a competitive advantage, the manufacturing strategy will also focus on making the state competitive for high end manufacturing. Labour arbitrage is not a sustainable advantage and given the demographic profile of Tamil Nadu, it is not cost competitive when compared to many other states on this criterion. It is therefore essential to focus on high value manufacturing. The Organisation for Economic Co-operation and Development in its policy brief¹⁹ has identified the following areas as key to help developing economies move up the manufacturing value chain:

- ◆ **Innovation policies** - To increase the level of knowledge and technology embodied in production and exports.
- ◆ **Policies to upgrade the human resource base of the economy** - To meet the need for more highly skilled workers or a different mix of skills.
- ◆ **Policies to foster entrepreneurship and new areas of economic activity** - To create new areas of economic activity, stimulate creation of new firms and entrepreneurship, or stimulate innovation and technology in new areas.
- ◆ **Cluster policies and efforts at the local/regional level** - To capitalize on local and regional strengths that are also an important asset for economic policy.
- ◆ **Policies to enhance attractiveness for economic activities** - To help attract foreign direct investment and foster new areas of economic activities.
- ◆ **Intellectual property rights (IPR)-related policies** - To ensure protection of IPRs that will incentivise innovation.

Vision 2023 seeks to address all the above aspects through a combination of policy initiatives, institutional reform, infrastructure creation and skill building.

18 United Nations Framework Convention on Climate Change

19 <http://www.oecd.org/dataoecd/45/56/38979795.pdf>



3.3 Strategic initiative 2: Making SMEs vibrant

SMEs play a vital role in any economy, particularly the developing economies where disparities are pervasive. Tamil Nadu has a strong Micro, Small and Medium Enterprises (MSME) base 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. A number of natural SME clusters have formed across the state supporting the industrial and service sectors. Tamil Nadu has a solid base of SMEs which can serve as a launching pad for their growth.

As the economy moves into a higher growth trajectory, it is imperative for the SMEs also to adapt themselves to provide the necessary products and services. SMEs have a further challenge of moving up the manufacturing value chain in tandem with the large scale industries which will henceforth compete on innovation and High value manufacturing.

Traditionally, SMEs have thrived on fiscal and other support from the government. However, in order to make them sustainable in the long run, their inherent competitiveness has to be enhanced. Further, the threat of loss of subsidies and support have inhibited small enterprises from growing out of their 'Small Scale' status, even though many of them have the capabilities and the wherewithal to develop into medium and large sized organisations. An appropriate incentivisation policy is required to encourage the evolution of small enterprises to a larger scale.

Typically, the SME sector in developing economies is confronted with a wide range of structural issues and challenges, such as limited access to finance, technology and markets. Though states like Tamil Nadu have in the recent past seen significant growth in entrepreneurial spirit and management skills, yet the operations and growth of SME entities remain significantly restricted due to the impact of numerous constraints prevalent in the sector. The impact of these constraints is compounded by lack of information, issues in compliance to quality standards and certification and the absence of a conducive business environment. In addition, the increasing usage of Information and Communication

Technology (ICT) as well as the outsourcing and networking strategies adopted by large enterprises and multinational corporations (MNCs) require SMEs to undertake proactive measures to ensure their business sustainability.

While the operating environment for SMEs continues to remain challenging, SMEs by character are expected to be more agile and adaptable to changes in the business environment compared to large organisations. Greater competition, rapid technological advances, more demanding market requirements, and constant changes in consumer demands require SMEs to be innovative and creative in order to face the challenges of the global market. Therefore, there is a need to create and promote a conducive business environment for SME development where both Government and the private sector assume synergistic and complementary roles to help SMEs emerge as viable and high potential businesses. In such complementary and collaborative arrangements, the Government needs to assume the role of a facilitator to SMEs which themselves have the drive, spirit and capabilities to be the engines of growth. Appropriate and effective facilitation of SMEs in an economy can be achieved through structured, organised and targeted action plans and development programmes for SMEs.

The pillars of SME development are:

- ◆ Access to finance
- ◆ Conducive regulatory and policy environment
- ◆ Access to technology
- ◆ Market access
- ◆ Infrastructure availability

The above issues will be addressed through a combination of policy measures, skill development and infrastructure facilities. Measures such as cluster development will be adopted in implementing focused initiatives to make SMEs competitive. The cluster development initiative will include both ancillary clusters based on large mother industries and stand alone clusters. Some of the initiatives that will help in improving the competitiveness of the SMEs are:

1. Access to finance

Inability to access finance at competitive interest rates or in a timely manner has been an important



factor hindering the growth and sustainability of SMEs. Part of the reason is the inability of a typical SME unit's management to assess the fund requirements and/or to manage funds judiciously. Skill development initiatives targeted at improving the managerial capabilities of entrepreneurs is an important intervention that will help SMEs in understanding the importance of financial management. The need for and advantage of maintaining proper accounting records and financial information for a commercial business shall be emphasized as part of skill building of SME employees. Capacity building is also required for lending institutions, particularly, state level financial institutions and co-operative banks that are the major source of funds for SMEs. Capabilities to deal with innovative financing products such as credit guarantees, operating lease structures, seed funding and venture capital etc., need to be built both with the entrepreneurs and lenders.

2. **Conducive regulatory and policy environment**

Simplification, streamlining and rationalisation of the procedures for SME registration, and the process for SME support services is an important ingredient in making SMEs more competitive. As seen earlier, the rank of Tamil Nadu in 'Ease of Doing Business' is lower than those of competing countries of Asia and in some cases, even relative to other Indian states. Impediments in Tamil Nadu seem to be in the multiplicity of procedures and the delays in obtaining clearances. These delays have a significant impact on the performance of SMEs, as in most cases the organisation is lean and spending considerable time on these activities impedes business operations.

3. **Access to technology**

Inability to access the latest technology has an adverse impact on the operations and the cost competitiveness of an SME. Lack of knowledge on the latest technological developments, inability to understand matters relating to Intellectual Property Rights and inability to understand the process of obtaining the relevant technology or upgrading technology is a key stumbling block for SMEs to grow. Under Vision 2023, it is envisaged that the State will provide facilitation centre in conjunction with the schemes of the

central government to assist SMEs in accessing relevant technology.

4. **Market Access**

The relatively small size of individual SMEs makes it difficult for them to effectively access market opportunities or obtain the benefits that a large scale of operations confers. Initiatives such as establishing an SME exchange - an electronic platform that serves as an information exchange detailing the capabilities and experience of SMEs, and links SMEs with customers - will help the small units access markets. Capacity building on contractual aspects, issues such as product liability and warranty are other aspects that need to be addressed.

5. **Infrastructure availability**

Availability of industrial infrastructure and utilities is a critical requirement for SMEs. Unlike large entities, SMEs cannot afford to have alternative sources for utilities or pay a premium for such services. It is therefore essential to make land available at reasonable price through new industrial estates, provide assured supply of electricity and water at competitive rates to enable SMEs to compete. SMEs also need certain common infrastructure such as effluent treatment, testing and laboratory facilities etc, which can be set up on a cluster basis. SIDCO shall ensure that the common facilities and utilities are adequately provided for in the industrial estates developed for SMEs.

