

THE HIERARCHY OF CENTRAL PLACES IN THE TRINCOMALEE DISTRICT, SRI LANKA.

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THE Trincomalee district at present extends from Verugal in the South to Yan Oya in the north. The land north of Yan Oya, consisting of three Grama Sevaka divisions, Pulmoddai, Paranamadawachiya and Tennamara-vady, an area approximately 95 square miles, is attached to the DRO division of Padaviya in Anuradhapura district with effect from 1-8-1972.¹ But the area is still under Trincomalee for certain functions such as education, judiciary etc. The Trincomalee district is a part of the eastern coastal plain of Sri Lanka. The district is flat towards the north, hilly towards the middle and the southern part is a low lying delta area and is subject to floods from the Mahaveli. It is traversed by Mahaveli Ganga, Kantalai, Palam Poddaru, Panna Oya, Pankulam Aru, Yan Oya and several other small streams. Primary activities such as agriculture and fishing are dominant in the economic structure of the district. Tertiary activities and the port functions are important elements in the economic functioning of the Trincomalee town. The road network is not developed and there are about ten ferries on the coastal roads. Except the Trincomalee-Kandy and Trincomalee-Anuradhapura roads, the majority are impassable and not open to traffic at certain times of the year. A large number of settlements on the district are not served by roads.

In 1971 there were 191989 inhabitants in the district and this represents 1.5 per cent of the total population of Sri Lanka. The total population of

the district between 1871-1971 and intercensal numerical increases and percentage increases are shown in Table 1.

Year	Population	Numerical increase	Percentage increase
1871	19449	—	—
1881	22197	2748	14.1
1891	25745	3548	16.0
1901	28441	2696	10.5
1911	29755	1314	4.6
1921	34112	4357	14.6
1931	37492	3380	9.9
1946	75926	38434	102.5
1953	83917	7991	10.5
1963	138553	54636	65.1
1971	191989	53436	38.6

Source: Census Reports of Sri Lanka.

The absolute population growth was very small before 1931 due to high mortality and small in-migration. The phenomenal increase of population during 1931-1946 was largely due to inflow of migrants into the district during the war years. During this period, the population of the Trincomalee town increased from 10160 to 32507. But between 1946-53, the population of the town decreased from 32507 to 26356. The development of the town has been associated with port and naval dockyard activities. Since the 1950's agricultural colonization schemes such as Allai, Kantalai, Galmetiya, Morawewa schemes attracted a large number of immigrants to the district. Between 1953-71, the district experienced a high growth due to these colonization schemes and this trend is still continuing.

In 1971, the average density of population for the district was 183 persons per square mile and in 1963 it was 136 persons per square mile. A great concentration of population is found along the coastal areas of the district. In the interior area, there is a scattered population distribution, although in some areas a marked concentration of population exists, as for example, the Kantalai colonization area, Pankulam, Galmetiya and Mullipothana. The population density varies within the district and one can identify this at divisional level. Table II shows the population density of the district by divisions.

Table II - Density of Population by Division - 1971

Division	Population	Area	Density (sq.mile)
Town and Gravets	59915	99	605
Kaddukulampattu East	7539	204 7/8	37
Kaddukulampattu West	8620	179	48
Kinniya	26807	82	327
Thampalakamam	13726	101	136
Kantalai	25207	130	194
Mutur	29486	81	364
Seruvila	13255	134	99

Source: Census Report of Sri Lanka, 1971. (see Fig. 1)

The Town and Gravets division had the highest density. The coastal divisions have a higher density per square mile than divisions in the interior.

