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URBANISATION AND DEVELOPMENT PROCESSES IN NORTH ARCOT DISTRICT (TAMIL NADU)

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ABSTRACT : This paper makes an attempt to identify the urbenisation and developmental processes in North Arcot District, Tamil Nadu. For this rate of urban growth and the economic base are identified using Index of Economic Base Technique. The hierarchy of settlements for these towns are identified using several indicators such as physical, economic and social factors. The levels of development of the taluks are identified by using ranking technique.

INTRODUCTION :

Urbanisation is an important aspect of the process for socio-economic development and is closely connected with many other problems such as migration from villages to towns, levels of living in rural and urban areas, relative cost of providing economic and social services in towns of different sizes, provision of facilities like water supply, sanitation, transport and power, pattern of economic development, location and disperdal of industries, civic administration etc., Hence our study attempts to identify the urbanisation and developmental process in the North Arcot district.

DATA BASE AND METHODOLOGY :

To find out urban growth rate ordinary ratio method is applied and Index of economic base of the towns are followed by adopting the proceedure suggested by Gunnara Alexanderson. Index of Economic Base :

$$\frac{xb - \frac{xt}{yt} \cdot yb}{xt} \times 100 \text{ where,}$$

xb : town's employment in key urban function;

xt : town total employment;

yb : district's employment in key urban function;

yt : district's total employment.

Employment figures of the towns and the districts are taken from the Census, because of non-availability of the data from firm to firm, as well as for industrial structure etc., To find out the shifts in the functions of the cities, triangular co-ordinate method has been used.

Hierarchy of settlements is used to identify the existing hierarchy of settlements in order to understand the levels of services available, functional character of towns and the command area of the towns. To find out the hierarchy, weightage method of multivariate approach has been adopted in this study. The indicators are taken as (1) Administrative Status, (2) Local body (3) Demographic (4) Economic Indicators etc., Thus 33 indicators are selected and computed. Summation of formulatep — assigned weightages of the settlement gives the final scores of the settlement.

The ranges for different orders were fixed using normal distribution curve. Mean of the weightage of all the settlement = x = 19.55. Standard Deviation = 12.57. So the ranges are as follows: I order = above 32.12, II Order = 19.55 – 32.12, III order 6.58 – 19.68, IV order = less than 6.58.

Bisection method has been used to find out the service area of each centre. By this, the spatial efficiency of the centre is known. This is identified by $R_2 = \frac{T \times A}{U}$ where, T is the population of the town, A = total area of the district. U = total urban population of the district. Using this the catchment area of each settlement has been analysed.

Similarly, relative levels of development for each taluk is identified through aggregation of these scores in agricultural, industrial and socio demographic indicators used for the purpose in each case. The requisite data were taken from District Census Handbook–1981. Town Planning Department—Tamil Nadu Economic Table 1981. Summation of the ranks, results in the levels of development in taluks.

A different technique to analyse the urban growth and settlement hierarchy is obtained in all possible ways to draw inferences and to propose a realistic way for attaining settlement hierarchy for the year 1991 and 2001.

The population projection has been made, based on geometric growth rate method and this shows the maximum population keeping the percentage of population from decade to decade constant and average value of percentage increase in growth rate when it was worked back in 1971. In 1961 it showed more or less equal to natural population growth. Moreover, the Research Division, Directorate of Town and Country Planning Tamil Nadu, recommended the method as the best one for projecting the population for the decade.

ANALYSIS :

North Arcot is situated in the North western part of Tamil Nadu, which is one of the biggest district in Tamil Nadu. It covers an area of 1230.20 sq. km and a population of 42.02 lakhs at the latest (1981) Census. The district has 13 taluks and 36 Panchayat unions.

Great regional variation exists within the district with respect to the locational, industrial and resource potential of the district. The district is the second most populous district in Tamil Nadu. Even/though the district is heavily based on agricultural activities, it is growing fast in industrial activities also. It has got the highest number of tannery industries and more than 75 per cent of the exports of leather and leather products to the outside world comes from this district. This is restricted to certain taluks of the district.

District's urban centres and villages with over 5000 population are taken for our analysis. The analysis is made by taking City (above one lakh population) Medium towns (20000–one lakh population) Small towns (5000–less than 20000) There are totally 98 towns which form one city (District head quarter Vellore), 17 medium towns and remaining 80 towns are small towns. Fig. 1 shows the distribution of city, small and medium towns in the district.