3.4 **Strategic initiative 3: Making Tamil Nadu the knowledge capital and innovation hub**

The high levels of growth envisaged by Vision 2023 call for high growth rates across all the sectors of the economy. Innovation is increasingly being seen as the language and currency of business and even social processes. Innovation can be defined as a process by which a measurable increase in value (or output) is achieved in any activity that could have commercial or economic value. Such value enhancement (or innovation) could be incremental or substantial and could happen in an



organised or systematic manner and sometimes (rarely though) accidentally. Innovation can happen in all types of organisations – academic institutions, commercial business houses, government departments, sports clubs, and in society at large. In general, innovation is associated with new discoveries and invention in science and technology, but it can be argued that innovation is wider than this narrow interpretation. Social innovation happens when groups of people in society find new ways to interact and help each other.

A key theme of innovation is “change”. Innovation sparks off change in some manner – whether it is the way in which a new product is made or service or benefit delivered or a new way in which an activity gets done in an organisation more efficiently. It is generally accepted that innovation is the route to take for modern economies to make progress, particularly in trade, commerce and economic development. There is sufficient empirical evidence to suggest that the more innovative a country is, the faster its economy grows. On the development path of a country or economy, once the low hanging fruit have been picked, it becomes inevitable for the country in question to use innovation as a means to sustain growth in the future.

It may be noted that at an international level, India is placed reasonably well from an innovation perspective, having moved up as a country to watch in the last ten years or so²⁰. India’s rapid economic growth during this period, the ability to have ridden out the Asian crisis in 1997 and the more recent economic crisis in 2008 in a much better fashion than most other affected countries, and the achievements of several industries (automotive, telecommunication, IT, and ITES in particular) and individual companies on a global scale reflect some capabilities of innovation in India that need to be better understood, documented and replicated in a more organised manner. Further, the states which have grown rapidly in the past decade (including Tamil Nadu) have contributed heavily in the innovation sphere.

Why is becoming the knowledge capital and innovation hub of India important for Tamil Nadu? There are four main reasons for this:

1. Tamil Nadu’s demographic profile, while it is good in an absolute sense, compares unfavourably to that of other states in India, implying that the

proportion of population in the active working age group is lower in Tamil Nadu than in many other states. Coupled with the fact that income levels are higher than average in Tamil Nadu and it is a state that attracts one of the highest investments in India, pushes Tamil Nadu’s average wage rates higher than those of many other states. Therefore, it is imperative for Tamil Nadu to enhance its factor productivity significantly, if it is to compete with other destinations in India and East Asia to grow its investments, output and employment in manufacturing and service sectors. This enhanced productivity can be achieved only by making knowledge and innovation the centrepiece by all organisations – across services, manufacturing, agriculture, governance, and financing.

2. The Agriculture sector has to grow at a challenging rate of 5.1% CAGR, a rate that has not been attained in the past. It may be stressed here that even at this high rate of growth, the relative share of Agriculture in GSDP halves over the next 11 years as the various sectors of the economy mature and value addition shifts across sectors. The key point to note here is that to achieve a growth rate of 5.1% in Agriculture, the productivity in the sector has to increase manifold as there is not much scope for increasing the arable land in the state. This requires significant amount of innovation in agricultural practices, adopting advanced cropping practices to suit the local requirements. There is a need to create networks of scientific and research institutions focusing on areas such as biotechnology, high yielding varieties, tissue culture, etc. Simultaneously, a network of players focusing on development themes such as dry land agriculture, micro-irrigation etc needs to be developed and build links between these two networks so that the research can be adapted to the ground conditions and implemented.
3. In the manufacturing sector, Tamil Nadu already is a leading state in India in the Auto, Textile, Leather and Engineering goods sectors, all of which are accepted as growth engines for the economy. Therefore, to move ahead in these and compete with the global leaders, it is imperative to be innovative and have access to the latest knowledge and techniques. The other sectors identified as growth engines of manufacturing in India include Aerospace,

²⁰ Refer to Appendix 3 which shows a ranking of the top 10 innovative countries in the world and a thumbnail on each. While this may not be conclusive, it still provides evidence of the fact that India has the capabilities to innovate and that it is being internationally recognized.



Defence, Electronics, Chemicals, Pharmaceuticals and Telecommunications, where Tamil Nadu is not exactly a leader. Therefore, to have a meaningful share of the growth pie in at least some of these sectors, Tamil Nadu has to elevate its knowledge base and ecosystem for these industries quickly to a level where it offers a compelling proposition to investors and companies to set up base in Tamil Nadu. For this to happen, the key factor is the ability to be innovative and act on a coherent strategy.

4. Similarly in Services, the strategy for Vision 2023 is for Tamil Nadu to deepen its offerings in select service sectors such as:
 - a. Information technology based back-office services to a slew of industries from Banking, Insurance, Accountancy, Data management, Telecommunication, Healthcare etc.
 - b. Research & development and Engineering design for technology, engineering and construction companies of the world
 - c. Healthcare
 - d. Tourism, including medical tourism
 - e. Creative design and post production support to the global media industry

Which firms tend to be more innovative?

It must be mentioned that innovation is critical across both manufacturing and services firms. In fact, all organisations, including Government, need to be innovative to succeed in today's world. Box 3 lists some of the characteristics that have been observed by the National Knowledge Commission of India insofar as innovation trends in Indian firms.

Some of the prominent barriers to innovation are:

- ◆ A lack of awareness and attitude towards innovation in most employees due to poor emphasis in the education and training process on factors contributing to innovation such as problem solving, creativity, experimentation, curiosity to try out new designs or approaches, and risk taking.
- ◆ An absence of a culture of firms working with Government or academic institutions.
- ◆ Excessive government regulation in some sectors that stifles the incentive to innovate, and
- ◆ Insufficient pricing power to take advantage of innovations.

Box 3: CHARACTERISTICS OF INNOVATION

- ◆ SMEs have greater innovation intensity than large firms
- ◆ Innovation intensity is more in for-profit private sector firms (more in public limited firms) than compared to government firms
- ◆ Innovation intensity of MNC firms tends to be higher than for local firms, although the percentage of innovative firms is similar in MNC and non-MNC sectors
- ◆ Firms with foreign ownership tend to be more innovation oriented than Indian-owned firms
- ◆ Firms that have formal internal processes that support innovation (e.g. allocating funds for innovative projects, recognising/rewarding innovation efforts in employees, consciously creating cross-functional teams, spending more on R&D, intense top management focus on innovation etc) tend to be more innovative
- ◆ Indian firms that have a large part of their primary markets outside India have tended to be more innovative in their approaches than firms who have their primary markets in India
- ◆ Firms where filing of innovations and patents is a practice
- ◆ Firms that collaborate with R&D laboratories, academic institutions, and Government bodies tend to be more innovative than others

Source: Innovation in India, National Knowledge Commission, ImaCS analysis



The key steps that Government will take to make Tamil Nadu a hub for knowledge are as follows:

- i) Evaluate the major universities in the state across all disciplines and invest in revamping the core assets and facilities, getting more qualified faculty, setting up new facilities that may be required, and making the curriculum and pedagogy more up-to-date and relevant to the disciplines in question.
- ii) Establish with own resources and/ or with industry partnership about ten world class institutions (Centres of Excellence) in different areas, which become nodes of research, industry partnership, and innovation. These would be established by upgrading existing centres of research and higher learning (where such a centre exists) and by establishing new centres. The different areas of focus for their COEs are as follows:
 - ◆ Automotive technology
 - ◆ Solar and clean energy technology
 - ◆ Biotechnology
 - ◆ Agricultural practices
 - ◆ Water resources management
 - ◆ Construction management
 - ◆ Lifestyle diseases
 - ◆ Aerospace
 - ◆ Basic sciences
 - ◆ Nano technology
 - ◆ Social sciences
- iii) Creation of an adequate base of trained technical and managerial personnel with competencies and skills across different sectors. Tamil Nadu will usher in a skills revolution in the state by facilitating the education and training of about 20 million persons over the next 11 years in different fields and to varying levels of expertise.
- iv) A social climate and institutional structure that supports innovation. Government shall encourage and support the immigration of people from other states and countries into Tamil Nadu, especially those who bring skills and capabilities that are in short supply in the state. Further Government will facilitate the establishment of a state-wide culture of

continuous dialogue and exchange of ideas among government, labour and business to ensure a high degree of cooperation and mutual understanding. This is an essential ingredient of an innovative culture, as innovation aims to bring change, which can sometimes be disruptive, but still essential for development.