POPULATION DENSITY OF THE TRINCOMALEE

DISTRICT BY DIVISION : 1971

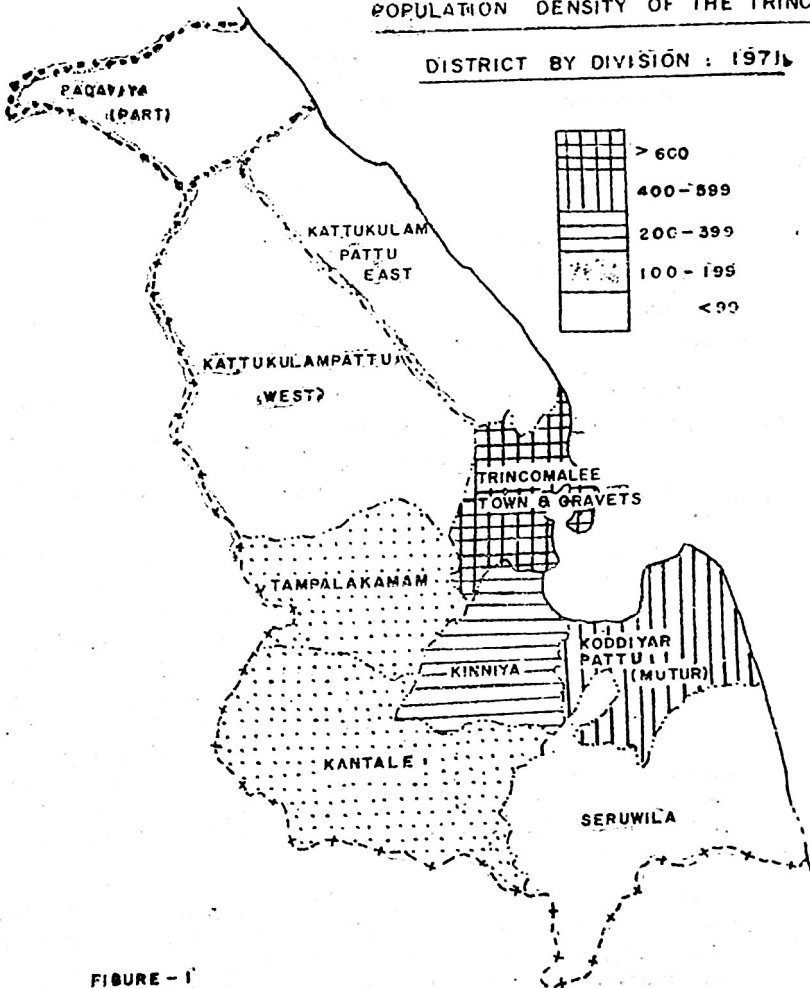


FIGURE - 1

There were 221 settlements in the district in 1971, the largest being the Trincomalee town with a population of 41784 persons. There are other two towns with a population of more than ten thousand. Eight groups of settlements based on population size may be identified in the district.

Table III - Classification of Settlements by Population Size: Trincomalee District - 1971.

	Population size	Number of settlements	Percentage of population
1.	10000	3	37
2.	5000 - 10000	0	0
3.	2000 - 5000	15	25
4.	1000 - 2000	17	12
5.	500 - 1000	31	11
6.	250 - 500	43	8
7.	100 - 250	48	4
8.	under - 100	64	1

Source: Census Report of Sri Lanka, 1971.

The last three groups consist of 155 settlements but represent only 13 percent of the total population. Groups I and 3 have 18 settlements with 62 per cent of the population. The frequency distribution of settlements shows a continuous increase in the number of settlements with decrease in size.

According to the population census of 1971, 38.9 per cent of the total population of the district were urban dwellers. The urban ratio in 1946 1953 and 1963 was respectively 42.8, 31.4 and 25.1 per cent. Trincomalee was the only urban centre upto 1963. On the basis of urban functions, with the exception of Trincomalee, the urban centres of the district perform mainly service functions. These places act as centres providing goods and services to their rural complementary areas and for themselves. These service functions are the basic town forming processes in the growth of urban centres. In this respect, a functional study of settlement is more effective than the analysis of a few important centres. Overall therefore, it can be argued that the functional aspects of settlement study, based on a central place theme, gives the most suitable interpretation of functional relationships.

In recent years, the application of central place theory to study settlement relationships, urban spheres of influence, town and country relationships and planning of shopping centres and settlements has increased. However such studies are as yet few in number in developing countries. In Sri Lanka two studies on this field were carried out in northern and southern parts of the Republic. This study therefore, is an attempt to extend the coverage to a further part of the country.

