

## A Geographic Approach on Health Services of Selected Health Indicators in Tamil Nadu

Dr. Madha Sureh<sup>1</sup>

<sup>1</sup>Dept. of Geography  
University of Madras, India

**Abstract:** A Health indicator is a quality of an individual, population, or environment which is subject to measurement (directly or indirectly) and can be used to describe one or more aspects of the health of an individual or population through quality, quantity and time (WHO, 2004). The present paper analyses the Health Indicators and health infrastructure. A Geographical Information System (GIS) technique is employed to study the data and analyses. In Tamil Nadu 7,555 sub centre are required but in position there have 8,706 sub centres. The basic requirement of health infrastructure are Primary Health Centre (PHC) 1253/1227, Community Health Centre (CHC) 313/385, Health Worker Female at sub centre & PHCs 9933/9253, Health Worker Male at Sub centre 8706/ 1266, Doctors at PHCs 1227/ 2271. The present total population of Tamil Nadu is 7.21 Crore and the present study examines the spatial distribution of infrastructure on selected health indicators in Tamil Nadu.

**Key words:** Health, PHCs, Vector Borne, GIS Mapping.

### Introduction

Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity (WHO, 1946). Basically a solid characteristic of population is known as Health indicator which is the researchers use to a following verification for relating the health of a population through survey method to gather information about certain people. And also utilize the statistical analysis is to create a statement about the health of the population. Health indicators like crude birth rates, crude death rates, total fertility rate and infant mortality rate, and life expectancy have taken by the Tamil Nadu government by comparing with the average performance of the country. By end of 11<sup>th</sup> plan the birth rate reduced not to meet the death rate, infant mortality rate and maternal mortality rate if the present trends continue (SRS, 2012). Health indicators can consist of measurements of illness or disease which are more commonly used to measure health outcomes, or positive aspects of health such as quality of life, life skills, or health expectancy, and of behaviours and actions by individuals which are related to health. They could comprise the indicators not only health as measure the social and economic conditions and the physical environment as it relates to health, measures of health literacy and healthy public policy.

### Objectives

The present paper has been set of two objectives. They are following as,

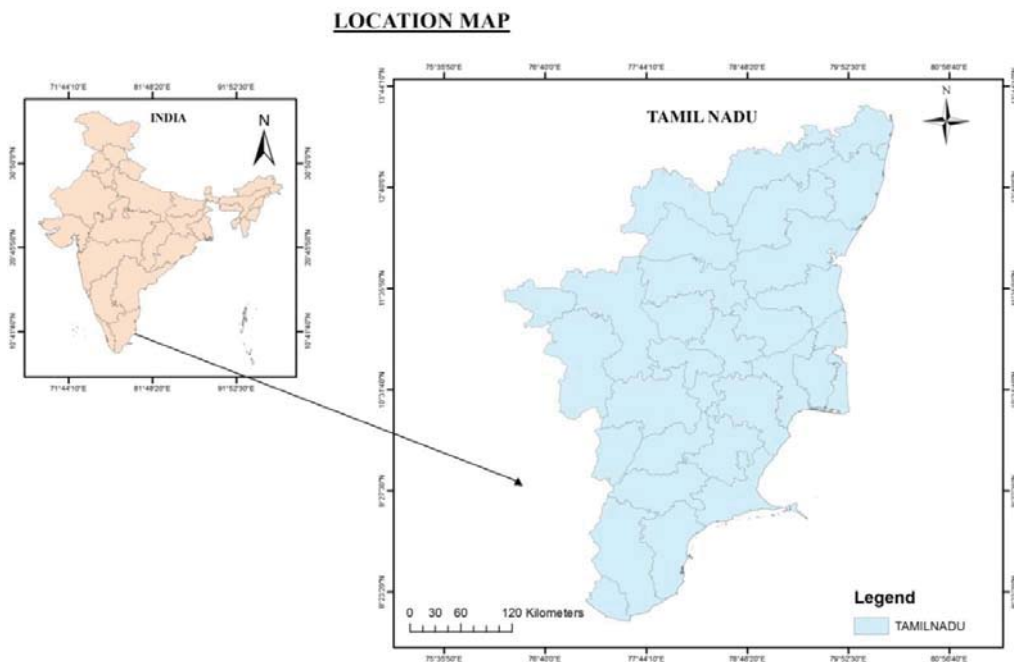
- To identify the health facilities in the state of Tamil Nadu.
- To analysis the health indicator and health infrastructure availability in the state of Tamil Nadu.

