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Coimbatore City Résumé

Sharma Rishab, Thiagarajan Janani, Choksi Jay

2018

Funded by the Erasmus+ Programme of the European Union

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Suggested Reference: Sharma, Rishab / Thiagarajan, Janani / Choksi Jay(2018) City profile Coimbatore. Report prepared in the BINUCOM (Building Inclusive Urban Communities) project, funded by the Erasmus+ Program of the European Union. http://moodle.donau-uni.ac.at/binucom.

Abstract

Coimbatore has a densely populated core that is connected to sparsely populated, but developing, radial corridors. These corridors also connect the city centre to other parts of the state and the country. A major industrial hub and the second-largest city in Tamil Nadu, Coimbatore′s domination in the textile industry in the past has earned it the moniker ‘Manchester of South India’. It is also known as the ‘City of Lakes’ due to its ingenious water-management method, in which existing lake systems were connected to ensure a perennial supply of water.

Over the years, the city′s infrastructure has significantly improved with respect to healthcare, education, entertainment, and entrepreneurship development. The growth of various industries has attracted a considerable amount of migrant workers, many of whom are forced to live in informal settlements in and around the city. This has resulted in an amalgam of culture, language, religion, and tradition t hat manifest themselves through festive occasions celebrated in Coimbatore.

This City Résumé presents an overview of Coimbatore with a special focus on informal settlements and the housing policies that have been adopted by the central and state governments to bring down the number of these settlements in the city. The paper provides insights into the way slums and informal settlements are defined given Coimbatore′s context. It also deliberates on the parameters that enable a better understanding of the above vocabulary.

Keywords: Coimbatore, Informal, Lakes, Housing

Content

Part 1. Coimbatore and its Developmental Fabric

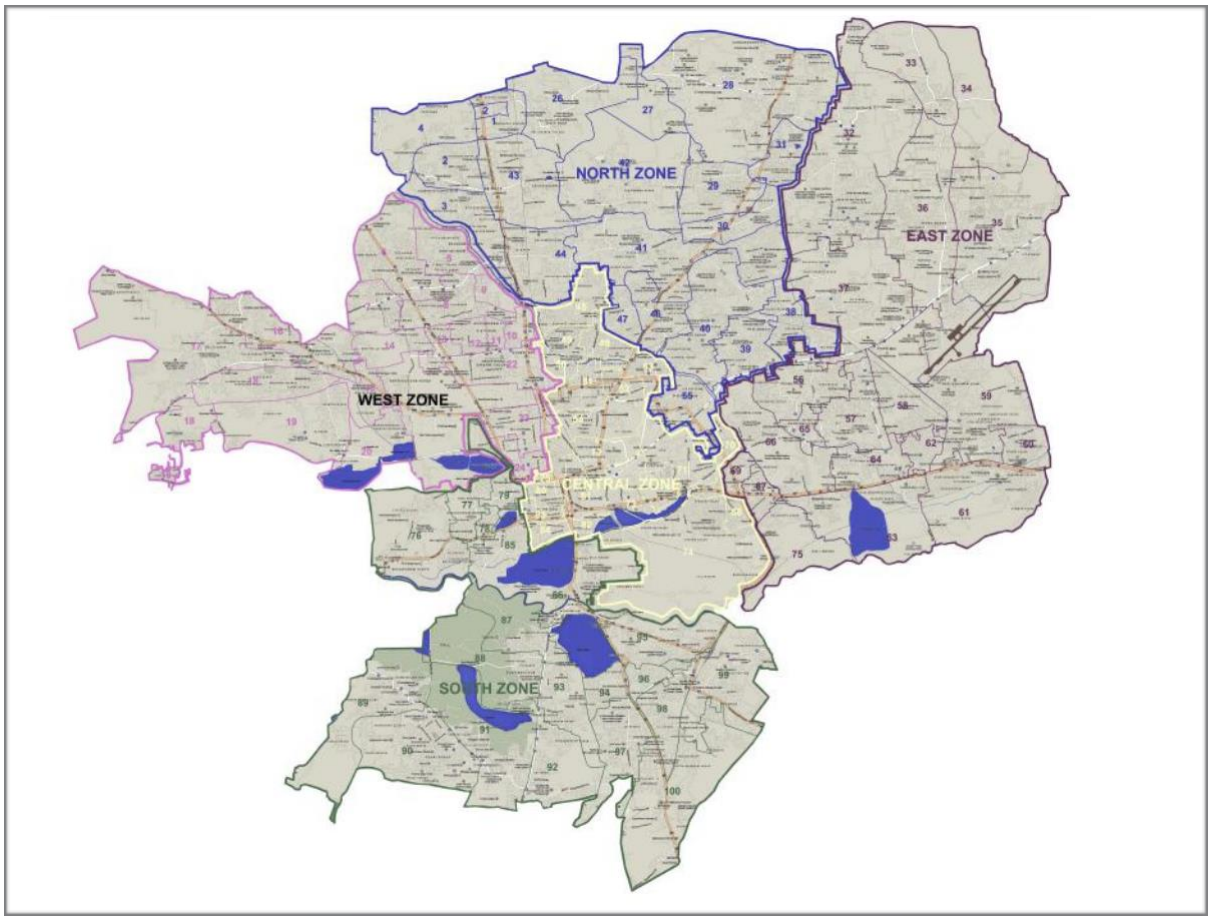


Figure 1: Map showing zones of Coimbatore.
Source: CMCC

Coimbatore derives its importance from its geographical location—in the midst of the three south Indian states of Tamil Nadu, Kerala, and Karnataka.

Many lakes and ponds were dug around Coimbatore in ancient times to reserve the water from the Noyyal River (which originates from the Western Ghats); the city now has 28 lakes (wetlands) in the Noyyal River Basin. Noyyal trails were planned to carry the excess storm water and to avoid flooding in the city, apart from being a source of fresh water along these routes. Due to rapid urbanisation and development, the lake trails have been encroached upon by human inhabitation. Due to a lack of usage, it has now become a dead space and a receptor of sewage, industrial waste, and domestic waste. It has become blight on the city.

The city facilitates exports to neighbouring regions, for it acts as a principle trade route between the west and east coast. Its conducive climate and abundant cotton fields had led to a thriving textile industry in the region. The first textile mill, started by Robert Stanes in the 19th century, led to an influx of workers and, thereby, the formation of informal settlements. However, in the recent decade, Coimbatore has diversified into the tertiary economic sector through education, healthcare, and software

