



ANALYSIS OF GROWTH PROSPECTUS WITH SPECIAL REFERENCE TO INFRASTRUCTURE IN TAMIL NADU

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Abstract

The paper shows that Infrastructure is a major sector that propels overall development of the Indian economy. The Secretariat for Infrastructure in the Planning Commission is involved in initiating policies that would ensure time-bound creation of world class infrastructure in the country. This section focuses on power, bridges, dams, roads and urban infrastructure development. Details of the projects, organizations, policies, timelines, schemes, spending on infrastructure are provided for the users. For any country, its infrastructure is a matter of pride. From roadways, railways to airports and other smart-city initiatives, the last few years have witnessed a phenomenal change in the sector, leading to world-class facilities coming up across various parts in the country. A key driver of the economy, Infrastructure is highly responsible for propelling India's overall development. The industry enjoys intense focus from the top officials of the Government for initiating policies that would ensure time-bound creation of world class infrastructure in the country. This sector includes power, bridges, dams, roads and urban infrastructure development.

Key Words: Infrastructure, Economic Growth and Development, Sustainability, Infrastructural Investments, Poverty Reduction.

INTRODUCTION

Infrastructure plays a crucial role in promoting economic growth and thereby contributes to the reduction of economic disparity, poverty and deprivations in a country. Infrastructural investments in transport (roads, railways, ports and civil aviation), power, irrigation, watersheds, hydroelectric works, scientific research and training, markets and warehousing, communications and informatics, education, health and family welfare play a strategic but indirect role in the development process, but makes a significant contribution towards growth by increasing the factor productivity of land, labour and capital in the production process, especially safe drinking water and sanitation, basic educational facilities strongly influence to the quality of life of the people. Finally it concludes infrastructure and poverty reduction in the Indian context.

THEORITICAL FRAMEWORK

The provision and development of Infrastructure has been subject of much theoretical analysis and empirical studies. It is referred as an umbrella term for many activities and named as **Overhead Capital**, **Economic Overheads**, **Overhead Capital**, **Basic Economic Facilities**, and so on. **Nurkse** elaborated the concept of overhead capital. According to him "overhead investment aims at providing the services – transport, power, and water supply, which are basic for any productive activity, cannot be imported from abroad, required large and costly installations and in the history of western economics outside England, have usually called for public assistance or public enterprise. Typically overhead investments take a considerable time to reach maturity in growing. To be sure, all investments depend on expectations but the time range of expectations is apt to be particularly long in overhead projects because of their lumpiness combined with their high operational capital intensity. Other development economists like **Rostow and Hirschman** have also used the word of social overhead capital.

W. W. Rostow (1960) in his 'Theory of Stages of Growth' According to him SOC is a pre-condition for take-off into self-sustained growth. Investment in SOC and development of those services encourages potential entrepreneurs to invest in riskbearing business. Those SOC prepare the base for expansion of economic activities by decreasing the cost and increasing the profitability of productive activities. It also helps in the creation of an



educated labour force, superstructures of communication networks, and mechanism to provide energy, basic civic amenities and law and order. According to Rostow, “All these create an atmosphere that breeds entrepreneurial capabilities and sustains a climate which is throbbing with economic activities and optimistic decision.” Consequently, he made investments in SOC, especially in the fields of transport and power, one of the main preconditions for take-off. In the precondition to take – off stage the investment in social overhead capital should create literate and technically trained personnel in the working force. They are necessary condition for self sustaining economic growth. **Hirschman’s concept of social overhead Capital (Infrastructure)** Comprises of these basic services (include all public services like transportation, communication, power, health, water supply, irrigation and drainage system) without which the primary, secondary and tertiary activities in the economy cannot function. In its wider sense, it includes all public services from law and order through education and public health to transportation communications, power and water supply, as well as such agricultural overhead capital as irrigation and drainage system. The hard core of the concept can probably be restricted to transport and power.

