

“A SPATIO-TEMPORAL ANALYSIS OF URBAN CENTRES: A CASE STUDY ON SALEM DISTRICT, TAMIL NADU”

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Abstract : The fast and growing population, has led to the rise in population. Salem District of Tamil Nadu which is surrounded by hills on all sides: the Nagaramalai to the north, the Jarugumalai to the south, the Kanjamalai to the west, and the Godumalai to the east. It is divided by the river Thirumanimuthar in the main division. The fort area is the oldest part of the town. The District of this area has a total of five taluks in 1991 and nine taluks in 2001 and 2011, each of the taluk experiencing a number of population rise between 1991-2011. The area has a good transport system of road network and well connected by the adjacent towns namely Bangalore, Chennai, Trichy and Coimbatore. It also has the good communication facilities. The analysis has done with the help of remote sensing data using ArcGIS to locate the location of urban centres in Salem District. The aim of the study is to locate the urban centres within Salem District.

IndexTerms - Hills, Network, Remote Sensing, Taluks, ArcGIS.

I. INTRODUCTION

Urban means belonging to, or relating to, a town or city. Urban or Urbanization is the rapid increasing of population of an area with large modern buildings that is perceived as dangerous and unpleasant. A large and densely populated urban area with several independent administrative districts. In Chinese, the urban centre of a city is called the “city centre” or “urban core”. Urban Centre is a term used in urban planning and design for a mixed-use urban area where there is a concentration of commercial and other land uses. The term centre can also be used to designate an area for mixed-use development, whatever its land use happens to be. For example: the Central Business District (CBD) in the city centre is where most business and commercial activity is located, Increasingly, the development of successful urban centres is linked to broader economic, social, and environmental goals. Cities that favour dense, urban liveability over suburban sprawl have lower infrastructure costs and succeed in providing a high quality of life to residents and workers. Detailed planning ensures private development and civic investment that translates into cohesive urban centres that provide a high quality of life to residents and workers.

II. AIM & OBJECTIVES

2.1 Aim: study to understand the spatio-temporal analysis of urban centres: Case study on Salem Districts, Tamil Nadu

2.2 Objectives:

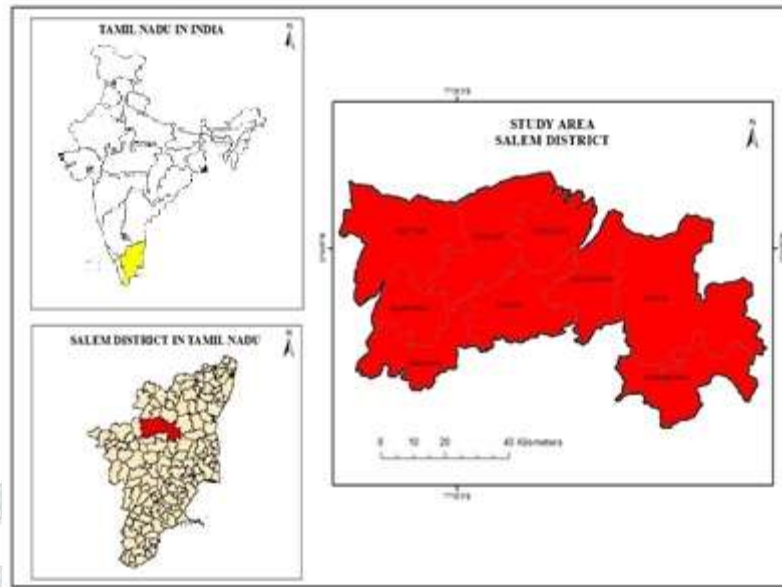
- To identify urban centres within every taluks of Salem District
- To compare the extend of urban centres in Salem District:1991-2001-2011

III-STUDY AREA AND METHODOLOGY

3.1 Study Area: Salem is a Village Panchayat located in the Salem District of Tamil Nadu. Salem is situated at 11.65⁰ N latitude, 78.17⁰ E longitude and 278 metres elevation above the sea level. Salem is a big town in India, having about 778,396 inhabitants. Salem is a Geologist's paradise, surrounded by hills and the landscape dotted with hillocks. Salem has a vibrant culture dating back to the ancient Kongu Nadu. As a district, Salem has its significance in various aspects. It covers the geographical area of 5205 Sq. km.

The average annual rainfall is 363.5 mm. the temperature is generally very high during summer and it ranges from 20.0⁰ to 37.9⁰ Celsius. In 2011, Salem had a population of 3,482,056 of which male and female were 1,781,571 and 1,700,485