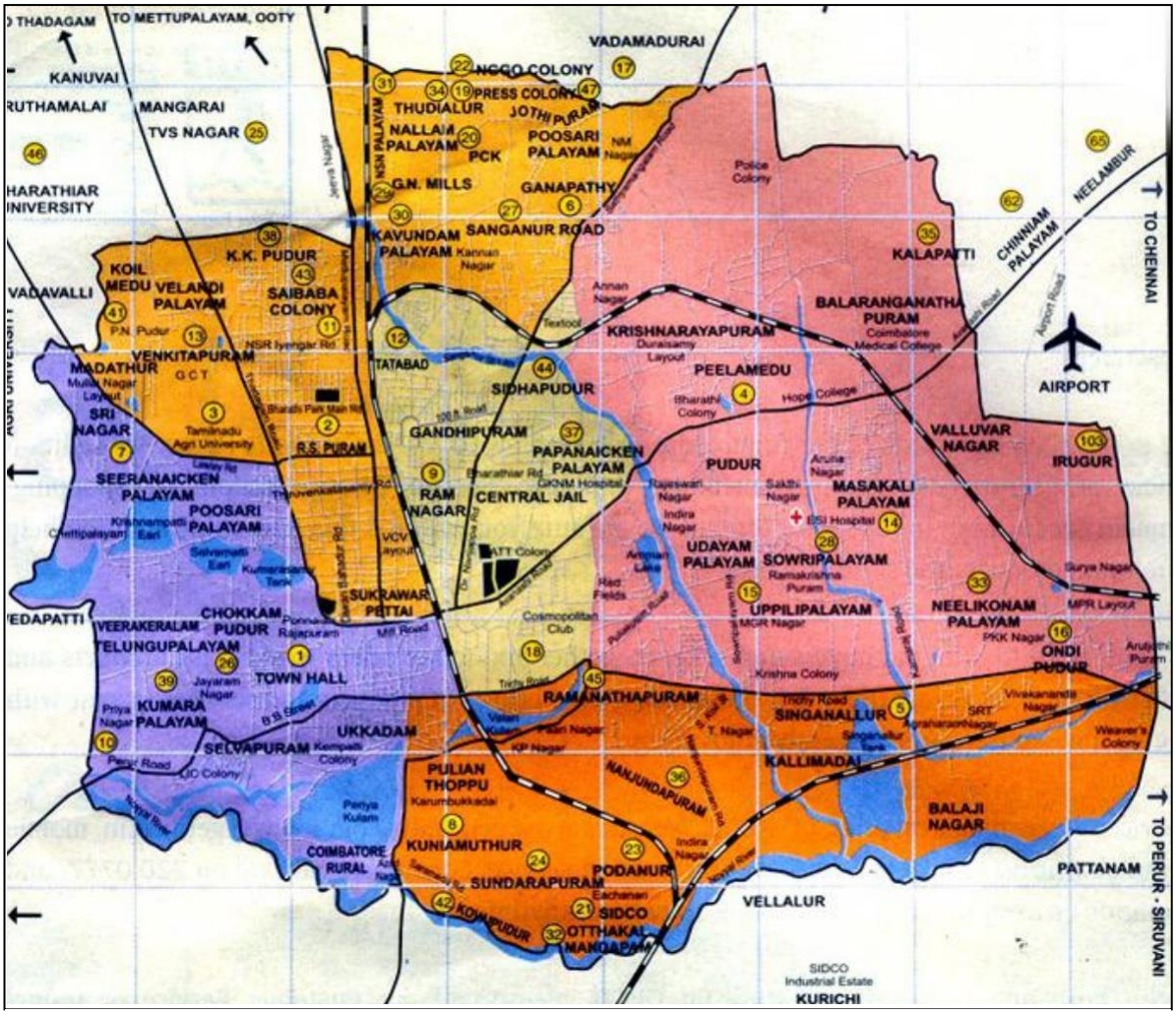


Figure 2:Map showing major places in the city.
Source: CMCC.

1.1. Historic Background

The geographical standpoint of Coimbatore had helped it evolve into a strategic town during the reign of the Chera rulers over this region. A substantial number of migrants from the then Pandya Nadu region of Tamil Nadu had come to and settled in the eastern part of the city (Sundararajan 1991).

On the other hand, the monarchy of the Vijayanagara Empire relocated Devanga weavers, along with numerous peasants and craftsmen, in the Kongu region (Ramasamy 2014)[1]. These migrants decided to settle in the western part of the city. Subsequently, the city was taken from Tipu Sultan in 1799 by the British and annexed into Madras Presidency[2]. Later, it was turned into a military transit town between Palghat in the west and Gazal Hatty in the north (Rothermund 1986). Coimbatore was established as the capital of the newly formed Coimbatore District in 1865; it was accorded the status of a municipality with an area of 10.88 square kilometres in 1866 (tngov.in).
The predominant black soil of the city was conducive for cotton production, thus making way for the growth of the textile and various ancillary industries. The Pykara hydroelectric power station, which provided power at a cheap rate, encouraged textile mills further to set up

[1] Kongu Nadu is a region comprising the western part of the Tamil Nadu. In the ancient Tamilakam, it was the seat of the Chera kings, bounded on the east by Tondai Nadu, on the south-east by Chola Nadu and on the south by Pandya Nadu regions.

[2] the Madras presidency included most of southern India, including the whole of the Indian states of Tamil Nadu and Andhra Pradesh

units in this region. A major thrust to the cotton industry came from the Naidu community[3] in the 1920s and 1930s. Support extended by the British government to the cotton textile industry through the relaxation of import duties furthered its growth in the Madras Presidency (Reddy 2002). Around the end of 19th century, Coimbatore started emerging as an administrative and industrial centre on its merits, and ventured into newer avenues.

The city witnessed two prominent phases of population growth. The first was in 1971–1981, when commercial sectors, such as real estate, institutions, and IT, developed and attracted a new wave of migrants. This led to an expansion of the city limits in the decade 2001–2011, further transforming its demographics (GoI 2011). Post-Independence, a lack of investment in textile machinery, along with competition from China and other South Asian countries, led to the decline of the textile industry. Later, in the 1990s, liberalisation, mechanisation, power cuts, and worker unions forged higher manufacturing cost, thus making mills infeasible to function in the city (Raman, 1992).This was followed by a tectonic shift from textile to machinery in the city's trade and commerce scenario.

The social fabric of the city was strained during a series of bomb blasts in 1998. This had a grave repercussion on social cohesion and caused a slump in the city's economy. The differences between religious fundamentalists had their beginnings in the 1980s. Although the conflicts were sustained during minor issues since then, post the demolition of Babri Masjid (1992), communal tension became severe. At the time, Coimbatore Corporation failed to acknowledge the gravity of the situation. And on 14th February 1998, seven bombs exploded in various parts of the city, claiming more than 58 lives and causing around 200 casualties. Instances of violence in the state's industrial hub affected business; several shops and buildings housing textile companies were gutted in these riots. Ever since, Ukkadam, an informal settlement located at the perimeter of the old city, has been excluded from the city's governance, forcing people of a particular community to reside in this urban ghetto (Ramakrishnamoorthy 2004).

Table 1 : Showing Major events occurred in Coimbatore.

Year	Events
1–4 CE	Chera kings (Sangam period) developed the city as a strategic town during the Nayakas' rule in Madurai.
15 CE	Vijayanagara Empire: Weavers, peasants, and craftsmen settled in the western part of the city.
1789–1799	Anglo-Mysore War, followed by annexure into Madras Presidency.
1804	Coimbatore became the capital of Coimbatore District.
1809	Played a major role as the area of operation during the second Poligar War.
1861	Train service started in Coimbatore.
1866	Constituted as a municipality with an area of 10.88 sq. km.
1876–1878	Great Famine.
1901–1930	Black Death – Plague.
1972	India's first diesel-engine car developed and manufactured in Coimbatore.
1981	Coimbatore Corporation upgraded from special-grade municipality to a corporation, spanning 105.60 sq. km.
1998	Communal riots, followed by bomb blasts.
2009–2010	90 per cent growth in software exports as compared to the statistics of the previous year, 2008–2009.

[3] Kamma is a caste from South India. They sometimes append the caste title *Naidu* to call themselves Kamma Naidu. They are classified as a forward caste.

2015	Smart City Initiative.

Source: Coimbatore development plan

Part 2: Demographics - Growth and Migration Pattern.

As industries in the city thrived, the booming demand for labourers was met with migrant population from neighbouring districts. Many of these rural migrants, in order to get a foothold in the city, erected makeshift housing structures, thereby violating law and ownership rights.

A resounding growth of the textile industry attracted many business and merchant communities from Rajasthan and Gujarat too. Marwaris from Rajasthan first settled in the Sukrawarpet area, whereas Gujarati people preferred staying in the city's peripheral housing localities. Female migrants from the neighbouring states of Kerala and Andhra Pradesh to the city are substantial (Sundari 2007). Those from Andhra (Guntur, Nellore, and Kakinada regions) are extensively employed in the construction sector in the city. The dominant reasons behind this trend are the lack of employment opportunities among the rural poor—a result of the increasing population; mechanisation of agriculture; slow growth of rural industries; and the droughts that affected the region from 1980–1990 and the late 1990s.

The population of Coimbatore has grown from 47,007 in 1911 to 1.6 million in 2011, as per Census 2011—an increase of nearly 22 times. The availability of power and raw materials for textile processing from 1935 onwards led to the establishment of many industries, and the city witnessed nearly a 52% increase in population from 1941–1951. The city registered the highest decadal growth rate of 49.2% from 1971–1981. This is attributed to the upgradation of Coimbatore municipality to the status of corporation, whereby additional areas were included in its jurisdiction. Population increase in 2011 was an outcome of the extension of boundary of Coimbatore Corporation from 105.6 square kilometres to 265.36 square kilometres.

The Wilbur Smith Associates report (2006) suggests that the city extended its limits in the northern, eastern, and southern directions, along major connecting roads. The current residential pattern in the city is being reconfigured due to numerous factors involving the real estate market. Rangai Gounder Street, Edyar Street, Oppanakara Street, etc. formed the old town residential area, which is now witnessing gentrification validated by high property rates. The newly developed residential areas, materialising in the agricultural lands between villages, are adopting gridiron layouts with mixed-use characteristics. Major road networks are observed to be following ribbon-type development.

The commercial hub of Coimbatore is expanding its limits from the old city's Oppanakara Street, Rangai Street, Big Bazaar street, and adjacent areas, to new residential areas such as R.S. Puram and Gandhipuram. Seventeen other areas are emerging as commercial hubs as well. Retail trade is concentrated along Dewan Bahadur Road, Crosscut Road, Avinashi Road, all the way up to Race Course Road, Dr. Nanjappa Road, and N.S.R. Road. There has been a marked shift of retail centres from Central Business District (CBD). To meet future requirements, apart from the commercial reservations that have been made in the detailed development plans, it has been proposed that certain places in the Local Planning Area (LPA) be turned into District Shopping Centres.