Hansen (1965), in looking at the role of public investment in economic development, divides public infrastructure into two categories Economic Overhead Capital (EOC) and Social Overhead Capital (SOC). EOC is oriented primarily toward the direct support of productive activities or toward the movement of economic goods and includes most of the public works projects listed above. SOC is designed to enhance human capital and consists of social services such as education, public health facilities, fire and police protection, and homes for the aged. Other classifications of public infrastructure include investments by the private sector. **Hansen** theorizes that the potential effectiveness of economic overhead capital will vary across three broad categories of regions: **congested, intermediate, and lagging. Congested regions** are characterized by very high concentrations of population, industrial and commercial activities, and public infrastructure. Any marginal social benefits that might accrue from further investment would be outweighed by the marginal social costs of pollution and congestion resulting from increased economic activity. **Intermediate regions** are characterized by an environment conducive to further activity an abundance of well-trained labor, cheap power, and raw materials. Here, increased economic activity resulting from infrastructure investment would lead to marginal social benefits exceeding marginal social costs. **Lagging regions** are characterized by a low standard of living due to small-scale agriculture or stagnant or declining industries. The Economic situation offers little attraction to firms, and public infrastructure investment would have little impact.

Kindleberger and Heric (1973) however, while defining infrastructure introduced two more concepts such as Economic Overhead Capital (EOC) and Strictly Social Overhead Capital (SSOC) which are two different components of Social Overhead Capital. According to them EOC are nothing but public utilities in the form of transport, communication, road, railways, electricity, etc. whereas SSOC includes the plants and equipments required for providing services in the form of education, health and housing.

According to development economist **Michael P. Todaro (1981)** Emphasis capital accumulation including all new investments in land, physical equipment and human resources, results when some proportion of present income is saved and invested in order to augment future output and income. New factories, machinery equipments and materials increase the physical “capital stock” of a Nation (i.e. the total “net” real value of all physical products capital goods) and make it possible for expanded output levels to be achieved. These directly productive investments are supplemented by investments in what is often known as social and economic “**Infrastructure**” roads, electricity, water, and sanitation, communications etc. Which facilitate and integrate economic activities for example investment by a farmer in a new tractor may increase the total output at the vegetables he can produce, but without adequate transport facilities to get this extra product to local commercial markets, his investment may not add anything to national food production. To sum up all the above economists views on infrastructure in the form of overhead capital or overhead costs. This was the theoretical base of socio economic infrastructure of the economy.



Since **Ashauer (1989)** around the world numbers of studies were conducted by the different economists in different time Spain periods. Through the empirical testing of infrastructure really influences growth and development. For example during the 1970s, there was a high correlation between declining productivity in the USA and reductions in investment on public infrastructure, numerous studies have suggested that infrastructure investment is likely to augment economic performance.

For a review (see **Aschauer 1989, Gramlich 1994**). This implies that increasing the investment in infrastructure can enhance productivity growth as well as quality of life. Assets (e.g. **Easterly and Rebelo 1993, Canning and Fay, 1993, Canning, 1999**) using cross section-time series pooled data found that public infrastructure has positive effects on a country's productivity performance as well as growth is affected positively by the stock of infrastructure.

TAMIL NADU-AN OVERVIEW

Tamil Nadu (The Land of Tamils or Tamil Country) is one of the 29 states of India. Its capital is Chennai (formerly known as Madras), the largest city. Tamil Nadu lies in the southernmost part of the Indian Peninsula and is bordered by the union territory of Puducherry and the states of Kerala, Karnataka, and Andhra Pradesh. It is bounded by the Eastern Ghats on the north, by the Nilgiri, the Anamalai Hills, and Kerala on the west, by the Bay of Bengal in the east, by the Gulf of Mannar and the Palk Strait on the southeast, and by the Indian Ocean on the south. It also shares maritime border with the country of Sri Lanka.