- v) Government could give a further boost to innovation by setting up an Innovation fund that works at several levels to foment innovation in the state. For instance, it could formulate a scheme at schools in the state in terms of awarding prizes for the best 50 innovations from school students each year. The Innovation fund could institute awards for the best three innovations from business firms, academic institutions, NGOs, etc. The objective is to sensitise professionals and society at large on the upside of innovation, which can improve life on a day to day basis.

3.5 Strategic initiative 4: Specialisation in service offerings

The success of the Vision is incumbent upon adopting the right strategy to grow. Given the enormity of the task, it is important for the state to build on its strengths. Some segments of the services sector such as trade and transport will grow on the back of manufacturing and agricultural growth. However, with respect to other sectors such as tourism, business and financial services and healthcare, Tamil Nadu will be positioned as a premier destination. Some of the areas where Tamil Nadu can be positioned as a leader are:

- ◆ Back office operations
- ◆ Healthcare
- ◆ Audio and Video - production and post production
- ◆ Tourism

Back office operations: Tamil Nadu can aspire to become the back-office for several functions such as Accounting, Design, Data storage (real time/disaster recovery back up), Economic / financial research, desktop publishing, digital editing and animation, etc. Tamil Nadu has the basic ingredients for success



in scaling such services - e.g. a large base of educated human resource pool, a good work ethic and service culture prevalent all over the state, English speaking skills, and academic institutions who will continue to churn out the necessary technology savvy workforce. At the moment, Tamil Nadu lacks in two areas, namely, adequate high speed bandwidth and social infrastructure, which will be addressed so that the state becomes the best in these aspects.

High speed connectivity and bandwidth are essential for increasing the productivity and competitiveness of the back office operations. The Internet speeds in India in general and Tamil Nadu in particular are not adequate for a large scale of back-office operations. India ranks outside the top 100 countries in terms of Internet speed. While South Korea has the best speeds with more than 30 mbps, a few East European countries have speeds of 17 to 20 mbps²¹. However, the maximum speed in India is 1.3 mbps in Kerala²², with Tamil Nadu averaging 0.8 mbps.

At present, the advantage to India in the ITES sector accrues primarily on account of lower labour costs, while India fares poorly on infrastructure and business environment factors. However, with countries like Philippines competing aggressively on cost, there is an immediate need to raise the level of service offerings, in order to be competitive.

The other important factor required to attract international investments is to have a good social infrastructure that will make immigrants feel at home anywhere in Tamil Nadu. One of the outcomes of Vision 2023 is that the state will facilitate free movement of people, enhancing the exchange of ideas and assimilation different cultures.

Tourism: Tamil Nadu ranks third in the country in attracting domestic tourists and second in attracting foreign tourists. An estimated 10% of foreign tourists to India arrive through the Chennai airport. Tamil Nadu hosted over 110 million domestic tourists and 2.8 million foreign tourists in the year 2010.

The state has a number of attractions such as, a long shoreline with several excellent beaches, outstanding architecture in terms of temples and other monuments, UNESCO declared world heritage sites, gateway to leading pilgrim towns in South India (such as Tirupati,

Madurai, Rameswaram, and Tanjavur), and several hill resorts and sanctuaries with their own natural charming propositions. With Tamil Nadu being the port of entry for 10% of the international tourists arriving into India, enhancement of the capacities of Madurai and Coimbatore airports and setting up of a new airport at Chennai will facilitate the inflow of more tourists.

Given that both Tourism and Healthcare are thrust areas for Vision 2023, medical tourism at the intersection of these two industries is a natural choice for Tamil Nadu to encourage actively, both towards domestic and international visitors.

Healthcare: Tamil Nadu is renowned for its medical facilities and has several institutions which attract patients from all over the country. Some of these hospitals also attract patients from abroad. The state has a strong medical fraternity and paramedical support. India is globally ranked among the top 10 destinations for medical tourism and, given Tamil Nadu's strengths in healthcare delivery and relatively good international connectivity, it will be a thrust area for growth. The key success factors for a thriving medical tourism industry are:

- ◆ World class treatment at competitive rates
- ◆ International connectivity
- ◆ Availability of healthcare skills knowledge and resources
- ◆ Create a global image
- ◆ Create value networks by ensuring availability of all services and coordination of all stakeholders

Vision 2023 envisages the setting up of two medical cities over the next 11 years. The medical cities will have comprehensive facilities to provide world class treatment at competitive rates.

Audio and video - production and post production: With the advent of digitisation, a number of opportunities have arisen in the areas of sound recording, animation, post-production, mastering, editing and dubbing. Technology has become an integral part of audio, video and film production, and Chennai with its history of movie making has adapted itself to providing these services. Government will actively promote this strength and capabilities of Chennai with a view to attracting international players to do their post production activities in Chennai. With its Information

21 Refer to Appendix 4 for the list of top 10 locations with the highest Internet speeds

22 Refer to Appendix 4 for the list of top 10 states with the highest Internet speeds in India



technology capabilities and film making experience, Chennai can become a global base for digitisation and post production activities at a competitive price.