Table 2 : Showing decadal growth of municipal corporation and local planning.

	Municipal Corporation	**Local Planning Area**

Year	Population	Decadal Growth (Percentage)	Population	Decadal Growth (Percentage)
1961*	2,86,305	-	7.93	-
1971*	3,56,368	19.71	10.12	27.62
1981**	7,00,923	49.20	12.40	22.53
1991	8,06,321	15.04	14.35	15.73
2001	9,30,882	15.45	16.95	18.12
2011	16,01,438	72.0	34.58	49.01
2020***	18,68,378	16.6	-	-

* Added corporation area population to the Coimbatore municipality's population.
** Upgradation of Coimbatore municipality to the status of corporation.
*** Projected total population growth in the city.

Source: Citywide concept plan

The Local Planning Area has not only attracted large industries like textile mills, textile machinery, foundry engineering, transport equipment, etc., but also medium- and small-scale industries. The major industrial areas are Peelamedu (which houses an industrial estate), Singanallur, and Uppilipalayam. Most of the textile mills and industrial as well as engineering units in the city are located along Trichy Road, Avinashi Road, and Mettupalayam Road. There are 40 large- and medium-scale industries and 63 textile mills, out of which 33 lie within the corporation's limits (within the LPA). Ribbon-type development has been observed all along the major road networks, which spread over 65 per cent and 8.38 square kilometres, with respective to CCMC and LPA (Wilbur 2006). Area proposed for residential use in the Coimbatore LPA master plan for 2001 was 380.72 square

Land use category	As of 2002		Proposed for 2021	
	Area (in hectares)	Share in total land (percentage)	Area (in hectares)	Share in total land (percentage)
Residential	6,318.7	59.8	6,617.1	62.3
Commercial	279.4	2.1	4,335	4.1
Industrial	491.0	4.6	721.4	6.8
Education	661.5	6.3	805.6	7.6
Public and Semi-public	271.9	2.6	452.3	4.3
Agriculture	2,537.5	24.0	1,529.7	14.5

kilometre
Table 3 : Showing Land use percentage.

Source: Citywide concept plan

The city experiences growth in population due to rapid industrialisation and emerging educational institutions, both in the urban context and the outskirts—these lead to an increase in land use. The city's east zone has seen a rise in commercial land use, while the north and west zones have witnessed a steady incline in residential land use.

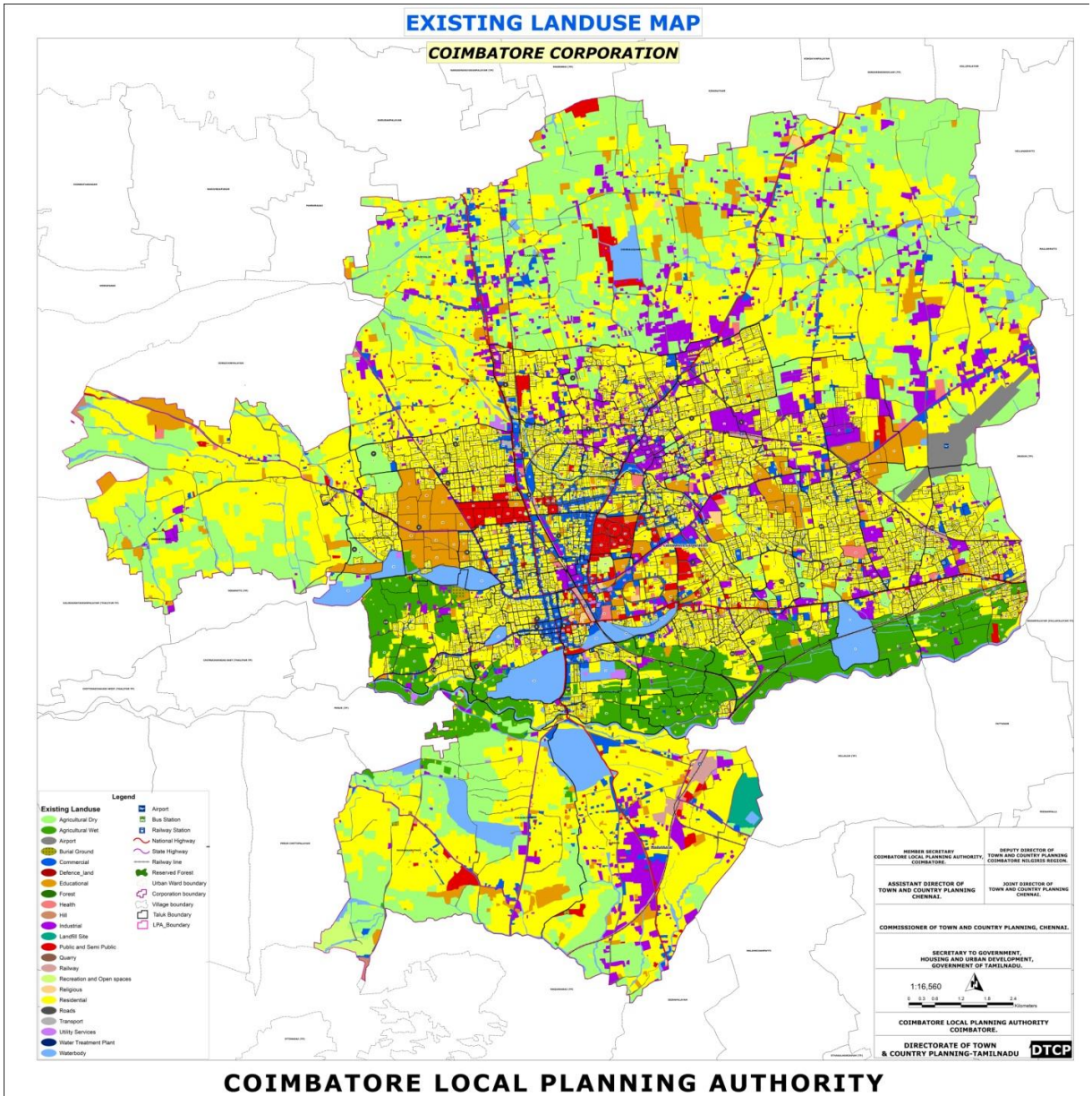


Figure 3 : Land Use Pattern, 2011.
Source: Master Plan of Coimbatore, LPA 2011.

Part 3: Economy and Labor Markets.

Coimbatore is the largest industrial centre after Chennai in Tamil Nadu, and is a part of the Coimbatore-Tirupur–Erode Industrial Corridor. The textile industry needed supporting industries to sustain its growth. This need led to the manufacturing of textile machinery in the city.

Another observation, though, is that crippling power cuts in Tamil Nadu were forcing factories to shut down, threatening to cause an industrial debt crisis and wrecking its second-largest city's plan to become India's next business Mecca (Anupama Chandrasekaran, 2013). Two-thirds of India's requirement of electric motors and pumps are manufactured in Coimbatore (Coimbatore District Administration, 2015). Acute power shortages were a major constraint faced by industrial enterprises in the city since October 2007. The Tamil Nadu government had imposed a 40 per cent cut on base demand of energy for all High-Tension (HT) industrial establishments and 20 per cent cut on energy for Low-Tension (LT) transformer and Low-Tension Current Transformer (LTCT) industrial units in the state from 1st November 2008 to 25th May 2009. In addition, industrial units had been restricted from drawing power during the peak hour period of 6 p.m. to 10 p.m.

As a result, several textile and engineering firms in Tamil Nadu were operating at 50 per cent or less. Small entrepreneurs in Coimbatore suffered production losses due to power interruptions even after paying INR 4.30 or more per unit (or per kilowatt-hour) of electricity. Many of them compared themselves with multinational companies, such as Hyundai located in Chennai, which were offered an uninterrupted power supply at cheaper rates as a part of the Memorandum of Understanding (MoU) signed by these companies with the Tamil Nadu government (Kathuria 2014).

Even after the decline of textile mills, the city's large textile and ancillary industries comprised 2,044 industrial units (District Industries Coimbatore 2013–2014); and, the machinery manufacturing sector provided the highest share of employment, its workforce statistic reaching 19.3 million (Industrial profile of Tamil Nadu 2013–2014).

Part 4: Transport.

Coimbatore, being a land-locked region, primarily relies on road, rail, and air transport. It is not surprising that the city's transportation network is good, given that its development had much to do with its location at the crossroads of Kerala and Tamil Nadu.

4.1. Road network.

Coimbatore is well connected by road to most towns and cities such as Bengaluru, Chennai, Madurai, and Trichy. The city and its environ are served by a radial road network comprising five state highways and three national highway. The following are the major national highways:

(i) NH-47 (Cochin-Salem).