Tamil Nadu is the eleventh largest state in India by area and the sixth most populous state in India. The state was ranked sixth among states in India according to the Human Development Index in 2011. Since 2012, it is the second largest state economy in India. The state has the highest number (10.56 per cent) of business enterprises and stands second in total employment (9.97 per cent) in India, compared to the population share of about 6 per cent. In the 2013 Raghuram Rajan panel report, Tamil Nadu was ranked as the third most developed state in India based on a "Multidimensional Development Index". The region has been the home of the Tamil people since at least 3000 BCE. Its official language is Tamil, which holds a status of being a classical language. Tamil has been in use in inscriptions and literature for over 2,500 years.

NEED FOR THE STUDY

Every economy either developing or developed has two kinds of main basic objectives, one providing basic needs and facilities to their population and another achieving higher growth rates. The present paper provides infrastructure growth and development. How infrastructure plays a dynamic role to fulfill their growth targets as well as achieving higher living standards of their mass population.

OBJECTIVES OF THE PAPER

The main object of the study is to find out the status of Tamil Nadu in respect of infrastructural development and to find out the position as well as where it stands in comparison of other States.

METHODOLOGY

The present study is based on the secondary data, collected from the different sources like published in journal/books/website of state government and any other literature.

INFRASTRUCTURE OF TAMIL NADU

(A) ECONOMIC INFRASTRUCTURE

The economic infrastructure of any state includes the Railways, Roads, Power and Telecom. This study is showing detailed information regarding to economic infrastructure of Tamil Nadu.

(a) Energy Infrastructure

Power Generation

The gross energy availability of the state has increased by 23539 MU between 2004-05 and 2010-11 with 5.94 percent of AAGR. The consumers' demand for power was restricted and the state went to the extent of



introducing power cuts to manage the situation during summer. The per capita consumption of power was increased for 815KWh in 2004-05 to 1040KWh in 2010-11 with the 3.87 AAGR. It is observed that the annual growth rate of installed capacity is 1.17 percent, but the capacity registered with 3.87 per cent per annum and the peak demand was also high with 5.74 percent per annum between 2004-05 and 2010-11. Poor rainfall has led to a reduction in the hydel power generation, low coal harvesting pulled down the thermal power generation and high cost of installation the renewable energy are the hindrance of power supply in the state. On the other hand, fast urbanization and implementation of populace schemes provides free domestic electronic appliance like TV, grinder, fan and maxi led more demand on power. As a result, the domestic consumption share shows that 67 percent of the total consumption followed by commercial with 13 percent in 2012-13 (GoTN, 2013). It is observed that there is a mismatch between the demand and the supply in the power sector in the state. In the Twelfth Plan the expected demand of power in the state will be 18311MW. As the sum of Rs.26,719crore is earmarked as Twelfth plan outlay for the power development. The state also paid a substantial attention for the renewable energy sources such as solar, windmill and biomass during the Twelfth plan period. Hence, the government has also introduced Tamil Nadu solar Energy policy 2012 to generate 3000MW of solar power by 2015 and plan also targets 6000MW from wind energy.

(b) Transport Infrastructure

(i) Road Transport

The Pradhan Mantri Gram Sadak Yojana (PMGSY) was initiated in India, in order to connect all the unconnected habitations with the mainstream in 2000. Tamil Nadu is one of the successful states in India to implement the PMGSY. Out of 518 total Public-private Partnership (PPP) projects under the road work in India 43 projects were implemented by Tamil Nadu (Go TN, 2012). National Highways Authority of India (NHAI) has implemented two major projects viz. Golden Quadrilateral and North-south corridor projects in Tamil Nadu. The Government of Tamil Nadu mobilized resources for improvement road network in the state through various agencies viz. Tamil Nadu Industrial Development Corporation Limited (TIDCO), Housing and Urban Development Corporation (HUDCO), National Bank for Agriculture and Rural Development (NABARD), Asian Development Bank (ADB) and the World Bank. In addition to this, the state government has also motivated the private sectors to participate in the road sector development in recent years.