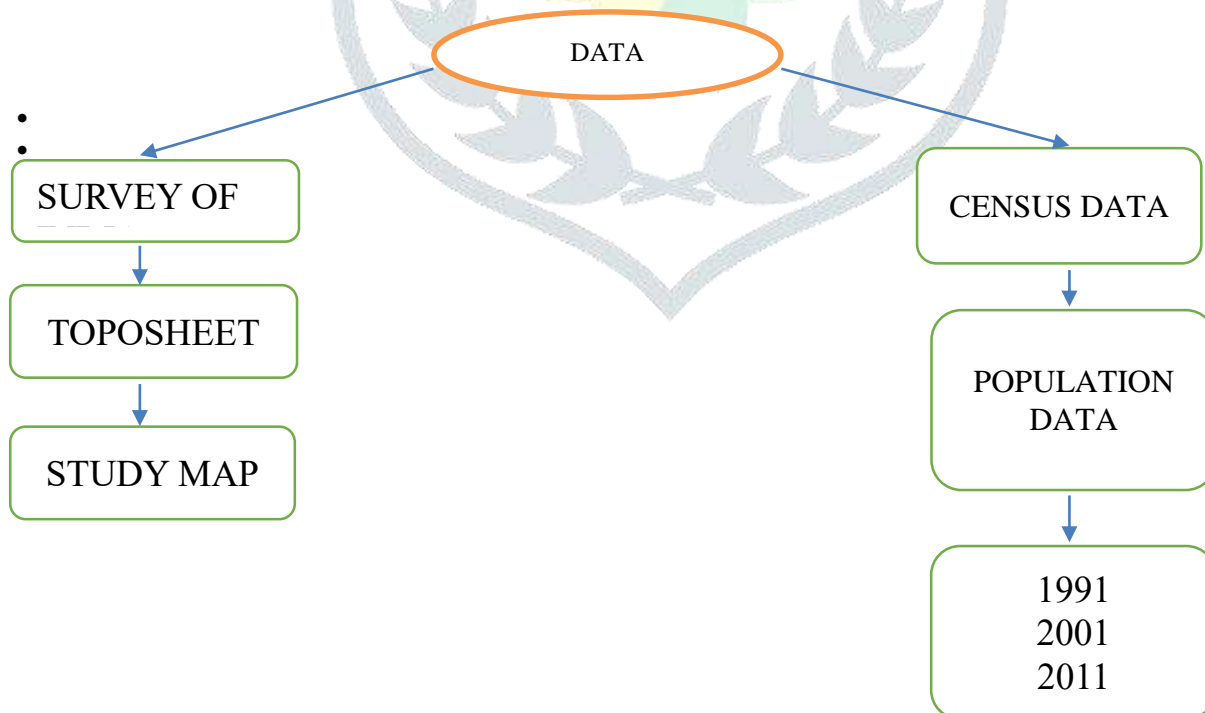
respectively. In 2001 census, Salem had a population of 3,016,346 of which males were 1,563,633 and remaining 1,452,713 were females. There was change of 15.44 percent in the population compared to population as per 2001. In the previous census of India 2001, Salem District recorded increase of 17.20 percent to its population compared to 1991.



Base map of Study Area

3.2 Methodology:

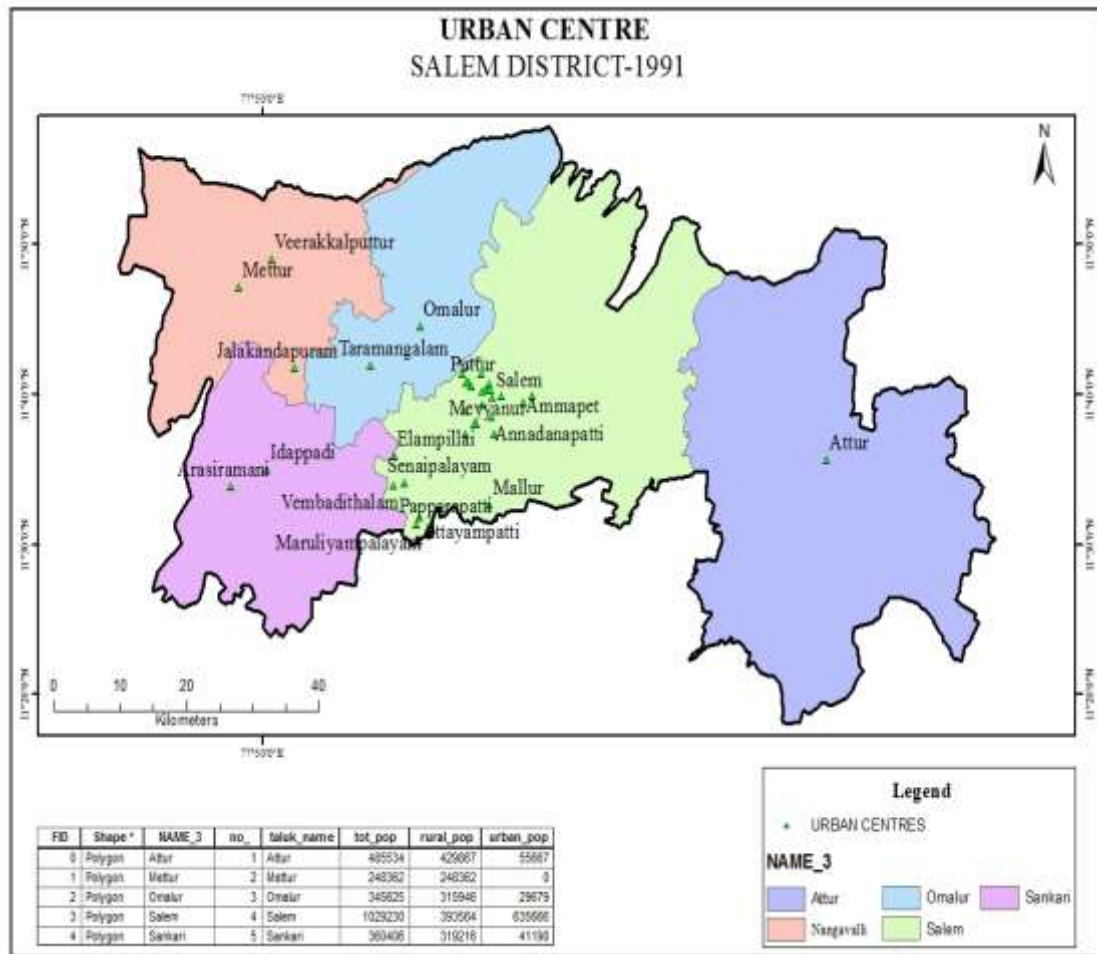
- Study area map from the toposheet of India
- Collecting the census data of 1991-2011
- Locating the urban centres in each taluks of the Salem District
- Comparing the changes of urban centres (within every taluks) for the period of 1991-2001-2011