### Study Area

The State extends latitudinal between 8°05'N to 13°09'N and longitudinally between 76°15'E to 80°20'E. the state of Tamil Nadu is a triangular landmass at the south-eastern end of the main continent. It is the eleventh largest state in India by area (about the size of Greece) It is a home to many natural resources, rare flora and fauna, cool hill stations, grand Hindu temples of Dravidian architecture, beach resorts, multi religious, pilgrimage sites and few UNESCO world Heritage sites. It is one of the foremost states in the country in terms of overall development Total area of Tamil Nadu is

about 1, 30,058 sq.km which is a 4percent of the total land area of India. For the purpose of administration, the state has been divided into 32 districts.

**Map: 1**  
**Study Area - Tamil Nadu**



### **Health Indicators in Tamil Nadu**

#### **Vector Borne Disease Control programme (VBDC)**

What is Vector Borne Disease?

Disease that results from an infection transmitted to humans and other animals by blood-feeding arthropods, such as mosquitoes, ticks, and fleas. Examples of vector-borne diseases include Dengue fever, viral encephalitis, Lyme disease, and malaria.

**Vector Borne Disease Control Programme (VBDCP)** is the central nodal agency for the prevention and control of vector borne diseases i.e. Malaria, Dengue, Lymphatic Filariasis, Kala-azar, Japanese Encephalitis and Chikungunya in India. It is one of the Technical Departments of Directorate General of Health Services, Government of Tamil Nadu.

#### **Malaria:**

Malaria in urban areas of Tamil Nadu was confirmed to be a major problem and was considered that Chennai city has become an endemic area for malaria since few decades. Nearly 70% of the malaria cases recorded in the state of Tamil Nadu is occurring in Chennai city alone. Through active and passive detection surveillance immediate treatment is given at the doorsteps of the people living in urban areas. In 2007, about 22,389 malarial cases had found then after the effective measures taken by the Tamil Nadu Government it got reduced to 21,046 cases found in 2008. By the way the corporation of Chennai had introduced SAP special Action Plan.

- Corporation of Chennai is also contemplating to mosquito proof the source and recover the cost of doing so from the owner/occupier as though property tax.

- Chemical larvicides are being applied to wells, tanks, sumps, cisterns and other such clear water bodies once a week to prevent vector mosquito breeding. As many as 450 workers are engaged for this work.
- Blood smear examination for malaria detection is made available at all Corporation dispensaries free of cost and on the spot diagnosis facility and treatment for malaria is available at 36 centres. In order to detect hidden cases which are not detectable under conventional peripheral blood smears examination technique, expensive QBC equipment is made available for highly specific diagnosis of malaria at the following centres free of charges for the benefit of the people
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#### Free centre for Malaria

Table-1

Zone	Location
I	Mottai Garden Dispensary, Chennai-21
II	C.D. Hospital, Tondiarpet, Chennai-81
III	Basin Bridge Dispensary, Chennai-79
IV	Trivellin Basin Road Dispensary, Elephant Gate, Chennai-79
V	Ripon Buildings Dispensary, Chennai-3
VI	Sembiam Dispensary, Chennai-11
VII	Subrayalu Gramani Street Dispensary, Chennai-30
VIII	Malaria Clinic, Dr. Besant Road, Chennai-5
IX	Rotler Street Dispensary, Chennai-7
X	Kodambakkam Dispensary, Chennai-24
XI	Thiruvanmiyur Dispensary, Chennai-41