Tamil Nadu has made significant efforts to develop the transport network catering to the needs of the large number of travelling public in the state. The transport department has 7 state Transport Undertakings (STUs) and allied organizations under its control. The STUs are operating 16,982 buses in 2006. Mofussil buses are accounted for 35.2 percent and town/metro buses accounted for 48.14 percent. The STUs cover more than 67 lakh Km and 177 lakh passengers per day. The vehicle population has increased from 27,325 in 1951 to 1.37 crore in the year 2011 in Tamil Nadu. Number of registered motor vehicles per lakh population has increased from 132 in 1960-61 to 18,937 in 2010-11. Among the Indian states, Tamil Nadu recorded the second highest share (11 percent) of registered motor vehicles, after Maharashtra (12.3 percent) in 2011. The CAGR of registered motor vehicles in the state was recorded for 11.7 percent between 2001 and 2011 (Go I, 2012b). On the other hand, the road accident in Tamil Nadu is quite high with 65,000 in 2010-11. It is observed that the vehicle population and the road accidents in the state have positively associated. The inference of the foregoing analyses is that the road infrastructure has significantly improved over the year, but it is not enough to meet the demand for growing vehicles. Hence, the Twelfth five year plan of the state has to provide road infrastructure for equitable socio-economic development throughout the state, and should provide connectivity. The estimated plan outlay of the twelfth plan period for the roads and bridges will be Rs.16911.44 crore.

(ii) Rail Transport

Rail Transport plays a major role for the trade activities and passenger traffic to the long trips. Indian Railways, the world's second largest rail network under a single management, has been contributing to the development of the country's industrial and economic landscape for over 150 years. It provides two services viz. freight and



passenger movements. Tamil Nadu's railway network falls under the jurisdiction of the southern railways. It has six divisions, four of which are in Tamil Nadu. The total route length of the broad gauge in the state has increased from 1361 Km in 1994-95 to 3880.9Km and the meter gauge accounts for 826.17Km in 2010-11. The broad gauge conversion of routes by railways has enabled with 79 percent and the electrification of line concerned over a length is 39 percent in the state. Mass Rapid Transit system has been more effective in serving the people of Chennai. The mass-rapid-transit system (MRTS) is an elevated line of the suburban railway in Chennai. The joint venture programme of Chennai metro rail has been growing rapidly in Chennai. The project consists of two corridors viz. Washermenpet to Airport (23.1Km) and Chennai central to st. Thomas mount (45.0km) and a completion target of 2014-15. The estimated cost of the project is about Rs.14,000crore. Another important project, Chennai mono rail has to be initiated very soon and the ground work is on progress in Chennai.

(iii) Port Infrastructure

Port is the basis for maritime transport and it also forms an indispensable link in the total transport chain. It has been playing a crucial role in facilitating international trade and also generating economic activity in their surroundings and hinterland. Tamil Nadu has a coastal line of about 1000km. Along the coast, it has 3 major ports (Chennai, Tuticorin and Ennore) and 15 minor ports (see box 1). Tamil Nadu maritime board is administrating, controlling, regulating and managing the minor ports in the state. Tamil Nadu port policy envisaged that, the port should provide facilities to promote export oriented industries and port based industries along the coastal districts in the state. Poompuhar Shipping Corporation limited is owned by the government of Tamil Nadu. The corporation has mainly handled coal cargo for Tamil Nadu Electricity Board. Twelfth plan aims to develop the minor ports along the east coast through PPP. Port-wise cargo handled in Tamil Nadu is given in table 5. The cargo handled by Chennai port has substantially increased over a period of time followed by the Tuticorin and Ennore port. All the three major ports in Tamil Nadu accounted for about 18 percent of total traffic handled at all major ports in India. Between 2005-06 and 2011-12, the major-port traffic increased at an average rate of 5 percent. Growth of cargo handled by the non-major ports has increased by 47 times between 1996-97 and 2010-11.