IV-RESULT AND DISCUSSION

4.1 Result:

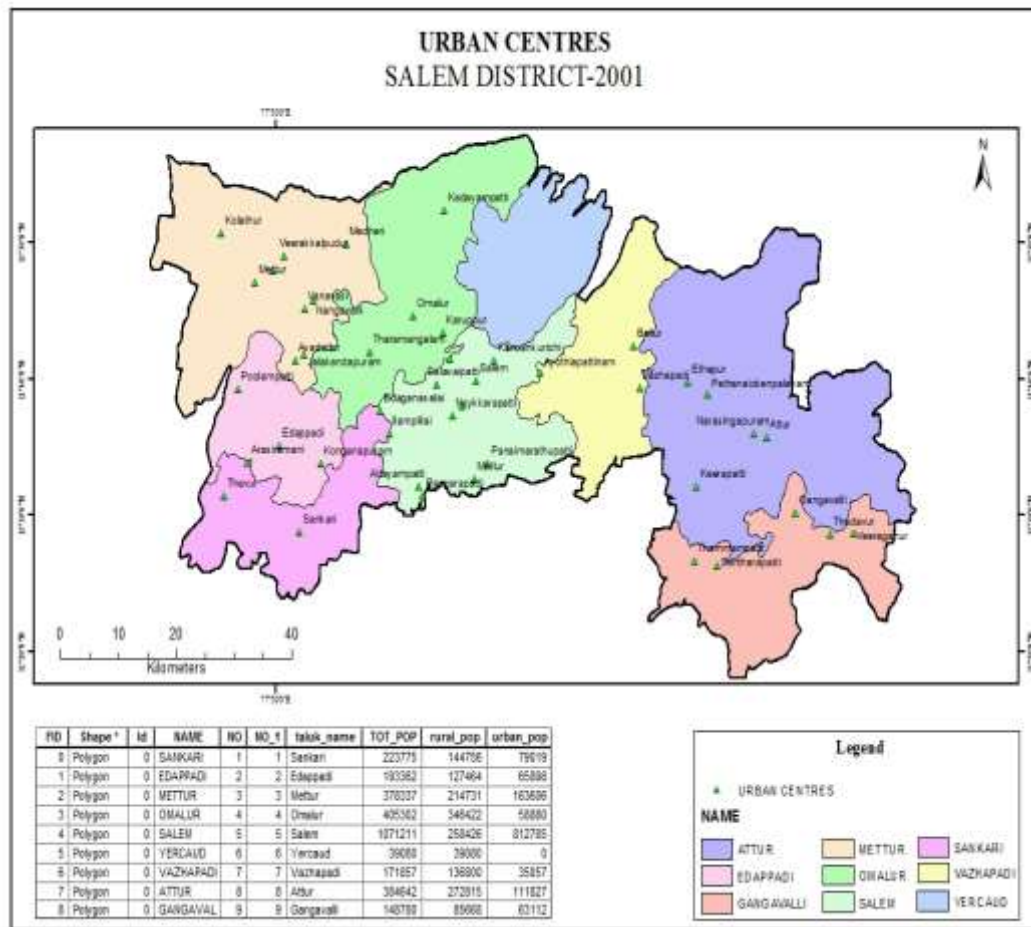
Location of urban centres 1991



Name of the Taluks with their population

Sl. No.	Taluks Name	No.of Urban Centres	Tot_Pop
1	Attur	1	55667
2	Nangavalli	3	72010
3	Omlaur	2	29679
4	Salem	29	635666
5	Sankari	1	41190

