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CHARACTERIZATION OF INFORMAL SETTLEMENTS (SLUMS) AS TRANSITION ZONES IN THE URBAN-RURAL CONTINUUM

The case of the south Indian city of Coimbatore

A Doctoral Thesis
submitted by

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Abstract:

Informal settlements are common occurrences in most urban areas in countries of the global south, with more than 26.61 million people living in them in twenty major cities of India alone, as of the year 2011 when the last official census was conducted. With such a considerable share of the rapidly-growing urban population residing in informal settlements, the 'slum' then presents itself not just as a reality but also as a challenge to be understood and negotiated on several fronts, both internally and externally, in order to preserve and protect the only living window for the disadvantaged.

One major challenge is the cultural baggage of negative notions they are forced to carry, while resolving the numerous frictions they encounter in cities. Disadvantaged groups self-initiate processes to overcome the challenges and inequalities, by developing and exploring all possible opportunities through various informal arrangements as survival strategies. And irrespective of the elitist notion of cities that countries of the global south are keen to present to the rest of the world, decades of interventions have not eradicated informal settlements as has largely been the agenda, nor fully empowered and strengthened the settlements or the communities by way of addressing the existing deprivations in cities or the inequalities that produce them in the first place. Then there is also the stubborn refusal or down play of formal systems and institutions to acknowledge informality and informal settlements as an alternate mode of urbanisation and thereby fail to explore ways and means to work alongside them.

Further, such refusals, prejudices, and incapacities result in the lack of understanding of the processes causing, deepening, strengthening the existing inequalities in urban environments, and do not enable the provisioning of opportunities and resources for the disadvantaged except as random piecemeal strategies and schemes, often benefiting a small set. It is this lack of or grossly insufficient historical provisioning that has led to informal settlements in the first place, and the setting right of these past anomalies require not just spatial interventions but primarily social inclusion strategies. For the worst part, political decisions towards urban interventions and infrastructure projects are portrayed as economically and environmentally beneficial for the entire city, but often also involve or result in displacing disadvantaged groups and further weakening of the minimal survival measures taken by way of informal settlements, thereby producing more inequalities. Such political, economic, environmental processes are often executed through technically convincing proposals that are

indifferent to disadvantaged groups and informal settlements allowing skews to perpetuate in the urban environment. These skews then are less of an outcome and more of a slow form of violence perpetuated against the disadvantaged groups and informal settlements.

On the other side, communities in informal settlements through consistent efforts, political affiliation, gathering documentation, and a slow assimilation over large periods of time, operate towards resolving these skews in addition to improving their social and material lives, and physical surroundings. They work by themselves - and with whatever little help offered from outside the informal settlements - in the direction of alignment of market forces, albeit at their own pace at individual, family and settlement levels, to tackle the biases and reduce the inequalities. Highlighting such urban inequalities are the visuals captured by photographer Johnny Miller in his photo series “Unequal Scenes” portraying the discrepancies in how people live across the world, as objectively as possible, by capturing communities of extreme wealth and privilege existing just meters from squalid conditions and shack dwellings. Suptendu Biswas on the other side, explains the Indian experience of equity, justice and politics in urban services delivery in his book aptly titled ‘The Assorted City’ and presents the existence of a wide range of conditions between the extremes.

Taking cue from the survival strategies and the inequalities, from the extreme conditions and the continuum that exists between, as signifying the multitude of processes occurring vigorously in informal settlements in urban regions, more specifically from the general understanding of informal settlements in the urban region of Coimbatore in the southern state of TamilNadu, India, this study posits informal settlements as the ‘transition zones’ of urban regions. ‘Transition zones’ enabled by and enabling dynamic - conditions - processes - outcomes (new conditions) - and discusses the natures of such conditions and processes, including the existing inequalities, underlying causes, arising frictions, emerging informal arrangements and of how informal settlements are manifested spatially in the urban-rural continuum by the varying conditions of social and material ecologies including political strategies.

This hypothesis of informal settlements as ‘transition zones’ is further reinforced by the concept of the ‘travelling of the slum’ as a transnational idea from the west to the global south that influenced, forced and reinforced the perceptions and approaches towards slums. An ongoing idea perceived through an outline of historical processes including the notion of ‘slum’

followed by colonial influences and post-independence strategies and reforms. It traces the trajectory of global contemporary processes and influences that continue to affect the dynamics of cities and its informal settlements, and the past and continued role of global and national agencies about how to (re)solve or tackle the southern ‘slum’ problem, largely driven through western strategies and funding patterns.

Through the review of secondary data, it also discusses the ways in which political, economic and ecological processes enables socio-spatial transformation of informal settlements. It examines critical insights of the inequalities and deprivations, and the multiple and interconnected nature of social categorizations faced by communities and their settlements, and the nature and role of informal settlements in smaller cities and towns as strategies for survival.

This study followed an interdisciplinary and comprehensive approach built around these contextual, historical and theoretical frames, aided by the extraction of fine-grain knowledge from sample settlements obtained through fieldwork, and culminating in the analysis of the empirical observations and findings, and concluding with recommendations. It also reviewed secondary data from various sources, including reports and documents from public institutions, urban local bodies, chiefly from the former TamilNadu Slum Clearance Board now renamed as the TamilNadu Urban Habitat Development Board (TNUHDB). TNUHDB is a public board of the state government of TamilNadu, that was established in 1970 to frame policies and implement programs and schemes related to the redevelopment and resettlement of slums. The TNUHDB runs and operates an office in the city of Coimbatore to better administer its activities in the region. From the secondary data sources, largely comprising documents of the TNUHDB, twenty-one informal settlements were identified and field investigations conducted in them with respect to settlement characteristics, demographics, socio-economic conditions, livelihoods, political affiliations, housing conditions and provisions of infrastructure and services.

Data was obtained by mixed methods comprising visualisation techniques and mapping, surveys and questionnaires, and focus group discussions and interviews with the inhabitants and representatives. Specific information on housing, socio-economic conditions and infrastructure and services was recorded and collected but information pertaining to land tenure and records was requested but not insisted upon as many participants were reluctant to

share the same. Additionally, informal discussions were also held with officials of the TNUHDB and the TamilNadu Institute of Urban Studies (TNIUS), practising Architects and Urban Planners of this region, to understand the strategies and implementation of past and current projects and schemes for informal settlements. The data thus obtained from the primary sources and review of secondary sources helped to decipher the socio-political-economic-ecological processes and entanglements, within and among the informal settlements in Coimbatore to understand and assess the changes.

This study provides systematic evidence of diverse living conditions in the informal settlements in terms of locational characteristics, environmental conditions and challenges, between the urban core and its rural peripheries, formal recognition of the settlements or the lack thereof, of varying land tenures, of varying degrees of hazards and risks including eviction and resettlement, of social groupings comprising caste and religious denominations, of the education and skill levels of its inhabitants, opportunities for work, of housing conditions and amenities, services and infrastructure, and of political networks and affiliation.

The results indicate recognisable levels of variance within and among the sample settlements - as sites of hazards, conflicts, inequalities, poverty, crowding, despair and fear; and as sites of survival, cohesion, informality, mobility and hope. The evidence gathered from this research on informal settlements from a specific context is also presented with a view to engage and relate or demonstrate the complex arrangements and variations among the informal settlements specifically exhibited from the urban core - suburban/peri-urban - rural peripheries. Further such empirical studies of informal urbanization in new and emerging cities like Coimbatore are also crucial to strengthen existing theoretical perspectives.

While majorly variations are across the informal settlements in the form of physical conditions - similarities if any are largely due to the locational characteristics of the settlements and redevelopment interventions done in the past; there are also subtle variations within the settlements as a result of the personal characteristics and circumstances of the family unit. Most of the inhabitants in these settlements largely belong to the social groups officially classified as scheduled castes (this alone constituting nearly two-thirds of the families surveyed) and scheduled tribes, denotified communities, most backward and backward classes clearly indicating the systemic deprivations of such social groups, and of social stratification being a predominant marker of urban inequalities.

The above groups have been classified on the basis of the socio-economic deprivations and lack of education largely as a result of the earlier prevalent caste system, and in order to provide social welfare and upliftment measures including reservation in education and recruitment. Of these the 'scheduled castes' and the 'scheduled tribes' correspond to the groups that were placed lowest in the social hierarchy of the caste system in India and were earlier termed pejoratively as 'untouchables.' These groups correspond to the native communities and are among the most disadvantaged groups. The denotified communities, most backward and backward groups largely represent the other communities that have been previously marginalised, excluding the scheduled castes and scheduled tribes. The word 'scheduled' here refers to the inclusion of such groups and communities in the schedule of the constitution of India which provides for the promotion of their educational and economic interests and offers protection from social injustice and all forms of exploitation.