Source: National rural health mission report -2011

#### Filaria

The National Filaria Control Programme (NFCP) established in 1957. Approximately 43 urban areas the filarial disease control activities are followed in these urban areas 25 Control Units and 44 Night Clinics. Around 42 Filaria and Malaria Clinics are functioning at Taluk level in 5 districts besides one filarial survey unit for delimitation of endemic areas after survey district by district. The entire operational cost is met by the State Government. From 1997-98 Single doses mass DEC drug administration programme is being carried in all endemic districts.

Mass Drug Administration programme was conducted in 14 endemic districts in 2007 there is following as,

- Kancheepuram,
- Thiruvallur,
- Cuddalore,
- Villupuram,

- Trichy,
- Perambalur,
- Pudukottai,
- Thiruvannamalai,
- Thanjavur,
- Thiruvarur,
- Ariyalur,
- Kanniyakumari,
- Nagapattinam and
- Vellore.

In addition, these districts, certain villages of Tirunelveli, Thoothukudi, Karur, Krishnagiri, Virudhunagar and Madurai and including Chennai city. This programme covered 2.64 Crore population. Around 93.3% of the eligible population were administered with DEC + Albendazole tablets, Public Health, Medical Education, Social Welfare, Education, Rural Development, Municipal Administration and Water Supply and Revenue Departments have cooperated for this programme. So far 365 hydrocelectomy operations have been done under this Programme. Tamil Nadu has already achieved the lymphatic filariasis eliminations status.

#### **Japanese Encephalities Control Programme**

One of the important public health programmes is Japanese Encephalities control programme and it started at past few years before. Health Unit Districts such as Perambalur, Kallakurichi, Villupuram, Cuddalore, Thiruvannamalai and Madurai have reported Japanese Encephalitis cases.

This programme was achieved in selected villages in Perambalur District with killed Mouse Brain Vaccine. Japanese Encephalitis Vaccination Programme was conducted in Villupuram, Cuddalore and Virudhunagar Districts for the children in the age group of 1-15 years targeting 18,19,000 Children from the year of 2007. During 2008, Japanese Encephalitis programme was conducted in Trichy, Madurai and Thiruvarur Districts. In 13.5 Lakh children were covered. It is proposed to conduct Japanese Encephalitis programme in Thiruvannamalai, Thanjavur, Thoothukudi and Tirunelveli District for the period of the 2009.

#### **Leptospirosis**

Leptospirosis is very common health problem in Tamil Nadu, apart from Udhamandalam and Thoothukudi districts. Leptospirosis being one of the re-emerging infections needs timely diagnosis, treatment and control measures. For early screening of fever cases, rapid diagnostic kits were obtained and supplied to the problem Districts. To strengthen the surveillance system and for early diagnosis of Leptospirosis, 7 Leptospirosis clinics are carrying out in Thiruvallur and Madurai Districts. Rapid diagnostic kits were supplied to these clinics and to the 9 Zonal Entomological Teams and Institute of Vector and Zoonoses, Hosur, IVCZ, Hosur is given the responsibility of outbreak investigation with specialized Team. Necessary training was already imparted to one Block Medical Officer and one Lab Technician in each of the Pilot Project Districts on the diagnosis of Leptospirosis. A State level reference Laboratory is functioning at State Headquarters since 2008 for confirmation of Leptospirosis. In Tamil Nadu two Pilot Project Districts viz., Villupuram and Tiruchirapalli have been identified as Lepto Pilot Project Districts. A sum of Rs.30 Lakh is allotted by Government of India for the control of Leptospirosis. From the period of 2008, 1262 cases (up to December 2008 prov.) and one death were reported in Tamil Nadu.

