

Tamilnadu Notes in English Part 1

1. Tamil Nadu - Geography

Tamil Nadu, a state in southern India, is bordered by Puducherry, Kerala, Karnataka and Andhra Pradesh. The state, lying on the southern tip of the Indian peninsula, is surrounded by the Bay of Bengal in the East, Indian Ocean in the south, Kerala in the West, Karnataka in the North West and Andhra Pradesh in the North. The native language spoken here is Tamil which has become the official language with effect from January 14, 1958. It is the sixth most populous state of India and a leading producer of both agricultural and industrial products.

The state extends latitudinally between 8°4' North and 13°35' North and longitudinally between 76°18' East and 80°20' East. The state of Tamil Nadu is a triangular landmass in shape. It is the eleventh largest state in India by area (about the size of Greece)

Tamil Nadu is one of the most urbanized states of India. 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.

Administrative Division

Total area of Tamil Nadu is about 1,30,058 sq.km., which is 4% of the total land area of India. For the purpose of administration, the state has been divided into 37 districts. The following table gives the list of the districts.

Table: Districts of Tamil Nadu

1. Chennai	21. Thiruvannamalai
2. Coimbatore	22. Thiruvarur
3. Madurai	23. Thoothukudi
4. Tiruchirappally	24. Tiruppur
5. Dindigul	25. Vellore
6. Erode	26. Villupuram
7. Cuddalore	27. Virudhunagar

8. Dharmapuri	28. Ariyalur
9. Nagapattinam	29. Kancheepuram
10. Namakkal	30. Kanniyakumari
11. Perambalur	31. Karur
12. Pudukottai	32. Krishnagiri
13. Ramanathapuram	33. Kallakkurichi
14. Salem	34. Thenkasi
15. Sivagangai	35. Chengalpattu
16. Thanjavur	36. Ranipet
17. Theni	37. Thirupattur(N)
18. The Nilgiris	
19. Thirunelveli	
20. Thiruvallur	

Know the facts



State Bird: Emerald Dove



State Flower: Gloriosa Lily



State Animal: Nilgiri Tahr



State Tree: Palm Tree

The southernmost point of the Indian Union – “Indira Point” got submerged under the sea water in 2004 during the Tsunami.

Table: Local bodies of Tamilnadu

City Corporations	15
Municipalities	146
Town Panchayats	528
District Panchayats	31
Panchayat Unions	385
Village Panchayats	12628

History of Tamil Nadu

Tamil Nadu has a very ancient history that goes back to 6000 years or so. Though the state is a home for Dravidian culture, it also acquired Aryan culture almost a thousand years ago. It is regarded as the cradle of Dravidian culture with its cultural gear speckled all across the state in the form of magnificent temples, gateways, intricate carvings, and the society steeped in tradition.

Sangam or the Institute for the growth of Tamil language existed in three phases. The first one was at Madurai devastated by the sea, the intermediary one was at Kapadapuram and the third one seated at Madurai. The Tamil language with its grammar Tholkappiyam belongs to the last sangam period. Classic works like Ettuthogai and Pathuppattu also belonged to the sangam period.

In his work Thirukkural, Thiruvalluvar has not mentioned any religion, country or people. It contains universally acceptable ideas and thoughts and is regarded as a renowned piece of world literature. Thiruvalluvar is often portrayed as a holy saint of Tamil Nadu. Tamil which has obtained the semmozhi status is now one of the eight classical languages of the world.

Tamil Nadu was once the home of four Tamil Kingdoms, namely, Chera, Chola, Pandya and Pallava. Their period was known as the golden age of Tamil Nadu during which art, music as well as trade and agriculture reached their peak.

The first Tamil printing press was established at Tarangambadi in Nagapattinam district by the Danish missionaries.

Tamilnadu Notes in English Part 2

2. Physiography of Tamil Nadu

Tamil Nadu has a unique physiography. The hills of the Eastern and Western Ghats surround Tamil Nadu to the Northwest and West, the Bay of Bengal is found to the East and the Indian Ocean to the South. In general, the physiography of Tamil Nadu is a high land which has uneroded, western ghats on the west and low lying coastal and river plains on the east.

Physiography of Tamil Nadu

Geographically Tamil Nadu may be divided into four physical divisions

- 1) The Hilly region (Western Ghats and Eastern Ghats)
- 2) The Plateau
- 3) The Plain and
- 4) The Coastline.

The Hilly regions of Tamil Nadu

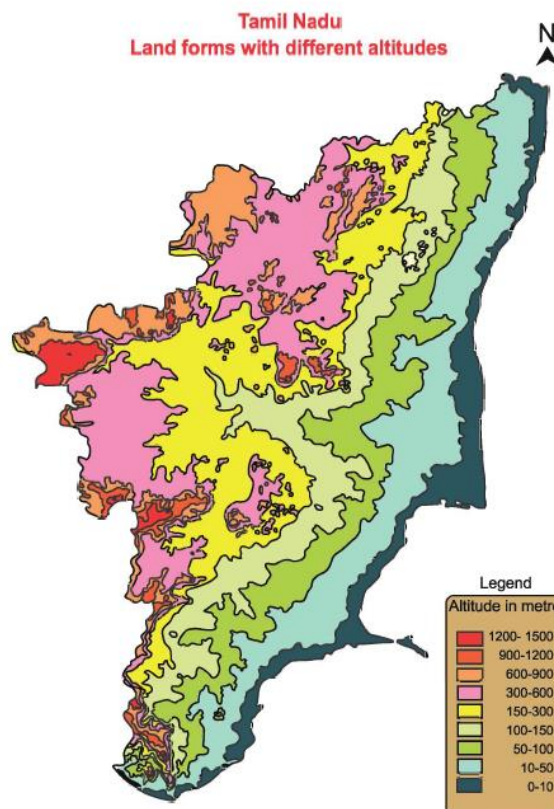
The Western Ghats enters the state through the Nilgiris District and runs up to Kanyakumari district. The Western hilly region is much more complex than the Eastern Ghats. Its average height is from 1000 m to 1500m. the Western Ghats has mountain peaks namely **Doddabetta (2637m)** and **Mukuruthi(2540 m)**. In the north west of Western Ghats lies the Nilgiri highland region at an height of above 2500 m. In this region, there are few peaks found at a height ranging from 1800 m to 2400 m. The highest peak of Tamil Nadu is Doddabetta. Ooty, Queen of hill station is situated in Nilgiris. The Western Ghats and Eastern Ghats meet at the **Nilgiri hills**.

From the Nilgiris of Tamil Nadu and Anaimalai hills of Kerala, an offshoot runs at a height of 1500m to 2000 m in the east. These are called **Palani hills**. To the south of the Palani hills there are two

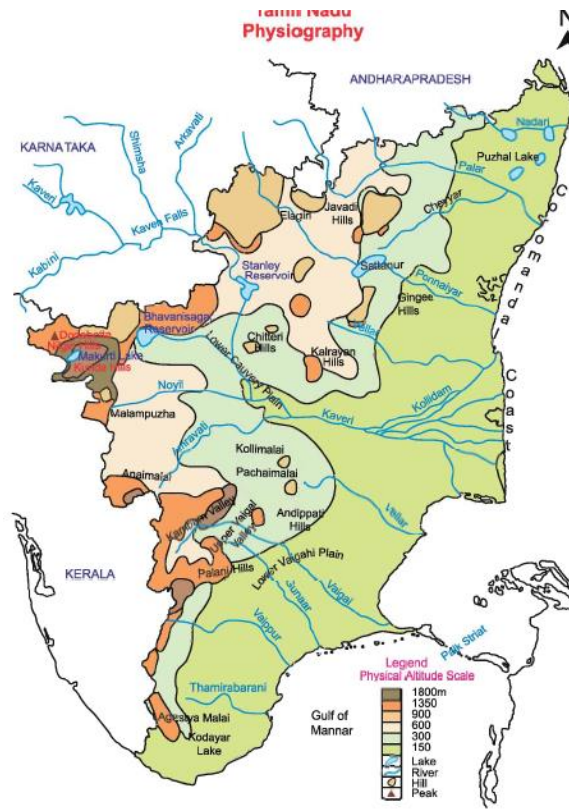
other ranges namely, **Varshanadu** and **Andipatti** hills running parallel to the Cardamom hills. Though the Western Ghats is a continuous range, it has a gap of 25km at Palghat. To the south of Palghat gap, hills such as Andipatti, Elamalai and Agathiya malai are found. Kambam valley is between Thekkadi hills, Varshanadu hills and Kodaikanal hills. This Valley is considered as the green valley of Tamil Nadu. The gap in between Varshanadu hills and Agathiya malai is called the **Shenkottai pass**.

The Tamil Nadu hills separating, the plains and the plateaus have two well marked passes, namely, the **Attur pass** in the south and the **Chengam pass** in the north. This pass links the Cuddalore and Villupuram district in the plain with the Salem district on the plateau. The Plakkad gap and Shenkottai gap are the only breaks in the long chain of hills that border Tamil Nadu on the west. The Eastern Ghats are not continuous when compared to the Western Ghats. They are dissected into isolated hill ranges extending from northeast to southwest through the districts of Vellore, Dharmapuri and Erode. The average elevation ranges from 1100m to 1600m.

Tamil Nadu Land forms with different altitudes



Tamil Nadu Physiography



These hillocks are called by different names in different areas, such as;

- 1) Javadi Hills and Elagiri Hills in Vellore District;
- 2) Shervarayan in Salem District;
- 3) Kalvarayan in Villupuram District;
- 4) Pachaimalai in Thiruchirappalli District;
- 5) Kolli hills in Namakkal District; Chitteri hills are in both Dharmapuri and Salem Districts;
- 6) Gingee hills in Villupuram District;

The highest hills of Eastern Ghats – Shervarayan (1500- 1600m).
 The highest hills of Western Ghats- Anaimalai (2700m)

Plateaus of Tamil Nadu

The Eastern and Western Ghats meet at Nilgiris plateau. Four km from this plateau, it slopes gently downwards to about 1,800 m towards Coimbatore. It extends from the Nilgiris to Dharmapuri plateau or Baramahal plateau and lies to the west of Shervaroy uplands. This plateau is found with

extreme abruptness on all sides. The Baramahal plateau in Dharmapuri district is at an elevation of 300 to 700m which merges with the Mysore plateau in the west. The elevation of the plateau increases from east (120m) to west (300 to 450m). Plateaus of Tamil Nadu can be grouped into two as Coimbatore plateau and Madurai plateau. In between the plateaus isolated hills are also seen. One such isolated hill is Chennimalai of Erode district.