3.6 Strategic initiative 5: Thrust on skill development

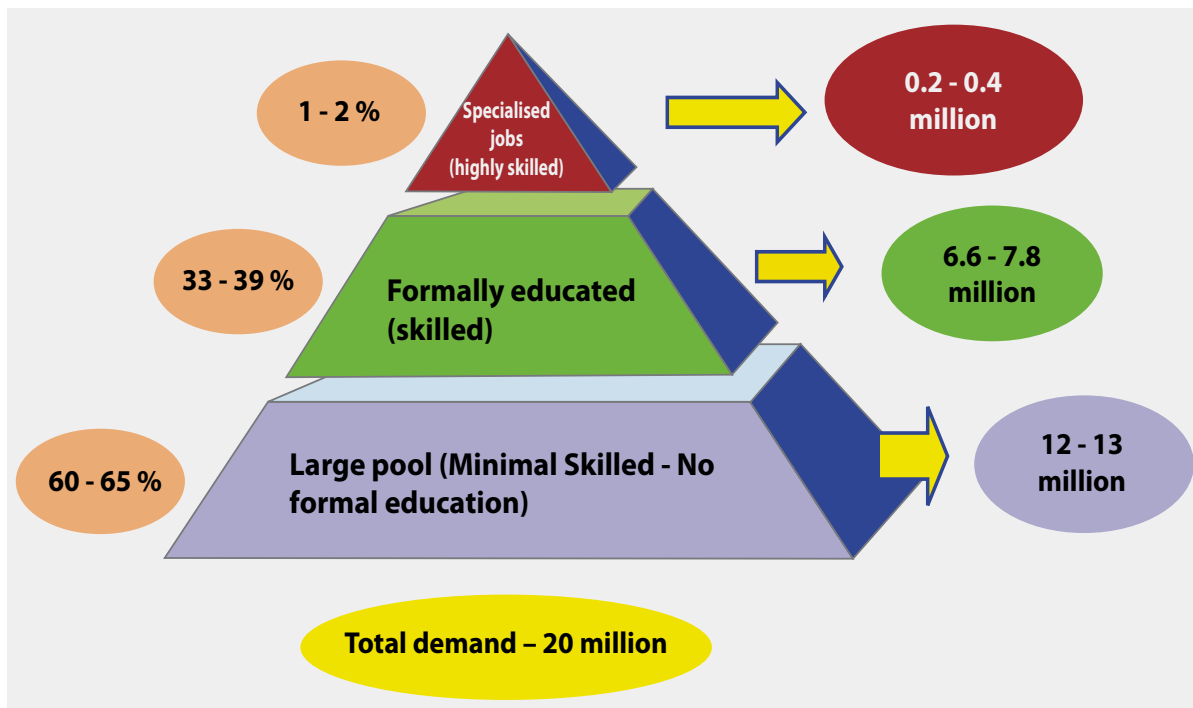
The single most important resource for the success of Vision 2023 would be the availability of trained, knowledgeable and skilled manpower in Tamil Nadu. Without a body of sufficiently skilled and balanced workforce, no economy can hope to develop to its potential. Vision 2023, under its Education and Skills mission, aims to establish a robust human resources pipeline by the following measures:-

- ◆ Providing universal access, equity, quality at primary, upper primary, secondary and higher secondary level
- ◆ Increasing the enrolment in higher education (including vocational education) to over 50%
- ◆ Skill and train 20 million people with focus on employability

The state has already initiated various programmes to achieve universal access and improve quality at primary, secondary and higher secondary levels. The

focus of Vision 2023 is to create 20 million skilled people through concerted efforts. The skills pyramid for Tamil Nadu (indicating the skill requirement of jobs over the next 11 years in the categories of highly skilled, formally skilled and semi-skilled) is shown in the diagram below:

The objective of Tamil Nadu’s skill development vision is to confer “minimal” skills to the persons in the bottom of the pyramid, numbering approximately 10 million as on date and increasing by about 0.8 million each year for the next 11 years. These “minimal” skills would be aimed at making the concerned persons suitable for entry level jobs in various sectors and industries that will open up as the economy grows at high rates. Vision 2023 also enjoins the state to make interventions in improving information exchanges in the labour market and facilitating accreditation of skills. The job openings in the middle layer of the pyramid are meant for persons with formal education, including vocational and/or college education, while in the highest layer, the openings refer to specialists and experts. For these two layers, market forces can be expected to match demand and supply of skills reasonably with minimal government intervention. As part of the skill development programme, the key interventions are:





- a) Large Scale Skill Development programme aimed at the bottom of the pyramid – Under this programme, the Government of Tamil Nadu needs to conceptualize and roll out a large scale skill development programme targeted at the State’s unskilled and semi-skilled workforce. We envisage this to be a large-scale skill-development initiative, covering around 0.6 million people 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.
- b) Employability programme for skilled level (middle layer in the pyramid) to deliver industry relevant skills in key growth sectors.
- c) Setting up of Centres of Excellence in the area of:
 - ◆ Automotive technology
 - ◆ Solar and clean energy technology
 - ◆ Biotechnology
 - ◆ Agricultural practices
 - ◆ Water resources management
 - ◆ Construction management
 - ◆ Lifestyle diseases
 - ◆ Aerospace
 - ◆ Basic sciences
 - ◆ Nano technology
 - ◆ Social sciences
- d) Focus on “Train the trainers” programmes in different sectors by setting up specialised training institutes, so that higher leverage can be obtained.

3.7 Strategic initiative 6: Improving Agricultural Productivity

Tamil Nadu is richly endowed with fertile lands and agro climatic zones suitable for a varied agricultural produce. During 2009-10, Tamil Nadu produced 75 lakh tonnes of food grains and 108 lakh tonnes of vegetables and fruits. Tamil Nadu contributes approximately 3% of India’s food grain produce, 7% of vegetable produce, 12% of fruit produce and 24% of flower production.

Tamil Nadu’s agricultural produce includes Rice, Maize, Choram, Jowar, Bajra and Ragi as the principal cereals, Redgram, Green gram, and Black gram as the major pulses, Chillies, Ginger, and Turmeric as the principal spices, Tapioca, Onion, Cabbage, and Potato as the major vegetables, Banana, Guava, Cashew nut and Mango, as the major fruits, Groundnut, Gingelly and Coconut in oil seeds. Apart from these Tamil Nadu is a leading producer of Cotton and Sugarcane in the country.

Agriculture and allied activities provide the subsistence for around 40% of Tamil Nadu’s population and contributes to 12% of the GSDP. The share of agriculture in GSDP has dropped from 40% in 1960s to 12% in 2010-11 (RE). After a robust growth of 8-10% in the first half of the past decade, the agriculture sector witnessed negative growth in the years 2007-08 and 2008-09. The agriculture sector growth started positive in 2009-10 and is poised to grow upwards owing to the increased thrust on improving productivity.

Tamil Nadu has seven agro climatic zones and the average rainfall in the state is 930mm per annum against the national average of 1200mm per annum. The net cultivated area in Tamil Nadu is 48.92 lakh ha of which only 58% is irrigated, while the rest is rain-fed. Well irrigation forms 56% of all irrigation, while 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. The agricultural yield of the principal food grains (Rice, Maize) in Tamil Nadu is less than that of the best in India, and the yield of Vegetables, Cotton and Pulses in Tamil Nadu is less than the national average yield. The average agricultural land holding of Tamil Nadu is 0.83 ha against the 1.25 ha average of India and this is a passive contributory factor to the lower yields in Tamil Nadu.

Tamil Nadu produces 108 lakh tonnes of vegetables and fruits but has only 136 cold storage locations with a capacity of 2.3 lakh tonnes which is shared amongst marine, milk and agro produce. Though multiple cold storage projects are being undertaken across the state, the combined capacity enhancement is small compared to the required capacity.

Tamil Nadu has around 4,000 vegetable and fruit processing industries with an average employed capital Rs. 1.7 crore. The state exported agro processed food



worth Rs 4,782 Crore during 2007-08²³. Nearly 30% of crops produced in India are wasted (due to rotting) in the post harvest supply chain of storage, logistics and handling. Reducing this wastage calls for a seamless integration of agricultural production, supply chain, processing and marketing of the produce.

The target for agriculture sector in Tamil Nadu is to achieve 5% average annual growth rate. To achieve this target, the objective for the Agriculture sector under Vision 2023 is, "To achieve the best in class productivity in key agricultural produce and to be a global supplier with robust infrastructure".