#### **Dengue Control**

Government have issued orders for the concern of 12 dengue clinics in the taluk and district headquarters hospitals of Nagercoil, Vellore, Dharmapuri and Coimbatore. Quick diagnostic test kits are supplied to endemic districts. Necessary guidelines were issued to all the health unit districts to

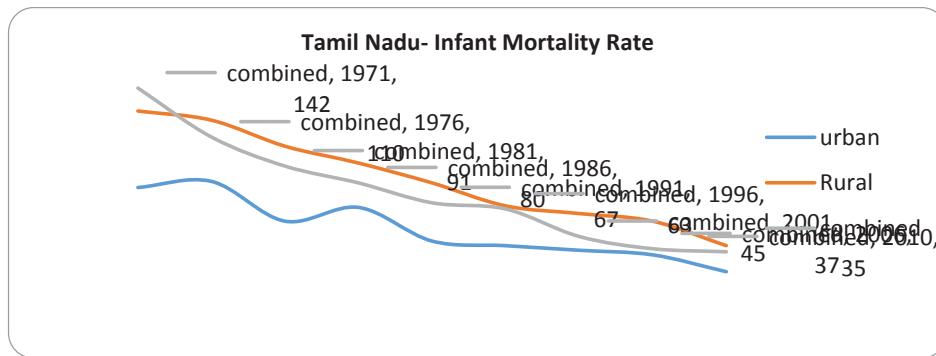
strengthen the surveillance system and to carry out intensified vector control activities so as to avert outbreaks. Sentinel Surveillance Centres were established in 12 Government Medical Colleges and Institute of Vector Control and Zoonoses, 640 cases and 3 deaths were reported as dengue fever in Tamil Nadu during 2008, 159 cases were reported as dengue fever in Tamil Nadu during 2009 (upto March 2009). Diagnostic facilities are available for Dengue, Japanese Encephalitis and Chikungunya in hosur. Guidelines of WHO, are communicated to all the Deputy Directors of Health Services, Joint Directors of Health Services and Deans of the Government Medical Colleges besides Heads of Departments on case management, surveillance, outbreak investigations and Vector Control Measures.

**Chikungunya**

Chikungunya was first report in Tamil Nadu at Chennai Corporation for the period of 1964. Over all 3 Lakh cases were recorded at that started time. In 29 Districts were affected in chikungunya and overall 64,802 cases have been recorded for the period of 2006. After that the state government as launched too many programme to reduce the Chikungunya. The spread of disease in Tamil Nadu is prevented by intensified Vector control measures and by strategies taken with inter sectoral co-ordination, under the banner “War Against Mosquitoes”. The State Government have sanctioned Rs.4.91 Crore in 2006-07 and Rs.7.09 Crore in 2007-08 for chikungunya control. 13 Sentinel Surveillance centres have been established with diagnosis facilities. “Our Health is in our Hands” a special Environment cleanliness Campaign was organized in March 2008. Only 71 cases have been reported during 2008.

The State Government have allotted Rs.3.16 Crore for Chikungunya control activities during 2008-09. Around 3850 Mazdoors have been appointed temporarily for 60 days on contract basis for the year 2008-09 for which Rs.196.35 Lakh have been allotted. The Mazdoors help in source reduction activities of mosquito breeding and in minor engineering activities.