Plains of Tamil Nadu

Plains of Tamil Nadu can be classified into two as coastal plains and rivers plains. The coastal plains of Tamil Nadu extend to a length of 1000 km from Pulicat lake in the North to Kanyakumari in the South and have an average height of 50 metres. The notable beaches found here are the Marina and Rameshwaram beach.

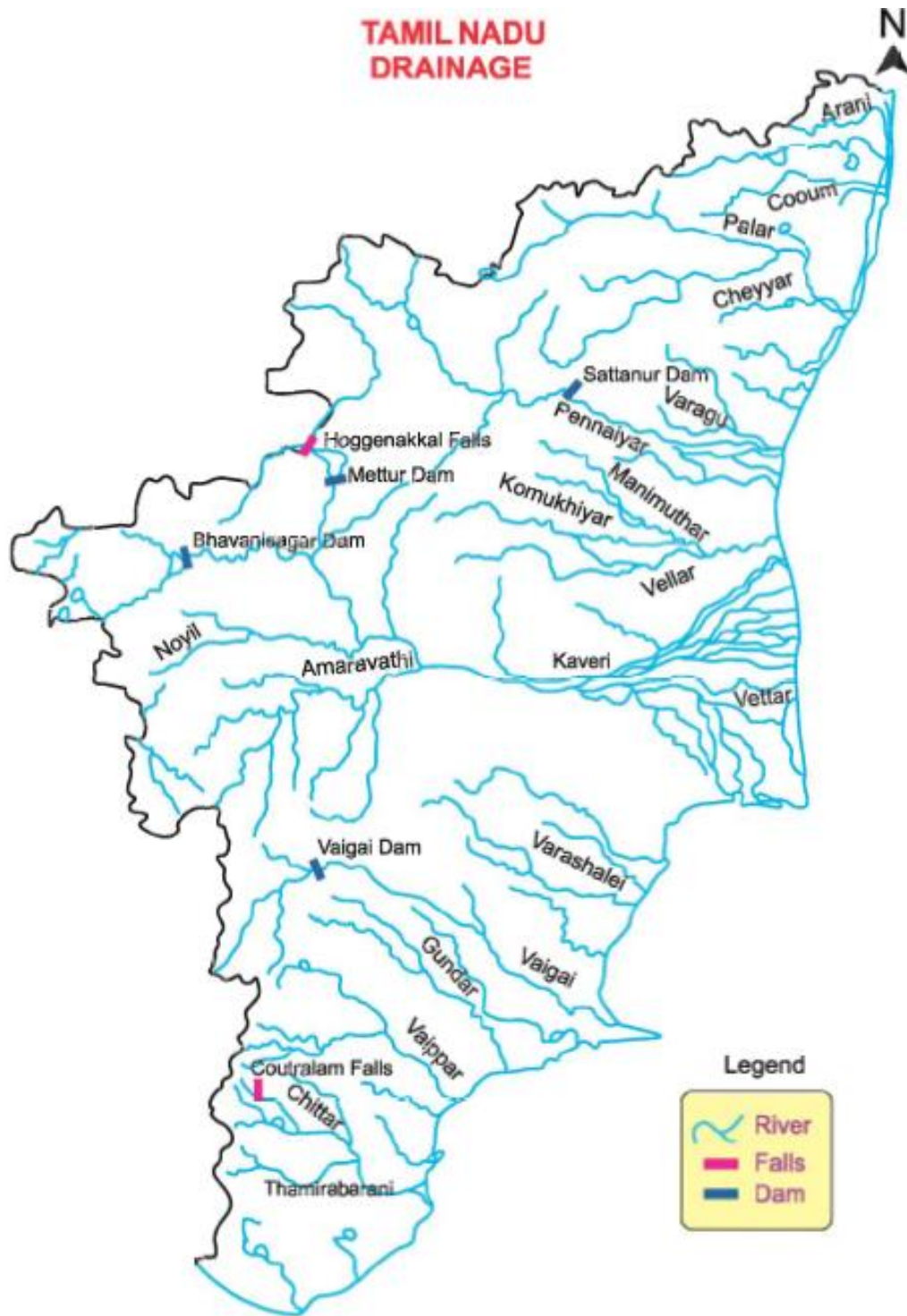
Marina Beach

Marina beach is the second longest beach in the world. It extends upto a distance of 13 km and it is one of the major tourist attractions of Chennai.

Rameswaram Beach

The beach of Ramswaram is famous for its beautiful coastal features. The sea waves rise to a maximum height of only 3 cm and the view looks like a very big river.

The coastal plains of Thiruvallur, Kancheepuram, Cuddalore and Villupuram are together known as the **Cholamandalam plains**.



The river plains in Tamil Nadu are formed by the rivers Palar, Cheyyar, Pennar and Vellar in the north; Kaveri and its tributaries in the central region, Vaigai, Vaippar and Thamirabarani in the south.

Rivers of Tamil Nadu

The Northern rivers of Tamil Nadu are Araniyar, Kotralaiyar, Palar, Cheyyar, Kedilam, Manimuthar and Thenpennar. Cheyyar and Agaram are two tributaries of Palar. The main river of the state is Kaveri which originates in Kodagu district of Karnataka. Kaveri and its tributaries in its lower course drain the districts of Nagapattinam, Thanjavur, Thiruvarur and Thirucharapalli. The Kaveri, the Kollidam and the Vellar jointly drain central part of the Tamil Nadu. Srirangam is located between Kaveri and its tributary Kollidam.

In the Kaveri delta, the distributaries such as Kollidam, Manniyar, Vennar, Vettar, Arasalar, Nattar, Mudikondan. Kudamuruti and Veera Cholanar have formed a alluvial plain in a quadrangke shape. Kaveri along with its tributaries, Bhavani, Noyyal, Moyar and Amaravathi is the most important source of canal irrigation. Towards the south of Tamil Nadu, there are few rivers like Vaigai(Madurai), Vaippar (Virudhunagar), Thamirabarani(Thirunelveli), Gundar (Thoothukudi, Ramanathapuram), Chittar (Thirunelveli) and Kothaiyar (Kanyakumari). Most of the soils of the plains of Tamil Nadu are alluvial, formed by these rivers flowing east. In the southwest of Tamil Nadu is the Suruliyar river that drains a part of Madurai district.

Tamilnadu Notes in English Part 3

3. Climate of Tamil Nadu

Physiography, nearness to sea and geographical location determine the overall climatic conditions of any region.

Weather refers to the state of the atmosphere over an area at any particular point of time.

Climate refers to the average weather conditions and variations over a large area in a long period of time (more than thirty years).

The major climatic elements are: temperature, pressure, wind, humidity, clouds and precipitation.

Tamil Nadu has **tropical climate**. Two factors namely, the apparent position of the Sun and the monsoonal rain bearing winds influence the climatic conditions of Tamil Nadu. The vertical rays of the Sun fall on the state twice in a year.

Though Tamil Nadu lies in the tropical region, the local weather conditions such as temperature, humidity, clouds and wind direction along with the wind speed, change the climatic conditions to a greater extent. This is the region of climatic variation that exhibits the influence of the coastal and the interior locations.

The temperature of the state starts increasing in the second week of February and gradually increases in the months of March to June. The hottest part of the summer season is known as **Agni Nakshatram** (Star of Fire) or **Kathiri veyyil**. The decreases of temperature is from the second week of June to the first week of October. The month of October is the season for the retreating or northeast monsoon. From then, the temperature starts to decrease up to the month of February. In Tamil Nadu, May is the hottest and January is the coldest month. Though this is the general situation, the overall climatic condition varies among mountainous regions, plateaus, coastal and interior plains. The following table explains it clearly.

Table: Region-wise seasonal average temperature

S.No	Geographical Locations	Weather recording stations	Temperature in Celsius		
			Summer season	Winter season	Rainy season
1	Coastal regions	Chennai	40 ^o C	22 ^o C	25 ^o C
2	Interior Plains	Vellore	42 ^o C	21 ^o C	22 ^o C
3	Inland regions	Thiruchirappalli	42 ^o C	20 ^o C	23 ^o C
4	Hilly regions	Kodaikanal	11 ^o C	6 ^o C	14 ^o C
5	Plateau	Coimbatore	32 ^o C	26 ^o C	21 ^o C

The relative humidity in the state is found to be higher in winter when compared to summer. The average humidity of the air is about 68% in the month of May, whereas it is 82% in January. The rate of evaporation is higher during the summer than in the winter the state possesses thick rain bearing clouds in the months of October, November and December.

Table: Major Seasons of Tamil Nadu

Seasons	Tamil Name	Tamil Month
Summer (April to August)	Illavenil Muduvenil	Chitirai, Vaikasi Aani, Aadi
Rainy (August to December)	Khar season Khulir	Avani, Puratasi Iypasi, Karthigai

Winter (December to April)	Mun Pani Pin pani	Markhazhi, Thai Masi and panguni
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The rainy seasons of the state may be grouped into three

- 1) South West Monsoon
- 2) North East Monsoon
- 3) Cyclonic Rainfall

Southwest monsoon

The southwest monsoon occurs between June and September. The districts that are benefitted by this season are the Niligris, Kanyakumari, western parts of Coimbatore, Dharmapuri and Salem. As the South-west monsoon starts its downpour of rain in the Western Ghats, the western parts of Tamil Nadu receive about 150 cm of rainfall on an average. Most of the Eastern and Central parts of Tamil Nadu become rainshadow region in this season. This occurs due to the south westerly direction. In general the amount of rainfall of south west monsoon decreases from west to east. The Nilgiris district receives about 70% of its annual rainfall followed by the Salem and erode districts. Kanyakumari district also receives sufficient amount of rainfall from this season.

The word monsoon is derived from the Arabic word 'mausim' which literally means season. Monsoon refers to the seasonal reversal in the wind direction between seasons.

Northeast Monsoon

The Northeast Monsoon season occurs between October and December. The coastal and interior plains of Tamil Nadu are highly benefitted by this rainy season. Normally, the Northeast monsoon rain is associated with cyclonic formation. In this season, the amount of rainfall decreases from east to west. Except Kanyakumari, all other interior south and western parts of Tamil Nadu receive less rainfall. Coastal districts such as Chennai, Cuddalore, Thiruvallur, kancheepuram, Villupuram, Nagapattinam, Thiruvarur and Thirunelveli districts receive about 150 to 250 cm of rainfall. Trichirapalli, Salem and erode receives about 100 to 150 cm of rainfall.

