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**Understanding Peri Urban Areas with
the Case Study of Chennai
Metropolitan Area (CMA)**

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"Urbanisation refers to a process in which an increasing proportion of an entire population lives in urban areas."

—(Internet, Hodgson.D.2006).

URBANISATION IS a process of concentration and intensification of human life and activity. It is an uneven process that takes place in a physical environment. Urbanisation is one possible outcome of the three fundamental population processes—fertility, mortality and migration.

Over the last few years, the world has seen rapid increase in urbanisation. The growth is very rapid in developing nations and it is suggested that 90 per cent of urbanisation is happening in developing nations. It is predicted that by 2050, 61 per cent of the world's population will be living in cities and for every one person living in a developed nation, four persons will be living in developing nations (UNFPA 2000).

In 2001, India had the second largest urban population in the world at 286 million as per the McKinsey report. As per Census 2011, 31 per cent of the population in India is living in urban areas. It has increased from 27.8 per cent in 2001 to 31.16 per cent in 2011. As per the McKinsey report, India will have 68 cities with a population of more than one million by 2030, up from 42 today. Urbanisation will spread out across in India impacting almost every state. For the first time in India's history, the nation will have five large states (Tamil Nadu, Karnataka, Gujarat, Maharashtra and Punjab) that will have more population living in cities than in villages.

Tamil Nadu is one of the most urbanized states in India with 48.3 per cent of its population living in urban areas. Chennai, the capital of Tamil Nadu, is one of the four metropolis and fifth most populated city in India. Concentration of population towards metropolitan centres like Chennai has resulted in the expansion/extension of the city. This is linked with the rapid economic growth experienced. This article makes an attempt to study about the urban growth and urban

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expansion of the Chennai Metropolitan Area.

Peri Urban Areas (PUAs)

The rapid urban expansion has led to urban sprawl which in turn formulated Peri Urban Areas. The studies done on the growth of the big cities in India shows the existence of all around the agglomerations of a large peri urban area which includes rural villages and small towns in a highly differentiated space constituting a third urban belt around the cities.

Wikitionary defines Peri Urban Areas as areas immediately adjoining an urban area; between the suburbs and the country side.

Ashok Kumar (2007), defines peri-urban areas as places between rural and urban settlements, which are to tumultuous transformation and contestability among diverse land use. The transformations are a mix of rural and urban uses in the initial stage.

OECD defines Peri Urban Areas as the gray area that is neither entirely urban nor purely rural, in the traditional sense. It is at most the partly urbanized rural area.

Dickinson understood PUAs as a rural area into which residential development is along the main lines of communication.

For Peter Houston Peri-urban areas are "superficially rural districts within the sphere of influence of adjacent urban centres ... generally understood to comprise the zone of transition between the edge of the newest suburbs and the outer limits of the commuter belt".

Thus, the formulation of Peri Urban Areas is a universal phenomena. The following are a few characteristics of Peri Urban Areas.

- o Unplanned growth and settlements;
- o Areas outside municipal boundary, undergoing changes;
- o Transitional zone—neither urban, nor rural;
- o There is change in land use—agriculture to other uses;
- o Change in population and proximity to city;
- o Encroaching farming land and older settlements;
- o Urban areas where rural activities still persist;
- o Services and infrastructure not adequate;

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- o Socio-economic and environmental problems exist;
- o Rural in appearance but people will have jobs in urban areas;
- o Areas may eventually evolve into fully urban;
- o Largely exploited by speculators, individuals, real estate developers and builders; and
- o Areas providing opportunities for rural migrants like construction labour, household service, semiskilled urban service, transport service, etc.

Study Area—Chennai Metropolitan Area (CMA)

Chennai Metropolis [with latitude between 12_50'49" and 13_17'24", and longitude between 79_59'53" and 80_20'12"] is located on the Coramandel Coast in Southern India and the land is a flat coastal plain. Three rivers viz. Kosasthalaiyar, Cooum and Adyar pass through Chennai Metropolitan Area. These rivers are placid and meander on their way to the sea. Buckingham Canal, a man-made canal, is another large waterway which runs north south through this Metropolis. Sholavaram lake, Red Hills lake and Chembarambakkam lake are the three large lakes in the Area. Chennai, formerly known as Madras situated on the shores of the Bay of Bengal is the capital of Tamil Nadu state. It is the fourth largest metropolis in India.