**Infant Mortality Rate  
Diagram: 1**

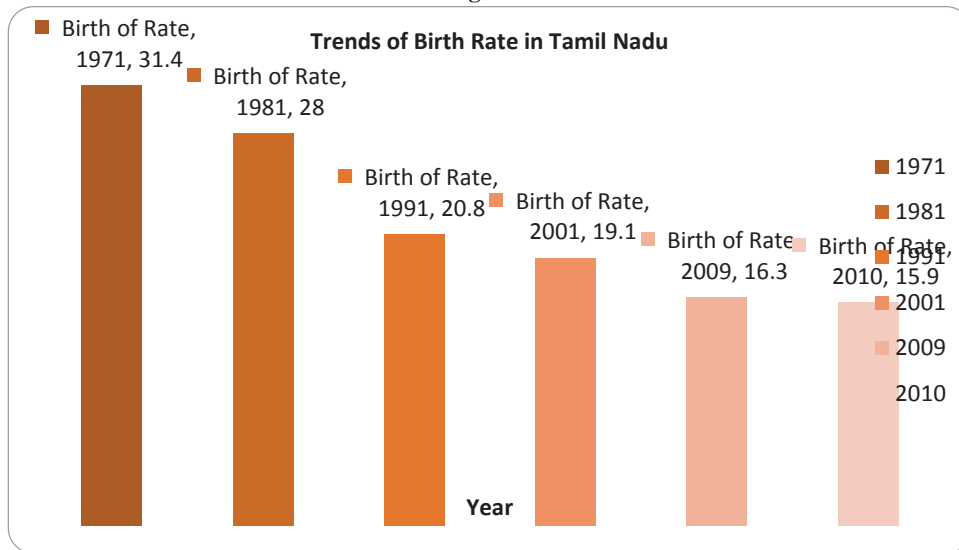


Source: Random Sample Survey -2012

From this above diagram explains that clear ratio about Infant Mortality Rate in Tamil Nadu from year of 1971 to 2010. And also the diagram shows Infant Mortality rate in both urban and rural Areas in Tamil Nadu. On the other side it's gave an average Infant mortality rate in both Urban as well as rural. From the year 1971 to 2010 the percentage of infant mortality rate is randomly reduce.

**Trends of Birth Rate in Tamil Nadu**

**Diagram: 2**



Source: State Health Society –TN 2012-13

From this above statistical diagram describes about population from 2011 census, the population of Tamil Nadu is 7.21 Crore with decadal growth of 15.6%. It is the seventh most populous State in India. It accounts for 6.0 percent of the country’s population. The Birth Rate of Tamil Nadu has refused from 31.4 (1971) to 15.9 (2010).

From following table is explaining the health indicators between India and Tamil Nadu. Table: 2

**Health Indicators in India and Tamil Nadu**

**Table: 2**

Indicator	Tamil Nadu	India
Birth Rate (SRS 2010)	15.9	22.5
Infant Mortality Ratio	24.0	47.0
Maternal mortality Ratio	97(SRS 2007-2009)	212
Population Sex Ratio (Census 2011)	995	940
Child Sex Ratio (Census 2011)	946	914
Total Fertility Rate (SRS 2008)	1.7	2.6
Couple Protection Rate(NFHS III 2005-06)	60.0	48.5
Percentage of girls marrying below 18 years (SRS 2008)	16.7	16.3
Higher order of Birth (SRS 2008)	12.7	31.9