(ii) NH-67 (Mysore-Nagappattinam).

(iii) NH 209 (Bangalore-Dindigul).

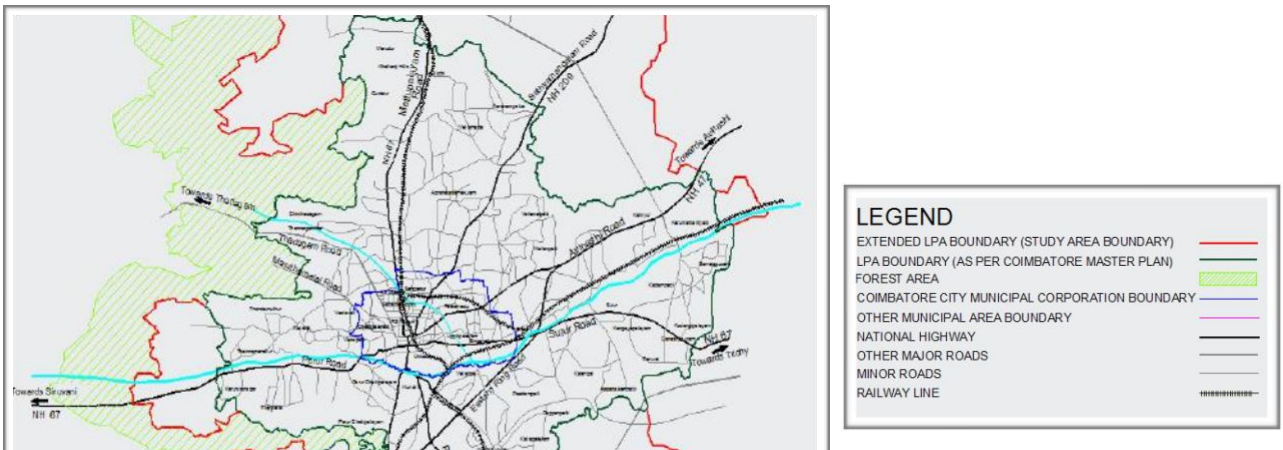
The major state highways include the following:
(i) Avinashi Road.

(ii) Trichy Road.
(iii) Mettupalayam Road.
(iv) Pollachi Road.
(v) Palghat Road.

Coimbatore Corporation, along with the State Highways, Rural Works, and the National Highways departments, maintain roads in the city. Apart from the above, other principal arterial routes that radiate from the city centre are as follows:
(i) Perur Road.
(ii) Maruthamalai Road.
(iii) Thadagam Road.
(iv) Saravanampatti Road.

The Corporation maintains a large road network of 635.52 kilometres. The total road length, including the state highways, is 707.24 kilometres. The highways passing through the city account for about 48 kilometres alone. However, an absence of link roads to connect these radials had resulted in a lack of route continuity, causing an unnecessary strain on the arterial routes. Road improvement works and planning in residential areas to reduce such problems were initiated, and the following link roads were formed in 2010 at an estimated cost of INR15.1 crore by availing of funds from the LPA and the state government:
(i) Renga Vilas Mill Road (to a length of 3 kilometres).
(ii) Masakalipalayam Road (201 metres)

(iii) SNR College Road (800 metres)
(iv) CODISSIA Road (1.12 kilometre)



Source: Master Plan of Coimbatore, LPA 2011.

4.2. Public Transport

Most of Coimbatore's intra-city mobility requirements are met by an extensive public transport system. Bus services are provided by both the government-owned TNSTC and private parties. About 1,257 buses run on 322 routes across the city. These services are affordable even for the urban poor, especially the private-run, with the minimum fare being INR 3.

According to research and field visits, the prominent issues facing the city's roads and transport corridors have been identified and presented below. Key indicators are used to assess the service (in)adequacy of Coimbatore Corporation.

4.2.1. Inadequate Coverage

There is only 6.01 kilometres/square kilometres of road coverage, as compared to national norm of 10–15 kilometres/sq.kms, attributed to the huge Corporation extents. Inadequate coverage is noticed in the newly developed layouts and in the extended areas.

4.2.2. High Density and Congested Lanes

Roads in the old city areas are narrow and surrounded by heavily built-up areas. These roads also carry large volumes of traffic due to the presence of wholesale markets and commercial trading in the areas, resulting in delayed travel time and a high risk of air pollution. Moreover, the buses on some routes can get very crowded.

4.2.3. Encroachment

The margins of major roads are encroached by illegal parking and other informal activities. With no margins left on the roads, the effective carriageway of the road is reduced drastically, leading to congestion and a high possibility of accidents.

4.2.4. Absence of Street Furniture

Roads lack signals, signage, and footpaths. Improper sweeping practices have resulted in most roads being covered with silt, which further brings down driving safety.

4.2.5. Pedestrian Traffic

In the city, walk trips constitute nearly 29 per cent of the total trips undertaken. Pedestrian volume is high in commercial areas, near bus stands and railway stations (Wilbur Smith Associates 2006) .

Part 5: Infrastructure

Coimbatore's weather is uniformly salubrious, owing to its elevation and the influence of the Palghat Gap[4]. The average maximum and minimum temperatures are 35.8°C and 22.4°C respectively. The city falls in the rain shadow formed by the Western Ghats and receives an average (scanty) annual rainfall of 630 mm.

The water supply to the city is taken care of by the Siruvani and the Pillur water treatment plants, which are under the operation and maintenance (O&M) of the Tamil Nadu Water Supply and Drainage (TWAD) Board; the distribution of water comes under the Coimbatore Municipal Corporation.

5.1. Water Distribution System.

[4] Palghat Gap is a low mountain pass in the Western Ghats between Coimbatore in Tamil Nadu and Palakkad in Kerala. It has an average elevation of 140 metres (460 ft) with a width of 24–30 kilometres (15–19 mi). The pass is located between the Nilgiri Hills to the north and Anaimalai Hills to the south.

Pillur Dam and Siruvani Dam on River Bhavani and River Siruvani respectively are the two major sources for drinking water supply to Coimbatore city. The O&M agency for these is the Tamil Nadu Water Supply and Drainage (TWAD) Board. At present, the city gets 36 million litres per day (MLD) from Siruvani Dam and 65 MLD from Pillur Dam. The supply of drinking water is maintained at 110 litres per capita per day (lpcd).

There are two water treatment plants—one at Siruvani Adivaram, and another at Velliangadu. The Siruvani scheme supplies water to the city through 20 Over Head Service Reservoirs (OHSRs) and Pillur through 27 OHSRs. The scheme draws 131.25 MLD of raw water from Pillur Dam, which was constructed across River Bhavani by the Tamil Nadu Electricity Board for power generation. The requirements of Coimbatore Corporation are tapped at the water transmission main at the Sathy Road crossing and fed to the 3 ML capacity MSR at Ramakrishnapuram, while the requirement of 22 town panchayats is drawn from eight feeder mains.

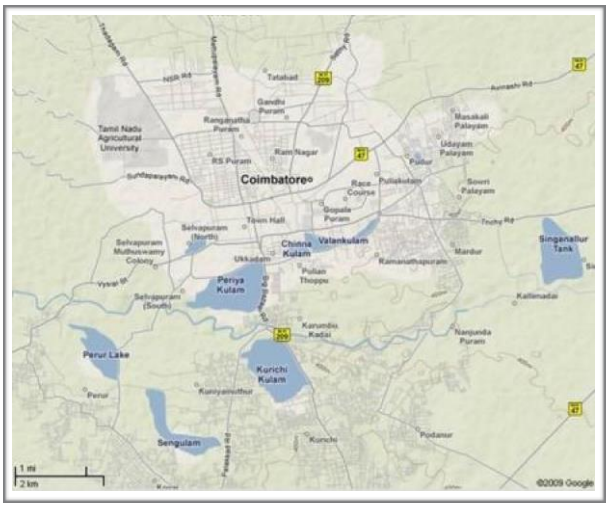


Figure 5: Water bodies in Coimbatore.

5.2. Solid Waste Management

Solid waste management in Coimbatore comes under the Corporation's Health Department. The solid waste generated per day within the city is of the order of 800 tonnes. Households, hotels, restaurants, industries, hospitals, market places, slums, bus stands, and community halls are the major points for the generation of solid waste in the city.

About 85% of the daily waste generated is collected from 700 dustbins, which have been placed at various street corners in the city, by nearly 2,400 sanitary workers who have been specially engaged for this work. The garbage generated is transferred to dustbins by hand-drawn carts. To collect the large quantum of waste, 200 dumper containers—each 6 tonnes in capacity—are used. To remove the garbage from these dumper containers periodically, 16 dumper placers have been provided. The waste is then moved from there to the transfer station at Gandhipuram. Given the increasing amount of waste being generated, there is a proposal to set up another transfer station at Ukkadam.