The growth of city, small and medium towns spell out, the city Vellore has more or less stagnated in nature. The medium towns show that the population has increased from 50.56 per cent to 65.28 per cent. Lastly the small towns decreased in percentage from 31.42 per cent to 16.67 per cent. The detailed growth rate for 1961, 1971 and 1981 are given in Table 1.

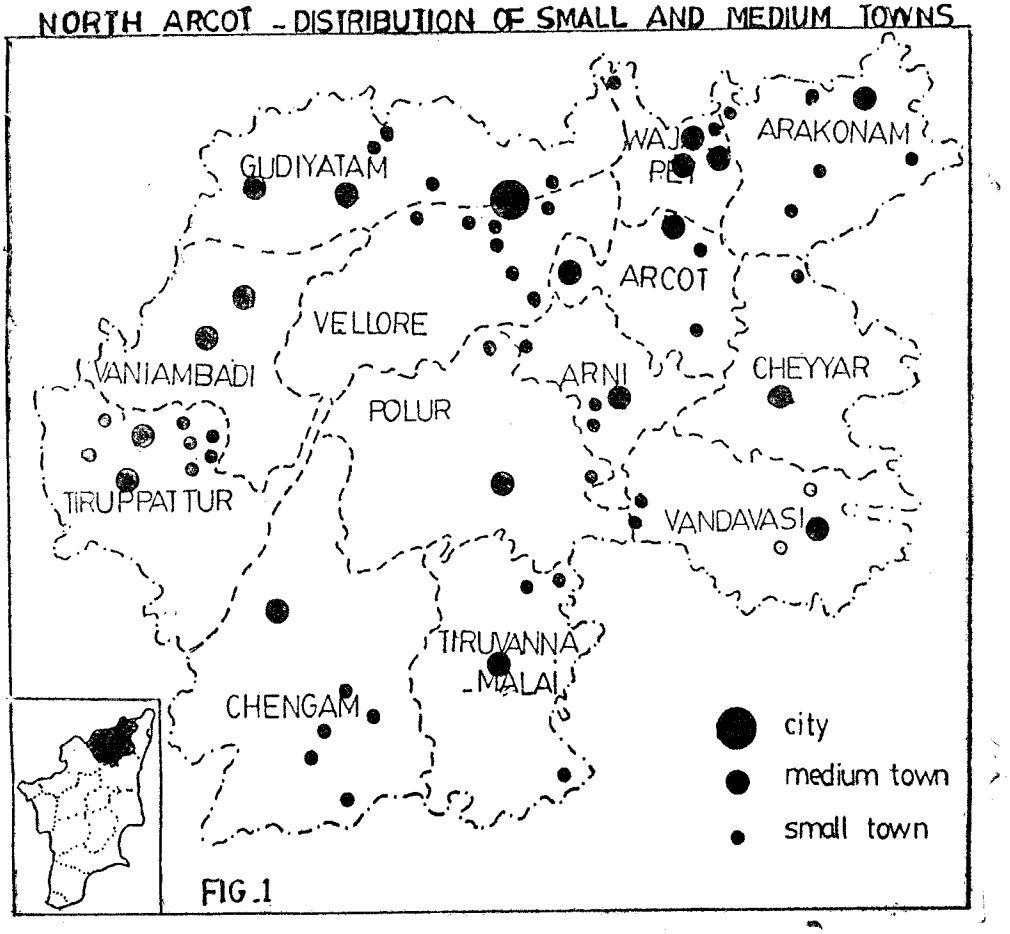


TABLE 1

Growth of city, small and medium towns North Arcot

Source : District Census Hand Book 1961, 1971 and 1981

Name of the Towns	% of Population 1961	1971	1981
City	18.02	17.21	17.21
Medium towns	50.56	55.19	65.28
Small towns	31.42	26.29	16.67