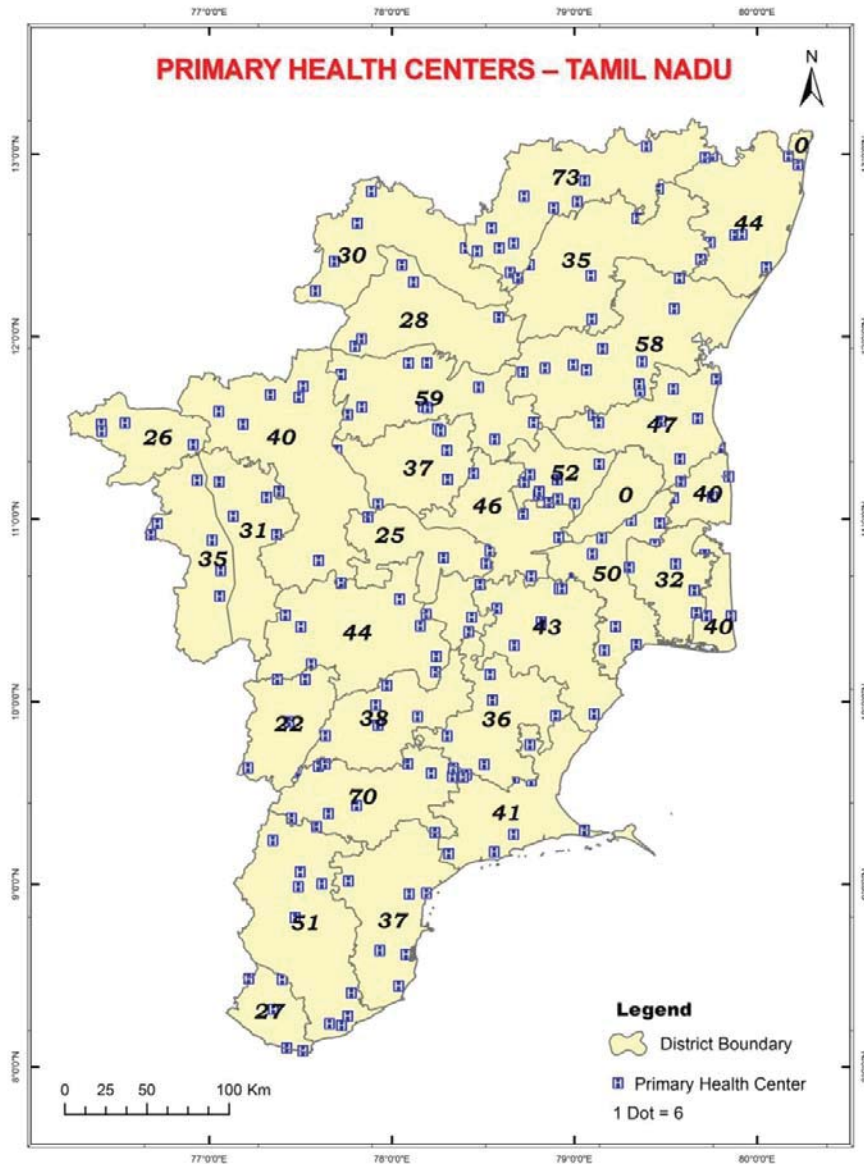
Source: State Health Society –TN 2012-13

**Health facility and Health Infrastructure in Tamil Nadu**

This present paper mainly focuses on infrastructure in Primary health centre, Community Health centre, and Health sub centres. Around 900 villages are covers in the state of Tamil Nadu.