5.2.1. Disposal Sites

There are three landfill sites for the disposal of solid waste: Goundampalayam, with an area of 50 acres, at a distance of 10 kilometres from the city on Mettupalayam Road; Ondipudur, 10 kilometres from the city; and Nanjundapuram, situated 2 kilometres from the city. Five excavators, four frontend loaders, and a prime mover are used to transport the solid waste to these disposal sites. An incinerator has been specifically installed at Chockampudur for the disposal of hospital waste.

5.2.2. Sewerage and Treatment

The Coimbatore Municipal Corporation area of 105.6 square kilometres has been divided into six zones to facilitate the design of a comprehensive sewerage and sewage treatment

system that covers the entire area and population. Of these, zones I to III—covering an area of 23.1 square kilometres—already have a system of sewers; in zones IV to VI—covering 82.5 square kilometres—a sewerage system is being provided as we write this paper. The total length of the sewer lines is 162 kilometres. The total number of septic tanks is 33,610, out of which zones IV, V, and VI that are yet to be provided with a sewerage network comprise 23,000 septic tanks. The city's soil being impervious (clayey black cotton soil), soak pits cannot be constructed. The sewage is treated in two plants, located at Ukkadam, which have a respective capacity of 24 MLD and 44 MLD.

5.2.3. Storm Water Drainage

Coimbatore falls in the rain shadow cast by the Western Ghats, so it does not receive much rain annually. Hence, the groundwater table is not appreciable when compared to the neighbouring state of Kerala. The rainwater harvesting (RWH) movement, launched in 2001, was the brainchild of the Honourable Chief Minister. It has had a tremendous impact in recharging the groundwater table all over Tamil Nadu. Amendments made to Section 215 (a) of the Tamil Nadu District Municipalities Act, 1920, and Building Rules, 1973, have made it mandatory to construct RWH structures in all new buildings.

The city's topography is such that it slopes from its northern side towards the southern end, and from the western side towards its eastern end. The slope benefits storm-water run-off, which is further facilitated by the path of natural drains. Noyyal River forms the southern boundary of the Coimbatore Corporation and acts as a major drainage course, carrying the storm-water discharge. Most of the tanks are located in the southern part of the city, and they finally drain into Noyyal River. However, these tanks have been encroached upon heavily—some cultivation is also being carried out in these tank beds. In addition to roadside drains, the city is well served by a network of natural drainage channel.

Part 6.Administrative Authorities

Source: (CCMC , GOTN , IMaCS Analysis)

GOI: Government of India | GoTN: Government of Tamil Nadu | DMA= Directorate of Municipal Administration | TWAD= Tamil Nadu Water Supply and Drainage Board | TNSCB=Tamil Nadu Slum Clearance Board | TNSCB=Tamil Nadu Slum Clearance Board| TNSTC= Tamil Nadu State Transport Corporation | TNHB=Tamil Nadu Housing Board | DTCP=Department of Town and Country Planning PWD- Public Works Department | TNEB- Tamil Nadu Electricity Board.

Agencies	Functions and Governing	Function in the State of Tamil Nadu
The key departments of Government of Tamil Nadu		
The Municipal Administration and Water Supply department **(MAWS)**	Directorate of Municipal Administration (DMA) Tamil Nadu Water Supply and Drainage (TWAD)	Responsible for Municipal Administration and Water Supply.
The Housing and Urban Development department **(HUDD)**	Directorate of Town and Country Planning (DTCP)	Responsible for urban planning and housing
	The Tamil Nadu Housing Board (TNHB)	Mandated with provision of plots and ready-built houses
Department of Energy (Tamil Nadu)	TNEB LimitedTamil Nadu Generation and Distribution Corporation Limited	Responsible for electricity generation& distribution and transmissions
	Tamil Nadu Transmission Corporation Limited.	
The Transport department	The bus transport undertakings of Coimbatore come under the Tamil Nadu State Transport Corporation (TNSTC)	Responsible in case of projects implemented by the Southern Railway and the Civil Aviation of the Government of India
The Public Works department **(PWD)**	The department functioned under the control of Secretary to GoTN	Responsible forpolicy making on all matters concerning the Building organizations and Water Resources Organization
The Highways and Ports department **(DoH)**	-	Responsible for formulating polices laws, regulations and various programs to improve roads, highways and bridges for land transport and ports for sea transport.

The Department of Environment **(DoE)**	-	Responsible for planning, promotion, coordination and overseeing implementation aspects relating to Environment, other than those dealt with by TNPCB.
The Tamil Nadu Slum Clearance Board **(TNSCB)**	Under the Tamil Nadu Slum Areas (improvement &clearance) Act 1957	Responsible for eradication of slums through provision of housing, infrastructure and livelihood programs in slum areas.
Education: Department of School Education (Tamil Nadu)	The Government Departments of Tamil Nadu	Which formulates policies, laws, regulations and various programs based on the needs of the society in the field of School education
Department of Higher Education (Tamil Nadu)	-	Formulates policies, laws, regulations and various programs based on the needs of the society in Higher education
Department of Health and Family Welfare (Tamil Nadu)	The Government Departments of Tamil Nadu	Which formulates policies, laws, regulations and various programs for the family welfare and health of the society
The Tamil Nadu Pollution Control Board **(TNPCB)**	-	Responsible for monitoring and control of air, noise and water pollution
The Tamil Nadu Urban Finance and Infrastructure Development Corporation **(TUFIDCO)**	Designated the State-level Nodal Agency (SLNA)	Responsible for sponsored urban infrastructure development schemes of Smart Cities, Atal Mission for Rejuvenation and Urban Transformation (AMRUT) and Integrated Development of Small and Medium Towns (IDSMT). Financial assistance to the Urban Local Bodies (ULBs)from its own sources for various infrastructure developments.

The Tamil Nadu Urban Infrastructure Financial Services Limited **(TNUIFSL)**	Public- Private Partnership in urban section promoted by GoTN	Responsible for to manage various funds, including the Tamil Nadu Urban Development Fund (TNUDF).
Airport Authority of India **(AAI)**	Under the Ministry of Civil Aviation	Responsible for creating, upgrading, maintaining and managing civil aviation infrastructure in India
National Highway Authority of India **(NHAI)**	An autonomous nodal agency of Ministry of Road Transport and Highways.	Responsible for the development, maintenance, management and operation of National Highways.

Source: (CCMC , GOTN , IMaCS Analysis)

Part 7. Scenario of Informal Settlements

A subjective, value-free definition of 'slums' is extremely difficult to develop (Bhide 1998). In his paper, Bhide has also outlined three broad categories of slums—slums that have been created, slums that have been generated, and slums that are a part of project housing. Based on these definitions, and according to their morphological pattern, slums were classified into six different categories:

a. Slums near residential areas..
b. Slums in the vicinity of industries.
c. Slums along *kulams* (large water tanks).
d. Linear slums along roads, railway tracks, and nullahs (drains).
e. Slums in agricultural areas.
f. Slums in project housing.