Such large presence of the scheduled caste groups reflects the vulnerability of such social groups and the key indicator of the possible transformation (in policy and approach, thereby leading to more literature and increased official and colloquial usage) of the huts of the 'ex-untouchables' as seen from maps of Coimbatore in the early 1870's to the present informal settlements, further enhanced by internal migration of similar groups from neighbouring districts over several decades. Informal settlements exhibit reasonable diversity and dynamism in material possessions especially housing conditions and service provisions, but largely continue to remain static and homogenous in terms of social composition.

Between upscaling and mobility, the inhabitants prefer to upscale unless relocated by voluntary or forced evictions. This is due to the attachment towards the occupied lands and a sense of ownership due to the capital invested however meagre that may be, location advantages and social networks. From the perspective of the government authorities, while financial implications are similar, it is easier to provide better housing, services and infrastructure through resettlement, ensuring freeing of the occupied lands for other public purposes and preventing informal settlements from environmental hazards and risks especially in untenable areas.

In conclusion, this study contributes to a comprehensive understanding of informal settlements well beyond its physical descriptions explaining the crucial role that they perform not as visual scars or poverty traps but as opportunities for the disadvantaged. The research

findings reinforce the hypothetical position adopted, of informal settlements being the 'transition zones' in urban regions and highlights the differential transformations happening in its urban-rural continuum. As zones that enable disadvantaged groups to explore life-making processes in cities, aiming upward mobility largely through their own efforts and at their own comfort and pace, as a truly democratic process. While they avail public welfare measures, they do not rely on them completely for their survival. These insights it is hoped will strengthen the planning framework of not just the city of Coimbatore but of similar cities and regions in the global south.

It offers insights into inequalities in cities, that enable informal arrangements to thrive due to lack of envisioning and provisioning, highlighting how such inequalities are met with simple survival strategies. Further, the empirical evidence gathered is extensive and can be used to study and understand other strands for future exploration largely concerning urban inequalities, evaluate political strategies and processes, ecological gentrification, evictions and resettlement, and social-spatial legislation for inclusion. These strands will likely be pursued by this author with the possibility of collaboration with peer researchers in future.

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List of abbreviations:

AHP	- Affordable Housing in Partnership
AIADMK	- All India Anna Dravida Munnetra Kazhagam
BPL	- Below Poverty Line
BSUP	- Basic Services to the Urban Poor (BSUP)
CBD	- Central Business District
CCMC	- Coimbatore City Municipal Corporation
CEPI	- Comprehensive Environmental Pollution Index
CIDCO	- City and Industrial Development Corporation
CPI	- Communist Party of India
CSCL	- Coimbatore Smart City Limited
DMK	- Dravida Munnetra Kazhagam
EWS	- Economically Weaker Section
FDI	- Foreign Direct Investment
GIS	- Geographical Information System
GoI	- Government of India
GoTN	- Government of TamilNadu
HIG	- High Income Group
HUDCO	- Housing and Urban Development Corporation
JLL	- Jones Lang LaSalle
JNNURM	- Jawaharlal Nehru National Urban Rural Mission
LHRN	- Land and Housing Rights Network
LIG	- Low Income Group
LPA	- Local Planning Authority
MDG	- Millennium Development Goals
MIG	- Middle Income Group
MLD	- Million Litres per Day
MNREGA	- Mahatma Gandhi National Rural Employment Guarantee Act
MoHUA	- Ministry of Housing and Urban Affairs
MoUD	- Ministry of Urban Development
NCU	- National Commission for Urbanisation
NHB	- National Housing Board
NITTR	- National Institute of Teacher Training and Research
O&M	- Operation and Maintenance
OHSR	- Over Head Service Reservoirs
PES	- Post-Enumeration Survey
PMAY	- Prime Minister's Awas Yojana
RAY	- Rajiv Awas Yojana
SEZ	- Special Economic Zone

SFCP	- Slum Free City Plan
SPA	- School of Planning and Architecture
SPV	- Special Purpose Vehicle
TNHB	- TamilNadu Housing Board
TNIUS	- TamilNadu Institute of Urban Studies
TNSCB	- TamilNadu Slum Clearance Board
TNUDP	- TamilNadu Urban Development Programme (TNUDP)
TNUHDB	- TamilNadu Urban Habitat Development Board
TWAD Board	- TamilNadu Water Supply and Drainage Board
UN	- United Nations

Part I - Introduction:

Informal settlements, more commonly referred to as ‘Slums’ by agencies and governments worldwide, have also been referred to interchangeably by a wide range of names including such as Shack Towns, Bastees, Cheris, Ghettos, Favelas, Lahbach, Mabanda and even as Urban Villages by urban development agencies and researchers worldwide. Agreeing strongly with the negative connotations of the term ‘slum’ and as rightfully described as a fundamentally deceitful construct (Mayne, 2017), throughout this dissertation, this term is referred only as ‘informal settlement’ except where it is quoted directly from an external source. These informal settlements have evolved over long periods in different regions of the world from the colonial times and earlier to the early years of industrialisation and globalisation, and continue even today to evolve and accommodate large populations of disadvantaged groups especially in urban regions.

The UN-HABITAT defines a ‘slum’ household as a group of individuals living under the same roof in an urban area who lack one or more of the following:

- a. Durable housing of a permanent nature that protects against extreme climate conditions.
- b. Sufficient living space, which means not more than three people sharing the same room.
- c. Easy access to safe water in sufficient amounts at an affordable price.
- d. Access to adequate sanitation in the form of a private or public toilet shared by a reasonable number of people.
- e. Security of tenure that prevents forced evictions.

A definition that reflects largely on the deficiencies in the physical characteristics of the settlement, but inconsiderate to the social dimensions of its inhabitants. This definition and its implications will be explored in detail, later in this study.

Not all informal settlements are homogeneous and not all their inhabitants suffer from the same degree of deprivation. The degree of deprivation depends on how many of the above five conditions that define informal settlements are prevalent within a household. In the year 2001, 924 million people, that is, 31.6% of the world's urban population, lived in informal settlements, most of them in developing countries. By the year 2050 there may be 3.5 billion inhabitants in informal settlements out of a total urban population of about 6 billion (UN Habitat Report, 2003).

In the past, a global narrative of negativity, deficiency and illegality of informal settlements that originated in the west, dominated and dictated the urban development scenario of their colonial annexations in the global south. Despite recent radical shifts in the global narratives and approaches towards informal settlements, much damage has already been done and continue to occur in the form of negative stereotyping of informal settlements and as collateral damage in the form of their eviction and resettlement to accommodate city improvements and infrastructure projects. But past attitudes and frameworks have not been fully undone, and local governments and agencies are not fully aware of and do not respond to informal arrangements and their urban contexts.

Also, urban bodies and agencies in Indian cities despite no formal pressure or requirement are already heavily influenced by global policy frames and keen to imbibe western methods and approaches of formal urbanisation to demonstrate development to the world rather than understand and imbibe the heterogenous character especially of disadvantaged groups. Such a situation arises even while planning policies and development schemes are handled at both national and state level, and almost always implemented by the urban local bodies.

But disadvantaged groups by virtue of their largely rural origins and socio-economic differences find opportunities and create survival strategies for themselves mostly through informal means. Such informality, heterogeneity, chaos and temporality in cities are largely viewed as undesirable and ugly urban aesthetics that cannot coexist alongside formal development. This is perceived as sliding the development benchmarks further down and no government or political party wants to risk the failure of its agenda of beautification and infrastructure that predominantly satisfies its urban middle-class groups, especially with development being a prominent political agenda during elections. Generalisation is also detrimental to the informal processes that are deep rooted in complex ways in cities and shuns the local cultures of small groups by the formalisation of informal activities including shelter.

Living in an informal settlement can mean major challenges on a population and their resilience to survive. Depending on the informal settlement, the region, and the circumstances, they encounter a complex web of interrelationships of social and material ecologies. However, the main issue of informal settlements is not just the lack of human rights, dignity of life and basic facilities. It is about equal access to: adequate water, food, clothing, health, education,

shelter, services, and recreation, and importantly about equality, social inclusion, participation and role-play, which people living in informal settlements seldom enjoy.

Most informal settlements are in and around urban centres in the less economically developed countries, which are also experiencing greater rates of urbanization compared with more developed countries. This rapid rate of urbanization is cause for significant concern given that many of these countries often lack the ability to provide social housing (ownership or rental) or the infrastructure (e.g., roads, community spaces and affordable housing) and basic services (e.g., water and sanitation) to provide adequately for the increasing influx of disadvantaged groups into cities.

While research on informal settlements has been ongoing, such work has mainly focused on one of three constructs: exploring the socio-economic and policy issues; exploring the physical characteristics; and, lastly, those modelling informal settlements. (Mahabir et al, 2016) argue that while each of these lines of research is valuable, there is a need for a more holistic approach for studying informal settlements to truly understand them. By synthesizing the social and physical constructs, they aim to provide a more holistic synthesis of the problem, which can potentially lead to a deeper understanding and, consequently, better approaches for tackling the challenge of informal settlements at the local, regional and national scales.