Christaller (1933) starts his analysis with the question whether there are laws which determine the number, size and distribution of Towns. His central place theory deals with location of trades and institutions. This

theory is similar to Von Thunen's theory of location of agricultural production and Alfred Weber's theory of location of industries. Christaller and Loschs' theories were based on the behaviour of retailers and consumers over time and space. However, Christaller's theory is more suitable for the analysis of retail and service functions in the tertiary sector than that of Losch whose "economic landscapes" are more relevant to secondary production at its later market oriented stages. ⁶ He developed the theory based on the concept of the range of goods. From this, he built up the hierarchical concept of goods and places. The different system of central places was developed based on marketing K-3, transportation K-4, and administrative principles K-7. In each system, concepts of efficiency minimum effort, maximum competition between centres and compactness of centres are taken. However, because of the dynamic character of towns, these factors change according to social and economic changes. Berry and Garrison refined and expanded his marketing principle to modern needs. ⁶

The problem in central place studies is the need for similar data for different sizes of settlements, ranging from cities to smaller hamlets. The non-availability of such data is one of the main factors hindering urban research in developing countries. In the study area, there is a marked paucity of published data about commercial and non-government functions. Some published and unpublished data are available for certain administrative functions. The main problem with the published data is that the details are not given by settlements units but by district or division which may include several settlements. The usefulness of this type of statistical data is very limited in central place studies because the data about functions and population are needed at settlement level. To overcome this problem, the author carried out field surveys in 1974 and 1975. The field work involved a personal survey of centres, the making of an inventory of functions and functional units and interviews. The central functions include commercial, educational, health, administrative, transport, financial and social functions.

The identification of true central places is the main feature of central place study. Places with relative importance of functions are the true central places. To analyse the functional structure of the settlement the relative scoring method is used to measure the centrality of places. Variable grading and weighting is used to assess the functional importance. In this method, the functions are assessed and given scores according to their values. This weighting system has been used in Ghana, Natal, Nigeria and Tamilnadu in India. ⁷ In this method each central function is given scores according its importance in the context of the study area. Scores from 1 to 25 are awarded to different central functions and scores increase with the increasing number of functional units.

Settlements may normally be classified as hamlets, villages, towns and cities. These categories imply the existence of broad classes of settlements that differ in their functional complexity. The difference between settlements are not only a matter of physical size, but also total population variety and level of central functions and these show the existence of hierarchical patterns. Generally, higher order places with large population have more

central functions, functional units and common larger complementary areas than the lower order places. The main idea in the concept of a hierarchy, the idea of definite orders of central places, is directly opposed to that of smooth continuum of urban places.

Based on quantified centrality indices, five grades of central places could be identified in the Trincomalee district. The hierarchical pattern of central places differs from that of Northern Sri Lanka. * These central places can conveniently be termed as major towns, towns, townships, villages and hamlets. (see Fig 2)

Major town:

Trincomalee is the only major town level central place and a regional primate urban centre in population as well as in functional importance. The town is the only place which has most types of central functions recognized in the study. It has 90 functions out of 105 central functions, and the district level functions are found only in Trincomalee.

The town covers three square miles and had a population of 41784 in 1971. Because of its physical size and population, the town possesses a noticeable intra-urban hierarchy of centres. However compared with other large towns in Sri Lanka, this is still a small urban centre. For the analysis of functional hierarchy, the contiguous settlements of Uppuveli, Andankulam, Abeyapura and Anuradhapura Junction are included. These sub-urban settlements are closely linked with the town.

There are five major service centres identified within the town. The service centre or central place may be defined here as a group of central functions separated from any similar group by an open space or residential area in which such functions are absent. The hierarchy of centres have been identified from the comparative analysis of functional structure. The present distribution of intra-urban central places in the town has evolved as an integral part of the overall process of urban growth. In the process of urbanization, the Periyakadai area which is closer to dockyard was important in the European period. The present city centre Sinnakadai has been developed mainly in the last three decades. Fort Federick is the main administrative centre of the district. The Jetty area, where the banks and government administrative offices are found comes next to the Fort in importance. There are 15 local grade centres found in the town. These places mainly contain convenient functions such as retail stores, co-operative stores, tea and coffee boutiques, primary schools, laundry and barber saloon.