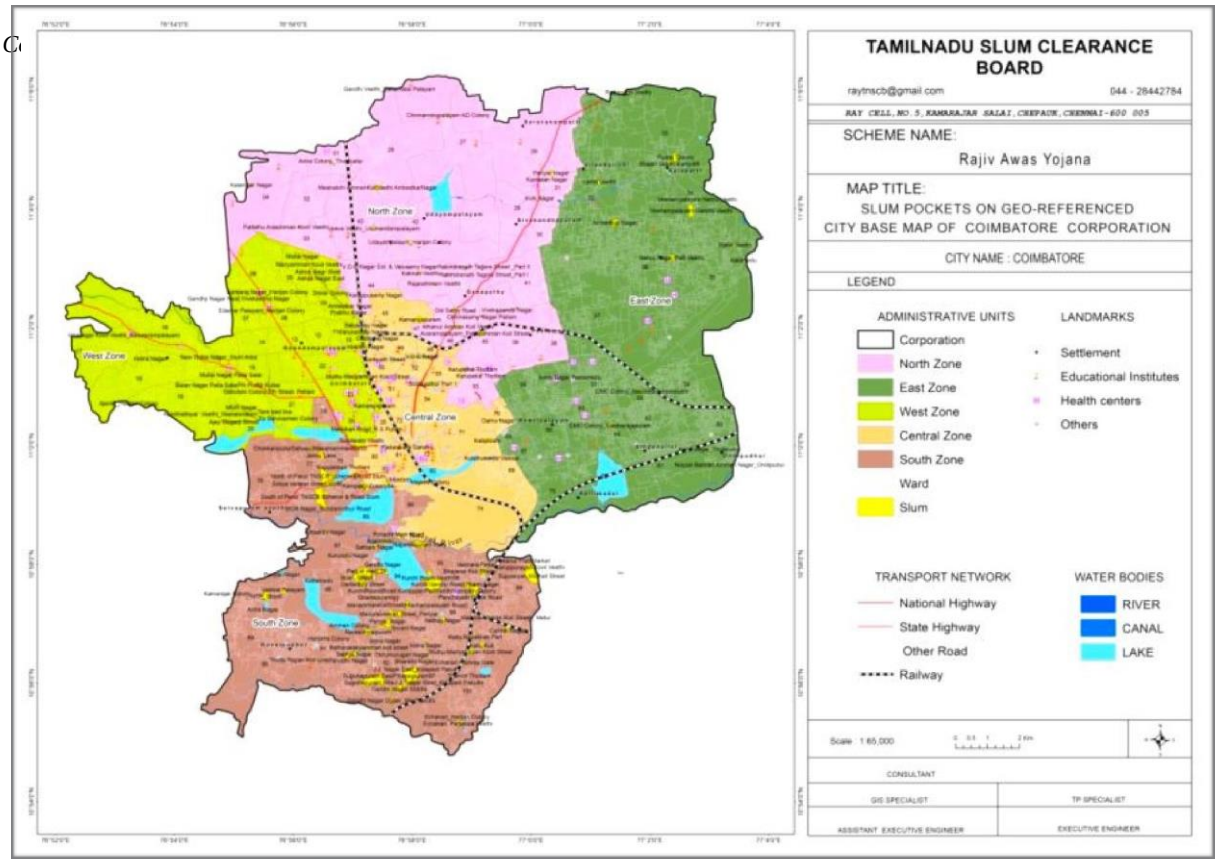


Figure 6: Map showing slum pockets in coimbatore
Source: Tamil Nadu Slum Clearance Board.

Coimbatore city—industrialisation being its chief economy driver—attracts several migrants from rural areas. This results in the emergence and rise of illegal slums and squatter settlements, which usually have unhealthy living conditions. High land prices with inappropriate and unclear land ownership, along with poor access to credit and inadequate provision of serviced land, have further triggered the growth of slums in the city.

7.1. Spatial Segmentation in the City

Coimbatore city has a total of 319 pockets of slums comprising a total 46,650 households, distributed among five zones (Tamil Nadu Slum Clearance Board 2006). Each zone has 20 wards—in all, the zones are made up of 100 wards along the area of Coimbatore Corporation.

Table 4 : Showing households units in five zones of Coimbatore

	North Zone		East Zone		West Zone		Central Zone		South Zone		Total	
	No. of Slums	No. of Households	No. of Slums	No. of Households	No. of Slums	No. of Households	No. of Slums	No. of Households	No. of Slums	No. of Households	No. of Slums	No. of Households
Teneable	15	1498	13	1400	13	1589	6	1097	69	13767	116	19351
Unteneable	11	1101	4	228	22	2176	18	3022	44	4059	99	10586
Total	26	2599	17	1628	35	3765	24	4119	113	17826	215	29937

Source: Report Slum Free City Plan of Action - Coimbatore Corporation.

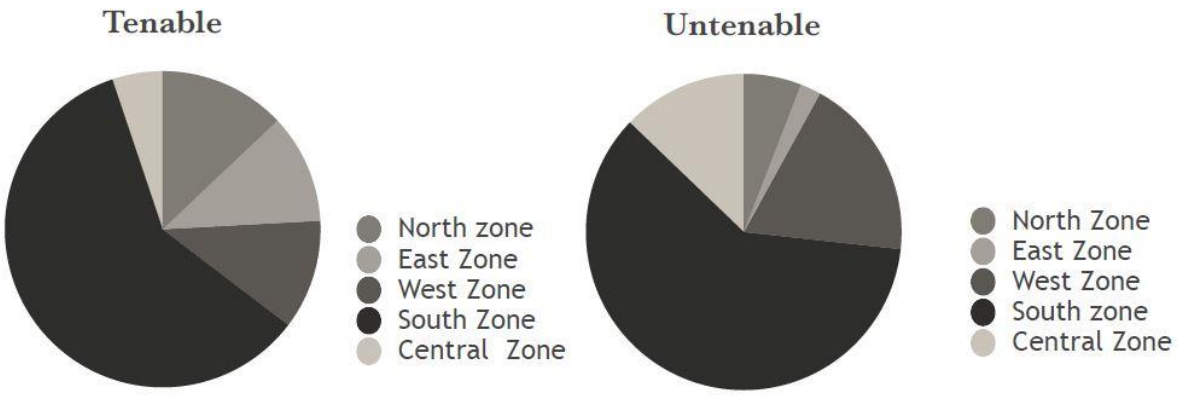


Table 5 : Showing details of Slums in Coimbatore Corporation

S.NO	Name of the Slum	No. of Slums	Households
1	Developed Slums under TNUDP Schemes by TNSCB	44	5964
2	Slums not Surveyed under RAY due to Opposition fromSlum Dwellers	60	10749
3	Surveyed Slums under RAY (RAY)	215	29937
	Total	319	46650

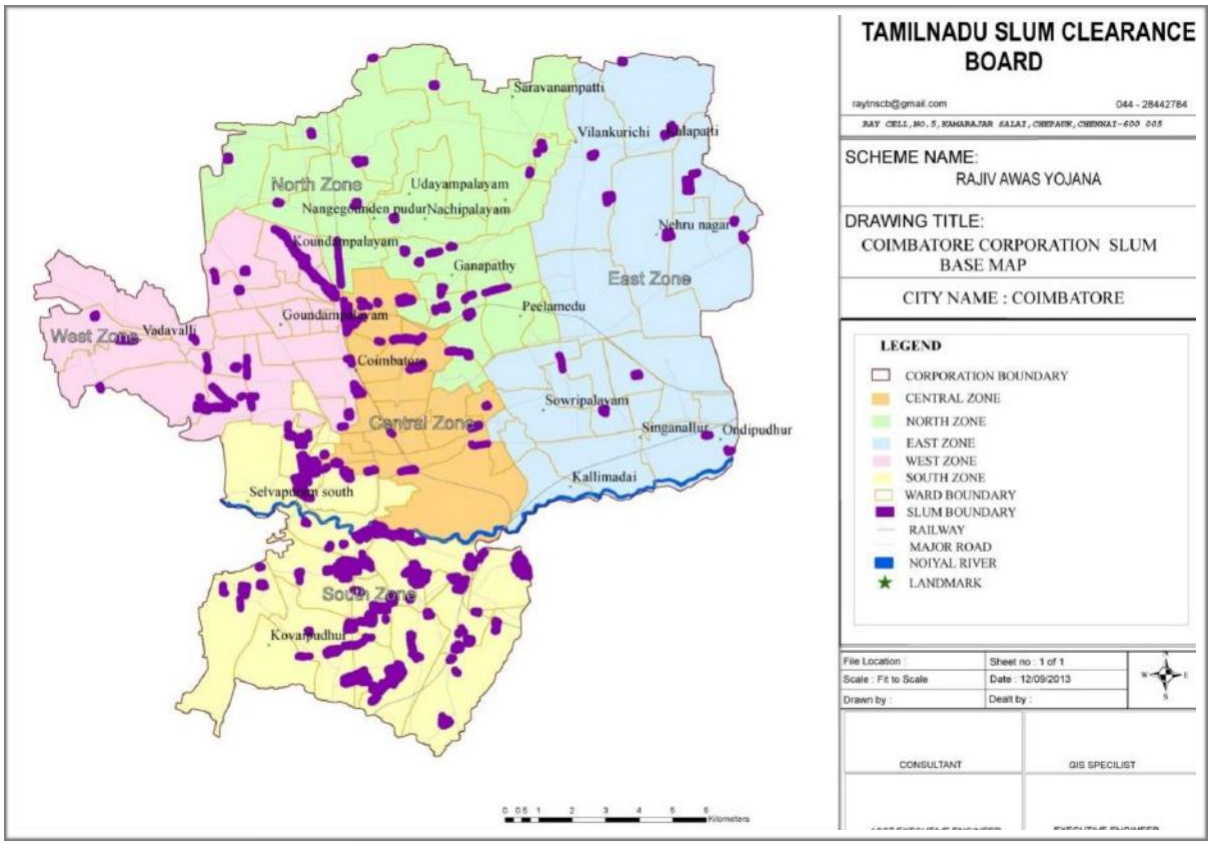
Source: Report Slum Free City Plan of Action - Coimbatore Corporation

Singnallur, Valankulam, Ukkadam, Periyakulam, Selvampathi, Narasampathi, Krishnampathi, Selvachintamani, and Kumarswami are the eight major tanks/wetland areas located in the city. Reports show concerning figures of pollution in four major lakes of Coimbatore (Nishadh 2008). Industrial effluents from neighbouring industries have primarily caused this pollution. NGOs such as Siruthuli [5] whose prime vision was to rejuvenate and conserve water bodies, and have created awareness and mobilised citizens for this cause. Conservation of lakes and other water bodies is a concerning issue for informal settlements, for they are majorly situated along or on such resources (Bhide 1998).