The exponential growth and spread of urban areas in developing countries and the continuing growth and deplorable living conditions of informal settlements has severe consequences to both humans and the environment, which are inextricably linked. (Napier, 2007) talks about the impacts from natural and man-made disasters and inadequate housing conditions on inhabitants in informal settlements who constantly live under threat. (The LHRN report, 2019) discusses the constant threat in India of forcible evictions of informal settlements and loss of assets leading to a worse crisis than living in them.

In Chennai, a coastal city, and the capital of the state of TamilNadu, the low capacity of disadvantaged groups in informal settlements in handling and overcoming disasters such as tsunami and floods was witnessed during the Tsunami in 2005 and also during the floods in the year 2016. By occupying the edges of waterbodies and rivers, a scenario that is so common in all major cities in India, informal settlements in the absence of sewerage systems also impact minorly, the natural environment by further contamination and destruction. Resettlement

projects by government agencies in Coimbatore has occasionally led to land encroachment on hill areas and reserve forest lands on the city's fringes leading to limited environmental damage as well as social frictions due to opposition by the existing communities. The growth and expansion of informal settlements may therefore to some extent cause harm to the urban environment while urban development can threaten existing informal settlements, and this can be impacted at various scales.

The emergence of informal settlements has been linked to several socio-cultural, economic and physical factors. In their examination of residential locational decisions made by inhabitants of informal settlements in Pune, India, (Lall et al, 2008) found commuting costs, access to local public goods and services, and individual preferences for neighborhood were major influences. In some cases, locational choices were also guided by housing quality and neighbourhood amenities. While according to (Barnhardt et al, 2014) common culture, language and similar income-generating activities were found associated with the locational choices of new immigrants.

It has also been found that people born within or near informal settlements tend to remain in them or move to them (UN-Habitat, 2003), while some inhabitants are of the belief that places outside of informal settlements are out of their reach (Ahmed et al, 2011). This suggests that any efforts to address the issue of informal settlements must also consider their surroundings and their social structures. It has been shown that disadvantaged groups typically inhabit marginal locations such as riverbanks, steep slopes or dumping grounds (Sietchiping, 2004). This is mainly due to their low purchasing power in formal land markets when compared with high-income groups (Praharaj, 2013). These unique physical characteristics of informal settlements and the complex interplay with the various socio-economic factors pertaining to their growth and persistence represent a challenging task that can be addressed holistically.

Rural-to-urban migration not only has been the driver for the growth of cities, but also it has been identified as one of the primary drivers for the growth of informal settlements. In less developed countries the current rapid and immense net movement of the rural population to urban spaces has intensified drastically over the past few decades. This is due to several factors: those pertaining to the pulling of rural people to cities and push factors driving population away from rural areas. Pull factors include the relative perception of better economic opportunities, provision of basic services such as education and healthcare within

cities, reduces social discrimination, and the freedom from restrictive social or cultural norms often found in rural areas. Push factors include rural poverty, poor agricultural labour wages, environmental hardships, social conflicts, aspirations for urban living. The net result of rural-to-urban migration is overwhelming to the urban centres in less developed countries, which are not equipped to support the additional population, especially when combined with the socio-economic factors discussed above. Faced with nowhere else to go, disadvantaged groups turn to informal settlements to meet their most basic housing needs (Vasudevan, 2015).

The growth of informal settlements in the developed countries despite resettlement projects is also due to outdated urban planning regulations, and the stubbornness of several governments to recognise informal settlements and include their inhabitants in the planning process (Cities Alliance, 2014). As a result, rules are bypassed to meet their housing needs. There is also the inability of many governments to keep abreast with urbanization because of the lack of resources and corrupt governments, (Fekade, 2000) and their refusal to provide urban services or a secure land tenure for fear of permanent settlement and sometimes also due to pending litigation. It is also the case that some governments simply lack the political will to address these issues (Rashid, 2009). Overall, one could argue that not enough attention has been given to the plight of disadvantaged groups on the part of successive governments, further enabling the continued growth of informal settlements.

The most recent approach, at least from a macro-policy viewpoint, was to reduce the growth of informal settlements is the 'Slum Free City Plan' introduced by several urban local bodies in India over the past decade. This approach forms part of the MDG to improve the lives of 100 million inhabitants of informal settlements by 2020. Central to this idea is the understanding that both poverty and informal settlements are interrelated, with any attempt to fix one having also to consider the other (Arimah, 2001).

The continued failure or slow progress of implemented policies has further facilitated the propagation of informal settlements. In addition, the locational decisions of disadvantaged groups, rural to urban migration and poor urban governance in general are all interrelated factors that have contributed to the growth of informal settlements in urban regions. Taken holistically, these various factors are all important for designing more appropriate policies for disadvantaged groups and their living environment. Failure to do so will only lead to the continued growth and persistence of informal settlements. This requires better understanding

of the life and activities of the inhabitants, their habitat requirements, existing conditions of the informal settlement and its relation to its immediate neighborhood as well as ground level challenges, including funding issues and technology handicaps faced in the survey, mapping and enumeration.

1.1 Background and scope of the research:

While there has been growing debate and research about the definitions, production and life in the informal settlements, much remains to be examined about the impact of urbanisation and the expansion of cities and its urban peripheries on the production of informal settlements and vice versa, especially in the new metropolitan cities in the global south. Further, there is a strong need to balance the forces of development in new urban regions with the contextual realities, inherited legacies, natural systems and people's preferences including the needs and aspirations of the deprived groups.

Most research is often limited to the physical conditions of the informal settlements or the socio-economic life of its inhabitants often with a negative portrayal of the physical conditions and connections with crime. Very little research is focussed on both the social and physical ecologies of informal settlements and their inter-relationships or on the underlying processes that produce and reproduce them as a product of antecedent factors continuously changing, or as a result of new factors operating upon it. They are not examined as Ananya Roy argues about how urban informality has come to signify an apocalyptic vision of the global epidemic of informal settlements or a utopian vision of entrepreneurial poverty and impoverished urbanism; and the paradox of the informality of the city, its layers, its sub-cultures, its heterogeneity seems meaningless.

This research (refer Fig 1) aims to explore the evolutionary processes in the formation of informal settlements and deduce their role as transition zones in the urban-rural continuum for the Coimbatore Metropolitan Region. It is imperative to understand the factors that influenced the informal settlements and the process of urban growth in order to demystify the entanglements of the social and material ecologies. This is highly relevant in a rapidly transforming urban region as Coimbatore towards achieving inclusive and sustainable growth.

To understand the challenges and the explicit and hidden nuances in informal settlements, this study aims to explore the dynamic processes that continuously produce and

reproduce these assorted conditions. It posits informal settlements as transition zones, enabled by and enabling dynamic - conditions - processes - outcomes (new conditions) - occurring as socio-spatial constructs and resulting in a range of assortments between urban and rural, between poverty and social upscaling, between temporality and stability, between informal and formal, between illegality and legality, between conflict and agreement, between exclusion and inclusion, between inequalities and equality, and between past and future. A renewed rethink and better understanding of the embedded processes of systemic inequalities and self-help strategies will shed new light on the role of informal settlements and how they have evolved and responded - in this case in the context of Coimbatore.

1.2 Research questions:

With a considerable share of the fast-growing urban population - recent statistics predicting nearly one in three people globally living in precarious conditions in urban areas - residing in informal settlements predominantly in cities and towns of the global south, informal settlements present themselves not just as a harsh urban reality but as the only survival window for the disadvantaged groups. And irrespective of the elitist notion of cities that countries of the global south are keen to present to the rest of the world, decades of interventions have not eradicated informal settlements as has largely been the agenda, nor fully empowered and strengthened the settlements or the communities by way of addressing the existing deprivations in cities or the inequalities that produce them in the first place. Then there is also the stubborn refusal or down play of formal systems and institutions to acknowledge informality and informal settlements as an alternate mode of urbanisation and thereby fail to explore ways and means to work alongside them.

Further, such refusals, prejudices, and incapacities result in the lack of understanding of the processes causing, deepening, strengthening the existing inequalities in urban environments, and do not enable the provisioning of opportunities and resources for the disadvantaged except as random piecemeal strategies and schemes, often for a small set. It is this lack of or grossly insufficient historical provisioning that has led to informal settlements in the first place, and it is to set right these anomalies that in the past, land tenures and rights to commons continue to be key determinants for their development. Even where land tenures have been granted or assured, better living conditions are abysmal, other related issues of poverty, health, education remain, and deeper complex challenges related to social equality and

inclusion not discussed. For the worst part, new urban interventions and projects often also involve or result in further weakening of existing informal settlements by way of evictions and resettlements or the threats and risks of such a possibility. This is probably how urban, legal, social, political, economic, environmental processes create inequalities through power relations by way of deceit or by staying indifferent to allow such skews to perpetuate. This skew then seems less of an outcome and more of a slow form of violence perpetuated against the poor and marginalised communities.