Towns

Mutur (11678), Kantalai (4638) and Kinniya (16666) are in this group. Mutur is the main central place for the Koddियar Pattu and Seruvila area. It has no road link with any other major towns but linked with Trincomalee by sea transport. Kantalai is a small place in terms of population when compared to Kinniya or Mutur, but it has better transportation facilities.

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IN THE TRINCOMALEE DISTRICT

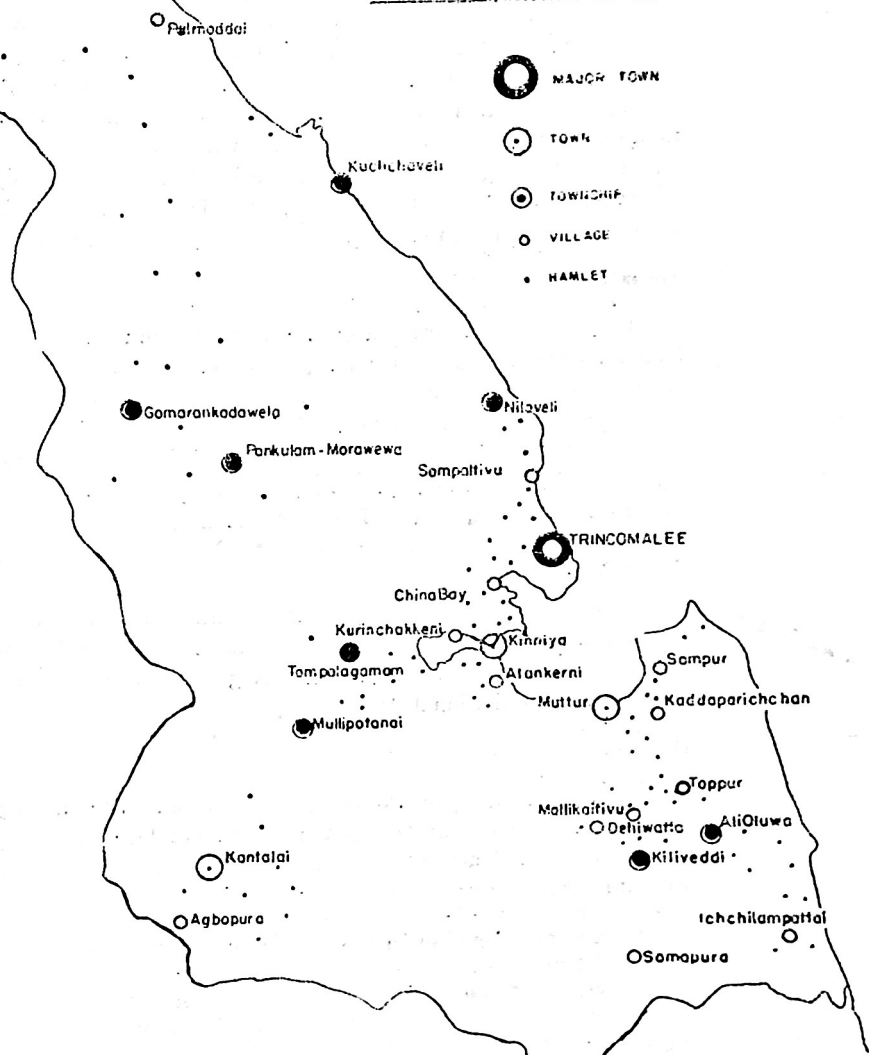


FIGURE - 2

It is the main administrative centre for the south western part of the district. Colonization schemes have been developed at Kantalai, Gantalawa, Galmetiyawa and Agbopura which has assisted the demand for central goods and services. Because of the developing character of its hinterland, the consumption of central goods is far greater than in developed areas such as the Mutur area. In the new colonization areas, the colonists' have to go to various government departments to obtain services and to buy certain goods. Because of this, and its potential prospects the centre has attracted a fair number of migrant workers in irrigation and agricultural works and this has assisted the growth of certain specific functions. Kinniya suffers lack of transport facilities. It is the higher order central place for the Kinniya division. When compared to other towns, this town is developing rapidly.