Under Vision 2023, the key initiatives in the Agriculture sector to be taken are:

a) Promote market driven agricultural produce

The evolving demographic and socio-economic changes in India (and elsewhere in the world) are resulting in a change in consumption pattern of processed, partially processed and unprocessed food. Hence to achieve better economic output from the primary sector, a market driven production and processing is imperative. Agriculture in developed countries has achieved greater success owing to its tight integration with the market. Forward and backward integration of industry has resulted in better understanding of the global needs of the agricultural sector resulting in efficient production and distribution of agricultural produce. Systems and institutions would be formulated to promote cooperative farming, contract farming, and industry linked farming to adapt to the evolving market needs.

b) Accelerating Innovation and Extension Mechanism

Increased productivity and production calls for an innovation system which involves equal participation of producers, research institutions, financiers, marketing structures, supportive policies, and effective research extension mechanisms. A robust innovation mechanism is required to anticipate the emerging changes and to assist the industry to evolve better technologies and marketing reach to achieve higher economic output.

Research and development capabilities in different areas such as agro engineering, nano technology, bioengineering, and crop extension needs to be developed at an accelerated rate. This would involve infusion of technology, infrastructure, finance, and human capital and a strong institutional framework to support the knowledge capital developed in the state.

An effective innovation system is sustainable only when it is socially inclusive and economically sustainable; hence an efficient extension mechanism is required to extend the product and process developments into the field. Tamil Nadu is a leading state in agricultural extension and training of farmers in modern technologies. This has to be augmented and has to reach 100% of farmers through convergence of information and communication technologies.

c) Functional consolidation of land holdings

The average size of operational land holding of Tamil Nadu has reduced from 1.45 ha in 1970-71 to 0.83 ha in 2005-06. During the same period marginal and small operational land holdings have increased from 17.1% to 33.5% and 20.5% to 25.22%; while the large operational land holdings have reduced from 13% to 5.73% of the total land holding and the average size of a large operational land hold is only 20.58 ha²⁴. Punjab has seen major increase in agricultural productivity during the same period and the average increase in size of land holding from 2.94 ha to 4.03 ha is seen as a major contributing factor.

The reduction in land holding size in Tamil Nadu directly affects the productivity as the farmer would not be able to afford the investments required for technological improvement. Functional consolidation of holdings through cooperative farming, contract farming and other mechanisms such as farmer groups and joint liability groups need to be aggressively initiated in Tamil Nadu to increase the penetration of modern agricultural technologies and improve output.

23 Source "Enhancing Competitiveness of Indian Manufacturing Industry : Assistance in Policy Making" by National Manufacturing Competitiveness Council

24 Source – Report on 8th Agricultural Census 2005-06 Tamil Nadu Part 1



d) Emphasis on mechanisation

Mechanisation for most parts of agriculture is still limited to usage of tractors and motor pumps. With availability of better paying service sector jobs and construction jobs, increased migration from agriculture to other sectors is observed in Tamil Nadu during the last decade. To increase the productivity of the land and to cope with shrinking agricultural employment, mechanisation is not only essential but also imperative.

The traditional constraints for promotion of mechanisation include non standardised agricultural practice, small and marginal land holding, low investment capacity of farmers, lack of know-how and non availability of service and maintenance facilities. Policy and structural mechanisms shall be developed to address these issues and support increased mechanisation in all phases of agriculture.

e) Improving Productivity

Tamil Nadu lags in the productivity of rice, maize, sugarcane, cotton, and grams compared to the best in the country. The productivity of vegetables in India is 11.2 tonnes/ha compared to 15.9 of Brazil and 22.1 of Indonesia and 24.3 of USA, similarly the productivity of India in fruits is 16.2 tonnes/ha compared to 31.3 of USA, 26.1 of Italy and 34.8 of Spain.

The current productivity of the crops needs to be augmented manifold to match evolving international standards by universal adoption of scientific agricultural methods such as better soil health management, emphasis on high quality and high yield seeds, precision farming, fertigation, and improved deployment of agricultural machines.

f) Assurance of timely irrigation

It is essential to provide timely irrigation for effective utilization of agricultural land, and hence irrigation availability for all cultivable land is a key objective under Vision 2023, to be achieved within the next 10 years. This requires investment in increasing access to canal/piped water supply across the state. The focus will be on increasing the area under irrigation and achieving 100% coverage

through micro irrigation, water conservation and strengthening water structures.

Tamil Nadu has limited access to perennial water resources for irrigation; hence it requires extensive investment in intelligent usage of available water through effective groundwater recharging solutions, capacity augmentation of tanks and wells through timely dredging and cleaning and adoption of micro irrigation systems.

g) Creating a robust supply chain

Augmentation of agricultural productivity needs a concurrent development of post harvest support mechanism including normal and cold storage facilities, packaging facilities, agro processing industries, crop sterilisation and sanitation facilities, and an effective marketing reach to global markets. Crop specific storage and irradiation facilities will be established across the state for safe and efficient storage.

Food processing industries for major produces such as mango, tapioca, spices, flowers, banana and others will be established across the state to increase the value generated out of agricultural produce and to generate skilled employment in the state.

h) Skill development in agriculture

Increasing mechanisation, adoption of scientific techniques in agriculture, and the need to adopt extension mechanisms demands extensive capacity development of the agricultural workforce. There will be a progressive reduction in number of unskilled agricultural workers and the demand for trained and skilled workforce will increase with the implementation of above strategies; hence it is imperative that the farmers are educated in modern methods of agriculture and mechanisation. Structured programmes and interventions will be undertaken by the government and industry to sustain the growth of the sector.



3.8 Strategic initiative 7: Creating 10 world class cities that become the nodes of growth

Tamil Nadu is already the most urbanised state in the country with nearly 48% of its population living in urban areas. Growth in urban population (26%) during the last decade has outpaced rural population growth (6%) and this trend is expected to intensify. While Tamil Nadu also has a fairly diverse urban profile, with over 33 cities having a population of more than 100,000 during Census 2011, Chennai is poised to emerge as a mega polis with its population expected to cross 10 million over the next decade.

While a fast pace of urbanisation is strongly correlated with income growth and is generally a positive, infrastructure provision in urban areas in the state has lagged population growth in the past. This has started to create stress in the urban areas that is manifesting as increase in slum population and deteriorating access to basic services.

In addition to improving urban infrastructure across the state, Tamil Nadu will develop ten urban agglomerations to world class standards towards making them the nuclei and engines for economic growth, thereby facilitating regional and balanced development across the state. The state will seek to develop state-of-art infrastructure both physical and social, while seamless connectivity among these cities and rest of the state and the region will be ensured. In particular, the focus would be to ensure universal access to 24x7 water supply and efficient mass transit systems while making them open-defecation free and garbage free.

3.9 Strategic initiative 8: Care for the vulnerable sections of society

Vision 2023 targets an ambitious growth path and will deliver benefits to large sections of the society that will be able to get gainful employment largely on their own steam. However, the State will not lose sight of the disadvantaged and vulnerable sections of

the society who will not be able to participate in the economic prosperity on account of their inabilities and disadvantages. It is therefore imperative for the State to ensure that no one is 'left behind' in the progress under Vision 2023.

Tamil Nadu has been a pioneer in India in providing welfare schemes to the underprivileged and disadvantaged section of society. The existing welfare schemes and new ones as dictated by the socio-economic situation will continue to be operated by the government. However, even the most advanced nations have certain sections of the society who need support. Vision 2023 requires the State government to ensure that anyone in Tamil Nadu who requires support due to physical or financial challenges, or for some genuine reason is unable to take advantages of opportunities to improve his/her lot, the person's basic needs (housing, food, and healthcare) will be taken care of. Appropriate arrangements would be made to take care of destitute children differently-abled and the elderly.