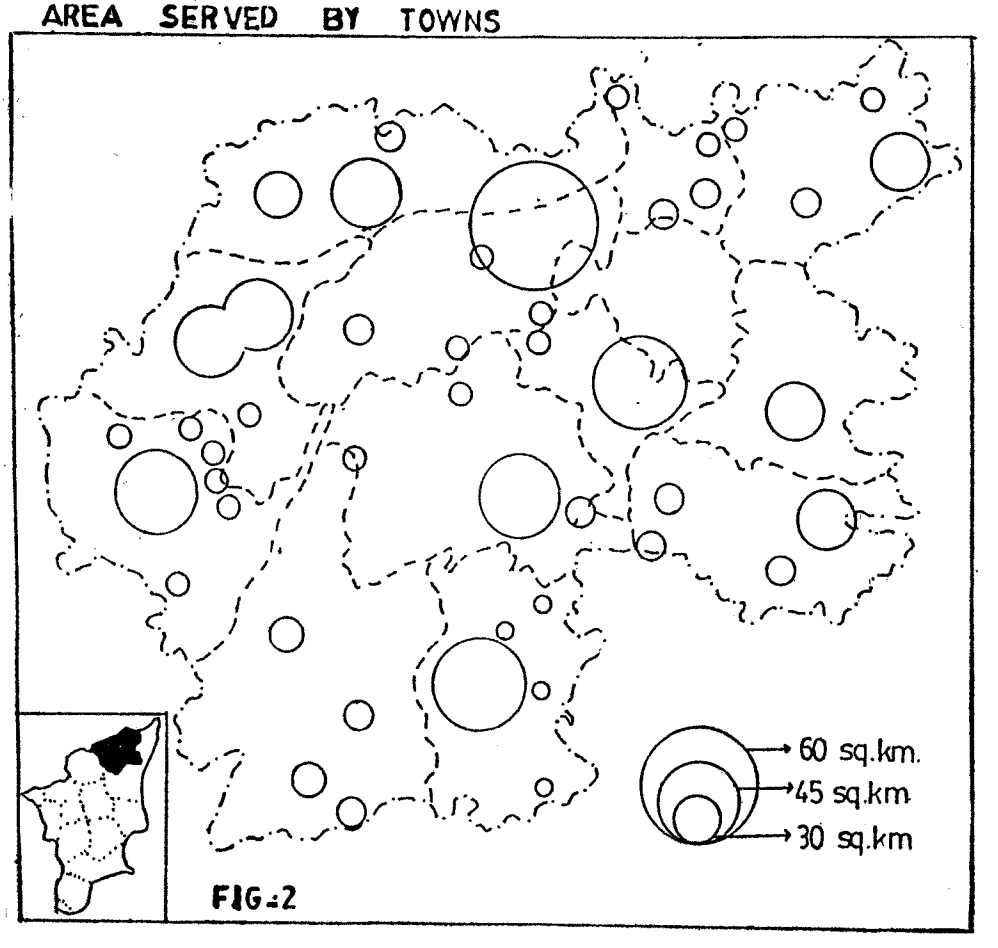
Source : District Census Hand Books— 1961, 1971 and 1981.

Economic base of towns indicate that Vellore has got the highest index, followed by medium towns, Small towns show that the Index of Economic Base is below 40 per cent and this means that it has got less industrial base activity or other administrative activities. Within the medium towns the industrially well developed are Ambur, Vaniambadi, Ranipet and Tiruppattur where the tannery industries both in small and large scale industries are prominent. Other towns are based on the agro based industrial activities which are less in their economic base index.

Functional classification of towns show that towns shift from one sector to other sector. In our study, using Triangular co-ordinate method, shows that villages Palandal, a small town shifted from agricultural to industrial, likewise Melnagar etc., With respect to medium towns, Aokonam, which is a taluk head quarter shifted from agricultural to industrial activity. Thiruvannamalai town has shifted from industrial to agricultural sector, this is mainly because of the establishment of agro servicing

centre and also the Industrial estate. District Industries Centre also give importance to the manufacture of Agricultural implements for agricultural purpose.

Analysis of hierarchy of the settlement (Appendix I), shows that first order settlement, Vellore has got all the facilities with respect to the selected socio-economic and physical indicators. Second order settlements are along the main transportation corridors and they are highly urbanised within the district with high potential of industrial base. Most of them act as taluk head quarter. Third order accounts for 58 towns. In this, Arni, Arcot, Thiruvettipuram are medium towns with respect to population but with the facilities it comes down to third order centre. These are located in the main corridors of the taluk. Remaining towns form the fourth order settlements and they are distributed in the isolated parts of the taluks and most of them are villages having above 5000 population. Here we can say that within the villages itself some of them belong to the third order of settlement. The reason is mainly because of the influence of the major urban centres. These centres induce the growth of small towns. The hierarchial order and the name of the settlements are given in Table 2 and their spatial efficiency are shown in Fig. 2.