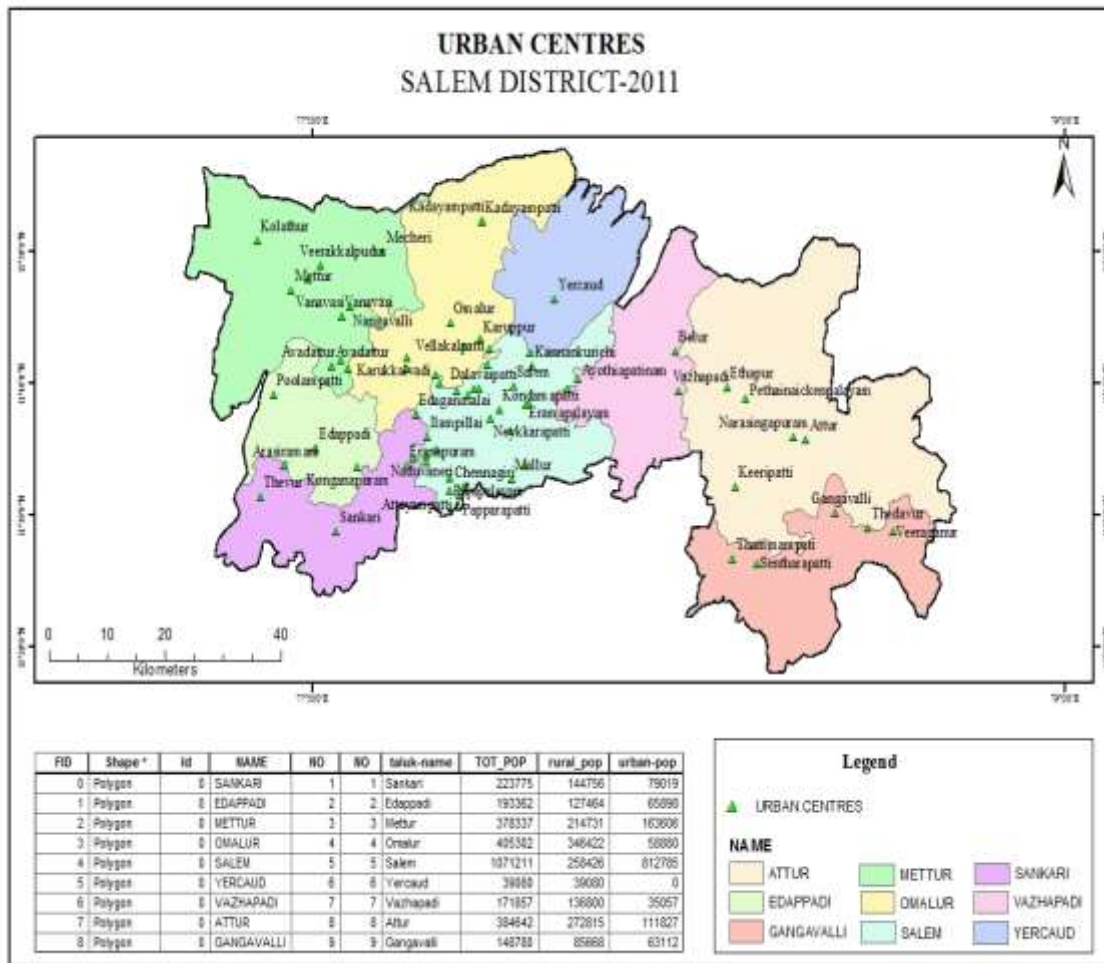
Location of Urban Centres 2001



Name of the Taluks with their population

SL	NAME	TOWNS	WARD NO.	New_Town	Tot_Pop
1	METTUR	149(9)	1-18	6	163606
2	OMALUR	63(4)	1-18	2	58880
3	EDAPPADI	60(3)	1-30	2	65898
4	SANKARI	66(4)	1-18	3	79019
5	SALEM	168(12)	1-60	-17	812785
6	YERCAUD	0	0	0	
7	VAZHAPADI	45(3)	1-15	3	35057
8	ATTUR	96(5)	1-33	4	111827
9	GANGAVALLI	78(5)	1-18	5	63112