3.10 Strategic initiative 9: Signature projects

Vision 2023 envisages the development of eleven marquee projects that will create a huge positive impact and provide significant spin-off benefits.

- a) Develop world class institutions of research and knowledge in several fields where Tamil Nadu has competitive strengths, principal areas being Automotive research, Clean energy technologies (including solar), Biotechnology, Agriculture, Water, Aerospace, Construction, Basic sciences, and Lifestyle diseases. Many of these will have collaborations with the respective leaders.
- b) Two Medi-cities to be set up in the state, catering to a range of medical services, medical education and training, treatment facilities, facilities for stay, research centres and support facilities like insurance services etc. These will also serve as centres for promoting medical tourism.
- c) A large watershed and water management project (programme) all over Tamil Nadu that increases the storage capacity (including that of groundwater) by 100%



- d) High speed broadband connectivity to be reached to every village
- e) Two critical power projects and at least four more power generation projects with an aggregate capacity of over 20000 MW; at least two LNG terminals with capacities not below 5-6 million tonnes per annum
- f) Gas grid connectivity to large consumption centres and city gas networks in ten large towns of Tamil Nadu
- g) 2000 km of 6-8 lane Expressways; 5000 km of 4 lane State highways and two-laning of all other highways
- h) High speed train projects connecting Chennai-Coimbatore- Madurai - Kanyakumari
- i) Development of industrial corridors between Chennai - Hosur, Madurai – Thoothukudi, Chennai-Trichy, Coimbatore-Madurai and Coimbatore - Salem
- j) Three large scale port projects increasing cargo handling capacity of Tamil Nadu by 150 million tonnes per annum – including one specialised terminal for POL products, one world scale LNG terminal and a large container cargo handling port (total capacity rising to 15mn TEUs)
- k) A greenfield international airport for Chennai with a handling capacity of at least 40 million passengers, and a few other airport projects in other cities of Chennai with an aggregate capacity of 25 million passengers per annum

3.11 Strategic initiative 10: Encourage PPP as a mechanism for infrastructure creation

As observed in the section on fiscal strategy, the capacity of the state to invest in infrastructure projects is limited. It is estimated that over the next 11 years the share of the State in infrastructure investments will be about 30%, with central sector projects accounting for 30% and balance investment will be sourced through PPP.

It must be realised that poor infrastructure creation in India is not as much as due to lack of finances, as much as it is due to a lack of credible project opportunities that can be sustainably financed. The fundamental cause of the latter (in Tamil Nadu as elsewhere in India) is the lack of expertise within Government in terms of how to engage with the profit-seeking motive of the private sector (within legitimate limits) and balancing the dictates of propriety (transparency and assurance of public good) that government rules require. This needs capacity building in Government to reengineer procurement packages and procedures in Government to make them efficient.

To succeed, Vision 2023 will rely on PPP becoming an important mode for infrastructure creation and provision in Tamil Nadu in a supportive fashion to the efforts of the Government.



This section outlines the investment requirements in the various sub sectors of in the infrastructure sector. These are high-level estimates based on the requirements identified in each sub sector. The identification of requirements is based on the projects identified by the respective departments and an assessment of the inputs required to meet the targets of Vision 2023. These estimates will be refined and made more granular in the detailed reports following Vision 2023.

The following sub sectors are covered as part of Vision 2023:

1. Power Generation, Transmission and Distribution Systems (through renewable and nonrenewable sources).
2. Roads, bridges and by-passes.
3. Ports (other than major ports) and harbors.
4. Urban Infrastructure including transportation, Rapid Transit Systems and Solid Waste Management.
5. Water Storage, Water Supply, water treatment and Sewerage System.

6. Industrial Estates including Industrial Parks, SEZ.
7. Tourism Projects including entertainment and shopping/corporate complexes/resorts.
8. Airports and Aircraft maintenance, repairing.
9. Railways including Regional Rail and Links.
10. Education including technical education, vocational education and skill development.
11. Human Resource Requirement & Development.
12. Agriculture, Agricultural Marketing and Agro based industries.
13. Irrigation including micro irrigation and ground water.
14. Housing including low income housing.
15. Medical and Health care infrastructure.

These sub sectors have been grouped into six broad categories as shown below and the likely investment requirements for the six categories have been estimated.





4.1 Energy



The total investment in the energy sector is estimated at Rs. 4,50,000 crore. New power generation capacity dedicated for Tamil Nadu, located within the state or elsewhere, will account for a bulk of the investments at Rs. 280,000 crore. Five power generation projects (under Case 2 bidding as per norms of Ministry of Power, Government of India) are estimated to add 20,000 MW of capacity; of this at least 5000 MW would come up before 2017 to make good the shortage of peak power and energy shortage that Tamil Nadu faces at present. In the long run, Tamil Nadu will have sufficient power generation capacity that is owned or secured under long term contracts that becomes the bedrock of an efficient and competitive economy. Some facets of the strategy for Energy are:

- Two port based Ultra Mega Power Projects of 4,000 MW each to be set up
- Selective thrust for green power by maximising investments in Wind Power to create incremental generation capacity of 5,000 MW and 5,000 MW in solar energy.
- Significant investment required in the Transmission sector to create evacuation capacity for the higher power generation capacity with adequate buffers. Select high capacity Transmission corridors will be bid out on PPP basis to establish the necessary evacuation infrastructure
- Two Greenfield LNG Terminals with 5 MPTA capacity each and city gas pipeline infrastructure for about 10 towns to be established

- Establishment of a smart grid system that enables lower the cost of energy to consumers, spark innovation in energy management at all levels in the energy chain across the economy, and improve the reliability and security of the electricity grid. The likely investments in a smart grid system is expected to be Rs. 20,000 crore
- 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 economic price and commercial terms. This will call for new models of electricity transmission and distribution, which have been successfully implemented in several countries

Summary of Investments

Projects	Rs. Crore
Ultra Mega Power Projects	50,000
Case 2 bidding	60,000
Wind power	25,000
Solar power	55,000
LNG terminal	20,000
Gas Grid	20,000
Transmission and Distribution	200,000
Investment in Smart Grid	20,000
Total	450,000



4.2 Transport



Transport infrastructure comprising of airports, sea ports, rail and road network constitutes the transport infrastructure. The estimated investment in this sector is Rs. 3,70,000 crore. The key projects proposed are:

- a) Green field Airport complex in Chennai equipped to handle 40 million passengers
- b) Upgradation of existing airports in Coimbatore, Trichy and Madurai to international class with a capacity of 10 million passengers each
- c) Enhancement of 2000 km of roads into of 6/8 lane Expressway corridors between Chennai and major towns
- d) Modernization of state highways covering 5000 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
- e) Establishment of three large green field multi-cargo non-major ports with incremental aggregate capacity of 150 million tonnes to handle dry bulk, imported/domestic coal for power generation, liquid cargo, and containerized cargo.
- f) High speed passenger rail link connecting Chennai, Coimbatore, Madurai and Kanyakumari.
- g) Freight corridor connecting Chennai and Thoothukudi
- h) Metro/Mono rail for 2 cities (other than Chennai)
- i) Urban transport and road improvement