Similarly, the relative levels of development for each taluk is shown through aggregation of their scores using the Ranking Technique. The relevant indicators were used for the purpose in each case. The requisite data were taken from the Action Plan Report–1985, North Arcot District. Summation of rank method is used to arrive at the rank of each taluk in terms of individual development. The classification is given in the Table 3 and their diagramatic representation is in Fig. 3.

TABLE 2

Hierahy of Settlement North Arcot District

Category	Name of the towns
I Order	
Above 32.12	Vellore
II Order	
19.55–32.12	Arokonam, Gudiyatam, Vaniambadi, Ambur, Vandavasi, Polur, Thiruvannamalai, Tirup. pattur Ranipet.
III Order	Melvisharam, Peranmpet, Arcot, Arcot, Tiruvettipuram, Jolarpet, Walajapet, Kaveripakkam, Panapakkam, Sembadu, Takolami Ponnai, Minel, Ammur, Kalapadi, Ramalai, Kalapadi, Kangayanallur, Kailasagiri, Periakuppam, Peddur, Palavastheur, Odugather, Melnagar, Kannamangalam, Seevur, Devikapuram, Vellapakkam, Timiri, Kaiavai, Pennather, Tallar, Albadi, Kannanur, Chetput, Ponnari, Katteri, Natrampalli.
IV Order Less than 6.5. 8	Koddakal, Kilminal, Kalinjur, Vellakuttal, Kothakuttai, Andiapannur.

TABLE 3

Levels of Development

Type	Name of Taluka
Developed	Tiruppattur, Vaniambadi, Thiruvannamalai, Vellore Gudlyatam,
Developing	Walajapet, Arokonam, Arni, Cheyyar.
Unde Developed	Arcot, Chengam, Wandavasi Polur.

The analysis and the outcome of the preceeding paragraphs tends to give a clue to arrive at the final status of towns. The brief notes regarding urban growth, hierarchy of settlement, and levels of development are given the scope for formation of certain stratagies to fulfil the requirement of the towns. The analysis leads to the following points :

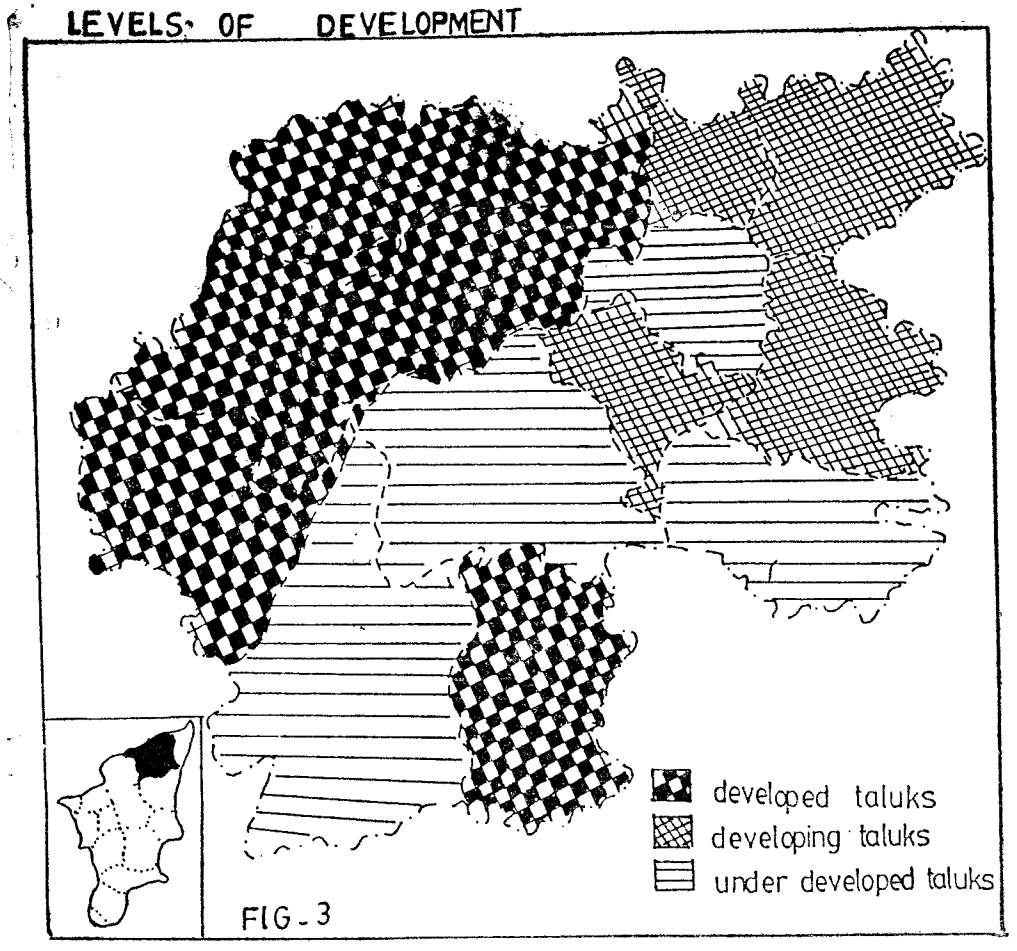
(*a*) Mostly all important towns are located along the main corridors, especially on National highway.