Chennai Metropolitan Area comprises of the area covered under Chennai City Corporation (Chennai District), 16 Municipalities, 20 Town Panchayats and 214 villages forming part of 10 Panchayat Unions in Thiruvallur and Kancheepuram Districts. It extends over 1189 sq. km, and has a population of 7.04 million as per 2011 census (Map 1).

An attempt to study about the urban growth and urban expansion and Peri Urban Areas of the CMA has been highlighted in this article. It covers the settlement pattern and land use changes taken place in PUAs.

Settlement Pattern

After going through extensive literature about Peri- Urban Areas in India and abroad, it is obvious that peri-urban transformations are taking place universally. It is more or less haphazard everywhere. The land in Peri Urban Areas is being converted to urban use from agriculture/vacant land. As far as infrastructure and other facilities are concerned, they lack in all there, CMA is no exception.

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The studies and the work conducted in Chennai periphery as well as the studies done on the growth of the big cities in India shows the existence of all-around agglomerations of a large PUA, including rural villages and small towns in a highly differentiated space constituting one-third of urban belt around the cities.

From the city centre, often made of two original clusters, the colonial and the Indian one, a first urban belt results from the extension of the city from the early 20th Century to the 1950's or the 1960's; this is a densified area where rich residential houses, middle classes buildings, but also industries and shops constitute highly differentiated wards or, on the contrary, mixed together.

The second belt comes from the fast urban development which followed Independence, when large residential colonies, huge industrial areas and immense slums spread all around the cities.

The third belt, on which our focus is, comes from a recent phase of expansion, linked with the rapid economic growth India has experienced from the beginning of the 1990s. Industries, educational institutions and many other activities like farm houses, resorts or leisure parks are constructed or have come up far along the main roads leading to the city. Houses and apartments also are built in numbers in these areas.

This new belt termed as PUA's appears as a place of great dynamism as well as a highly differentiated and hierarchical area. Each road has its specific development when, away from the main axes of communication, rural villages are included into the new urban areas, not from the localisation of many urban activities but from the job opportunities offered are not far off. In any part of this PUA, a large fraction of the local population and the many newcomers are always on-the-move.

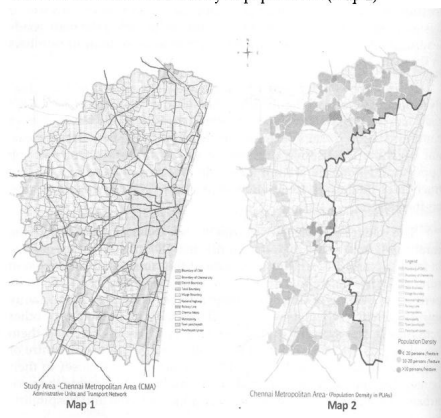
The integration of the PUA into the city dynamics is found in the rural changes in many regions of India, mainly linked with the change in land use and the shifting structure of the rural families. People in rural activities 'leave in droves' to look for jobs in the city (OR) in its periphery. Every working day, a huge number of salaried men, mainly low qualified workers, leave their villages to work in factory or other activities in the morning and comes back late evening. A lot of them travel by bus for 20 to 40 kilometers to their work in the city centre or the close suburb. Some others got the chance to work closer to their home, with their offices located along the main roads crossing the peri-urban area with a booming service sector like Telecom and hospitality,

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etc. They use buses for going to work and also the motorbikes. The same phenomenon explains also the factories established in the third urban belt of rural workers who come from far more distant villages, extending the influence of the city dynamics in the rural area far away from the third urban belt.