On the other side, communities in informal settlements through consistent efforts and slow assimilation over large periods of time and assimilation, move towards reducing this skew by the improvement of their social and material lives, and physical surroundings. They work by themselves - and with whatever little help offered from outside the informal settlements - in the direction of alignment of market forces, albeit at their own pace at individual, family and settlement levels, to tackle the biases and reduce the inequalities.

Understanding informal settlements needs an unbiased approach, which does not look down upon informal settlements with negativity nor romanticizes it. Probing deeper, it requires a fair investigation on the physical conditions that exist as well as the systemic inequalities that cause and sustain it. Studies on informal settlements should enable fine-grain knowledge about the embedded processes that occur and operate in them, in cities, and their inter-relationships. Such knowledge should be strengthened by evidence from local contexts through fieldwork and mapping. Using this as a base, this research project raises the questions:

- How and where have the informal settlements evolved in Coimbatore, socially and spatially? What were the historical conditions and processes that influenced and shaped the growth and proliferation of informal settlements?
- How do the contemporary processes of urbanisation influence and shape informal settlements, and vice versa? In these socio-spatial constructs that disadvantaged groups have self-developed as survival strategies with little or no help, what are the entanglements, frictions and informal arrangements? How do political-economic-environmental narratives perceive and shape such informality?

- What are the functions and characteristics of informal settlements? Are they merely the negative outcomes of informality and urbanisation as visual scars and poverty traps?
- What are the specific roles that informal settlements perform in the urban-rural continuum while offering the only possibilities and opportunities to overcome inequalities and deprivations?
- How do we understand and assess the variations within and between the informal settlements? What lessons and futures do they carry to and from the city and its stakeholders?

1.3 Methodology:

This study (refer Fig 1) aims to explore the conditions of informal settlements and deduce the underlying processes in the urban-rural continuum for the Coimbatore Metropolitan Region. It is imperative to understand the factors that influenced the informal settlements and the process of urban growth in order to demystify the entanglements of the social and material ecologies. This is highly relevant in a rapidly transforming urban region as Coimbatore towards achieving inclusive and sustainable growth.

The methodology adopted is a highly contextualised approach reinforced by theoretical frameworks to ascertain the factual position of informal settlements in Coimbatore, India through the extraction of fine-grain knowledge from the samples obtained through fieldwork¹. The data on tenability, deficiency matrix and number of households has been extracted from the (NITTR, 2012) - slum free city plan Coimbatore for the available settlements.

The first stage - pilot survey - comprised the verification and updation of informal settlements as found in the secondary data with the help of physical and digital tools such as transect walks and geo-tagging locations and images.

¹ The fieldwork for this research comprising transect walks, household surveys, key interviews and focus group discussions at specific locations in Coimbatore was initiated, planned and conducted by the author with the help and support of Prof Kathiravan, Prof Ramakrishnamoorthy, Prof Vimal, Prof Karthick, Prof Anuvijay, Prof Jayanandhini, select I and II year M.Plan and M.Arch students, and all III year B.Arch students of the Faculty of Architecture, Design and Planning, Karpagam Academy of Higher Education, Coimbatore as part of a collaborative studio in the month of October 2021. Key interviews and focus group discussions at the Ponnaiya Raja Puram and Silver Jubilee Street clusters were carried out on the 29th of October 2021 with the help and support of Dr Udhaya Kumar and Mr Venkatesh.

The second stage - detailed survey - comprised preparation of questionnaires² and identification of 24 settlements based on multiple criteria (refer Table 1 and Fig 2), and random surveys of 311 households in total were conducted within these settlements. However, in settlement 2, only 4 households were surveyed as the fieldwork had to be called off due to heavy rains. Further, in settlement 23, only 1 household was surveyed as the fieldwork had to be called off due to strong objection from the residents. Hence, the data collected in both these settlements has not been taken into consideration. The settlement questionnaire sought information on morphology, hazards, services and infrastructure that was later transferred on to physical maps, and the household questionnaire sought information on social aspects and livelihood, tenure and housing arrangements, facilities and amenities, community participation and government policies and welfare schemes.

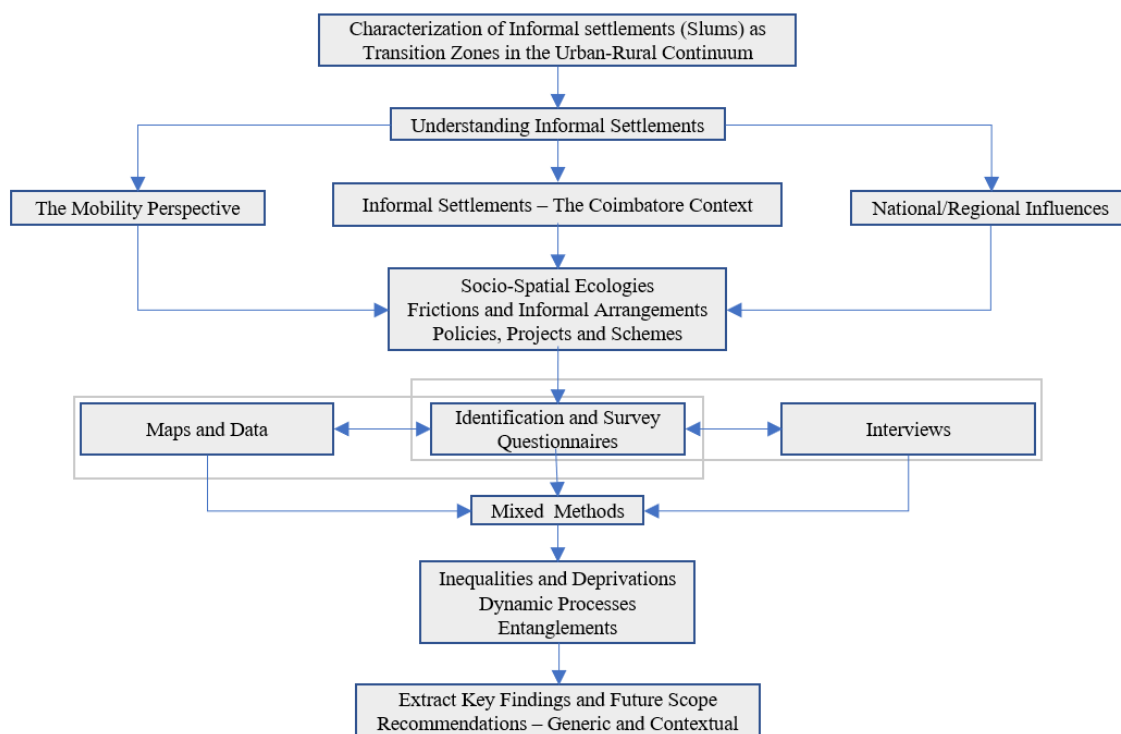


Fig 1: Research Methodology

Further, key interviews with community representatives and focus group discussions could only be carried out in some settlements due to covid restrictions and incessant rains. However personal interviews were carried out with at least one family member during filling of the questionnaire. These formed the source of the primary data for this research. Secondary

² The blank questionnaires and a sample of filled in questionnaires has been added as Appendix-1.

data was obtained from documents from the TamilNadu Urban Habitat Development Board, the Coimbatore City Municipal Corporation, and the Local Planning Authority. GIS base map of Coimbatore prepared by the Faculty of Architecture, Design and Planning, Karpagam Academy of Higher Education was shared solely for the purpose of this research and is their copyright.

This study followed an interdisciplinary and comprehensive approach built around historical, theoretical and contextual frameworks, and culminated in the analysis of empirical observations and findings. It reviewed secondary data from various sources, including reports and documents from public institutions, urban local bodies, chiefly from the TamilNadu Urban Habitat Development Board. Based on this, twenty-one informal settlements were identified and field investigations conducted in them specifically at settlement, household and individual level, as outlined below:

settlement - location, access, settlement features, spatial organisation, growth pattern, tenability, surrounding land uses, hazards and risks, open spaces, community facilities, infrastructure and services;

social - ownership land tenure, migration pattern, duration in the settlement, family size and structure, access to health and education, social structures including religion, caste and marital status, political affiliation, networks and relationships within and outside the settlement, community participation, gender relations, mobility, welfare schemes and benefits, education and skill levels of the members;

livelihood - opportunities for work, specific skills or training received, nature of work, employment and earnings, duration of work, place of work and preferred travel mode, earnings and expenses, secondary work and income, access to scholarships, economic benefits from public schemes, access to credit and debts and savings;

top-structures - access, construction type, materials, number of rooms, space sufficiency, privacy, lighting and ventilation, improvements and/or incrementality, scheme benefits for house and/or services, functional use, utilities and services, and amenities

Data was obtained by mixed methods comprising visualisation techniques and mapping, surveys and questionnaires, and focus group discussions and interviews with the residents and representatives. Informal discussions were also held with officials of the TamilNadu Urban Habitat Development Board and the TamilNadu Institute of Urban Studies, practising Architects and Urban Planners of this region, to understand the nuances of the

processes, and the strategies and implementation of past and current projects and schemes for informal settlements.