Cyclonic Rainfall

November is the month of cyclonic rainfall. The low pressure formations in the southern part of the Bay of Bengal intensifies and forms the cyclonic rainfall. An equal amount of rainfall is received from both the Northeast Monsoon and the Cyclonic rainfall in the coastal districts of Tamil Nadu.

On the basis of annual rainfall received, the districts of Tamil Nadu can be grouped into 5 rainfall regions. From the table given below it is clear that the coastal districts along with Nilgris falls under the very heavy rainfall region with an annual rainfall of more than 1400 mm. Among the districts, Kanyakumari is fortunate enough to receive rain from all the rainy seasons. Very low amount of annual rainfall is received by the Coimbatore and Tiruppur districts.

Table: Season wise percentage of annual rainfall

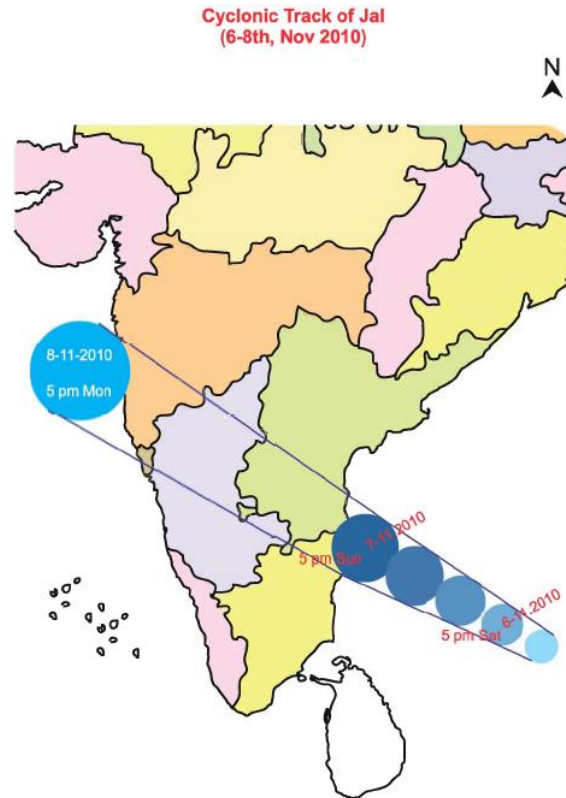
Sl.No	Seasons	Annual Rainfall(%)
1	South west Monsoon	22
2	North East Monsoon	57
3	Cyclonic Rainfall	21

Table: rainfall Regions of Tamil Nadu Distribution of rainfall (2007-2008)

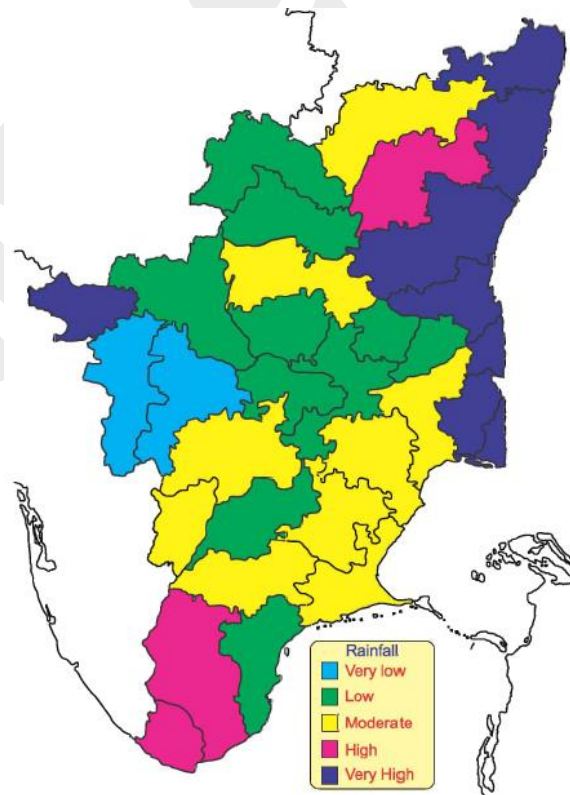
S.No	Distribution of Rainfall	Amount of Rainfall	District
1	Very low rainfall	Below 800mm	Coimbatore, Tiruppur.
2	Low rainfall	From 800 mm to 1000mm	Namakkal, Karur, Thuthukudi, Erode, Dharmapuri, Madurai, Thiruchirappalli, Perambalur, Krishnagiri.

3	Moderate rainfall	From 1000 mm to 1200mm	Pudukkottai, Viruthunagar, Sivagangai, Thanjavur, Salem, Ramanathapuram, Dindigul, Theni, Vellore.
4	High rainfall	From 1200 mm to 1400mm	Thirunelveli, Thiruvannamalai, Kanyakumari
5	Very High rainfall	Above 1400mm	Kancheepuram, Chennai, Villupuram, Thiruvallur, Thiruvarur, Cuddalore, Nagapattinam, Nilgiris.

Cyclonic Track of Jal (6-8th, Nov 2010)



Tamil Nadu District-wise Annual Rainfall(2007-2008)



Natural Vegetation

Vegetation that grows naturally without the effort of human beings is called **Natural vegetation**. Its growth depends upon the temperature, rainfall and type of soils.

According to the National Forest Policy, a region should have 33% of its land under forest. Unfortunately, Tamil Nadu has only 17% of its land under forest. In the state, forest are confined to the Western Ghats and the Hilly regions. Among the districts, the Nilgiris possesses the highest percentage of area under forest followed by Theni, Dharmapuri and Kanyakumari districts. In the coastal regions, the dry weather and poor soil allows only casuarinas tree to grow. Heavy rainfall regions show prominence of tropical evergreen forests. Javadi hills are noted for their fruit bearing trees and sandal wood.

Distribution of Forests

The distribution of forests among different districts of the state is very uneven. Concentration of forests is mostly on the hills of the western districts and in the Javadi group of hills in Vellore district. Dense forests are also seen in Salem district. More than half of the area in the Nilgiris is under forests. Other districts hold 1 to 5% of area under forests. Thanjavur being an alluvial plain is suitable for agriculture and it has less than 1% of forest cover.

The forests of Tamil Nadu have different types of trees. Most of the trees in the state shed their leaves in the dry season. Tamil Nadu has large areas of sandal wood plantations, about 5,88,000 hectares. Hard wood trees are available in the forests of Coimbatore, Nilgiris and Kanyakumari.

Trees that are used as fuel are found in Madurai, Coimbatore and Thirunelveli districts. Kanyakumari district has rubber plantations. In the Nilgiris, camphor and eucalyptus trees are grown under afforestation. In the foothills of the Western Ghats and parts of Thirunelveli and Virudhunagar districts, there are trees that are used for making matchsticks. The trees such as peepal, blue apples, jack fruit and gooseberries grow all over the state.

Types of Forests

The Natural Vegetation can be broadly divided into five different types.

They are:

- Tropical evergreen forests;
- Tropical deciduous forests;
- Thomy shrub forests;

- Mangrove forests and
- Hill forests.

Tropical evergreen forests

As the name implies forests are evergreen and they never shed their leaves in a particular season. Since the leaves are present always, they are known as the **evergreen forests**. Tropical evergreen forests are distributed in the regions of heavy rainfall(above 200 cm annual rainfall). These forests are found along the slopes of the Nilgris and Anamalai hills and the coastal areas of Tamil Nadu. The hard wood trees like **ebony, teak, rosewood** and **ironwood** are also found here. They grow to a height of 60m.

Tropical deciduous forests

These forests are found in the area having rainfall ranging between 100 and 200 cm per year. They are found on the eastern slopes of the Western Ghats. These are also called as **monsoon forests**. The trees of these forests shed their leaves to avoid the loss of moisture during dry season.

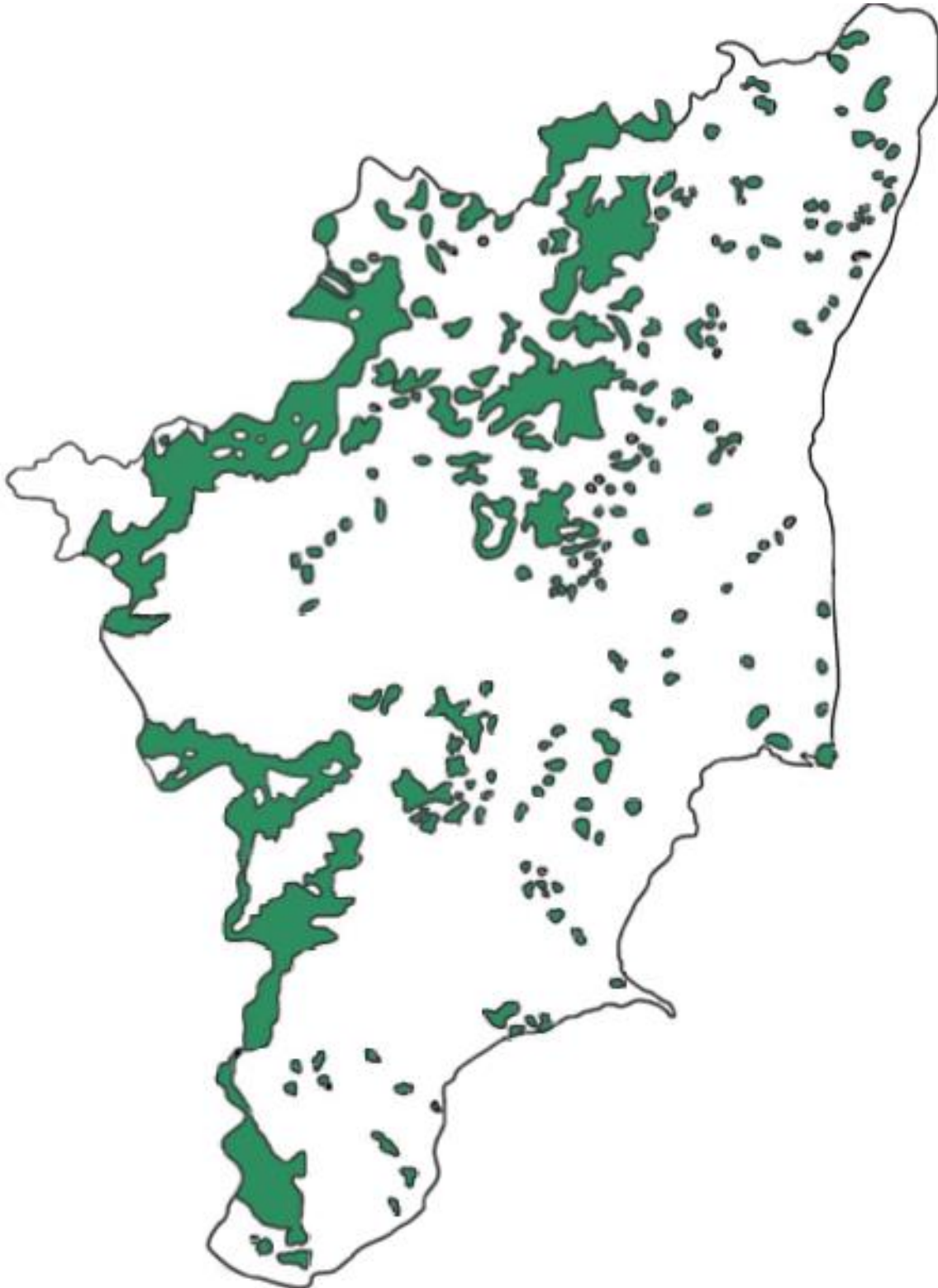
Trees of different varieties such as, tall and short, soft and hard woods are found in these forests. Some of them are **sal, sandal wood, teak, bamboo** and **paddock**.