(iv) Airports

Airports being nuclei of economic activity assume a significant total in the national economy. It plays an important role to attract foreign investment and provide passenger service both at national and international level. It is the second largest foreign exchange earner in the country. Chennai, Madurai, Coimbatore Tiruchirappalli and Selam are the international air ports the important airports in Tamil Nadu. Chennai and Tiruchirappalli are international air ports and remaining ports are domestic ports. In 2012-13, the Chennai airport recorded passenger traffic of 6.35 million and the Tiruchirappalli airport reported 4.24lakh passengers. The Chennai airport handled 59,013 and the Tiruchirappalli airport handled 3893 flights in the corresponding period. The air cargo traffic in the state has marginally increased from 3.31 laksh tones in 2009-10 to 3.98lakh tones in 2010-11.

(c) Telecom Infrastructure

Some of the major telecom operators in Tamil Nadu telecom operators in Tamil Nadu are Bharat Sanchar Nigam Limited (BSNL), Bharti Airtel, Aircel limited Reliance Communications, Vodafone Essar, Tata Teleservices and Idea Cellular. Tamil Nadu had a teledensity of 109.64 percent as compared to all-India average of 73.34 percent as on December 2012. The number of cellular subscribers is on a constant rise in the state. According to Telecom Regulatory Authority of India (TRAI), Tamil Nadu had nearly 73.28 million wireless subscribers and 3.13 million wire-line subscribers in the corresponding period. The state had 1.6 million broadband subscribers in 201 (IBEF, 2013). The state has 43.90lakh PCOs and the number of villages covered by VPTs accounted for 15,492 in 2011.

'Housing for all', is the aim of the state. Tamil Nadu Housing Board (TNHB) is one of the agencies in the state to cater to needs of the people for housing in the urban areas. Since inception, it has constructed about 4lakh



dwelling units. Tamil Nadu Slum Clearance Board (TNSCB) which looks after the need of the slum families has constructed 1.13 lakh houses since its inception. Tamil Nadu Urban Finance and Infrastructure Development Corporation Limited (TUFIDCO) acts as a nodal agency for Jawaharlal Nehru National Urban Renewal Mission (JNNURM). Under JNNURM, 48 projects costing US \$1.19 billion have been sanctioned for Tamil Nadu. As on July 2012, a total of 12 JNNURM projects were completed in the state. The Chennai Corporation has been expanded from 174 sq.km to 426 sq.km by the inclusion of 42 local bodies in 2012. Hence, the corporation has been taking several new initiatives for providing the infrastructure in the city. The estimated outlay of twelfth plan will be Rs.54,407.55 crore for the urban development.

(d) Irrigation

Tamil Nadu has historically been an agricultural state, while its advances in other fields launched the state into competition with other areas. Even so, Tamil Nadu is a leading producer of agricultural products in India. Tamil Nadu agriculture is heavily dependent on the river water and Monsoon rains. The perennial rivers are Palar, Cheyyar, Ponnaiyar, Kaveri, Meyar, Bhavani, Amaravati, Vaigai, Chittar and Tamaraparani. Non-perennial rivers include the Vellar, Noyal, Suruli, Gundar, Vaipar, Valparai and Varshali. Tamil Nadu is also the leading producer of kumbu, corn, rye, ground nuts, oil, seeds and sugar cane in India. Erode is the world largest producer of turmeric. Around 68% of the world's turmeric and 84% of India's turmeric are from Erode. Also, Erode has the largest turmeric market in the world. At present, Tamil Nadu is India's second biggest producer of rice. Tamil Nadu is the home to Dr. M. S. Swaminathan, known as the "father of the Green Revolution" in India. The town of Namakkal is a major poultry hub of India. A technological and industrial park (designated as a Special Economic Zone) was originally planned to be set up in Nanguneri, in the Tirunelveli district with an investment of ₹ 60 billion (US\$1.6 billion). However, recently developmental plans point to a re-orientation of this project to Tuticorin.