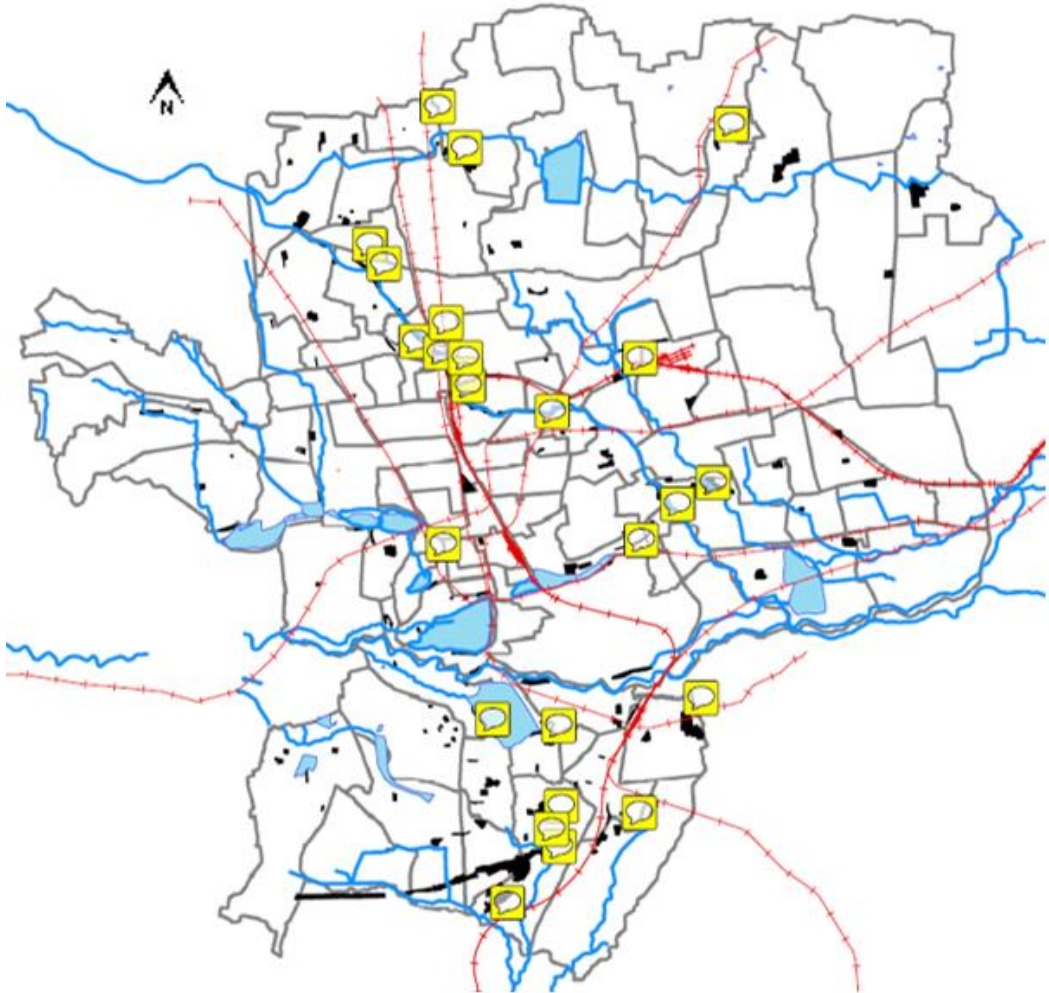


Fig 2: Surveyed (in yellow) informal settlements on Coimbatore map

Specific information on housing, socio-economic conditions and infrastructure and services was collected. Information pertaining to land tenure and records was requested but not insisted upon as many participants were reluctant to share the same. The data thus obtained from the primary sources and review of secondary sources helped to decipher the entanglements of the socio-political-economic-ecological conditions, processes and outcomes, within and between informal settlements in Coimbatore to understand and assess the conditions-processes-outcomes.

Ward, Cluster Name	Location Characteristics	Tenability	Total number of Households	Deficiency Matrix	City Zone	Newly Added Area
W9 Driver Colony	Stream	Untenable	193	1x2	West	No
W9 Kamaraj Nagar	Stream	Untenable	109	1x2	West	No
W2 Anna Colony Thudiyalur	Road	Tenable	154	2x2	North	Yes
W1 Pudhu Muthu Nagar	Railway tracks	Tenable	31	NI ¹	North	Yes
W31 Saravanampatti Big Street	Road	Tenable	133	NI	North	Yes
W45 Balusamy Nagar	Stream,					
W45 Kannapa Nagar	Railway tracks	Untenable	139	2x2	Central	No
W49 7th Street Bridge	Stream	Untenable	36	2x2	Central	No
W70 Erimedu Ammankulam	Stream	Untenable	382	NI	Central	No
W69 Masala Colony	Road					
W69 Masala Colony	Drain	Tenable	158	SI ²	East	No
W71 Puliakulam Kallu Kuli	Abandoned quarry	Tenable	252	2x3	Central	No
W79 Ponnaiya Rajapuram	Road	Tenable	58	NI	Central	No
W87 Thiruvalluvar Nagar	Lake	Untenable	227	2x2	South	Yes
W94 Silver Jubilee Street	Lake	Untenable	180	3x2	South	Yes
W40 Patallaman Koil Street	Stream,					
W40 Patallaman Koil Street	Railway track	Untenable	266	2x3	North	Yes
W97 Karuppurayan Koil Street	Drain			2x1,		
W97 Kurichi Indira Nagar	Drain			SI,		
W97 Thirumurugan Nagar	Drain	Untenable	132	2x2	South	Yes
W97 Gandhi Nagar Upper	Hillock	Untenable	390	2x3	South	Yes
W99 Karuppurayan Koil Street	Road	Untenable	100	NI	South	Yes
W100 Kurichi Kallu Kuli	Abandoned quarry	Untenable	43	1x2	South	Yes
W10 Periyar Nagar	Stream	Untenable	279	SI	West	No
W10 Karunanidhi Nagar	Stream,					
W10 Karunanidhi Nagar	Railway track	Untenable	312	1x2	West	No
W9 Prabhu Nagar	Stream	Untenable	393	2x2	West	No

Table 1: Surveyed settlements and inclusion criteria

1.4 Limitations

This study focusses entirely on the informal settlements in the city of Coimbatore, all the findings and some of the recommendations might therefore be specific to this context. There was some difficulty in obtaining detailed maps from the TNUHDB, despite making official requests and several visits and even offering to digitize the old blueprints of the informal settlements surveyed and/or redeveloped under the different projects and schemes. Only generic maps and reports that were already available on the public domain were shared by the officials concerned. This study therefore relies heavily on the sketches (of the settlement and the individual units) created by the field volunteers. Further, in the absence of official maps, the delineation of the settlements and their extents are not very accurate.

The entire plan for the fieldwork, discussions, preparation and correction of documents, maps that was scheduled for a period of fifteen weeks was reduced to be carried out in just five weeks due to repeated delays in commencing the fieldwork owing to the spread of the covid19 pandemic. In the questionnaires, few data fields have not been recorded either due to no

response from the participants or have been unintentionally missed by the field volunteers. They have been marked as 'no information' and those specific fields have not been considered in the analysis.

The information collected through the questionnaires and from other observations during the fieldwork are quite extensive, and was done not only for the purpose of this study but also to gather as much information as possible from these settlements during the course of this fieldwork for possible other deductions and future use. Only the information that was closely related and found relevant to this research has been analysed in detail here.

1.5 Structure of the study

The study commences with a brief overview of the research project, the problems it addresses and the findings and recommendations. This is followed by an introductory chapter elaborating on the background of the research and its scope, and the methodology adopted. The next chapter provides the contextual framework by review of existing literature about the urbanisation and housing scenarios at national and regional level, and discusses the profile of the city of Coimbatore and its informal settlements. It then elaborates on the dynamic - conditions - processes - outcomes (new conditions) in informal settlements, enabled by and enabling occurring as socio-spatial constructs and resulting in a multitude of variations with specific reference to the city of Coimbatore. The next chapter highlights the mobility perspective - of the travelling of the notion of slums and strategies - from the west to the global south and how this came to shape the strategies and approaches towards them. The succeeding chapter presents the key empirical observations and findings through systematic evidence of diverse living conditions in the informal settlements to highlight their complex roles in cities and not necessarily as visual scars or poverty traps. The conclusion chapter states the major inferences, key recommendations and possible takeaways from the informal settlements, and future strands of research emanating from this study.

Part II - Context

2.1 Urbanization and Informal Settlements

This second chapter traces briefly the global developments leading to large scale and rapid urbanization especially in cities in the global south. It discusses the issues, processes and challenges of urbanization in India largely driven largely by industrialization, liberalisation of the economy and increased rural distress migration. Alongside urbanization, it discusses the parallel growth and proliferation of informal settlements in its cities and towns focussing on the southern state of TamilNadu.