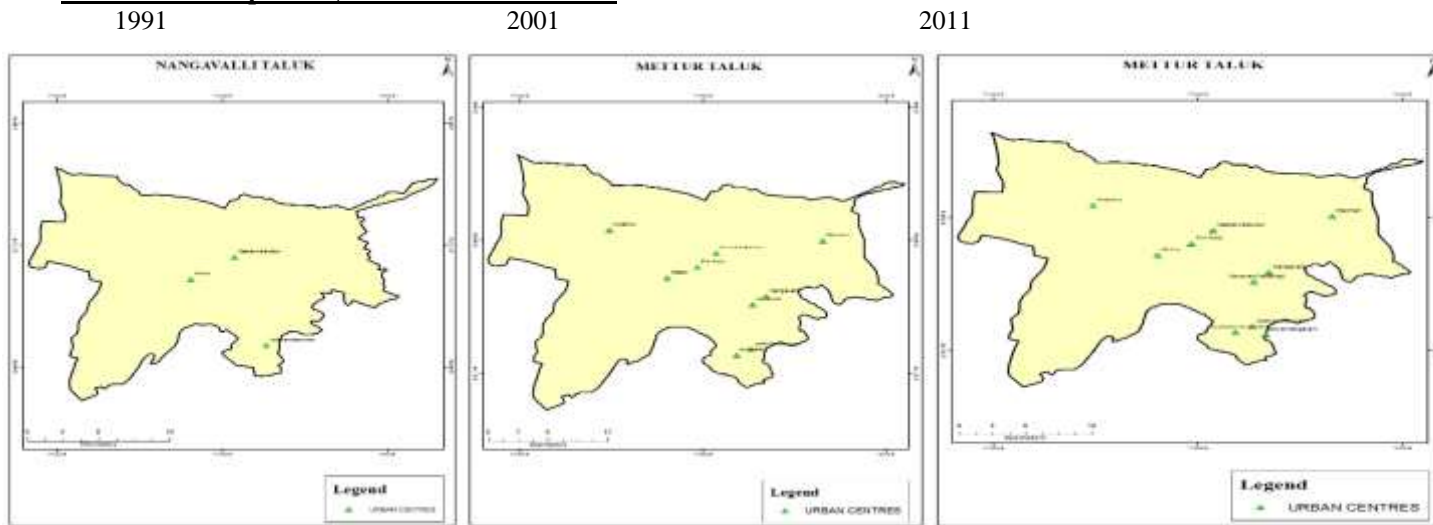
Location of Urban Centres- 2011



Name of Taluks with Towns and population

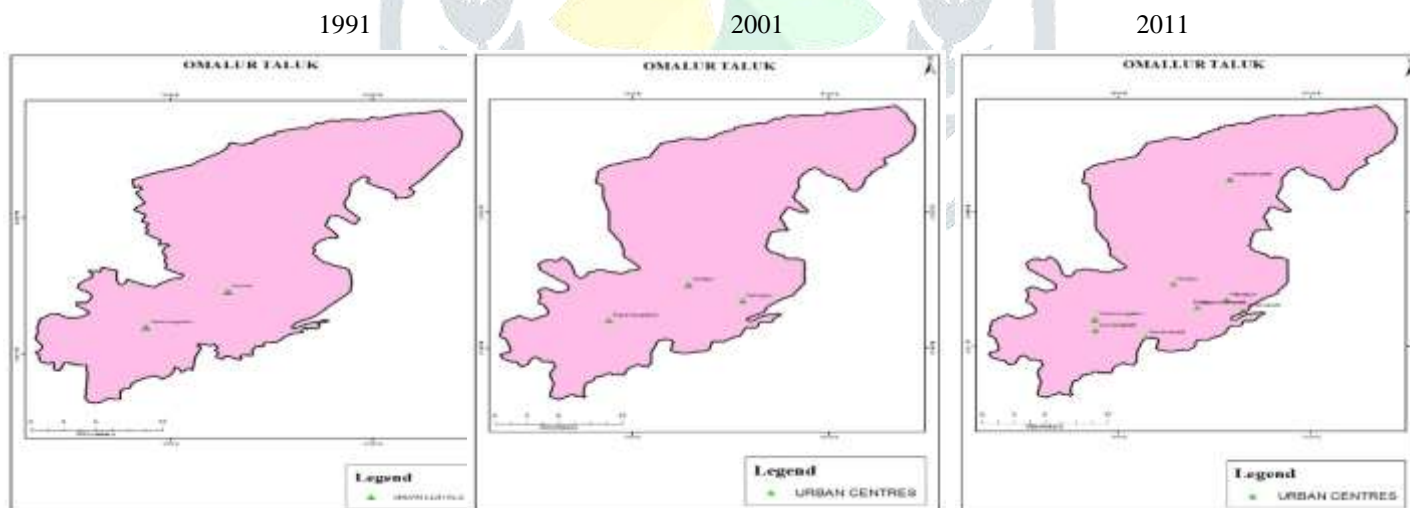
SL	NAME	TOWN	WARD NO.	New_Town	Tot_Pop
1	METTUR	140(10)	1-30	1	182349
2	OMALUR	52(7)	1-18	3	102313
3	EDAPPADI	60(3)	1-30	-	73586
4	SANKARI	69(7)	1-18	3	110436
5	SALEM	154(25)	1-60	13	1055535
6	YERCAUD	1	1	1	11582
7	VAZHAPADI	46(4)	1-15	1	46910
8	ATTUR	96(5)	1-33	-	123731
9	GANGAVALLI	78(5)	1-18	-	67680

Taluk-wise Comparison, Mettur-1991-2001-2011



This are the number of urban centres for the period of 1991-2011. Mettur comprises of 3 urban centres in the year 1991 and 9 urban centres in 2001 with the newly included urban centres i.e; Six (6) and the number of urban centres increased by 1 in the year 2011. Name of urban centres include, Kolathur, Mecheri, Veerakkalpudur, Mettur, P.N. Patti, Nangavalli, Vanavasi, Jalakandapuram, Avadattur and Doramangalam

Taluk-wise comparison, Omalur-1991-2001-2011



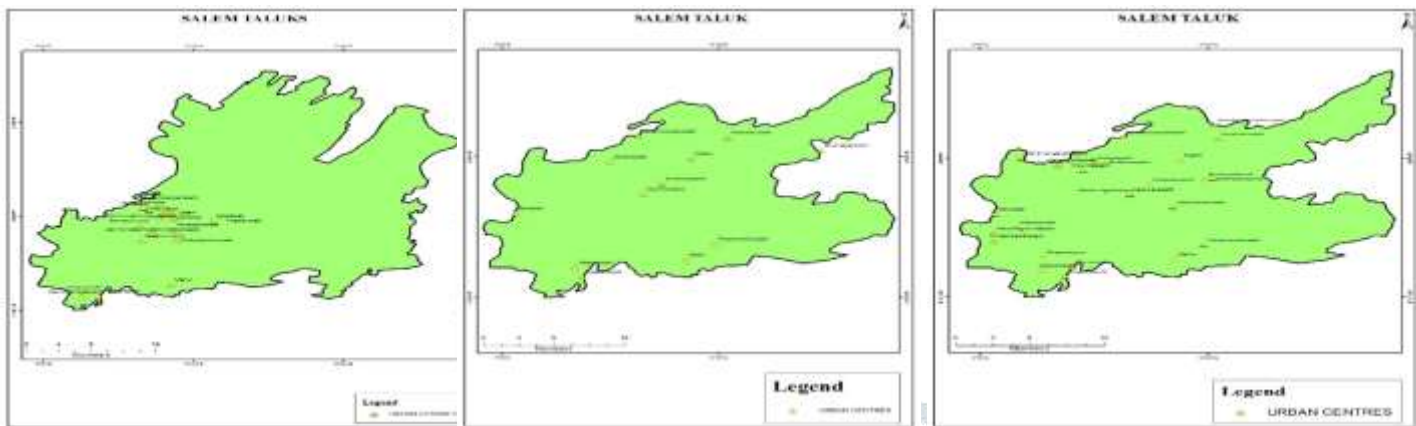
This are the number of urban centres for the period of 1991-2001 and 2011. Omalur in 1991 with only 2 urban centres, there has been an increased by 1 urban centres in the year 2001 i.e; 3 and the year 2011 comprises of 8 urban centres with the added of 5 urban centres. Namely: Kadayampatti, Omalur, Karuppur, Tharamangalam, Kottagoundamapatti, Vellakkapatti, Kurukkupatti and Karukkalvadi.