(e) Industrial Infrastructure

(i) Leather Industry

The state accounts for 70 per cent of leather tanning capacity in India and 38 per cent of leather footwear and components. The exports from Tamil Nadu are valued at about US \$762 million, which accounts for 42 per cent of Indian leather exports. Hundreds of leather and tannery industries are located around Vellore, Dindigul and Erode its nearby towns such as Ranipet, Ambur, Perundurai and Vaniyambadi. The Vellore district is the top exporter of finished leather goods in the country. That leather accounts for more than 37 per cent of the country's Export of Leather and Leather related products such as finished leathers, shoes, garments, gloves and so on. The tanning industry in India has a total installed capacity of 225 million pieces of hide and skins of which Tamil Nadu alone contributes to an inspiring 70 per cent. Leather industry occupies a pride of place in the industrial map of Tamil Nadu. Tamil Nadu enjoys a leading position with 40 per cent share in India's export. It currently employs about 2.5 million persons. Leather exports by the end of the year 2000–2001 were 90 billion. Central Leather Research Institute (CLRI), a CSIR research laboratory is located in Chennai, the state capital. Footwear Design & Development Institute (FDDI) is located at Irungattukottai near SIPCOT Footwear Park, 40 minutes' drive from Chennai.

Chennai is the biggest hub of the world leather industry. Tamil Nadu accounts for 30 per cent of leather exports and about 70 per cent of leather production in the country. The large scale presence of the Tanning industry has resulted in Tamil Nadu becoming a dominant production centre in the country for leather and leather based products. In Tamil Nadu 0.5 Million people are employed in the industries dealing with leather and leather based products.

(ii) Textiles and Engineering

Textile mills and engineering industries are present around the city of Coimbatore therefore it is termed as "Manchester of South India". It is home to textile, automotive spare parts and motor pump manufacturing units.



City of Tirupur is the country's largest exporter of 70% of knitwear. They are well known for textile manufacturing industries and exports to such extent that the districts of Coimbatore, Tirupur, Karur, Erode, Namakkal and Salem. The city of karur is referred to as "Textile capital of Tamil nadu" .[102][103] for its cotton production. The region around Coimbatore, Tirupur, Karur and Erode is referred to as the "Textile Valley of India" with the export from the Tirupur 50,000 million (\$1,000 million) and Karur generates around 35,500 million (\$750 million) a year in foreign exchange. 56 per cent of India's total knitwear exports come from Tirupur and Karur make above 60 per cent of India's home textiles. Gobichettipalayam, Pollachi, Udumalpet, Theni and Vedasandur are known for its cotton spinning mills.Sankarankovil and Rajapalayam is famous for its cotton market. Gobichettipalayam is a prominent producer of white silk with the country's first automated silk reeling unit present here. Kanchipuram and Arani are world famous for their pure zari silk sarees and handloom silk weaving industries. Aruppukottai, Salem, and Sathyamangalam are also famous for artsilk sarees.Sankarankovil, Andipatti, Tiruchengodu, Paramakudi, Kurinjipadi, Chennimalai are major handloom centres.Sankarankovil, Negamam, Cinnalapatti, Woraiyur, Pochampalli are famous for its soft cotton saree weavings. Madurai is well known for its Chungidi cotton saree. Bhavani is famous for cotton carpets.

(iii) Automobiles

Tamil Nadu has seen major investments in the automobile industry over many decades manufacturing cars, railway coaches, battletanks, tractors, motorcycles, automobile spare parts and accessories, tyres and heavy vehicles. Major global automobile companies including BMW, Ford, Robert Bosch, RenaultNissan, Caterpillar, Hyundai, Mitsubishi Motors, and Michelin as well as Indian automobile majors like Mahindra & Mahindra, Ashok Leyland, Hindustan Motors, TVS Motors, IrizarTVS, Royal Enfield, MRF, Apollo Tyres, TAFE Tractors, DaimlerChrysler AG Company also invested 4 billion for establishing new plant in Tamil Nadu Karur is a hub for Bus body building industries. Namakkal is the major source of lorry body building. Recently India Yamaha, Yamaha Motor Corporation's Indian subsidiary, has decided to set up a new factory in Tamil Nadu.