Thorny shrub forests

Thorny shrub forests are found in the areas where there are long dry periods and low rainfall. This type of vegetation includes low, widely scattered trees and bushes. They are highly adaptive to dry conditions, with deep roots, thick stems and fleshy leaves.

Mangrove forests

Mangroves are found in the tropical and sub-tropical tidal areas, which have a high degree of salinity.



Mangrove trees grow along the estuaries and back waters. In Tamil Nadu, Pitchavaram, Kodikkarai and Vedaranyam, have mangrove or tidal forests. Pitchavaram has the largest swamp forest cover in the state. It is near the city of Chidambaram in Cuddalore district submerged under the back

waters of the Bay of Bengal. Here, thick wooded islands of mangroves are found covering an area of about 1214 hectares. These forests also contain tropical evergreen trees and shrubs, belonging to the genus *Rhizophora*. In Pitchavaram mangrove forests are found in 25 km² and Kodikkarai the forests cover about 17km².

Hill forests

These forests are found along the hill slopes where the rainfall is heavy. In the hills of Anamalai and Niligris, different varieties of flora such as trees, shrubs, climbers and creepers are found, according to altitude.

Forest Product:

The forest products of Tamil Nadu may be divided into two: major and minor products. Major products include timber and fuel wood. Timber is used for many purposes namely:

- Building construction;
- Making for furniture;
- Boat building;
- Plywood;
- Hard wood;
- Matches;
- Pulp;
- Paper industries;
- Packing boxes;
- Wooden toys;
- Pencils ; and
- Wood carving.

The minor products are bamboo canes, leaves, grasses, essential oils, medicinal plants, resins, gums, tanning materials, spices, dyes, beewax, honey, turpentine and lac. A large number of these products are used as raw materials for cottage industries while some serve as valuable articles of export.

Tamilnadu Notes in English Part 4

4. Resources of Tamil Nadu

Resources

The term 'resources' refers to the natural wealth available on the earth surface for the welfare of mankind. The surrounding environment contains many natural elements like rocks and minerals on and under the surface of the earth. Water is available in the form of lakes, rivers and seas. Living organisms like plants and animals are also present. These resources can be utilized for the betterment of a country's economy. Resources may be assessed on the basis of factors such as :

1. Types of resources; and
2. Characteristics of resources.

Resources have three main characteristics: utility, quantity (often in terms of availability), and consumption.

Natural resources

Natural resources are essential for our survival, to satisfy human wants and needs. It may be classified in different ways.

On the basis of origin, resources may be divided into two: **Biotic** and **Abiotic**.

Biotic Resources

Biotic resources are those obtained from the biosphere. Forests and their products, animals, birds and their products, fish and other marine organisms are examples of the biotic resources. Minerals such as coal and petroleum are also included in this category because they are formed from the decayed organic matter.

Abiotic Resources

Abiotic resources comprise of non-living things. Examples are land, water, air and minerals such as gold, iron, copper and silver.

On the basis of availability, resources are classified into two groups are **Renewable** and **Non-renewable resources**.

Renewable resources

Renewable resources are those which can be replenished or reproduces without getting depleted or exhausted. Examples of these resources are light, heat and energy from the sun; wind energy; water from lakes, rivers and seas and the soils from the earth's crust.

Non-renewable resources

Non-renewable resources are those which are formed over very long geological periods and are certain to be exhausted in course of time. Example: Coal, oil and other minerals.

Resources are finally divided on the basis of their origin. These include;

- Land resources;
- Soil resources;
- Mineral resources; and
- Water resources.

Land resources

Land is a basic resource as it satisfies the day-to-day requirements of human beings and animals that are obtained from the land. Human beings obtain their basic necessities of food by cultivating the land. Land is also used for a variety of purposes. It is mainly used for construction activities of houses, industries, roads and railway lines. Apart from this land is also under forests and grasslands. Forest provide valuable timber while grasslands provide fodder for animals. As far as the land resources of Tamil Nadu is concerned, its land resources are classified into 9 land use types and are presented in the diagram given below. Among the districts of Tamil Nadu, Erode holds the largest share (10%) of forests, followed by Krishnagiri(9.6%), Dharmapuri(7.7%), Thiruvannamalai(7.2%) and Vellore(7.1%).

Barren lands are more in the districts of Villupuram, Theni and Salem. Ninety percent of the land in Chennai is utilized for non-agricultural uses such as residential and industrial uses. Non-agricultural land use is also predominantly found in the districts of Thiruvallur, Kancheepuram, Villupuram and Pudukottai. Area under current fallow is more in Coimbatore and Erode districts whereas Thirunelveli district has more area under other fallow lands.

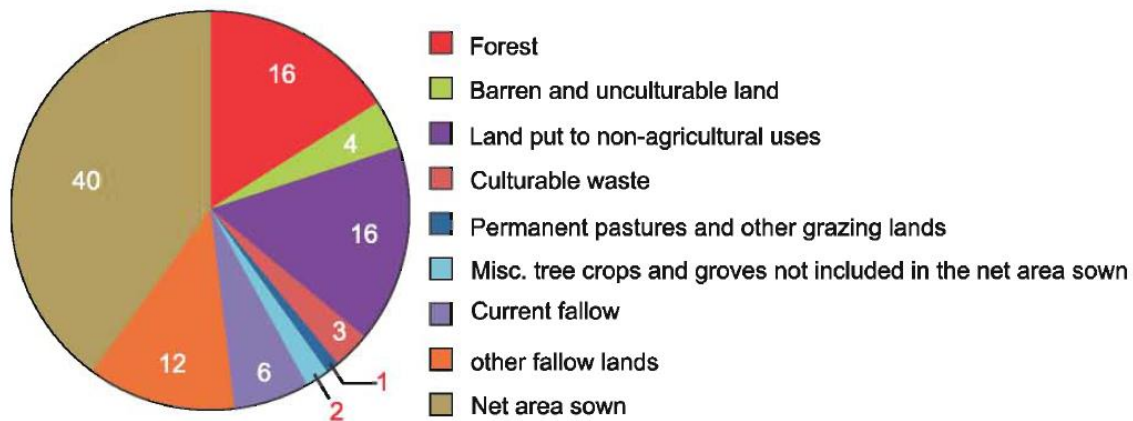


Table: Land use categories of Tamil Nadu

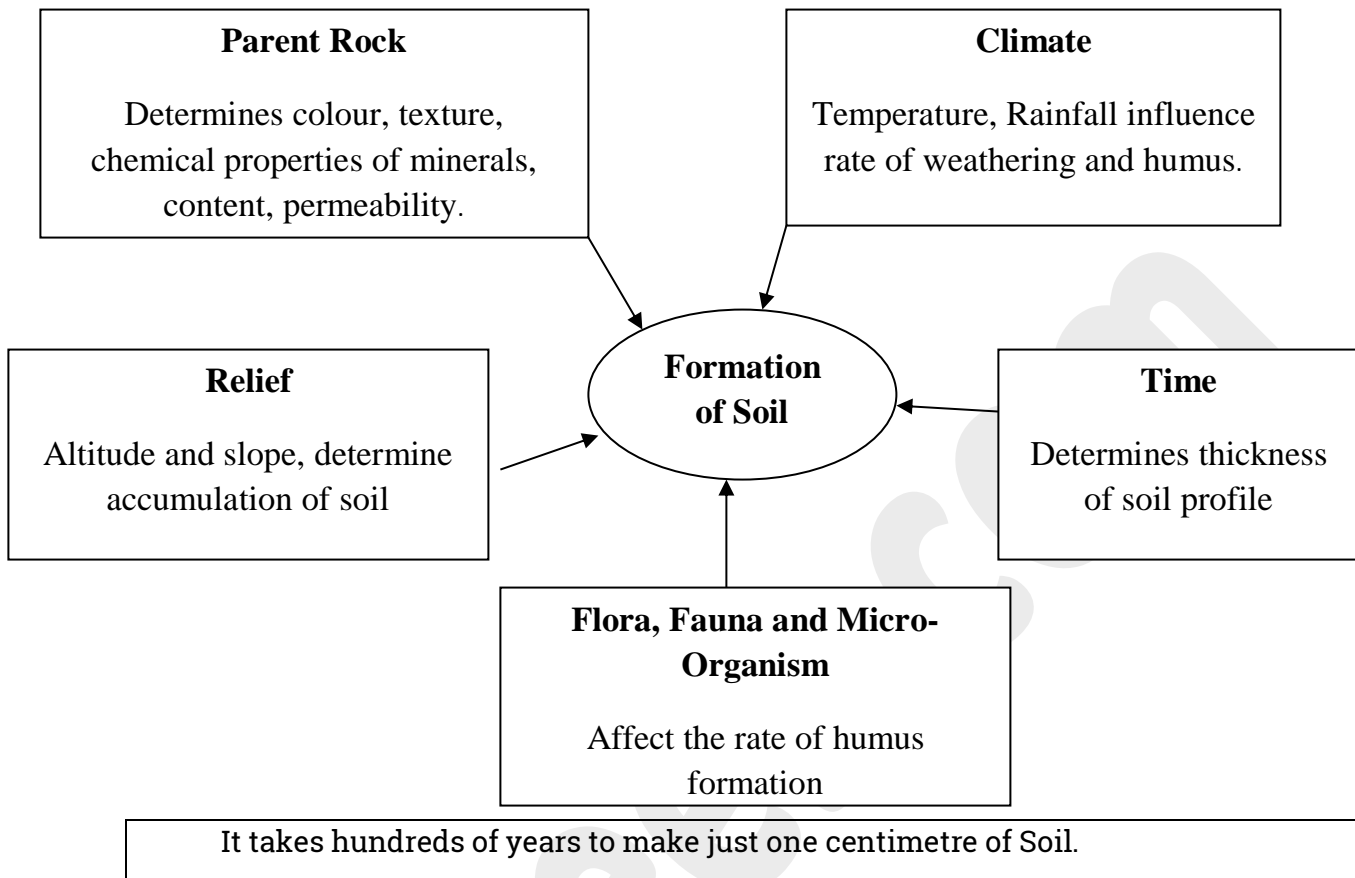
S.No	Category	Area	%
1	Forest	21,10,703	16.2
2	Barren and unculturable land	5,03,255	3.9
3	Land put to non-agricultural uses	21,38,679	16.4
4	Culturable waste	3,68,661	2.8
5	Permanent pastures and other grazing lands	1,10,309	0.8
6	Misc. tree crops and groves not includes in the net area sown	2,74,351	2.1
7	Current fallow	7,58,840	5.8
8	Other fallow lands	15,18,008	11.7
9	Net area sown	52,43,839	40.3
Geographical area		1,30,26,645	100.0