A brief profile of the city of Coimbatore and its informal settlements are presented here to understand the immediate context of this research. It discusses in detail the processes of informal settlements vis-à-vis the urban growth and development of the city, beginning from the 1870's as hutments of 'ex-untouchables' to the current situation. It emphasizes on the political-economic-environmental dimensions influencing and affecting the socio-spatial nature of the informal settlements.

2.1.1 The Great Indian Urban Story

After gaining Independence, the successive governments at the national and regional levels encouraged the growth of several industrial and commercial centres leading to urbanisation and migration at an unprecedented scale, further triggered by the liberalisation of the economy in 1991 and the growth and success of the Information Technology sector. Rapid urbanisation led by a high economic growth has seen India transform from a largely agricultural country and a rural economy through its villages to large swathes of urban agglomerations, large and mid-size towns, large and small villages, and tribal settlements and forest dwellers. In India, the urbanscape coexists with the countryside just as the skyscrapers coexist with the informal settlements.

Relocating for better opportunities in employment, education, health, housing and entertainment in the urban regions as well as distress migration from the nearby villages at the regional level, and from far off agrarian states to the more industrialised states at the national level happens simultaneously. This has led to a decline in agricultural activities and an increase in commercial activities thereby leading to higher densities in cities, more pressure on infrastructure and services, and massive changes in land use in the peri-urban areas. Initiatives such as the establishment of satellite townships, special economic zones (SEZs), housing and

employment missions such as the Rajiv Awas Yojana (RAY) and the Mahatma Gandhi National Rural Employment Guarantee Act (MNREGA) and the recently announced Smart Cities Mission in 2014 aim to provide relief through decongestion while creating space, systems and opportunities for the expanding populace. Increasing population as well as the rural to urban migration has led to more people competing for less resources.

At the same time, excessive privatisation in the housing sector has led to increased land use conversion and exorbitant land costs making it unaffordable for the marginalised and poor to buy or rent decent housing anywhere in the city or its suburbs. Staying in the peri-urban areas is not a viable option for the poor as most of the opportunities in the informal sector exists only in the urban areas and lack of efficient and affordable transport systems make matters worse. Faced with such a precarious situation the poor are forced to live in informal settlements in the city.

In recent years there has been an increasing realisation that urbanisation is set to accelerate with India's transition to faster economic growth, but there is still an inadequate understanding about the need to plan for urbanisation and for translating these plans into action. Only then can conditions be created on the ground which foster agglomeration economies, encourage employment and enterprise, and support the growth momentum in an inclusive and sustainable manner. There is also not enough appreciation of a fundamental reality of the Indian situation that the fortunes of the rural sector are also crucially linked to the way urbanisation proceeds, e.g., how agriculture can be an important part of a modern supply chain, and how the quantity and quality of water available for agriculture are significantly affected by the process of urbanisation.

An urban area is broadly defined as one with high density of people, who are actively engaged in occupations other than agriculture. People were engaged in industries and trade, and this encouraged the diversification of labour and money towards non-agricultural activities thus giving birth to urban areas. Urban population grew consistently although there remained equilibrium between urban area and its population. It was the industrial revolution of 18th century Europe that brought about a dramatic rise in urbanisation with the migration of people from rural to urban areas. Factories pulled labour from rural areas, and urban areas mushroomed to accommodate these migrants.

One would expect the same situation in India, as it was a British colony at that time but the opposite happened. The British deliberately stopped factories from opening in India and local Indian entrepreneurs were handicapped through regulations and business malpractices. Urbanisation did not happen in India at the same time as it did in the homeland of the colonisers. This misfortune was coupled with the disruption of the village economy of India. Forced plantation of cash crops jeopardised the food security of Indians and the land revenue systems started by British led to the pauperisation of the Indian farmer.

As a British colony, India became an unsuspecting market to its machine-made goods of the industrial revolution. Their competitive prices backed by lopsided custom duties destroyed the world renowned indigenous Indian textile sector largely comprising local farmers and weavers of handloom fabrics. Performing arts and other crafts crippled in the absence of the patronage they received from erstwhile Indian aristocrats. British laws favoured their own interests and prevented industrialisation in India, as a result the artisans and craftsmen ended up becoming cheap agricultural labour. The Indian masses were pushed back into history and the natural development of a civilisation was forcefully stopped. The fine examples of planned urbanisation in certain pockets of the four big cities of Delhi, Bombay, Madras, and Calcutta were the exception, not the norm.

In 1947, after gaining independence the process of modernisation and urbanisation was truly attempted to build up the paralysed economy the country had inherited. It was a lack of foresight and planning that urbanisation in our cities remained substandard. Setting up of industries attracted labour from rural areas, and slowly urban centres emerged around them. However simultaneous infrastructure planning in these centres regarding housing, drainage, electricity, transport, etc. did not happen and urban governance systems had to be reorganised.

India gave birth to towns and cities which have an urban veneer but are seriously mismanaged underneath. Large scale migration led to increased housing and in the absence of infrastructure and resources, urban development was duly compromised. The population boom during the second half of the 20th century coupled with the prevailing social problems as illiteracy, gender inequality, conflict among ethnic groups, and environmental neglect created more challenges. This led to congestion, informal settlements, traffic, environmental degradation, diseases, aesthetic deterioration, psychological disorders, social inequality, and crime in the urban areas.

As a large share of agricultural land is continuously being made available to shopping malls, commercial complexes and residential projects by private developers and to highways and roads, flyovers and infrastructure by government agencies, pressure builds on the agricultural side leading to further encroachment and clearing of river basins and lake bunds, forest lands and wildlife regions leading to environmental issues and human-animal conflicts. This is the common story of the regions around Mumbai, Kolkata, Chennai and several other metropolitan cities and large towns across India. Likewise, the increase in summer tourism especially in the hill towns of Shimla, Darjeeling, Ooty and Munnar promoted the creation of an unnecessarily large number of hotels, resorts, lodges, and homestays often built by massive cut and fill of the hilly terrain leading to more frequent landslides, climate change and destruction of natural habitats.

Urban Development Policies: After gaining independence, rapid urbanisation and industrialization compelled the regulation of urban growth. Master Plans were prepared for many cities and comprehensive legislations such as the Town Planning Acts were passed in Bombay and Madras. Several cities also saw the establishment of City Improvement Trusts to create better housing and infrastructure. Priority was given to provide shelter to accommodate the mass influx of refugees to India after partition and several housing schemes were quickly planned and implemented. Around the same time, Le Corbusier was invited by Jawahar Lal Nehru to plan the city of Chandigarh, the administrative capital of Punjab and Haryana. This served as the catalyst and simulated the urban planning process in India subsequently leading to the creation of more than 120 new towns.

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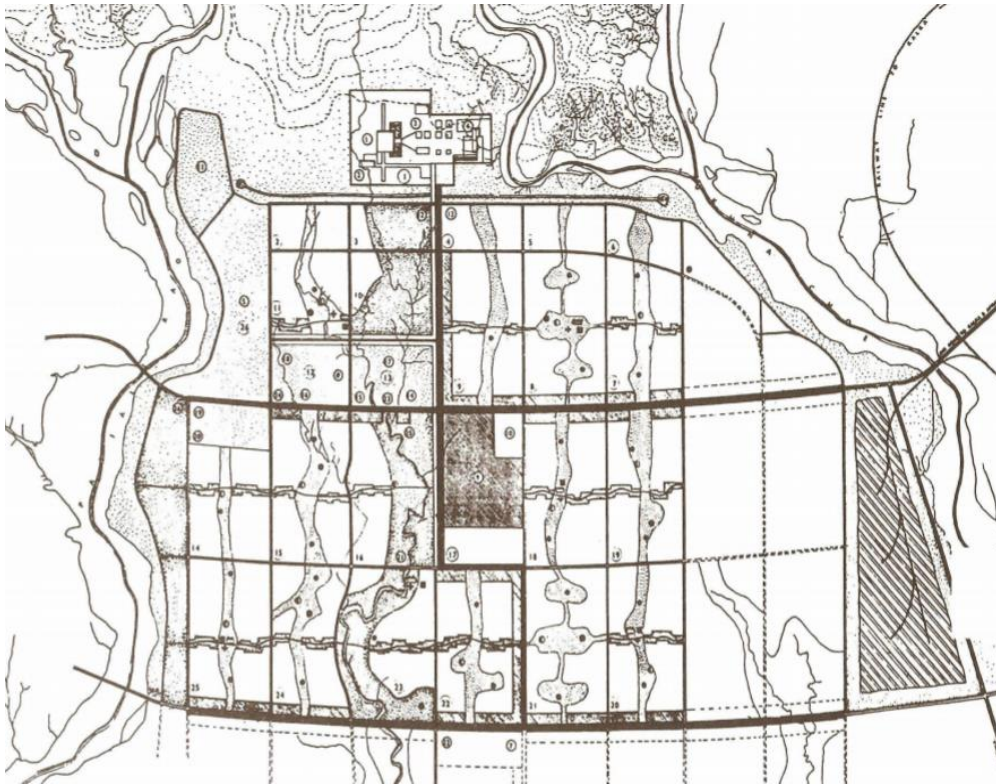


Fig.3: Corbusier's vision of Chandigarh
Source: Rao, 2001

India under Jawahar Lal Nehru adopted the 'Five Year Plans' a planning policy for socio-economic development of the country. The first of these plans between 1951-56 emphasized the need to address and resolve the acute shortage of housing. As stated earlier, several new towns were built as a solution to address the urban challenges. Subsequent five-year plans saw the preparation of master plans and urban planning legislations and the success of the Master Plan of New Delhi soon became a model for other towns. Industrial towns, state capitals and metropolitan cities were given priority with full grant from the central government. Regional planning approach was followed to curb the increasing imbalances in various regions, and agencies such as the City and Industrial development Corporation (CIDCO) in 1970 and Housing and Urban Development Corporation (HUDCO) in 1971 were established to provide funding for urban development projects.