(iv) Heavy Industries

Tamil Nadu is one of the highly industrialised states in India. Over 11% of the *S&P CNX 500* conglomerates have corporate offices in Tamil Nadu. Many heavy engineering and manufacturing companies are located in and around the suburbs of Chennai. Salem is the largest industrialised city in the state as it is a production area for mangoes, iron & steel, cotton, silk and power (Mettur Dam). Bharat Heavy Electricals, one of India's largest electrical equipment manufacturing companies, has manufacturing plants at Tiruchirapalli and Ranipet. India's leading steel producer, the stateowned Steel Authority of India, has a steel plant in Salem. Sterlite Industries has a copper smelter at Tuticorin and an aluminium plant in Mettur. The Chennai Petroleum Corporation is a stateowned oil and gas corporation headquartered in Chennai, and owns refineries at Manali and Panangudi. The state government owns the Tamil Nadu Newsprint and Papers, and the world's biggest bagasse based paper mills in Karur. Jointly with the Tata Group, the state owns the world's sixth largest manufacturer of watches, under the brand name of "Titan", at Hosur. A number of large cement manufacturers, including the Chettinad Group, Ramco Cements, Tancem, the Dalmia Group, UltraTech Cements and ACC are present across the state. Ariyalur is known as "the land of the cement industry" in the state.

(v)Electronics and Software

Electronics manufacturing is a growing industry in Tamil Nadu, with many telecommunications giants like Flextronics, Motorola, SonyEricsson, Foxconn, Samsung, Cisco, Moser Baer and Dell having chosen Chennai as their south Asian manufacturing hub. Products manufactured include circuit boards and cellular phone handsets. Tamil Nadu is the second largest software exporter by value in India. Software exports from Tamil Nadu grew from 76 billion (\$1.6 billion) in 2003–04 to 207 billion {\$5 billion} by 2006–07 according to NASSCOM[108] and to 366 billion in 2008–09 which shows 29 per cent growth in software exports according to STPI. Major national and global IT Companies such as Syntel, Infosys, Wipro, HCL, Tata Consultancy Services, Verizon, HewlettPackard, Amazon.com, eBay, Paypal, IBM Accenture, Ramco Systems, Computer Sciences Corporation, Cognizant Technology solutions, Tech Mahindra, Polaris, Aricent, MphasiS, MindTree, Hexaware Technologies



and many others have offices in Tamil Nadu. Coimbatore is the second largest software producer in the state, next to Chennai.

(vi) Others

Namakkal is also one of the main sources of Egg production in India. Karur is also the major manufacturer of Nylon nets (HDPE) Filaments over 65 per cent of India. Sivakasi is a major centre of fireworks and safety match production and offset printing in India with over 60 per cent of firework production contributed from Sivakasi. Kanyakumari is famous for rubber production. Armored Vehicles and Ammunition Depot of India (AVADI) is about 23 km northwest of Chennai. Perambur Integral coach factory is the largest in Asia to produce railway coaches in Tamil Nadu.

(B) SOCIAL INFRASTRUCTURE

Social Infrastructure is a subset of the infrastructure sector and typically includes assets that accommodate social services. Social infrastructure includes facilities and measures for providing health care, community development, education, equitable income distribution, social welfare and employment. The concept of social infrastructure is very broad and covers various aspects of Government service delivery. The cost of delivering social benefits is very high and constitutes a major proportion of the State budget. Major social policy concerns of the Government include the provision of infrastructure services, fostering Government and community partnerships, community capacity building, integrated service delivery and social justice. The Human Development Index (HDI) has become an important index for measuring the progress of States in terms of the level and depth of human development of its citizens.