Soil Resources

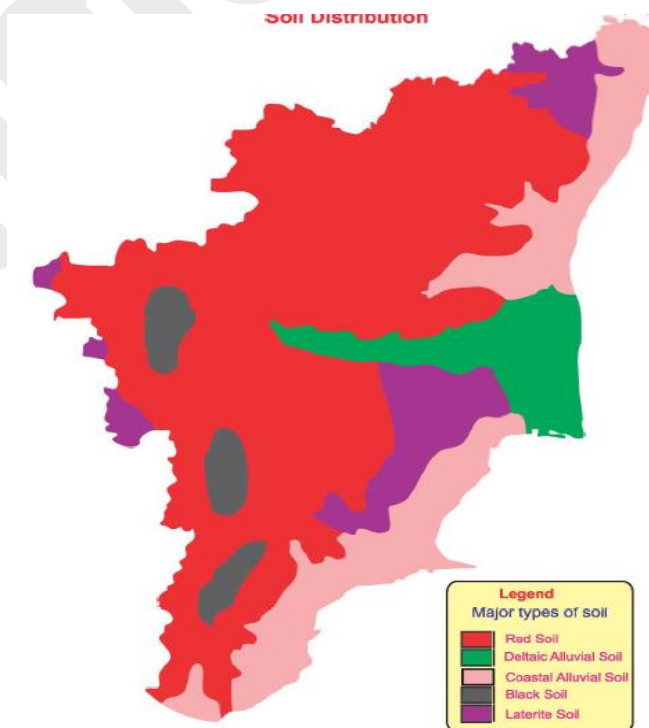
Soil is the loose material which forms the upper most layer of the earth, consisting mainly of very small particles. It is an essential element for the development of agriculture, as it provides essential minerals or nutrients for the growth of vegetation. Soil forming processes are controlled by the factors such as parent rock, climate, relief, time factor, flora, fauna and micro organisms present in the soil.

Process of soil formation

Learning Leads To Ruling



Tamil Nadu Soil Distribution



Soils of Tamil Nadu

The soils of Tamil Nadu may be grouped into five types. They are classified according to their formation, size and colour. Their occurrence in the districts of Tamil Nadu is given below.

Table: Types of soils in Tamil Nadu and their distribution

Sl.No	Soil	District
1	Alluvial soils	Thanjavur, Thiruvarur and Nagapattinam, Villupuram, Cuddalore, Thirunelveli and Kanyakumari.
2	Regur or the black soils	Coimbatore, Madurai, Virudhunagar, Thuthukudi and Tirunelveli.
3	Red Loams	Sivagangai, Ramanathapuram.
4	Laterite soils	Kancheepuram, Thiruvallur, Thanjavur, hill tops of western ghats and eastern ghats.
5	Saline soils	Predominantly in Vedaranyam, Coromandal coast and for about 10 km in all the coastal districts of Tamil Nadu.

Forests Resources

Tamil Nadu's wealth of flora and fauna lies in the hilly and forest regions. Some of its major wildlife sanctuaries like Mudumalai and Anaimalai (Indira Gandhi Wild life sanctuary) are situated on the hills of the Western Ghats, which have habitats for elephants, tigers, bisons and a variety of monkeys and deer. Among the 3000 and more plant species found in Tamil Nadu, majority of them are found in the mixed deciduous forests. One of the most noteworthy flowers is the Kurinji of Kodaikanal hills which blooms once in 12 years. The state has recognised it with special status. Cinchona, a forest product, from which quinine-a drug for treating malaria is extracted. Eucalyptus which grows abundantly in the Nilgiris is also used as medicine for curing cold and as pain reliever.

Medicinal herbs are commonly found on the Palani hills and Courtallam. Palmyrah trees are grown abundantly in Thirunelveli district, as subsidiary activity to agriculture. Its products are used as raw materials for several cottage industries. Exotic varieties of sandalwood are grown in Javadhi hills of Vellore district. The forest areas of Thirvannamalai and Tirunelveli districts of the state are being regenerated and protected by the State Forest Department. These forests not only provide for the large economy of the state but also to the local livelihood.

'Vanamahotsava' is celebrated in October every year to highlight the importance of wild life.

World Wildlife Day	October 4
World Forest Day	March 21
World Water Day	March 22

Water Resources

Water resources comprising of surface water (river and lakes), ground water, marine and coastal waters, support all living things including human beings. Basically, man requires safe protected water supply for drinking, cooking, washing and bathing. In the agricultural sector, the growth of plants and yield of crops are directly related to the quality and quantity of water available. Underground water is also used for the purpose of irrigation and other utilities. All industries require water either for processing or for other utilities.

Table: Water resources in Tamil Nadu

Water Sources	Numbers
Rivers	17
Lakes	15
Tanks	40319
Ponds	21205
Canals	2395
Reservoirs	71
Wells	1908695

Rainwater harvesting is the process of collecting rainwater from roof tops and directing it to an appropriate location where it is stored for ground-water recharge. On an average, one spell of rain for two hours is enough to recharge 8000 litres of water.

Animal Resources

Apart from foodgrains meat, poultry and dairy products are also considered as dietary components. Animals which are domesticated yield wool, fur and skin that form the basic raw materials for specific clothing, shoes and other products. The animal resources contribute a lot to the development of the economy where they are reared commercially.

Table: Livestock in Tamil Nadu

Livestock	No of animals
Cattle	91,41,043
Buffaloes	16,50,343
Sheep	55,93,485
Goat	81,77,420

Glossary National Park

A natural area designated to protect the ecological balance of one or more ecosystems for the present and the future generations is referred to as a National Park.

Mineral Resources

A mineral is a substance or compound of organic or inorganic origin found on the earth's crust. Every mineral has a definite composition and distinct physical characteristics. Most of the minerals are crystalline in nature and occur widely in rocks. Rocks contain one or more minerals. Natural forms of minerals are called ores and minerals are processed from ores.

The salt used in cooking and graphite in your lead pencil is a mineral.

Tamil Nadu Minerals

3. Mineral Fuels

Table: Metallic Minerals of Tamil Nadu

Minerals	District
Iron ore	Salem, Namakkal and Thiruvannamalai
Copper	Salem, Nilgiris, Coimbatore, Madurai
Bauxite	Salem, Nilgiris, Coimbatore, Vellore, Dharmapuri, Madurai and Villupuram
Chromite	Salem, Namakkal, Thiruchirappalli and Erode
Pyrite	Villupuram

Table: Non-Metallic Minerals of Tamil Nadu

Minerals	Districts
Lime stone	Virudhunagar, Thuthukudi, Thirunelveli, Thiruchirappalli, Kanchipuram and Salem
Mica	Thiruchirappalli, Coimbatore and Ramanathapuram
Magnesite	Salem, Namakkal, Coimbatore and Erode
Steatite	Vellore, Cuddalore, Coimbatore, Salem and Thiruchirappalli
Salt	Chennai, Thuthukudi, Cuddalore, Nagapattinam and Thiruvarur

Table: Mineral Fuels of Tamil Nadu

Minerals	District
Petroleum	Thiruvarur(Panamgudi), Narimanam(Kaveri Delta Region)
Lignite	Neyveli

Energy Resources

Resources from which energy can be obtained for heating and lighting are called energy resources.

The energy resources can be divided into two types. They are:

1. Conventional Power Resources; and

2. Non-conventional Power Resources.

Conventional Power Resources

Conventional source of energy are those which have been traditionally used by mankind for a long time. It usually includes fossil fuels like coal, natural gas, oil as well as nuclear power.

Types

The three major conventional energy sources are:

1. Thermal Power Resources;
2. Hydel Power Resources; and
3. Atomic Power Resources.

Thermal Power Resources

Power is generated from non-renewable energy sources such as coal, oil, Natural gas, is known as thermal power.

Thermal power is produced by heating the water. The steam thus formed spins the turbine to produce electricity.

Table: Thermal power plants of Tamil Nadu

Name of the Plant	District	Types of Fuel	Capacity in MW
Neyveli Lignite Corporation	Cuddalore	Coal	2490
North Chennai Thermal Power Unit-I	Thiruvallur	Coal	1200
Thuthukudi Thermal Power Plant	Thuthukudi	Coal	1000
Mettur Thermal Power Station	Salem	Coal	600

Hydropower Energy

Hydro power has been with humanity for a long time.. energy in a rushing river, is captured through a wheel as mechanical energy. Originally, these water wheels powered grain mills, spinning a grindstone directly. On the whole Tamil Nadu

Table: Hydropower plants of Tamil Nadu

S.No	Hydro Power Plant	Rivers	MW
1	Kundah I to V	Bhavani	500
2	Mettur Tunnel	Kaveri	840
3	Aliyar	Aliyar	60
4	Kodayar I and II	Kodayar	10
5	Sholaiyar I and II	Sholayar	95
6	Kadamparai	Kadamparai	400
7	Lower Mettur	Kaveri	120
8	Papanasam Hydro Electric Power	Papanasam	32
9	Pykara	Pykara	150
Total			2297

produces about 2,297 Mega Watts of hydro electric power by 2010 year.

Atomic Power Station

Atomic energy is the energy produced from the fusion of atoms. It results from a nuclear reaction, a process in which two nuclei or nuclear particles collide, to produce electrical energy by nuclear reactors.