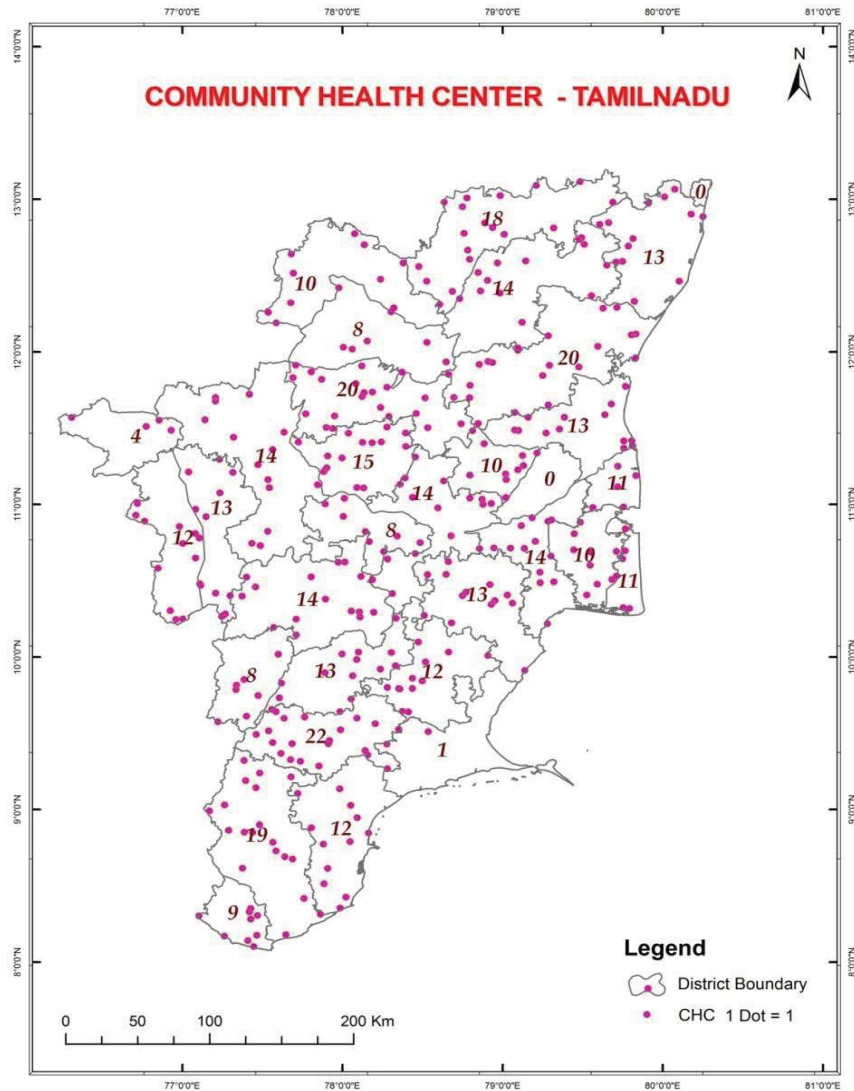
Source: National Rural Health Mission Report-2013

**Infrastructure, Staff and Services at Community Health Centre (CHC)**

CHCs having 7.2 percent of Obstetrician/Gynaecologist, 24 hours normal delivery services 100.0 percent, functional Operation Theatre 15 are 56.8 percent and CHCs designated as FRUs 46.7 percent, CHCs designated as FRUs offering caesarean section 16 is 0.0 percent and also FRUs having new born care services on 24 hour basis 16 is 86.1 percent. FRUs having blood storage facility 16 is 1.8 percent. The following map explains the availability of community health care centres in the state of Tamil Nadu.



**Map: 4**  
**Community Health Centres- Tamil Nadu**



Source: National Rural Health Mission Report-2013

**Infrastructure, Staff and Services at Sub-Centre**

Around 72.2 present Sub-Centre located in government buildings, In 99.8 present Sub-Centre with ANM. Sub- centres covering 71.6 present male health workers and also Sub-Centre with additional ANM in present of 2.8. Over all ANM living in Sub-Centre quarter where facility is available at percentage of 59.9.

The following map shows the availability of sub divisional hospital in the state of Tamil Nadu.



**Conclusion**

Our analyses indicate that Tamil Nadu is performing well in health sector. Although the state has taken various measures in order to increase the performance of the health sector, similar to population distribution, infant mortality rate, birth rates and also infrastructure are Primary health centre, community health centre and health sub centres. However, the government has already taken various steps to eradicate the relate problems.

**Reference**

- Annual Public Health Administration Report 2008-09.  
Approval of state programme implementation plan 2012-13  
National Health Profile 2010.  
National rural Health mission, Programme Implementation Plan 2011-12, State Health Society Tamil Nadu.  
Programme Implementation Plan (PIP), 2012-13.  
Programme Implementation Plan (PIP), 2013-14.  
Ramanujam C, Developmental indicators at district level in Tamil nadu, Population Research Centre, The Gabdhigram Institution of rural health and family welfare Trust.  
Random sample survey (SRS). 2012.  
Shanmugam K.R (2012), Monitetable indicators and performance, Tamil Nadu.  
State Health Society –TN 2012-13  
WHO (1946), WHO definition of Health, Preamble to the Constitution of the World Health Organization as adopted by the International Health Conference, New York, 19-22 June 1946.