Townships

In this group, all the centres are without urban status. Thambalagamam Pankulam-Morawewa, Kuchchaveli, Gomarankadawela, Ali Oluwa, Kili-veddi, Mullipotanai and Nilaveli are the main places in this group. Except the last three centres, all others are divisional administrative centres. Divisional administrative, commercial educational and health functions are more significant in this category. Market and commercial functions are more important at Ali Oluwa and Mullipothana.

Villages

Thoppur, Sampur, Kaddaiparichchan, Mallikaitivu, Ichchilampattai Somapura, Agbopura, Dehiwata, Alankerni, Kurinchkerni, Pulmoddai Sambaltivu and China Bay are in this group. These places are the main centres at sub-divisional level.

Hamlets

In this group, there are 83 central places. The average size of the population is less than 500 persons. Hamlet level central places usually have two central functions; a primary school and retail stores, some of which are co-operative stores.

Incremental function in the successive ranks of central places is another aspect of central place theory. Population threshold requirements determine the occurrence of central functions. Population and the regional importance of the central places reflect the incremental nature of functions. Table IV shows the incremental function in successive ranks of central places.

Table IV. Incremental functions in successive ranks of central places

Rank	Incremental functions
Hamlet	Primary school, retail stores/co-operative stores.

Village	Sub-post office, village council, agricultural productivity centre, secondary school, hardware and miscellaneous shop, barber saloon, meat stall.
Township	Dispensary, village market, textile shop, bicycle repair shop, motor garage, circuit magistrate court.
Town	Magistrate court, western doctor, Veterinary surgeon, commercial bank, tile store, motor spare parts shop, shoe shop, wholesale provision store, liquor shop, glass and picture framing shop, photographic studio, jewelleryshop rural hospital, cinema.
Major town	Assistant superintendent of police, district level administrative officers, base hospital, religious and social institution, dentist, optician, air booking office, kachcheri, district court, higher order commercial establishments.

Three basic systems of central places resulted from Christaller's theoretical model of central places. These are nesting of centres according to the rule of K-3, K-4 and K-7 based on marketing, transport and administrative principles. In each system the number of central places in successively lower order classes increases by three times in marketing principles, four times in transport and seven times in administrative principles. Table V illustrates the system of central places in the Trincomalee district.

Table V. The system of central places in the Trincomalee district Actual and theoretical

Size-grade of centres	Theoretical number of places when K-3	Theoretical number of places when K-4	Actual number of places Trincomalee district.
A	1	1	1
B	2	3	3
C	6	12	8
D	18	48	13
E	54	192	83

Source: Field survey, 1974/75, calculated.

A numerical pyramid of hierarchical settlements exist in the Trincomalee district. The present pattern of central places corresponds closely with the theoretical pattern of K-3 and since the study area is mainly an agricultural area, this marketing principle is more appropriate than other principles. Transport and administrative principles have little effect on overall central place development. The present pattern of settlements are not static but may undergo changes with population growth and socio-economic developments. The rapid population growth, particularly in Kantalai, Seruvila and Thambalagamam Pattus may bring changes in the present pattern of central places. These changes may assist further development of smaller settlements which will become central places in lower orders. The development of second and third order central places will reduce the present primate character of the Trincomalee town.

The application of central place concepts in the Trincomalee district settlement hierarchy will bring long term benefits. Colonization on the district and in the entire Dry Zone of Sri Lanka is a main feature of the programme of development and is associated with agricultural development and creation of new settlements. The rapid population growth on the district as well as in the Dry Zone is a major factor leading to this policy. Creating more amenities and service facilities are essential for the growth of the settlements. Central place concepts can be used in developing service centres in new areas and rationalizing the distribution of functions in developed areas. Through this, a functional intergration and balanced development to the district could be achieved.

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