Taluk-wise comparison, Salem-1991-2001-2011

1991

2001

2011



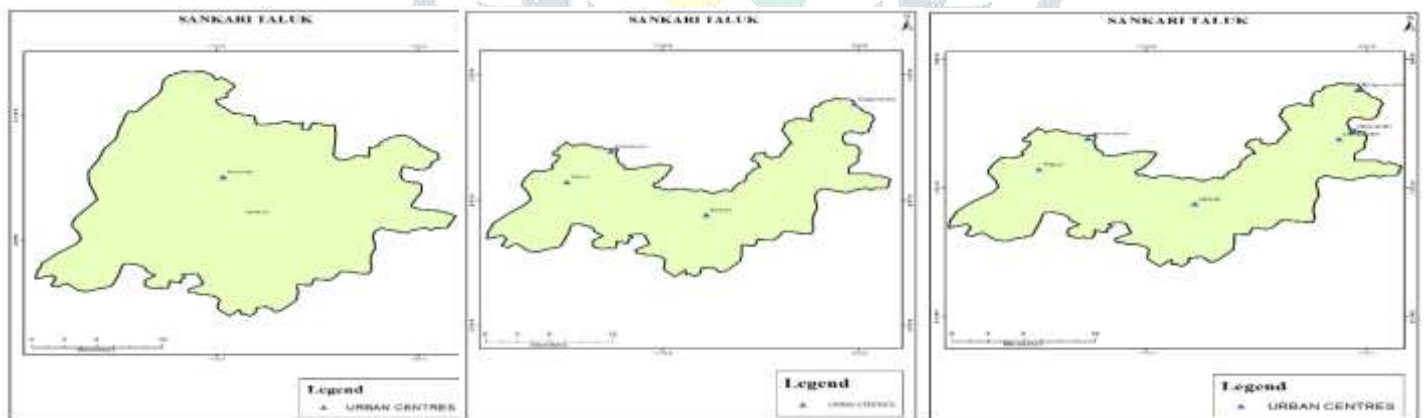
The Taluk of Salem in the year 1991 comprises of 28 urban centres (it is so because in 1991 there was no division of taluks). The year 2001 decreases by 17 urban centres due to the emergence of new taluks that has led to the present of 11 urban centres in 2001. The year 2011 has increased by 14 urban centres with the total of 25 urban centres. Namely: Kannankurichi, Salem, Illampillai, Panaimarathupatti, Mallur, Attayampatti, Kondappanaickenpatti, Dasanaickenpatti, Dalavaipatti, Majaragollapatti, Maramangalathupatti, Tirumalaigiri, Selathampatti, Sanniyasigundu, Erumapalayam, Kondalampatti, Puthur Agraharam, Kalparapatti, Perumagoundampatti, Rajapalayam, Chennagiri and Papparpatti.

Taluk-wise comparison, Sankari-1991-2001-2011

1991

2001

2011



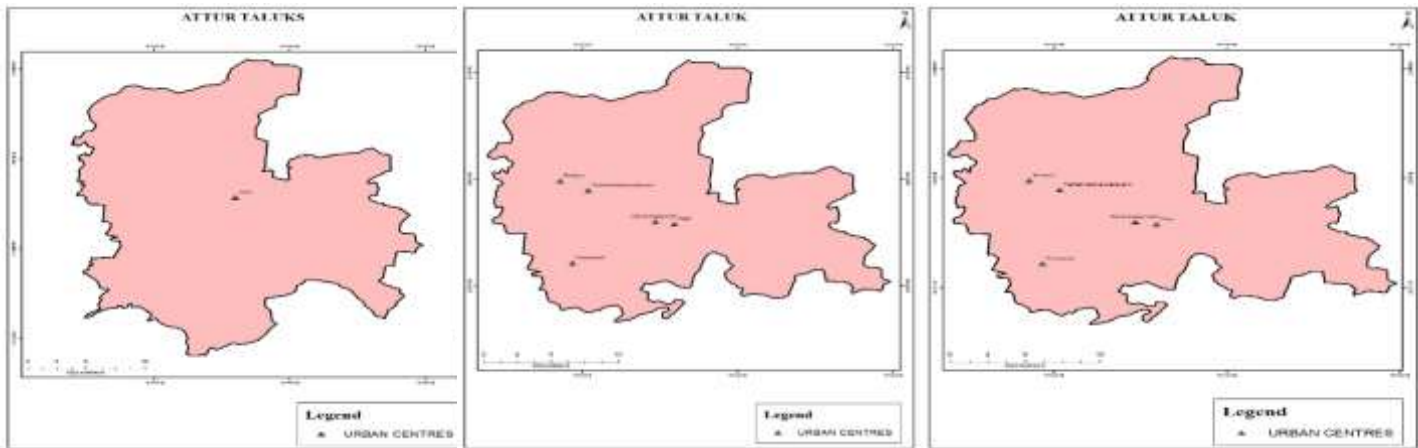
The no. of urban centres in 1991 with the existence of 1 urban centre. The year of 2001 has the 4 urban centres with the newly 3 added urban centres and the increasing of urban centres to 6, increased by 2 urban centres. There has been a change of the taluks boundary because of the emergence of new Taluks that has led to the transformation of the boundary. It is clearly shown on the map about the difference. Namely: Edaganasalai, Arasiramani, Thevur, Sankari, Naduvaneri and Eranupuram.