The first Atomic Power Station of Tamil Nadu is located at **Kalpakkam** about 80 km south of Chennai. It has a comprehensive nuclear power production, fuel reprocessing, and waste treatment facility that includes plutonium fuel fabrication for fast breeder reactors(FBRs). It is also India's first fully indigenously constructed nuclear power station. It has two units which produce about 500MW of energy.

Another Nuclear Power Station is in Kudankulam of Thirunelveli district. It produces about 1000 MW electricity.

Non-conventional Power Resources

Non-conventional Power Resources are known as renewable resources. Sun is the biggest source of non-conventional energy. Energy is in the form of photos. India receives abundant sunlight for about 250-300 days in a year. Conversion of solar energy to electric energy and thermal energy takes place mainly by photovoltaic cells and through solar thermal pathways. The non-conventional energy resources are:

- Solar Energy
- Wind Energy
- Tidal wave Energy
- Geo-thermal Energy
- Bio-fuel Energy
- Energy from baggasse

Excluding tidal wave energy and geothermal energy, all other types have been harnessed in Tamil Nadu and their rate of utilization is discussed below.

Solar Energy

Solar power is generated from sunlight. This can be used as direct power with photovoltaic(PV) cells, or indirect with concentrating solar power (CSP), Sun's energy is focused to boil water which is then used to generate power.

Dindigul, Krishnagiri, Dharmapuri are the districts which extract energy from solar power units.

Wind Energy

Wind power is the conversion of wind energy into a useful form of energy. It is generated using wind turbines to make electricity for wind mills and wind pumps for pumping water or drainage and used to propel ships.

Advantages and Disadvantages of Wind Energy

Advantages	Disadvantages
Non-polluting source	Noise pollution
Low cost of production	Wind mills are very costly to setup
Safe and clean	Disturbs radio and T.V. reception.
Inexhaustible	Diffused source, so gets wasted.

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The total amount of wind energy produced is about 5208 MW per year. The following table gives the regions of wind energy production and their generating capacity.

Table: Location and capacity of Wind Farms in Tamil Nadu

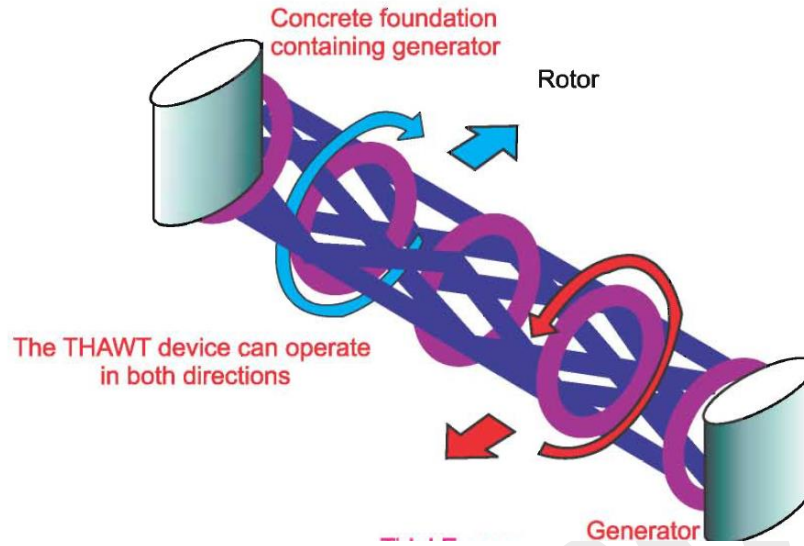
SI.No	Location	Capacity MW
1	Aralvaimozhi Pass(Muppandal area) Kanyakumari/ Thirunelveli Districts.	1658
2	Shenkottai Pas (Kayathar area) Thirunelveli, Thuthukudi Districts	1105
3	Palghat Pass (Kethanur area) Coimbatore	1995
4	Coastal area near Chennai and Rameswaram in Ramanathapuram District and other areas(Theni, Palani areas)	450
Total		5208

Tidal Wave Energy

Energy generated from tides is called tidal energy. Tidal energy can be harnessed by building dams at narrow openings of the sea. During high tide the energy of the tides is used to turn the turbines installed in the dam to produce electricity.

Advantages and disadvantages of Wind Energy

Advantages	Disadvantages
Non-polluting	Destroys wildlife habitats
Inexhaustible	Difficult to harness



Tidal Energy

The first tidal energy station was built in France.

Advantages of Tidal Energy	Disadvantages of Tidal Energy
Clean, eco-friendly and always available	Located far away from cities and so costly to transport electricity.
Cheap compared to other energy sources	Can be generated only during windy days.

Geo-thermal Energy

Geo-thermal power utilizes the heat in the interior of the earth for generation of power. In areas where volcanoes exist, the rocks in contact with molten magma are quite hot. When rain water seeps into these rocks, it gets converted into steam and gushes out as a geyser. Hot springs may also occur in such areas. The steam generated can be used to generate power on a small scale.

Bio-fuel Energy

Bio-fuels are a wide range of fuels. The term covers solid biomass, liquid fuels and various biogases. Currently, 13 plants with a capacity of 130MW are operating in Tamil Nadu.

Table: Bio-fuel Plants in Tamil Nadu

S.No	District	No.of Plants
------	----------	--------------

1	Sivakasi	2
2	Pudukottai	2
3	Tiruvannamalai	1
4	Dindigul	1
5	Theni	1
6	Thanjavur	1
7	Madurai	1
8	Virudunagar	1
9	Thiruvallur	1
10	Kancheepuram	1
11	Krishnagiri	1

Energy From Sugarcane Bagasse

Residual cane fibre (bagasse) is burned as fuel. In Tamil Nadu there are about 18 sugar mills producing energy of nearly 411 MW from bagasse. Table given below lists the sugar mill locations with their energy producing capacity

Tamil Nadu Energy Development

Table: List of Sugar Mills with Co-generation Plants in Tamil Nadu

S.No	Sugar Mills	District	Capacity MW
1	MRK Co-operative Sugar Mills Ltd	Cuddalore	7.50
2	Cheyyar Co-operative Sugar Mills	Thiruvannamalai	7.50
3	Dharani Sugars & Chemicals Ltd	Thirunelveli	15.00
4	Rajashree Sugars & Chemicals Ltd	Theni	12.00
5	Kothari Sugars & Chemicals Ltd	Theni	12.00
6	Terry Energy Ltd	Cuddalore	28.42
7	S.V. Sugar Mills Ltd	Kancheepuram	45.00
8	Subramania Siva Co-operative Mills Ltd	Dharmapuri	5.00

9	Terry Energy Ltd	Thanjavur	18.68
10	EID Parry India Ltd	Cuddalore	30.00
11	Sakthi Sugar Mills	Sivaganga	5.500
12	Arunachalam Sugar Mills Ltd	Thiruvannamalai	19.00
13	Bannari Amman Sugars Ltd	Erode	20.00
14	Auro Energy Ltd	Nagaipattinam	16.00
15	Sri Ambika Sugar Mills	Cuddalore	40.00
16	Sakthi Sugar Mills Pvt	Erode	32.00
17	Rajashree Sugars Chemicals Tld	Villupuram	22.00
18	EID Parry India Ltd.	Pudukottai	18.00
19	Kothari sugars and Chemicals	Ariyallur	22.00

Tamilnadu Notes in English Part 5

5. Tamil Nadu – Agriculture

Agriculture is the prime and traditional occupation for the people of Tamil Nadu. The practice of growing plants on a large scale for food and other purposes is known as agriculture. Agriculture includes not only cultivation of crops, but also rearing of animals, birds, forestry, fisheries, and other related activities.

About 56% of the people of Tamil Nadu are farmers. Agricultural sector supplies food and fodder to the people and cattle, respectively. It is the source of raw material for many of the industries.

Types of Farming

The methods of growing crops vary from region to region and can be classified as follows:

Subsistence intensive farming

Types of farming

1. Subsistence intensive farming
2. Plantation farming
3. Mixed farming

Farming that is carried on small land holdings that produce food crops for local consumption and not for external trade is known as **subsistence intensive farming**. Most farmers in Tamil Nadu practice subsistence intensive farming. With the availability of water for cultivation, farming methods are classified into three types, namely:

1. Wet farming;
2. Dry farming (**maanavari**); and
3. Irrigation farming.

Wet farming	Dry farming
<ul style="list-style-type: none"> • Farming where water supply is available throughout the year both rainfall and irrigation is known as wet farming • Crops cultivated are rice and sugarcane. • Most river basins of Tamil Nadu practice this type of farming. 	<ul style="list-style-type: none"> • Farming carried out only during rainy season without irrigation is known as dry farming. • Crops cultivated are ragi and other millets. • Drier regions of Vellore, Thiruvannamalai, Ramanathappuram and Thirunelveli practice this type of farming.

Irrigation farming

Irrigation farming is the practice of growing crops with supply of water through various sources of irrigation like wells, lakes, and canals. Rice, **cotton** and **sugarcane** are grown with irrigation farming in most part of Tamil Nadu.

Most of the farmers in Tamil Nadu practice subsistence intensive and irrigation farming. As the water requirement for each crop varies, irrigation plays a major role in the agricultural development of Tamil Nadu.

Plantation farming

Plantation farming is yet another type of farming where crops are grown on large farms or estates. Plants like Tea, coffee, rubber and pepper are grown as plantation crops on the hill slopes of Tamil Nadu.

Mixed farming

Mixed farming is one wherein land is allotted for more than one activity along with agriculture. The farmer grows two or three varieties of crops along with cattle rearing, poultry and fishing on a large land holding. This method is profitable to the farmer as it provides regular and continuous income. This type of farming is prevalent in the Kaveri delta.

Market gardening

Market gardening includes horticulture and floriculture, (growing fruits, vegetables and flowers) in large scale for supply to the urban markets and also for export purposes. Districts such as Madurai, Nilgiris, Thiruvallur and Kancheepuram practice this type of farming.

Cropping seasons of Tamil Nadu

Farmers select particular crops to be cultivated in a season, to suit soil and availability of water in that season. Thus most farmers in Tamil Nadu cultivate crops in three different seasons as given below:

Sornavari(Kharif season) (Chitthirai pattam)

Sornavarai is otherwise known as Kharif season. The seeds are sown during May and harvested in October. As the month of May coincides with the Tamil month, **Chitthirai** it is also known as **Chitthirai pattam**.