The settlement pattern of Peri Urban Areas in Chennai has been examined and it is found that:

- o Faster growing settlements, particularly those with higher size are closer to the city. Therefore, it is inferred that the prosperity of peri urban settlements has an inverse relationship with the distance to the mother city.
- o Peri Urban Areas abutting the city boundary and along the transportation corridors experience high density of population. Whereas, Peri Urban Areas in the western, north western and northern sides have low density of population . (Map 2)



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Land use

Founded in 1639 by Francis Dey, an agent of the East India Company, Madraspatnam, the first English trading post of the East India Company and port of the Bay of Bengal, was a strip of sand five km long from north to south, and 1.5 km wide, where 7,000 inhabitants lived in 1639 (J. Dupuis, 1960, p.397). This privileged setting on the Indian Ocean explains the interest which it provoked in the colonial powers of the 17th Century. In 1901, the town (with an area of 70 sq.km) had a population of 5,40,000 inhabitants. Madras owes its growth, at the end of the 20th Century, to the modernisation of its port and to new industrial activities (textile, tannery) located in some villages not far from the centre. The industries have developed along the great Northern Railway track (between the train station and Ennore) and the Buckingham canal. From the 1920s, the city was already considered a commercial, military and administrative centre of the whole of south India. For this reason, it attracted a large number of migrants from Tamil regions.

Therefore, from a population of half a million inhabitants at the beginning of the 20th Century, the city centre of Chennai recorded more than four million inhabitants in the last census of 2001. The creation of the Chennai Metropolitan Area (CMA)- from an area of 1,189 sq.km. has given an administrative framework to this urban growth; in 2001, the CMA contained more than seven million inhabitants (Table 1 & 2).

CMA- Existed Land Use - 1973

Land Use	Chennai City		Rest of CMA		Total	
	Extent in Hect.	%	Extent in Hect.	%	Extent in Hect.	%
Residential	7788	44.46	9144	8.67	16932	13.77
Commercial	820	4.68	68	0.06	888	0.72
Industrial	893	5.10	2976	2.82	3869	3.15
Institutional	3045	17.38	2260	2.14	5305	4.31
Open space & Recreational	920	5.25	4822	4.57	5742	4.67
Agriculture			73689	69.88	73689	59.92
Non Urban			1633	1.55	1633	1.33
Others	4052	23.13	10865	10.3	14917	12.17
Total	17518	100	105456	100.00	122974	100.00

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Existing Land use -2006 – Extent in Hectares

Land Use	Chennai City		Rest of CMA	
	Extent	%	Extent	%
Residential	9523	54.25	22877	21.87
Commercial	1245	7.09	390	0.37
Industrial	908	5.17	6563	6.28
Institutional	3243	18.48	3144	3.01
Open space & Recreation	366	2.09	200	0.19
Agricultural	99	0.57	12470	11.92
Non Urban	82	0.47	2433	2.33
Others (Vacant, Forest, Hills, Low lying, Water bodies etc.)	2087	11.89	56507	54.03

Based on the land use categories of six land uses, which include residential, commercial, industrial, institutional, open space and recreation and agricultural, analysis revealed that agricultural land is declining and is being replaced by built up space. Area devoted for agriculture was 73 per cent in 1971 which declined to 48 per cent in 1991 and 12.5 per cent in 2006. Whereas, residential area increased from eight per cent to 25 per cent and then to 27 per cent. This has been investigated through land-use map analysis using GIS (Map 3 and 4). The land value has increased, especially after 2005.

Other Facilities

Other facilities like services, transport and solid waste management have been examined in Peri Urban Areas of Chennai and it is found that Water supply is present, though intermittent. However, Peri Urban Areas lack a proper solid waste management system and drainage facility.

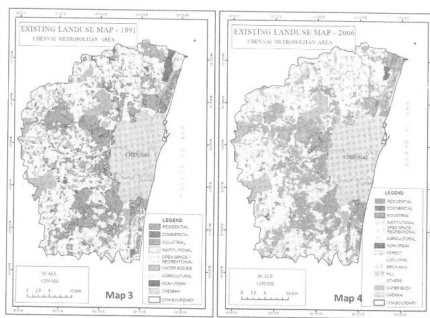
CONCLUSION

Peri-urban development can be considered as part of this wider urbanisation process. With the growth of cities in developing countries, the peri-urban area moves in 'waves'. The peri-urban may be best examined in terms of the development processes. physical, social and economic changes are taking place in Peri Urban Areas.

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Land use has undergone significant transformation during the past three decades. Agricultural land and built up usage have witnessed sharp decrease and increase respectively. But, Peri Urban Areas lack certain facilities. Peri Urban Areas can be groomed before they become urban by providing necessary facilities with comprehensive planning, so that these may be self sustainable.

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