Taluk-wise comparison, Attur-1991-2001-2011

1991

2001

2011

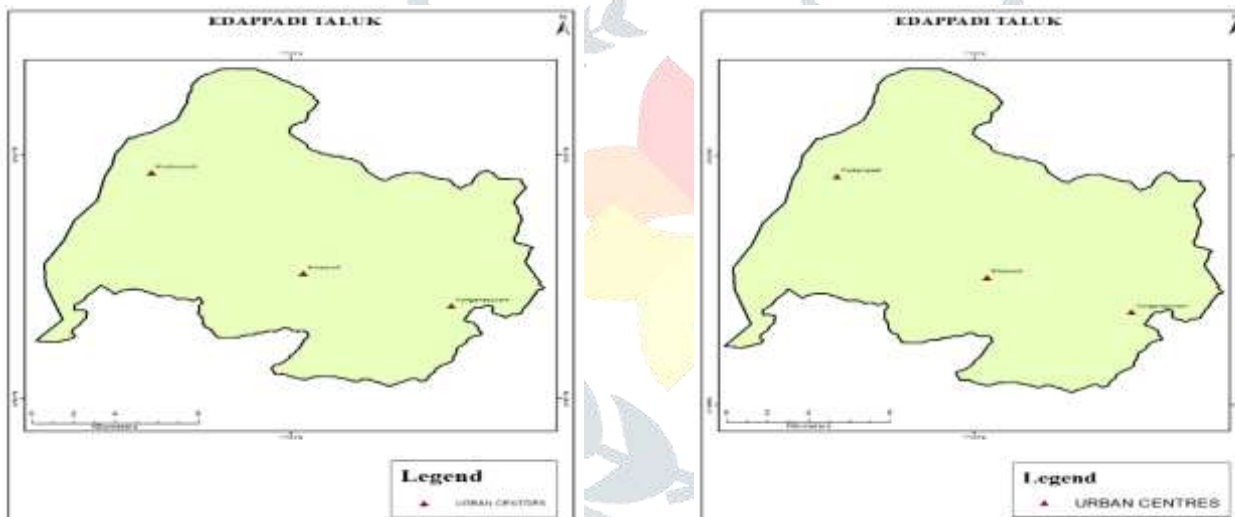


The year 1991 taluks of Attur comprises of 1 urban centre where in 2001 it comprises of 5 urban centres and lastly there are 5 urban centres in 2011. The taluks boundary changes in the year 2001 with the development of new taluks. Namely: Pethanaickenpalayam, Ethapur, Attur, Narasingapuram and Keeripatti.

Taluk-wise comparison, Edappadi-2001-2011

2001

2011

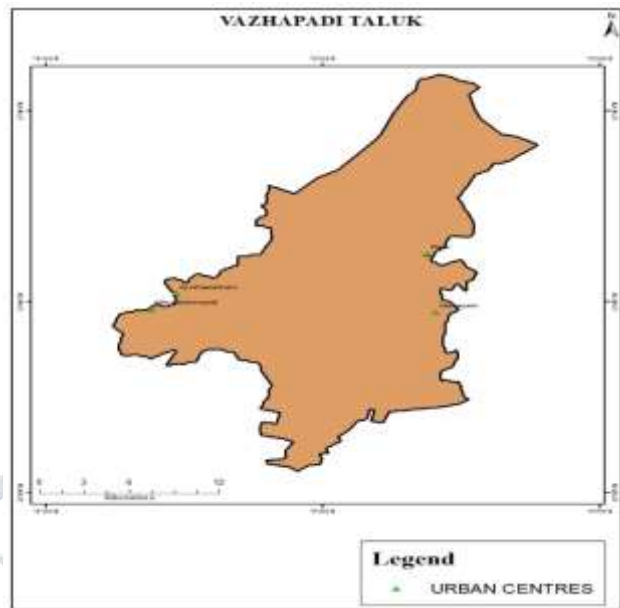
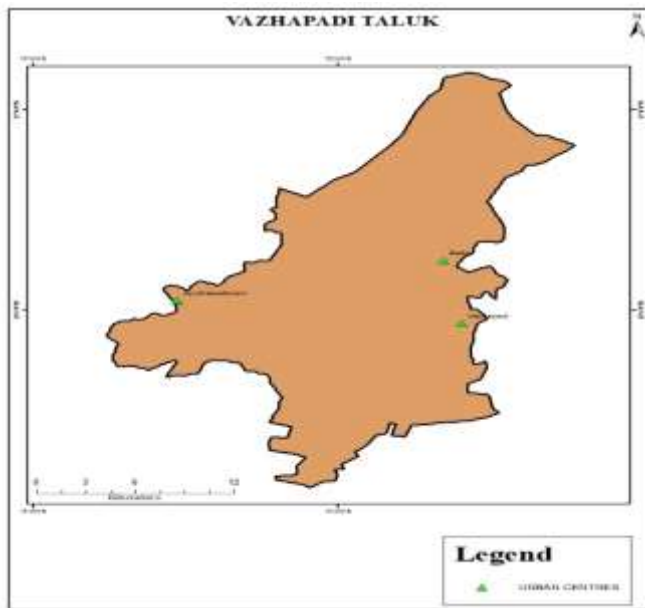


Edappadi taluk is the newly formed in 2001, it comprises of 3 urban centres and also 3 urban centres in the year 2011. Namely: Poolampatti, Edappadi and Konganapuram.

Taluk-wise comparison, Vazhapadi-2001-2011

2001

2011

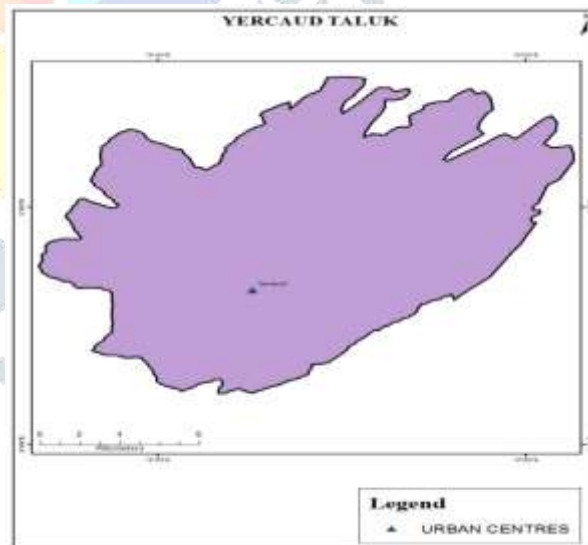
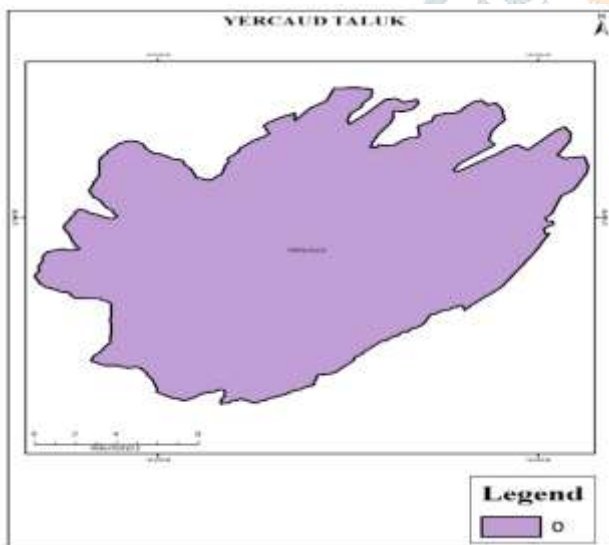


The taluk of Vazhapadi in the year 2001, comprises of 3 urban centres and the newly added 1 urban centres in 2011 i.e; 4. Namely: Bellur, Vazhapadi, Ayothiapattinam and Masinaickenpatti.