Samba (Summer season) (Adipattam)

Samba is otherwise known as summer season. The seeds are sown in the month of July which coincides with the month Tamil month **Aadi** and harvested in January. This season is referred to as **Adipattam** in Tamil Nadu.

Navarai (Winter Season-Rabi) (Karthigai pattam)

The seeds are sown in the month of November and harvested in March. This season is known as **Karthigai pattam** in Tamil Nadu as the Tamil month Karthikgai coincides with the month of November.

Factors influencing agriculture

The factors influencing agriculture may be classified as physical, social and economic factors.

- Physical factors include soils, temperature, rainfall, humidity, climate and slope of land.
- The Social factors include traditional knowledge, belief and myths of farmers, farm size and holdings and farmer's acceptance towards innovation.
- Economic factors are market, loan assistance, Government subsidy and incentives.

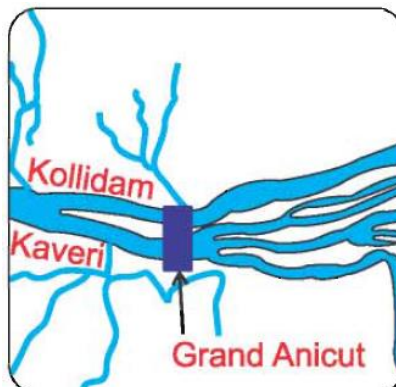
Sources of Irrigation in Tamil Nadu

The main sources of irrigation are canals, tanks and wells.

Canals are man-made channels of water taken from a perennial river, dam or lake to supply water to the agricultural fields. Canal irrigation is the most prominent type in the basins of Kaveri and Tamiravaruni. 27% of irrigated land in Tamil Nadu cultivates crops using canal irrigation.

Important canals of Tamil Nadu

Arrakankottai canal, Thadapalli canal and Kalingarayan canal are some of the noteworthy canals on river Bhavani a tributary of River Kaveri. Canals taken from Mettur dam provide irrigation for about 2.7 lakh hectares. The Grand Anicut built across the river Kaveri near Trichirappalli, diverts the water to the entire delta region through canals.



Grand Anicut on River Kaveri

River Thamiravaruni and its tributaries serve Thirunelveli district with many canal. River Tamiravaruni has nine anicuts from which the following channels, named as north and south

Kodaimel Alagain canal; Nathiyunni canal, Kannadian canal, Kodagan canal, Palayan canal, Tirunelveli canal and Marudhur canal. Apart from this, Pachaiyar has nine anaicuts and Chittar has seventeen anaicuts.

Canals used for irrigation have the oldest records of two millennia in Tamil Nadu. Kallanai, built around First century, by Karikalan is still in use and considered to be the oldest water-regulatory structure in the world.

The state of Tamil Nadu is pioneer in linking rivers of the state as recommended by Ministry of Water Resources.

Tanks

Lakes are natural water bodies. Lakes are converted into tanks by strengthening their bunds to store water for irrigation. Tank maintenance and management is a common practice associated with temples. There are about 40,319 tanks in Tamil Nadu which accounts for 19% of the irrigated area. Tanks are concentrated in the districts of Kancheepuram, Vellore, Thiruvannamalai, Pudukottai, Ramanathapuram and Thirunelveli. At present, Ramanathapuram has the maximum number of tanks. Tanks have to be desilted regularly for better storage and supply of water. In Tamil Nadu, tanks are classified as follows; They are system tanks and non-system tanks. System tanks are linked to river/canal system of the state, with water filled through supply channels. The non-system tanks, on the other hand, are dependent on rainfall of that region. Tanks are maintained by either PWD or Panchayat.

Kancheepuram is known as the land of 'thousand lakes'.

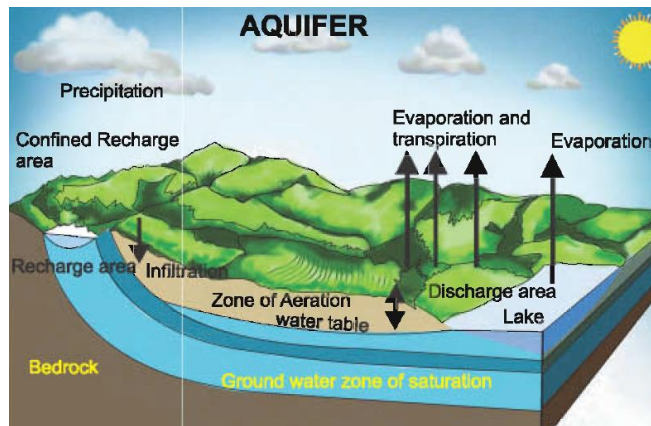
Some important lakes of Tamil Nadu are found in Red Hills, Chembarambakkam, Veeranam, Madhurandhagam. Kolavai, Ambattur, Ooty and Kodaikanal.

Well

Well irrigation is most predominant irrigation system in Tamil Nadu which utilizes groundwater. Well irrigation covers 52% of irrigated area in the state. Wells may be classified as surface wells and tube wells.

Surface wells are also known as open wells and are dug to reach the water table lying within a few metres from the surfaces. Tube wells explore the aquifers of great depth with the help of

electric motors. There are 1,62,11,391 surface wells and 2,87,304 tube wells in Tamil Nadu that are used for the purpose of irrigation.

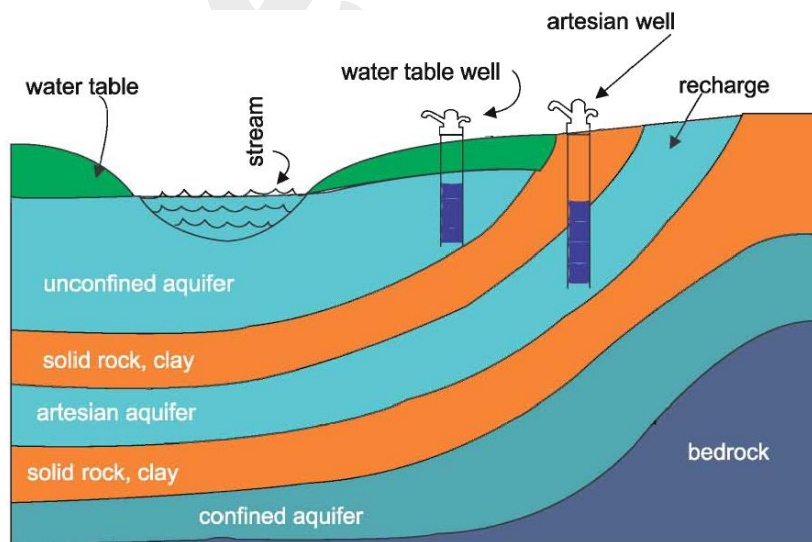


Aquifers are underground rock layers which store water and allow water to pass through them.

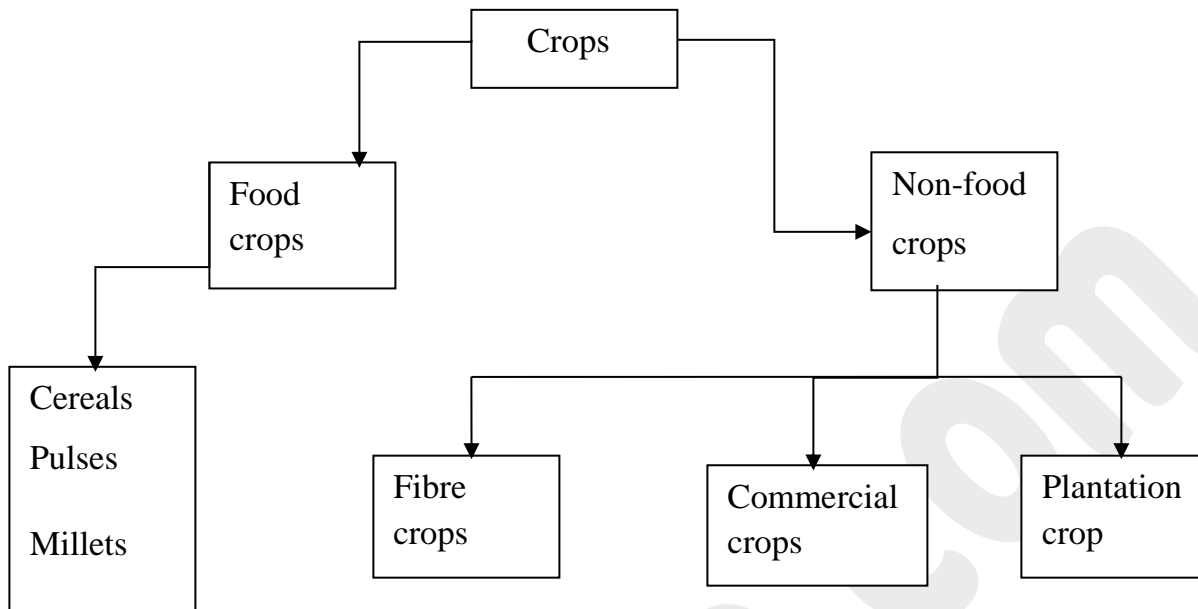
In Tamil Nadu a high potential artesian aquifer occurs in the Cuddalore, Chidambaram and Viruthachalam area. This aquifer named as Neyveli aquifer, pumps out water regularly from lignite mining area for irrigation and domestic supply.

There is considerable amount of spring irrigation in the Kaveri and Vaigai beds. Irrigation from these springs is practised in a few places of Erode district.