Recently, a conflict between the Corporation and the PWD was observed; both had a different vision for lake conservation. The PWD wanted to conserve lakes under the National Lake Conservation Plan (NLCP 2013), whereas the Corporation wanted to turn such water bodies into 'picnic spots' for the locals. A recent research that focused on the land-use cover of Coimbatore concluded that the coverage of water bodies in city had reduced from 1,618.13 square kilometres in 1990 to 1,573.68 square kilometres in 2000, while a rigorous growth in settlements had taken place to the tune of 520.85 square kilometres (Devi & Babu 2012).

[5]Siruthuli, a non-profit NGO, attempts to protect, develop, and rejuvenate water bodies in and around Coimbatore city.

All existing slum settlements were identified and gauged as per objective and verifiable parameters—land ownership, land use, spatial location, health risk, etc.—and accordingly categorised into 'Tenable' and 'Non-Tenable' units. Informal settlements suitable for human habitation, which were not located along a hazardous zone—and where the land was not earmarked for major public facilities—were categorised as 'tenable



slums'. Prioritisation of 'untenable slums' was based on parameters that included environmental risk, proportion of female population, Scheduled Caste/Scheduled Tribe (SC/ST) population, minority population, and Below the Poverty Line (BPL) families (NITTTR, 2013).

Figure 6: Map showing soup pockets in Coimbatore.
Source: Tamil nadu Slum Clearance Board.

7.2.Women Safety.

Slums in Coimbatore are not concentrated in an extensive domain like they are in other megacities; instead, they are spread across this city in small clusters. For, dwellers choose to stay in locations closer to their area of work (Ramakrishnamoorthy 2006).

Public transportation allows women, particularly those from low-income groups, access to economic opportunities (Allen & Vanderschuren 2016). Since local corporation buses (funded under the JNNURM scheme) are deficient and fail to cover major routes in the city, private buses cater to the remaining commuter population. However, cases of harassment of women and eve teasing are quite rampant in buses. The city ranks 4th in the country for its use of public transport by women for short distance travel (0–5 kilometres), but the rank

dips

considerably as the travel distance increases (Census 2011), clearly implying that travel distance is a decisive factor that limits the choice of work available for women. Needless to say, this plays a crucial role when they consider the mode of transport to travel to work (Allen & Vanderschuren 2016).

As a result, such safety concerns force women living in the city's slums to find work as helpers in houses that are walkable from their homes. A good percentage of women, on the other hand, choose to work in the tertiary sector near their settlements.[6]

7.3. BPL Analysis

The industrial part of the city comprises 22.70% of below the Poverty Line (BPL)[7] houses, while its southern zone has a maximum of 24.55% of BPL households. Thannirthottam slum in the south zone has the lowest percentage (0%) of BPL households, while Kadalakarasandhu slum in the north zone has the highest percentage (80.95%).

Part 8: State Government Housing Policies and Programmes

Most of the slum improvement policies and programmes are formulated and monitored by the Tamil Nadu Slum Clearance Board (TNSCB), which was established in 1970 to cater to the housing and infrastructure needs of the city's economically weaker section (EWS). The various policies put together by the TNSCB may be clubbed under the following headings:

1. Health.
2. Infrastructure (physical, social, and housing).
3. Finance.
4. Employment.

[6]According to UN Women, women continue to earn less, have fewer assets, bear the burden of unpaid work and care and be largely concentrated in vulnerable and low-paying activities. Women spend more than twice as much time on unpaid care and domestic work as men, and women on average are paid 24% less than men globally for the same work. Moreover, 75% of women's employment in developing regions is informal and unprotected. These gaps constrain women's rights and hinder economic growth and productivity. Scaling-up actions and political will significantly are required to invest in the economic empowerment of women for the benefit of whole societies

[7] BPL, the Planning Commission calculates the poverty line every year based on income of person per month. Below Poverty Line (BPL)is an economic benchmark and poverty threshold used by the Government of India to indicate economic disadvantage and to identify individuals andHouseholds in need of government assistance and aid. As per the Tenth Five – Year Plan BPL for urban area is based on degree of deprivation in respect of seven parameters: roof, floor, water, sanitation, and education level, type of employment and status of children in a house.

Table 6. Infrastructure Schemes.

INFRASTUCTURE SCHEMES			
S.No	**Schemes**	**ABBREVIATION**	**ACTIVE TIME**
1	Accelerated Slum Improvement Scheme	ASIS	1977- 1991
2	Integrated Low Cost Sanitation Scheme	ILCS	198
3	Mass Housing Scheme	MHS	1986-87 & 1988-89
4	TNSCB's Slum Clearance scheme		
5	TNSCB's Land bank scheme		
6	National Slum Development	NSDP	199
7	Shelter for the Shelterless	-	1999-2001
8	Environment Improvement Scheme	EIS	
9	Valmiki Ambedka Awas Yojana	VAMBAY	200
10	Rental Housing Schemes for the Slum- dwellers		
11	Tamil Nadu Urban Development Programme	TNUDP	
12	TNSCB's Sites & Services Scheme	-	
13	Integrated Housing & Slum Development Scheme (under JNNRUM)	IHSP	200 5
14	Basic Services to Urban Poor (under JNNRUM)	BSUP	200 5
15	Rajiv Awas Yojana	RAY	200
	Affordable Housing Programme (under RAY)	AHP	200 9
16	Rental Housing Schemes for the Slum- dwellers	- -	
17	Subsidized Industrial Housing Scheme	SIHS	
18	Fire proof housing programmes	FPH	
19	Pradhan Mantri AwasYojana	PMAY	201

***** VAMBAY & NSDP are now combined to form the IHSDP

Table 7. Finance Schemes

FINANCE SCHEMES			
S.No	**SCHEME**	**ABBREVIATION**	**ACTIVE TIME**
1	Nehru Rozgar Yojana	NRY	1989
2	Cash Loan Scheme	CLS	1988
3	Eleventh finance commission	-	-
4	Thirteenth finance commission	-	-
5	Interest Subsidy Scheme for Housing the Urban Poor(under RAY)	ISHUP	2009
6	Rajiv Rinn Yojana	RRY	2009
7	Fourth state finance commission	-	2015

Table 8 . Employment Schemes

EMPLOYMENT SCHEMES			
S.N	**SCHEME**	**ABBREVIATION**	**ACTIVE TIME**
1	Prime Minister's Integrated Urban Poverty Eradication Programme	PMIUPEP	1995
2	Swarna Jayanti Shahari Rozgar Yojana	SJSRY	1997

8.1. State Infrastructure Schemes

Table 10 . State Infrastructure Schemes

Environment Improvement Scheme (EIS)	
Goal	To provide basic amenities such as toilets, roads, etc. to slums.
Financial Aspect	Rs.2,000 offered to each family by the state government.

Accelerated Slum Improvement Scheme (ASIS)	
Goal	To provide common infrastructure in slums, under the state government's Twenty Point Programme.
Target Group	Slum dwellers
Scheme	**Physical Infrastructure**

Components	Water	Sanitation	Electricity	Roads	Drainage and Sewerage
	One pc for 10 families; one water tap for 20 families	-	Streetlight at a distance of every 40 metres	-	-
Financial Aspect	Rs.1,250 offered to each family by the state government.				

Tamil Nadu Urban Development Programme (TNUDP)					
Goal	To provide basic amenities and transfer of land title/*patta*.				
Target Group	Slum dwellers on government land				
Scheme Components	**Physical Infrastructure**				
	Water	Sanitation	Electricity	Roads	Drainage and Sewerage
	One bathroom for 10 families; one public fountain for 10 families	-	Streetlight at a distance of every 40 metres	Provision of roads and pathways	One toilet for 10 families
Financial Aspect	World Bank is funding the TNUDP.				
Sale of Land	- Initial down payment of 10 per cent. - Remaining amount to be paid by beneficiary over 20 years at a rate of 7–8 per cent interest. - Improvement of basic amenities at the cost of Rs.1,500 per family.				