Taluk-wise comparison, Yercaud-2001-2011

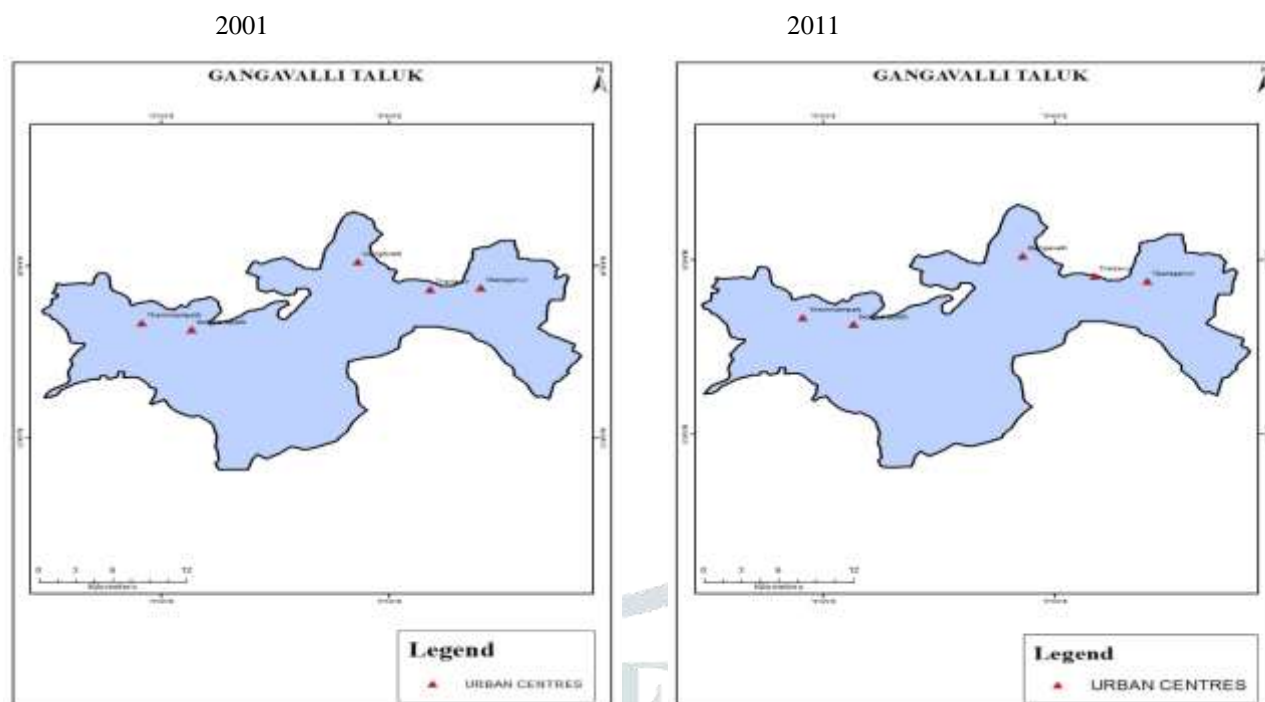
2001

2011



The name Yercaud taluks was a newly formed taluk in 2001 without urban centres and 1 urban centre has developed in the year 2011. The name of the new urban centres is the Yercaud itself.

Taluk-wise comparison, Gangavalli-2001-2011



The Gangavalli taluk comprises of 5 urban centres in the year 2001 and also the same in 2011. Namely: Veeraganur, Thedavur, Gangavalli, Thammampatti and Sentharapatti.

4.2 Discussion

Form the above analysis, it is very clear that Salem District is experiencing a large no. of population rise and the changing of the district boundary. It also shows severe changes and the emergence of new taluks with many urban centres between the period of 1991-2001-2011, there were only five (5) taluks in 1991 and 2001 & 2011 have the same no. of taluks, i.e; 9 taluks.

The above result also highlights that some of the taluks within Salem District has no urban centres. The size of population is shown in the given table “Name of Taluks with towns and population”. The existence of new taluks in 2001 namely: Edappadi, Vazhapadi, Gangavalli, and Yercaud. The period between 1991-2001 shows a high rate of changes where the period between 2001-2011 shows only a little change. Taluks like Salem taluk comprises of large no.of urban centres which is 28 urban centres in 1991 and 25 urban centres in 2011. The least no.of urban centres is in Yercaud Taluk which is 1, Yercaud itself.

IV. Conclusion

The study of the projects reveals that Salem City is one of the fast growing cities in Tamil Nadu, in comparison of the three (3) decades periods census population data between 1991-2001-2011. The rising population has led to the emergence of new urban centres (towns & cities) in the 9 taluks of Salem District. GIS techniques is used in order to the derived the location of Urban Centres within every taluk of Salem District. The conversion of the agriculture and barren land into a built-up area. The approach adopted in this study clearly demonstrated the potential of Geographic Information System (GIS) in measuring the changes within the district. The present study is useful for decision making process and helpful for planners and authorities to formulate a suitable plan for sustainable urban development in the Salem city.

The conversion of the agriculture and barren land into a built-up area. The urban centres area classified according to the numbers of population in the present in a particular area. It also shows that some of the taluk doesn't have any urban centres in their area.

The approach adopted in this study clearly demonstrated the potential of Geographic Information System (GIS) in measuring the changes within the district.

V. References

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