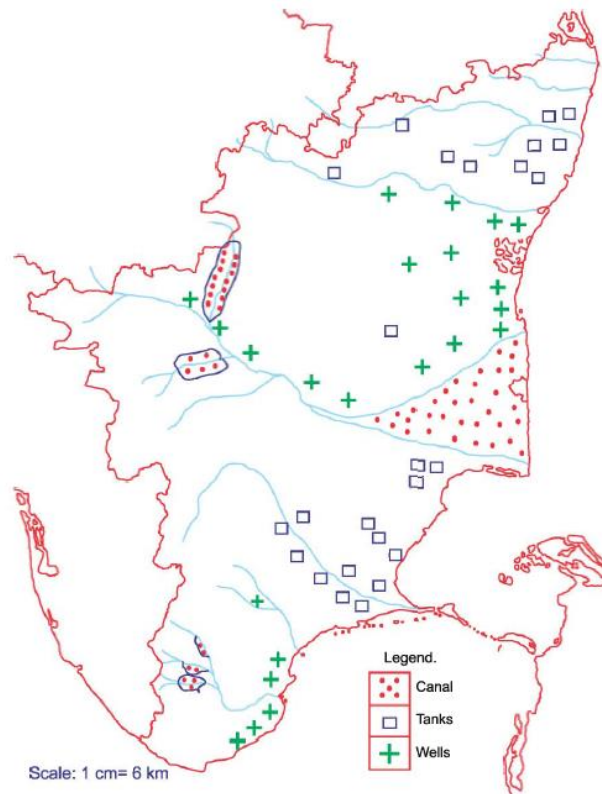
Aquifers at different depth



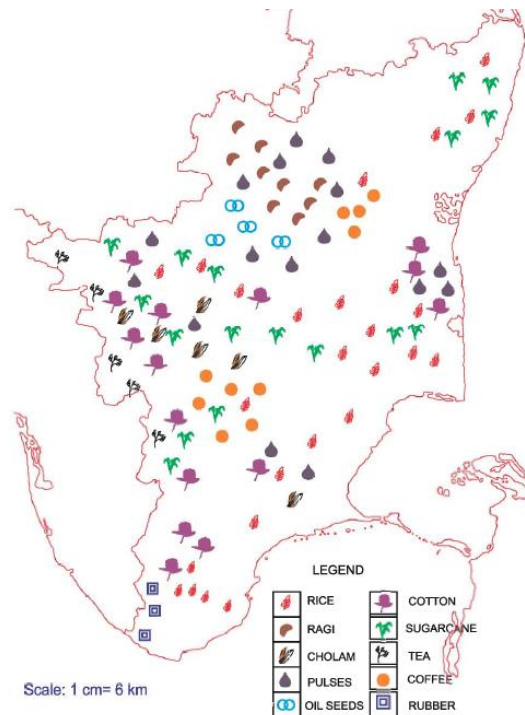
Major Crops of Tamil Nadu



Sources of Irrigation



Tamil Nadu Major Crops



Distribution of crops in Tamil Nadu

Each crop requires specific climatic conditions for its growth. Tamil Nadu lies entirely in the tropical zone and therefore almost all tropical crops are grown here.

Food crops

Food crops include cereals, pulses, and millets. Among the food crops(cereals), paddy is the prime crop cultivated in all the districts of Tamil Nadu. Rice (Paddy) requires level land, high temperature and continuous supply of water for its growth. Ponni, and **Kichadi Samba**, are major varieties of paddy grown in Tamil Nadu. Jaya, IR 50 are high yielding varieties grown in Tamil Nadu. Among the districts. Thanjavur, Thiruvarur and Nagapattinam have maximum acreage as well as production of rice.

Thus Kaveri delta (especially the undivided Thanjavur district) is known as the Granary of South India. Normally Paddy is grown in Thanjavur district in four seasons during one agricultural year.

Tamil Nadu Rice research institute is in Aduthurai. TNRH 174, developed by the Tamil Nadu Agriculture University's Tiruvarur Rice Research Institute has recorded the highest yield of 4500 kg per acre.

Pulses that are grown in Tamil Nadu include Bengal gram, red gram, green gram, black gram and horse gram.

Coimbatore leads in the production of Bengal gram, whereas Vellore and

Table: Millets of Tamil Nadu

Name of the millet	Leading districts
Cholam	Coimbatore, Dindigul and Thiruchirappalli
Cumbu	Villupuram and Thuthukudi
Ragi	Krishnagiri, Dharmapuri and Salem
Maize	Salem, Perambalur and Dindigul
Korra(thinai)	Salem and Namakkal

Table: Tamil Nadu-Principal food crops-area and production 2007-2008(in percentage)

Crops	Percentage of area	Percentage of Production
Paddy	57.8	76.6
Other food crops	22.6	20.6
Pulses	19.6	2.8
Total	100	100

Krishnagiri produce red gram. The districts of Tiruvarur, Nagapattinam and Thuthukudi stand first in production of green gram. Nagapattinam, Thiruvarur and Cuddalore are noted for black gram production. Horse gram cultivation is widely seen in Kirshnagiri and Dharmapuri districts.

Millets are dry crops cultivated in areas having high temperature and less rainfall.

Non-food crops

Fibre crops

Fibre crops include cotton and jute. Cotton thrives well in black soil and it is the major fibre crop of Tamil Nadu cultivated on large scale in the districts of Coimbatore, Thirunelveli Cuddalore and Villupuram. Mcu4, Mcu5, LRA5166 are major varieties of cotton cultivated in the state.

Commercial crops

Commercial crops include all those crops that are cultivated by the farmers to sell and not for their own consumption. Sugarcane, tobacco, oilseeds and spices like chillies, turmeric and coriander are examples of commercial crops.

Sugarcane is the dominant commercial crop cultivated in Tamil Nadu. It is a nine-month crop which requires fertile soil, high temperature, and stagnant water till the time of flowering. Coimbatore, Karur, Villupuram, Thiruvallur and Cuddalore district show predominance of this crop. Tobacco is yet another commercial crop of Tamil Nadu which is widely grown in Dindigul, Theni and Madurai district. Groundnuts, sunflower, safflower(Kusumbavrai), castor and linseed are the major oilseeds cultivated in Tamil Nadu.

Plantation crops

Tea, coffee, rubber, pepper and cashew are the main plantation crops of Tamil Nadu. Tamil Nadu ranks second in area and production of tea next to Assam. Tea estates are seen to be concentrated on the hill slopes of the Nilgris and Coimbatore districts. Tamil Nadu stands second in area and production of coffee next to Karnataka. Coffee is grown in the Western Ghats as well as Eastern Ghats. Hill slopes of the Nilgris, Theni, Madurai and Salem are the major regions of coffee cultivation. Andipatti, Sirumalai and Shervaroy hills also grown coffee. Rubber is grown in Kanyakumari district. Pepper is confined to the warm and wet slopes of Kanyakumari and Thirunelveli district of Tamil Nadu. Cashew are extensively cultivated in Cuddalore district.

Horticulture

Cultivating fruits and vegetables on large scale is a recent trend in Tamil Nadu. Fruits like mangoes, jackfruits, banana, guava and grapes are widely grown in groves. Krishnagiri leads in mango production, Coimbatore and Erode are known for banana production and Theni for grapes. Dharmapuri leads the other districts in acreage for horticulture. It also specializes in floriculture.

Animal husbandry

Rearing animals for the production of milk, meat and hide is known as Animal husbandry. Tamil Nadu Cooperative Milk Producers' Federation (Aavin) produces milk and dairy products for the state. The federation handles million litres of milk per day, processes and supplies milk for the whole state through 7662 societies. The milk production was 55.86 million tons during 2007-08. Per capita milk consumption is 233g/day.

The poultry hub of Tamil Nadu is Namakkal, Erode, Coimbatore and Salem. Tamil Nadu produced 8394 million eggs during the year 2007-08. Per capita availability is 128 eggs/year.

Fisheries

Tamil Nadu ranks fourth in fishing among the states of India. Long coastline of 1076km the broad continental shelf favour coastal fishing in Tamil Nadu.

The coastline has 591 fishing villages which are spread over thirteen districts of the state. Pearl fishing is predominant in Gulf of Mannar region. Thuthukudi is the leading port in fish export. Two more major fishing harbours are Chennai, and Chinnamutthom in Kanyakumari district and four minor harbours are at Pazhayar, Valinokkam, Colachael and Nagapattinam. Thiruvarur, Nagapattinam, Thanjavur and Ramanathapuram districts together contribute 40% of marine fish production in the state.

Marine Fishing	Inland Fishing
Fishing carried out in the Oceans and Seas.	Fishing carried out in Lakes, rivers, Ponds, estuaries, backwaters and swamps.
Large Mechanized boats are used for fish catching.	Catamaran (small wooden boats) Diesel Boats and floating net cages are used.
Fish varieties are Sharks, Flying Fish, Counc, Cat, fish, Silver bellies and Carbs.	Fish varieties are Catla, Rogue, mirkal, eel and calabaashu.

The estimated marine fish production for the year 2007-08 was 393,266 tonnes (Source: Commissioner of fisheries, Chennai-6)

The state has 370 hectares of inland water, 63,000 hectares of estuaries, backwaters and swamps. Oysters and prawns are cultured in organized nurseries at Ennore and Pulicat lake for export. The estimated inland fish production for the year 2007-08 was 164,504 tonnes. Vellore district ranks first among the districts with 10% of inland fish production of the state. Cuddalore, Sivagangai and virudhunagar stands second with 9% of inland fish catch.

Tamil Nadu Fisheries Department has introduced several programmes for the betterment of fishing.

1. Aqua culture in farm ponds and irrigation tanks.
2. Fish seed bank

3. Fish seed rearing in cages
4. Ornamental fish culture and
5. Fish Farmers Development Agency

at Karaikal encourages farmers with a slogan *"to grow fish and grow with fish"*.

Agricultural Development

Before Independence, agriculture in Tamil Nadu followed traditional method of cultivation. After independence, there has been a steady development in all aspects of agriculture. Irrigation facilities were improved with the proper implementation of five year Plans in the state. Green revolution in terms of hybrid varieties and application of chemical fertilizers increased the production to a greater extent. Abolition of zamindari system, land tenuring, consolidation of farms, introduction of the land ceiling act and co-operative farming were the new agricultural reforms introduced after independence. Recently, globalization has influenced the agricultural production positively in Tamil Nadu.

Changing trends in agriculture

The traditional methods of agriculture is slowly being replaced by scientific and technical methods . As a result of this the merits of the traditional methods have vanished.

The Agriculture University in Coimbatore and the M.S. Swaminathan Research foundation are trying to fuse the traditional with the modern methods so as obtain maximum produce in the long run.

Some of the measures adopted are

- Micro- irrigation
- Integrated pest control management(IPM)
- Growing blue Algae and Azolla
- Precision farming through Remote sensing, geographical Information system and Global positioning system.

Increase in organic matter will increase the water holding capacity of the soil. This will support the microbial activity and hasten the nutrient absorption capacity of roots.

Efforts Taken by Government to Improve Agriculture

- The Government supplies quality and certified seeds to the farmers.
- Organic matter and micro nutrients are supplied at subsidised rate.
- Free electricity is provided to small and marginal farmers for about 6 to 8 hours a day.
- Government fixes the prices for agricultural products to safeguard farmers from financial crisis.
- Farmer's Market (**uzhavarsanthai**) enhances the farmers ability to get better share of prices and at the same time consumers to get agricultural produce at affordable prices.
- Crop insurance scheme has been introduced.
- Government has set up Agricultural Export Zones in Nilgris and Krishnagiri.