Slum Clearance Scheme						
Goal	To temporarily clear congested slums that have no infrastructural facilities and rehabilitate them in the same area.					
Target Group	Slums on government land					
Scheme Components	**Physical Infrastructure**					
	Water	Sanitation	Electricity	Roads	Drainage and Sewerage	Housing

	Individual connections	Individual connections	Individual connections	-	-	Multipurpose room with bath and toilet: 220
Financial Aspect	Loan assistance provided by HUDCO or World Bank.					

Mass Housing Programme	
Goal	To provide basic infrastructural facilities and provide grants to beneficiaries for the replacement of thatched roofs with tiled roofs or to change mud walls to brick walls.
Target Group	Slum dwellers with low incomes
Scheme Components	- Replacement of thatched roofs with tiled roofs, or mud walls with brick walls; - Provision of sanitation facilities and water supply for each family.
Financial Aspect	- HUDCO is the financing agency; - Cash loan of Rs.3,000 to Rs.8,000 provided to each family; - Cash grant of Rs.1,500 per family for home improvement; - Cash grant of Rs.1,400 per family for basic infrastructure.

TNSCB's Site and Services Scheme	
Goal	To provide beneficiaries with open plots (developed with basic infrastructure), along with a loan, so that they can build their own homes.
Target Group	Slum dwellers
Scheme Components	Provision of industrial and commercial sites with buildings that include a supply of self-help materials, along with community facilities; in addition, off-site infrastructural facilities, such as access roads, trunk water mains, sewer lines, supply of building materials, and child health services are part of the scheme.
Financial Aspect	- Loan assistance provided by HUDCO or World Bank; - Loan of Rs.5,000 at the rate of 4 per cent interest, repayable over a period of 20 years.

TNSCB's Land Bank Scheme	
Goal	To provide open plots to beneficiaries for building their own homes.
Target Group	Slum dwellers
Scheme Components	5 per cent of the land is reserved by agencies such as the TNHB and development authorities, and then transferred to the TNSCB which divides the land into plots measuring around 350 sq. ft. each. This land is allotted to service-sector beneficiaries such as washermen, househelps, coolies, barbers, and daily-wage labourers, so that they can construct houses at their own cost.
Financial Aspect	- 90 per cent loan assistance provided by HUDCO. - Beneficiaries must repay the plot cost in installments within 15 years.

Rental Housing Scheme for Slum Dwellers – Subsidised Industrial Housing Scheme (SIHS)	
Goal	To provide rental housing stock.
Target Group	Slum dwellers
Scheme Components	- Cost of tenement: Rs.80,000. - Lack of rent increase, which leads to losses.
Financial Aspect	- 30 per cent grant provided by the state government and 70 per cent by HUDCO. - Monthly rent of Rs.75 to Rs.150 payable over a period of 20 years.

Fireproof Housing Programme (FPHS)	
Goal	To convert fire-prone slums into *pucca* houses.
Scheme Components	Asbestos cement sheet for roofing and hollow concrete blocks for side walls of the superstructure of thatched huts provided by the TNSCB at the rate of Rs.15,000 per house.
Financial Aspect	Rs.15,000 per house.

Subsidised Industrial Housing Scheme (SIHS)

<table>
<tr><td>Goal</td><td colspan="3">To construct and provide tenements for allotment to industrial workers of private establishments at a subsidised rent.</td></tr>
<tr><td rowspan="5">Scheme Components</td><td>Tenement</td><td colspan="2">Maximum Cost</td></tr>
<tr><td>One room</td><td colspan="2">Rs.4,500/-</td></tr>
<tr><td>Multistoreyed</td><td colspan="2">Rs.5,430/-</td></tr>
<tr><td>Single-storeyed</td><td colspan="2">Rs.3,340/-</td></tr>
<tr><td>Double-storeyed</td><td colspan="2">Rs.3,490/-</td></tr>
<tr><td rowspan="4">Financial Aspect</td><td colspan="3">Loan/grant provided by the central government to the state government or public authorities, employers of beneficiaries, and co-operatives.</td></tr>
<tr><td>Agency</td><td>Loan/Grant</td><td>Loan Repayment Period (in years)</td></tr>
<tr><td>State government</td><td>50% loan, 50% subsidy</td><td>25</td></tr>
<tr><td>Co-operatives</td><td>50% loan, 25% subsidy</td><td>25</td></tr>
<tr><td>Employers</td><td>37% loan, 25% subsidy</td><td>15</td></tr>
</table>

Shelter for the Shelterless

Under this scheme, TNSCB provides houses to families living in slums. Houses are allotted on hire purchase basis. The scheme was implemented with the help of a loan from HUDCO. In the absence of information on hire purchase instalment and other details, interest subsidy on the HUDCO loan is reckoned as subsidy meant for the beneficiaries.

Part 9 .Future Development Plans

Since it is the only major city in the north western part of Tamil Nadu and given its potential for growth in the spheres of textile, automobile spares, machinery, electronics, construction, etc., Coimbatore is experiencing rapid industrialisation. Being a Tier II city, though, it is facing the pressures of urbanisation, which are rising at an exponential rate.

In the recent decade, development in the city has diversified from the manufacturing sector to service-sector industries such as healthcare, education, and entertainment. This has led to a heavy inflow of migrants, most of who come from the neighbouring regions of Andhra Pradesh, Karnataka, and Kerala. The informal sector, in which most of the urban poor are employed, also contributes significantly to the city's economy. As a result, informal establishments thrive in the commercial areas of Gandhipuram, Singanallur, Saravanampatti, Poo Market, etc.

Although urbanisation and development hold good future prospects for the city, they have led to a rise in social, economic, and political problems. The increasing number of migrants overwhelmed the city's ability to provide for the new population, resulting in the formation of informal settlements or slums across the city. This problem manifests itself in the form of housing shortage, poor living conditions, and lack of infrastructure, among other social issues. Coimbatore presents a unique case of social vulnerabilities in informal settlements because of the deep-rooted sentiments of the locals with regard to caste, religion, and gender bias. In addition, vote bank politics has magnified these tensions, making them extremely sensitive and defenceless in times of communal repercussions. However, given that the city does not face issues like most metropolises do in India, it must be understood that there is much scope for orderly development and planning strategies that can tackle these problems.

Under the aegis of the Prime Minister, the GoI's Ministry of Urban Development (MoUD) has envisioned the development of 100 mid-sized cities into Smart Cities, which would serve as satellite towns of larger cities. This mission will span five years (2015–2020), and may be continued in the light of an evaluation that is to be done by the MoUD after incorporating their collective learning from the project. Coimbatore is among the selected twelve cities in Tamil Nadu.

"Coimbatore will be an inclusive, resilient, competitive, and secure global metropolis that embraces citizen-centric, technology-enabled governance to foster a dynamic and vibrant economy; offer universal access to affordable best-in-class civic services and efficient transit orientation; nurture a clean, green, and sustainable environment, to provide the highest quality of living standards for a progressive, diverse, and talented populace."—This is the vision statement for the city, as proposed under the Smart Cities Challenge Proposal's *City-wide Concept Plan for Coimbatore 2015*. The mission provides an opportunity to build on these strengths by adopting smart solutions to take citizen engagement and transparent governance to the next level; so, the Coimbatore Municipal Corporation is actively considering some high-impact actions to be implemented under this plan. Its basic strategy will cover retrofitting, redevelopment, greenfield sites, pan-city initiatives, and more. The implementation of the mission at the city level will be done by a Special Purpose Vehicle (SPV), which will plan, appraise, approve, release funds, implement, manage, operate, monitor, and evaluate all Smart City development projects.

Due to substantial economic activity, and being located on a principle trade route between three neighbouring southern states, Coimbatore experiences heavy traffic density in major terminals such as Gandhipuram, Townhall, Ukkadam, Singanallur, Mettupalayam, and Podhanur. Commercial hubs such as R.S. Puram, R.G. Street, Oppanakara Street, and Peelamedu too experience vehicular and pedestrian traffic, thus requiring flyovers and road-widening measures—this has resulted in shifting the bus terminal from the city

centre to the periphery of the city. Growth of business sectors has seen a surge in air travel, along with an increase in the number of flights and services to the city, thereby leading to the expansion of Coimbatore Airport.

Urbanisation has taken a toll on the natural resources of the region. In keeping with sustainability and natural conservation initiatives, the city is making efforts to replenish water bodies by adopting measures such as de-silting of natural lakes and removal of encroachments along its bund and water trails. These events were meant to not only create awareness among citizens, but also invite public participation.

Further, the relationship between the city and slums has been used to recognise factors such as migration, poor infrastructure, hazardous zones, and social and political agendas that have created them, as well as to suggest that every slum is unique under each of these circumstances. To summarise, this city résumé provides a cursory understanding of the slums with regard to their origin and development in the specific context of Coimbatore.

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