Between 1980 and 1985, a scheme for the integrated development of small and medium towns was introduced that benefitted nearly 840 towns across the country. Poverty alleviation was targeted and improvement of the living conditions in informal settlements and employment generation for the urban poor was taken up with the establishment of the National Commission

for Urbanisation (NCU) and the National Housing Bank (NHB) in 1985 and 1988 respectively. In 1992 a radical move to devolve the power of planning and decision making to local urban bodies led to local governance through the Village Panchayats, Town Panchayats and Municipalities/Municipal Corporations. The growth of very large urban agglomerations encompassing a large municipal corporation and its neighbouring towns and villages led to the creation of Metropolitan Development Authorities.

The NCU intended to obtain a fresh appraisal of the urban scene across the country from members outside of the government with suggestions from the leading politicians, government officials, non-governmental agencies, citizens' groups and memorandums from central and state ministries. Several working groups were set up to be exposed to as diverse a range of ideas as possible in order to examine key issues as mass transportation systems, construction technologies, city management and urban poverty programs. These ideas were reinforced by studies commissioned from research organisations and universities all over the country. The report of the findings of the NCU revealed the diverse and well-balanced nature of the urban settlement pattern across India. There was no single primate city dominating the rest of the country (like Paris and France or London and the UK or Lagos and Nigeria), rather an integrated network with real linkages between village, town and city was visible.

Urban Challenges: India with a growing population of 1.35 billion people plus and counting at approximately about 17.5% of the world's population on 2.4% percent of the world's land area, India's present and future is laden with positive developments and challenges. Challenges especially in the form of the growing trend of urbanisation led by industrial growth, economic opportunities and distress migration from the rural to urban areas. One of the key challenges is rural and urban poverty with more than 25% of the 1.35 billion plus people living below the poverty line i.e. families with annual income less than ₹27,000.

One of the fundamental realities of the Indian situation is that how urbanisation proceeds forwards is so crucially linked to the fortunes of the rural sector, for example how agriculture can be an important part of a modern supply chain, how the quantity and quality of water available for agriculture are significantly affected by the process of urbanisation, etc. (Ahluwalia, 2016) makes a strong case that planned urbanisation is fundamental to the sustainability of overall rapid and inclusive growth of the Indian economy. He also presents evidence that lays bare the perverse political economy of India which has strong resistance to

acknowledging urbanisation which is actually taking place on the ground. It documents the abysmal state of service delivery within the Constitutional framework of the three-tier governmental system which requires the different governments working individually and jointly to ensure service delivery and discusses the massive investment and financing requirements to bridge the urban infrastructure deficit in Indian cities and towns. Ahluwalia highlights the importance of governance in finding sustainable financing solutions besides recognising its role in improving service delivery and a major challenge in developing capacities for urban planning and management at the local government level.

Urban Challenges in India	
Rapid and incessant growth in population	Over-burdened and defunct basic infrastructure
Inevitable migration and urbanization	Lack of access to basic facilities
Exaggerated land and real estate prices	Environmental degradation and loss
Diminishing land availability	Decrease in the quality of life and well being
Dearth of housing for the BPL/EWS/LIG	Urban Policy, Implementation and Governance
Corruption and biased political motives	Planning for sustainable development

Table 2: Urban Challenges in India - JLL Report on Affordable Housing, 2018.

India had already added 65 million persons to its urban population in the decade of the 90's alone. With nearly fifty per cent of India poised to be living in cities by 2030, the magnitude of the urban development and renewal task seems humongous. The housing situation in the urban areas is further accentuated by rapid migration far beyond the availability of housing, as well as the shortage and availability of developed land at affordable prices. With this scale of urban growth anticipated, the biggest challenge is that of providing affordable social housing for the poor and marginalized citizens in order to promote social equity and inclusiveness.

The Housing Scenario: Urban housing in India during the Pre-Independence was largely confined to the royal palaces, lavish bungalows and large homes of the elite and wealthy people, houses and quarters of the salaried class, small houses and huts of the labour class, and the tents of the homeless people living off the street. The influx of refugees after partition added pressure on housing especially in the northern and border states. However, with the introduction and successful implementation of the Five-Year Plans after Independence, urbanisation in India was largely a balanced and slow one.

Substantial growth of population over the decades and the growth of industries led to over-crowding in the cities and towns largely due to distress migration from the rural areas in search of employment. While large industrial projects had planned for housing of the employees in the townships, the medium and small-scale industries had no such provision adding to the burden on the government to provide housing. Several State Housing Boards took up mass housing projects for the different incomes groups and the Economically Weaker Section (EWS). The allotment of plots, houses and apartments was open to the public and was decided by draw of lots or auction. Apart from these, several government departments and public sector undertakings also took up and provided housing for their employees.

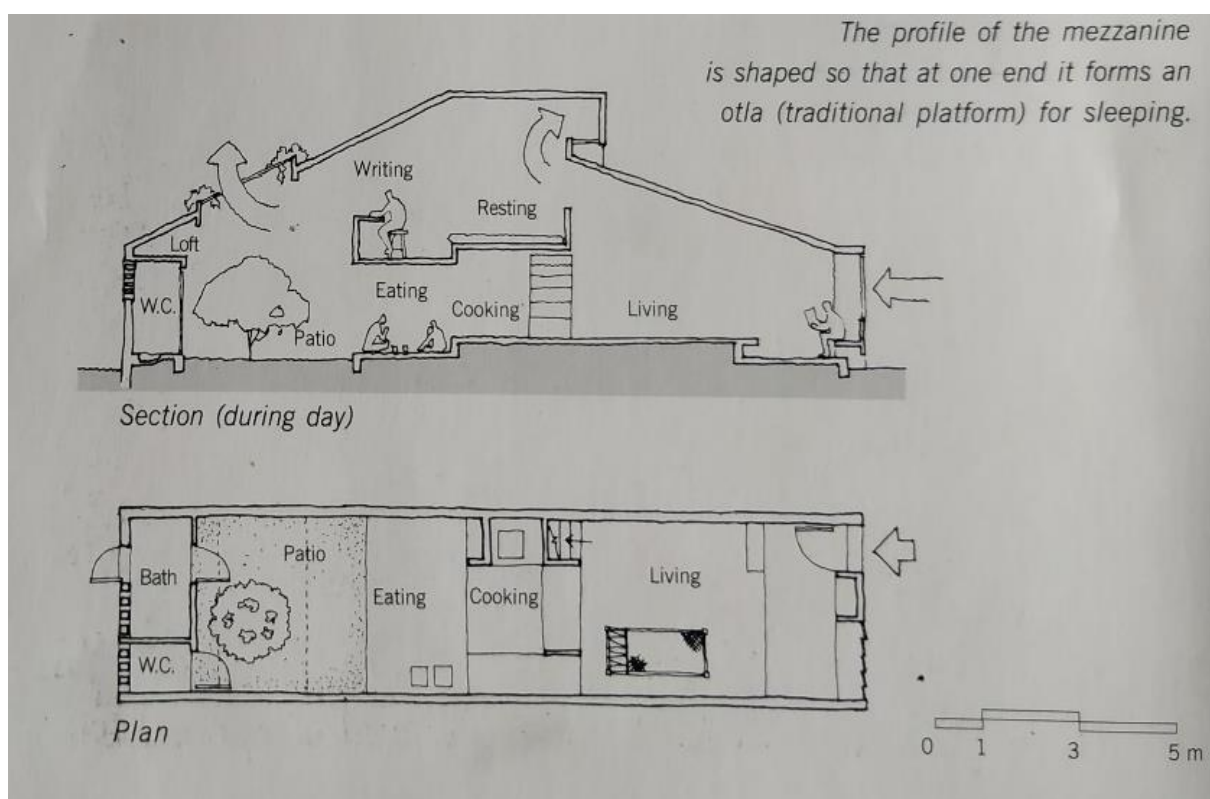


Fig.4: The Tube House (low-cost housing) at Ahmedabad, Gujarat Housing Board, 1960.
Source: Rao 2001

With the formulation of the National Housing Policy in 1992 was envisioned the assistance to provide to all people especially the poor and homeless, affordable housing through access to developed land, building materials, finance and technology. It also sought to expand the provision of physical and social infrastructure in rural and urban areas in order to improve housing as well as to curb speculation in land and housing. The 21st century growth in urbanisation and as a result in housing, witnessed in almost all regions in India was largely due to the liberalization of the economy, the privatization of various sectors including allowing of

Foreign Direct Investment (FDI) in Housing and Real Estate. Affordable housing especially for the Higher Income Groups (HIG) and Middle-Income Groups (MIG) was soon available to millions of families as was the easy availability of home loans which also carried tax benefits.