Tamil Nadu has made a great achievement in respect of social infrastructure over the years.

(a) Education

Tamil Nadu is one of the most literate states in India. Tamil Nadu has performed reasonably well in terms of literacy growth during the decade 2001– 2011. A survey conducted by the Industry body Assocham ranks Tamil Nadu top among Indian states with about 100 per cent Gross Enrolment Ratio (GER) in primary and upper primary education. One of the basic limitations for improvement in education in the state is the rate of absence of teachers in public schools, which at 21.4 per cent is significant. The analysis of primary school education in the state by Pratham shows a low dropoff rate but poor quality of state education compared to other states. Tamil Nadu has 37 universities, 552 engineering colleges, List of engineering colleges in Tamil Nadu 449 Polytechnic Colleges and 566 arts and science colleges, 34335 elementary schools, 5167 high schools, 5054 higher secondary schools and 5000 hospitals. Some of the notable educational institutes present in Tamil Nadu are Indian Institute of Technology Madras, Indian Institute of Management Tiruchirappalli, National Institute of Technology, Tiruchirappalli, Tamil Nadu Dr. Ambedkar Law University, Chennai, College of Engineering, Guindy, Madras Institute of Technology, PSG College of Technology, Madras Medical College and Tamil Nadu Agricultural University. For the complete list of educational institutions see List of institutions of higher education in Tamil Nadu.

Tamil Nadu now has 69 per cent reservation in educational institutions for socially backward section of the society, the highest among all Indian states. The Midday Meal Scheme programme in Tamil Nadu, initiated by Kamaraj, was expanded considerably by M G Ramachandran in 1983, although the state is among the 12 states in India that have an alarming level of hunger, according to the 2008 Global Hunger Index.

(b) Health

The state is well equipped with all the health care facilities. It has 315 hospitals, 8706 health sub centers, 1417 primary health centers, 385 Community Health Centre and 213 dispensaries. Chennai is popularly known as health care capital of India. Life expectancy at birth for male is 67 years and that for females is 69.8 years for the period between 2000-06 which is higher than the national average for men and women is 64.1 years and 65.4 years respectively. Tamil Nadu is increasingly been recognised as the medical hub in South Asia. Some of the



well known hospitals in Tamil Nadu are Apollo Hospitals, Vijaya Hospitals, the Sankara Nethralaya Eye Hospital, the Christian Medical College Hospital at Vellore and the affiliated hospitals of Ramchandra Medical College. The state government is concentrating on bringing about improvements in the general health, access to health care services and effective control and prevention of communicable diseases.

CONCLUSION

Infrastructure services are essential to achieve development targets in any economy. Some of its major dimensions include the level of economic growth, level of education, level of health services, degree of modernization, status of women, level of nutrition, quality of housing, distribution of goods and services, and access to communication. But neither human well-being nor of economic growth is possible only through the provision of economic infrastructure as well as social infrastructure. Health and education along with support infrastructure such as shelter, sanitation, power, and telephony and road connectivity can give economic growth a human face. By improving the quality of human resources and enhancing capability, these indicators act as stimulants to growth. Tamil Nadu has gone many steps ahead and for this major credit goes to its strong infrastructure. Its industrial, social as well as physical infrastructure is all fantastic and well developed. In terms of education and health care area, the state pays lot of attention. The government of Tamil Nadu has been making systematic efforts to encourage private sector participation in the infrastructural development. In a short span of time, there has been a rapid expansion of the physical infrastructure and the state has a wide network of roadways and railways and also there has been a tremendous rise in the passenger carrying capacity of the ports. As K. C. Pant rightly said “Infrastructure sector may not always be an engine of growth directly but they are essential rails on which the wheels of economic progress can proceed with sustained speed. Without a strong and viable infrastructure, it is difficult to achieve rapid and sustained growth of the order of 7 to 8 percent, which is necessary for progressively eradicating poverty.”

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