Summary of Investments

Project	Rs. Crore
Greenfield airport near Chennai	20,000
Upgrading other airports	5,000
Expressway	40,000
State Highway improvement	50,000
Other roads	40,000
Port development - Existing ports	12,000
Port development - new ports	3,000
High speed passenger rail link	120,000
Dedicated freight corridor	15,000
Metro/Mono rail	65,000
Total	370,000



4.3 Industrial and Commercial



Industrial and Commercial infrastructure comprises of two broad areas as follows:

- Industrial infrastructure covering industrial estates, SEZs - Investment of Rs. 150,000 crore
- Tourism projects covering entertainment complexes hotels/resorts amounting to Rs. 10,000 crore of investment

A. Industrial Infrastructure

Industrial infrastructure comprises of land required for industrial activity and the cost of development of land to make it suitable for industrial use. It also includes the facilities required within the industrial area. The development projects considered are:

- a. Acquisition of 6,826 acres of land by SIPCOT for new and extension of existing industrial estates across the state
- b. Acquisition of land by SIDCO for industrial estates across 25 locations in Tamil Nadu. The extent of land estimated to be acquired is 2,256 acres
- c. Area development of Sriperumbudur industrial area
- d. Development of the following industrial corridors:
 - i. Chennai - Ranipet
 - ii. Ranipet - Hosur
 - iii. Madurai - Thoothukudi
 - iv. Coimbatore - Salem
 - v. Chennai - Trichy
 - vi. Coimbatore - Madurai
- e. Establishment of a Petroleum, Chemical and Petrochemical Investment Region (PCPIR)
- f. Establishment of an Information Technology Investment Region (ITIR)
- g. Establishment of three large industrial townships
- h. Aerospace and logistics park near the green field airport



Summary of Investments

Project	Estimated infrastructure investment (Rs. Crore)
Sriperumbudur area development	5,000 ²
Madurai - Thoothukudi industrial corridor	25,000 ¹
Chennai - Ranipet Corridor	17,000 ²
Ranipet - Hosur Corridor	30,000 ³
Coimbatore - Salem Corridor	10,000 ³
Chennai - Trichy Corridor	20,000 ³
Coimbatore - Madurai Corridor	10,000 ³
PCPIR	8,000 ⁴
ITIR	10,000 ⁴
Industrial townships (3 SEZs)	10,000 ¹
Aerospace park	5,000 ¹
Total	1,50,000

1 - ImaCS estimates

2 - Based on studies commissioned by SIPCOT

3 - ImaCS estimates based on 2 above

4 - Based on TIDCO's estimates

B. Tourism Infrastructure

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 state targets a foreign tourist inflow of 15 million by 2023. The estimated total investment in various projects amounts to Rs. 10,000 crore.

Summary of Investments

Project	Number	Rs. Crore
Development of world class theme parks and underwater parks	3	3,000
Development of heritage locations	10	1,000
Development of beach front and water sport facilities and resorts	2	2,000
Infrastructure development at locations of tourist interest	30	1,500
Other infrastructure development in tourist locations (including ADB project on tourism infrastructure)		2,500
Total		10,000



4.4 Urban Infrastructure



The focus of investments in Urban infrastructure is to develop state-of-art infrastructure both physical and social, ensuring seamless connectivity between cities and rest of the state. The key projects are:

- a. Development of Chennai into a megapolis
- b. Development of ten world class cities
- c. Rehabilitation of 15 lakh families living in slums
- d. Universal access to 24x7 water supply and sanitation services
- e. Access to mass transit systems for efficient urban transport

Summary of Investments

Project	Rs. Crore
Chennai city development	50,000
Urban development for rest of Tamil Nadu	50,000
Development of 10 world class cities (urban facilities estimated Rs. 10,000 crore per city)	100,000
Housing including housing for Economically Weaker Section	75,000
Total	275,000



4.5 Agriculture



Infrastructure developments in agriculture are targeted at the three initiatives of improving the productivity in agriculture, assurance of year round irrigation, and marketing extension. An estimated investment of Rs 40,000 crore is anticipated towards development of agricultural infrastructure across the state. The key projects are:

- a. Irrigation projects involving connectivity of farms with canals and dams, and cleaning of water resources such as tanks, wells and dams.
- b. Micro irrigation for 100% of crops under horticulture, vegetables and fruits and spices.
- c. Horticultural parks for fruits, vegetables and spices would be developed across the state
- d. Chain of storage facilities including cold storage and associated logistics facilities
- e. Packing houses and gamma irradiation facilities are to be developed in each district
- f. Grain storage facilities
- g. Three terminal market complexes to serve the local and export market
- h. Strengthening R&D capacity

Summary of Investments

Project	Rs. Crore
Cleaning of wells, tanks and canals	16,000
Horticulture Parks	6,600
100% Micro Irrigation for horticulture crops	6,400
Grain Storage Godowns	2,700
Strengthening of R&D Capacity of Agricultural Universities	2,000
Food Processing Centres	1,500
Cold Storage Projects, Terminal Market Complex	2,000
Support to Mechanisation	1,000
Packing houses, Gamma Irradiation Facility, Agro Food Parks & Export Zones, Perishable air cargo complex, ICT tools for agriculture extension etc	1,800
Total	40,000



4.6 Human Development



The Human development component of Vision 2023 covers the Education and Healthcare sectors. The total investments in these two sectors are estimated at Rs. 30,000 crore.

A. Healthcare

The key infrastructure development in the Healthcare sector is in the area of providing universal access to healthcare for all citizens. Some of the key initiatives proposed are:

- a. Increase the capacity of primary and secondary healthcare network involving increasing the bed strength, addition of laboratory, radiology and dietary infrastructure of the hospitals.
- b. 15 new medical colleges will be established attached to district hospitals and the 17 existing medical colleges cum district hospitals will be upgraded to international standards
- c. Two Medi-cities will be created in the State with a mission to serve the medical tourism industry covering investment in hospital facilities, education facilities, logistics and hospitality services.
- d. Trauma, ambulatory and disaster management care facilities will be undertaken along the major transport network of the state and laboratory chains cum collections centres and radiology chains will be established across the state.
- e. Electronic medical records management and hospital management system will be implemented in all district and Taluk hospitals.



Summary of Investments

Project	Rs Crore
Creation of Two Medi-Cities	4,000
Addition of 15 New Medical Colleges by upgrading district hospitals	2,000
Establishment of 10 New Private Medical Colleges	1,500
Strengthening of PHCs, Up gradation of Taluk & Non-Taluk Hospitals	750
Upgrading Existing Medical Colleges	750
Quality improvement of Public Health Institutions	400
Establishment of specialty centres for geriatrics, mental health, cancer, etc	400
Skill Development of Medical Personnel (Paramedical Staff)	300
Establishment of Trauma, Ambulatory care and Disaster management services	300
Establishment of 1000 collection laboratory/collection centres	300
Electronic medical record facility	300
Total	11,000

B. Education

The total investments envisaged in the Education and Skill Development sector is about Rs 19,000 crore. The highlights of the investments in this sector are as follows:

- a) Investment for upgrading middle and high schools.
- b) Setting up Centres of Excellence across 11 identified areas.
- c) Investments for high end vocational training and for providing minimal livelihood skills to 15 million persons and reskilling/skill enhancement for 5 million workers over the next 11 years to make them employable.