(*b*) Geographically the district is having the largest forest areas in the state. Rugged and undulated terrain are in the taluks of Tirupattur, Vaniambadi, Chengam, Polur and Gudiyatam. The natural constraints prevent the development of the district, especially in the taluks of Chengam and Polur.

(*c*) Within the resource potential in terms of iron ore, vermiculate felspar and china clay are available in the district and they are economically viable for exploitation as per Tamil Nandu Mineral Limited.

(*d*) Hierarchy of settlement give the deficiency areas with respect to infrastructure facilities.

(*e*) Levels of development give the overall development of the taluks and efficiency of the towns.


LEVELS OF DEVELOPMENT
developed taluks
developing taluks
under developed taluks
FIG-3

Keeping all these findings, it is necessary to provide facilities to unserved areas with respect to employment potentialities and provision of functions pertaining to minimum level of towns. Even/though the amenities are provided to the small towns, they cannot be maintained by the isolated towns, situated away from the major urban centres. So it is therefore necessary that small towns should be developed into fully self contained towns by injecting proper inputs with respect to socio economic functions and infrastructure development, which will help to gear up the developmental process and create employment opportunities to the surrounding areas.

Hence the detailed study of small and medium towns to arrive at a balanced development in the district. Government of India in its VI Five Year Plan brought out the IDSMT Scheme (Integrated Development of Small and Medium Towns). where the provision of infrastructure and other facilities in these towns were stressed upon. The prospect to set up a National Urban Infrastructure Development Finance Corporation in the Seventh Five Year Plan also point towards the importance of the same fact, which is favourable for efficient administration and the development of small and medium towns, and cities.

APPENDIX I

1. Indicators arrived for Hierarchy of settlement :

Following are the indicators :

Using the formula

$$ei = \log fi\,(1 + \log fi)^{-1}.$$

The weightages are formulated based on the above said formula for quantifiable indicators like population, density, growth rate, per centage of population, percentage of workers to the total population, no. of cinema, theatres, percentage of primary workers, secondary workers and tertiary sectors.

Assigned indicators :

Which are not quantifiable are given weightages. The indicators selected for the assigned weightages are as follows :

I. Administrative status :

(1) District Headquarters,
(2) Taluka Head quarter,
(3) Panchayat Union,
(4) Panchayat.

II. Local body status :

(1) Muncipality,
(2) Township,
(3) Panchayat.

III. Physical :

(1) National highways,
(2) State highways,
(3) Other district roads.

Railways : Junction, Station, Water supply Projected and unprojected; Library : Central library, Sub-library, Post and Telegraph : Availability of STD facilities, Post and Telegraph; Fire service Station :
I grade (2 fire engine + Ambulance)
II grade (i fire engine + Ambulance)
III grade (i fire engine) Polic station with V.H.F. (volume, high frequency, without V.H.F.

2. Indicators used for Levels of Development :

(1) Population,
(2) Density/in persons/sq. km.
(3) Decadal growth rate,
(4) Literacy rate,
(5) Workers to the total population,
(6) Workers in non-agriculture,
(7) Workers in primary sector,
(8) Secondary sector,
(9) Workers in tertiary sector,
(10) Degree of urbanisation,
(11) No. of commercial banks,

(12) Area under forest to the total,
(13) Area under food crops to the total area,
(14) No. of veterinary hospital,
(15) Length of roads,
(16) No. of higher secondary schools
(17) No. of arts and science colleges
(18) No. of professional collegess
(19) No. of hospitals
(20) No. of beds in hospitals
(21) Area under irrigation to the total area
(22) Area under cropwise
(23) Net area sown to the total area
(24) Area under rice cultivation to the total area

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