Summary of Investments

Project	Rs. Crore
Upgrading schools	5,000
Skill development for vocational training	11,000
Centres of Excellence	3,000
Total	19,000



4.7 Total Estimated Investment in Infrastructure



The aggregate value of investments over the period 2012-2023 under the seven heads of Infrastructure is as follows:

Sector	Investment Requirement Rs. Crore
Energy	450,000
Transport	380,000
Industrial and Commercial	150,000
Urban Infrastructure	275,000
Agriculture	40,000
Human development (Health & Education)	30,000
Sub-total	13,25,000
General and Social infrastructure projects	100,000
Capital improvements to existing infrastructure	75,000
Sub total	175,000
Grand total	15,00,000



4.8 Funding the infrastructure



The cumulative GSDP of Tamil Nadu over the next 11 years is estimated at Rs. 14,137,352 crore (at 2011 prices). The investment in infrastructure over the same period is estimated Rs. 15,00,000 crore. Of this an amount of Rs. 13,25,000 crore is estimated to be spent on infrastructure projects and Rs. 100,000 crore on administrative and social welfare programmes (welfare, subsidies, and other transfer payments) by the state. Further an estimated Rs. 75,000 crore will be spent on regular capital expenditure on improvements to existing infrastructure.

At present, the three major sources of funding infrastructure are State government (60%), Central Government (25%) and private sector (15%)²⁵. Going forward, the share of the private sector is expected to increase while that of the State government will reduce. The expected funding mix of the infrastructure plan under Vision 2023 is as follows:

Year	Investment in Infrastructure (Rs. crore)	State Government (%)	Central Government (%)	Private Sector (%)
2010	25,000	60%	25%	15%
2016	93,705	33%	30%	37%
2023	237,690	28%	30%	42%

The funding by the State government will be by way of the expected revenue surplus of 1.5% of GSDP and fiscal deficit (amounting to 3% of GSDP) besides seeking

Central Government funds and leveraging the private sector for the balance.

²⁵ Estimate based on public domain information



Appendix 1

List of Sectors

1. Power Generation, Transmission and Distribution Systems (through renewable and non-renewable sources).
2. Roads, bridges and by-passes.
3. Ports (other than major ports) and harbours.
4. Urban Infrastructure including transportation and Rapid Transit Systems.
5. Water Storage, Water Supply, water treatment and Sewerage System.
6. Industrial Estates including Industrial Parks, SEZ.
7. Tourism Projects including entertainment and shopping/corporate complexes/resorts.
8. Solid Waste Management.
9. Airports and Aircraft maintenance, repairing.
10. Railways including Regional Rail and Links.
11. Education including technical education, vocational education and skill development.
12. Human Resource Requirement & Development.
13. Agriculture, Agricultural Marketing and Agro based industries.
14. Irrigation including micro irrigation and ground water.
15. Housing including low income housing.
16. Health.

Appendix 2

1	Albania
2	Algeria
3	American Samoa
4	Antigua and Barbuda
5	Argentina
6	Azerbaijan
7	Belarus
8	Bosnia and Herzegovina
9	Botswana
10	Brazil
11	Bulgaria
12	Chile
13	China
14	Colombia
15	Costa Rica
16	Cuba
17	Dominica
18	Dominican Republic
19	Ecuador
20	Gabon
21	Grenada
22	Iran, Islamic Rep.
23	Jamaica
24	Jordan
25	Kazakhstan
26	Latvia
27	Lebanon

28	Libya
29	Lithuania
30	Macedonia, FYR
31	Malaysia
32	Maldives
33	Mauritius
34	Mayotte
35	Mexico
36	Montenegro
37	Namibia
38	Palau
39	Panama
40	Peru
41	Romania
42	Russian Federation
43	Serbia
44	Seychelles
45	South Africa
46	St. Kitts and Nevis
47	St. Lucia
48	St. Vincent and the Grenadines
49	Suriname
50	Thailand
51	Tunisia
52	Turkey
53	Uruguay
54	Venezuela, RB



Appendix 3

Rank	Country	Comment
1	USA	America's culture of risk taking is an abiding source of competitive advantage
2	Singapore	Singapore is coveted for its education, economy and talent. Singapore scores high on the team-work between its government and corporate sector. The government has consistently supported science education, while encouraging its citizens to go abroad for higher education. Its immigration policy also has a role in its high scores for innovation. It has adapted brilliantly despite having such a low base of natural resources.
3	Finland	Within a period of 30 years, Finland went from a country reliant almost on agriculture to becoming one of the world's most economically efficient and technologically advanced countries. Finland spends 3.7% of its GDP in R&D, second only to Sweden, and a large part of it goes to Tekes, the national research agency. Finland provides a grant of \$540 million per year to institutions and businesses for R&D support. It has possibly the best designed R&D system in the world
4	Israel	The nation functions as a "start up", and maintains a fierce level of business innovation. Its close relationship to the US extends to the world of innovation. Israel has several innovation programmes, such as, "Innovation Israel" and "Israeli Tech Transfer" that promotes creativity amongst Israeli youth. Israel has the highest number of start-ups in the world – one for every 1800 people, and the highest number of companies of any country listed in the NASDAQ.
5	South Korea	A country that grew from the ranks of poor and under-developed to an OECD nation in the past 30 years. From a country that had a reputation of manufacturing poor quality products, South Korea today produces the world's finest quality. Samsung has the distinction of filing for the second largest number of patents in the world for any company, after IBM. South Korea has innovated heavily in multiple area in manufacturing and is today focussed heavily on mobile technology.
6	Denmark	Denmark focuses a lot on design and on making the environment clean. Denmark's leadership and culture focus a lot on long term innovation
7	India	Large scale availability of well-educated technology professionals at a low cost and a burgeoning entrepreneurial class is giving results to "frugal" engineering and innovation. It is taking on the old world with next generation R&D models and in an inclusive sort of way, and seems to have home grown solutions to its unique problems.
8	Germany	Historically leads in pharmaceutical and biotech and has produced more than 77 Nobel Prize winners in the Sciences. It also has highly innovative manufacturing and healthcare costs as also a celebrated success with SME. Coming up from scratch post world war II to becoming the leading country in EU is eloquent testimony to its innovation culture
9	Japan	A country with 10% of USA's population files 3.5 times the number of patents. A country rebuilt on innovation after destruction in WWII, it has achieved astonishing progress with virtually no natural raw material resources.
10	Chile	A growing hotspot of innovation in the Southern hemisphere. One of the driest places on earth, Chile makes water from fog. With a peculiar geography and vulnerability to the forces, it takes a lot of innovation to make progress.

Source: Adapted from The Daily Beast/Newsweek, IMAcS analysis

Appendix 4

Cities with the fastest internet connection

	Location	(Mbps)
1.	Seoul, South Korea	34.49
2.	Riga, Latvia	27.88
3.	Hamburg, Germany	26.85
4.	Chisinau, Republic of Moldova	24.31
5.	Helsinki, Finland	20.58
6.	Stockholm, Sweden	19.97
7.	Bucharest, Romania	19.68
8.	Sofia, Bulgaria	18.99
9.	Kharkov, Ukraine	18.15
10.	Kaunas, Lithuania	17.46

Ranking of Indian States on internet speed

	State	(Kbps)
1	Kerala	1,386
2	Haryana	1,105
3	Karnataka	1,041
4	Uttar Pradesh	977
5	Gujarat	932
6	Jammu & Kashmir	923
7	Maharashtra	917
8	Delhi	896
9	Tamil Nadu	810
10	Andhra Pradesh	643