As one would expect, this created a surplus of housing stock in major cities and towns with 11 Million units built by the Private sector lying vacant i.e. 12% of houses in Indian cities while only 1.1 Million units were constructed by the Public Sector i.e. 1.2% of houses in Indian cities. With a drastic increase in the number of urban households from 54 million in 2001 to 79 million in 2011, the housing deficiency has grown substantially to 26.53 million in 2011, out of which 96% of this deficiency i.e. 25.47 million units is in the sectors of Lower Income Groups and Economically Weaker Sections (MoUD Report, 2011).

Despite the growth of the economy and of housing, millions continue to remain outside the ambit of formal housing schemes and projects due to lack of permanent jobs in the formal sector, absence of documents for availing loans, social inequities, high costs of the housing units, and absence of sufficient schemes by the government agencies to cover most of the poor and marginalized. As a result of this gross housing inequity, the vast majority of poor and rural migrants who move to the urban areas can only find affordable shelter in the various informal settlements pockets and crevices along railway tracks, under fly-overs, in large hume pipes and on the edges of lakes and rivers.

(Correa,1999) while ideating about housing solutions in urban areas in India suggest ways to increase the absorptive capacities of our cities and towns. He stresses the need to develop techniques for re-structuring our existing cities and towns in order to increase urban land supply as was attempted in the project of New Bombay. Increasing the supply of urban land leads to issues of densities especially in housing and affordability in relation to income profile. As long as there are interests that benefit the poor and increase inclusiveness, this seems a perfectly workable idea especially as re-structuring helps create better housing and infrastructure in the same areas whilst allowing for futuristic needs and achieving sustainable development.

2.1.2 Its Informal Villain

Despite the growth of the economy and of housing, millions continue to remain outside the ambit of formal housing schemes and projects due to lack of permanent jobs in the formal

sector, absence of documents for availing loans, social segregation, high costs of the housing units, and absence of sufficient schemes by the government agencies to cover most of the poor and marginalized. As a result, most poor and rural migrants who move to the urban areas find affordable shelter in the various urban pockets and crevices along railway tracks, under fly-overs, in large hume pipes and on the edges of lakes and rivers.

In India, a 'Slum' is a heavily populated urban area characterized by sub-standard housing and squalor. The Government of India defines a 'Slum' as "It is an informal settlement having at least 20 households and made up of temporary structures in squalor, congested and unhygienic environments; with no or severe shortage of drinking water, bath and water closet, drainage and waste disposal". Informal settlements are almost always illegal and unauthorized construction on encroached land in vulnerable areas and are inhabited by poor and marginalized people due to lack of alternatives and empathy, in addition to lack of tenure and affordability.

A 'Slum' in India is also known by different local names as - Jhopadpatti or Chawl in Mumbai, Jhuggi-Jhopdi in Delhi, Cheri or Kuppam in Chennai and Bastee in Kolkata. The Ministry of Housing and Urban Affairs, Government of India classifies Slums in India as:

- Notified – areas notified as slums under an Act of the Central, State or Local Government
- Recognized – areas not formally notified but recognized as slums by the Government
- Identified – all other areas as per slum definition

The variation in the percentage of slum households to the total number of urban households in all states of India ranges from as low as 1.5% to as high as 35.8%. This pegs the overall slum population of India at 93 million people and slum data about India from the World Bank website indicating about 35% of the urban population living in slums (Census PES Report, 2011). With an estimate by a global agency close to its highest range, it is no wonder then that there is a mad rush by government agencies in the guise of 'slum free city plans' and 'smart city projects' to evict and clear existing slums even before resettlement projects are completed.

These Slums are largely inhabited by the homeless, urban poor, rural migrants, petty traders and informal vendors, and foreign refugees due to the lack of public housing, immediate and inexpensive accommodation, easy access to work and opportunities for informal employment, cohesion with related social groups, lack of controls, flexibility and possible

social benefits from various government schemes. Slums are predominantly located in vulnerable areas formed by illegal occupation of land and are over-crowded and densely populated. (Kit et al, 2013) in their comparison of slum population assessments in Hyderabad, India using assistance from satellite imagery found slum densities to be varying between 43,460 persons per sq.km in the Gulshan Nagar slum to 125,000 persons per sq.km in the Rasoolpura slum while the density of the city stood at 18,480 persons per sq.km.

Informal settlements indicate haphazard and unplanned growth with narrow irregular alleys without proper roads and extremely dirty and unpleasant due to the absence of proper drainage and sewage systems. The hutments are mostly self-built and indicate poor structural quality of the dwelling with inadequate natural light and ventilation, no water-closet and bathing facilities and often only an erratic supply of water from the common street tap. These settlements have little or no open space for recreation and despite the absolute lack of family privacy several studies indicate enhanced social bonding and cohesion among the residents.

Due to the illegal occupation of land, firstly, there is no other alternative than to seek the most undesirable environment to live and raise a family and put oneself in a situation prone to disasters and health hazards, a situation that puts women and children under constant danger of harassment and victimization. Secondly, such occupation often is a lack of tenure although influential groups with political connections have been found to be in possession of identity cards for supply of food grains and electricity and water connections. Few among these also manage to obtain land titles after which they rent out a portion of the unit to new migrants in order to supplement the family income.

The report of (Chandramouli, 2003) about the slums in Chennai makes it clear that most of the slum units are controlled and rented out by rich and powerful local landlords to innocent migrants who pay rent to survive and claim their stake in the urban realm. It is these struggling and poor families who also get evicted when slum clearance sets in or when suddenly the government wakes up to gain ownership of the lands or when urban beautification projects are underway or worse still when a foreign dignitary visits the city.

In most of the Slum Free City Plans in India, even after nearly a decade into action, very little has been achieved on ground. Scarce attention is given to other important poverty-related variables (e.g. political instability and natural disasters) and the non-comparability of

metrics because of issues with data in many countries and the unique characteristics of slums (Saith, 2006). Furthermore, as no metrics are available for monitoring newly emerging slums, it has been suggested that the goal of improving the lives of at least 100 million slum dwellers by 2020 is far too modest to generate a meaningful reduction in slums globally (Sietchiping, 2004).

2.2 City of Coimbatore

Coimbatore is the District and Coimbatore City, its headquarters. Coimbatore district is situated in the extreme west of Tamil Nadu, along the western ghats. Coimbatore got its significance as it served as a transit point between the east and west coasts through the Palghat Gap. Coimbatore District is surrounded by mountains on the west, with reserve forests and the Nilgiri Biosphere Reserve on the northern side. The entire western and northern part of the district borders the Western Ghats with the Nilgiri biosphere as well as the Anaimalai and Munnar ranges.

Coimbatore district is the second largest urban agglomeration of Tamil Nadu (see Fig.5) and one of the most industrialized districts of the state. It has been a major textile hub since 1930s after the decline of the cotton industry in Mumbai. Since then, the region has seen an economic boom in the textile industry followed by the pump industry and today it is a major industrial, commercial, healthcare, educational, information technology and manufacturing hub of Tamil Nadu.

Coimbatore district has more than 25,000 industries and is known as the “Manchester of South” and the “Pump City of India”. It provides for 60% of water pump demand and 40% of motor and wet grinder demand of the country. The district has 5 SEZs (Special Economic Zones) and is the second largest software producer in Tamil Nadu. The proposed Coimbatore-Salem Industrial corridor will enhance the employment potential and raise the efficiency and the competitiveness of the industrial enterprise. Along with this rapidly expanding industrial and economic centre, Coimbatore proudly treasures one of the eight “biodiversity hotspots” of the world, the Western Ghats. They form the eco-sensitive zone and hence, naturally qualify for preservation and sustainable development. The Ghats are adorned with large number of plants, animals, amphibians, birds, reptiles, mammals and other endemic species. In the same

way, the Valparai Taluk of Coimbatore district houses the Anamalai Tiger Reserve and treasures an array of flora and fauna.

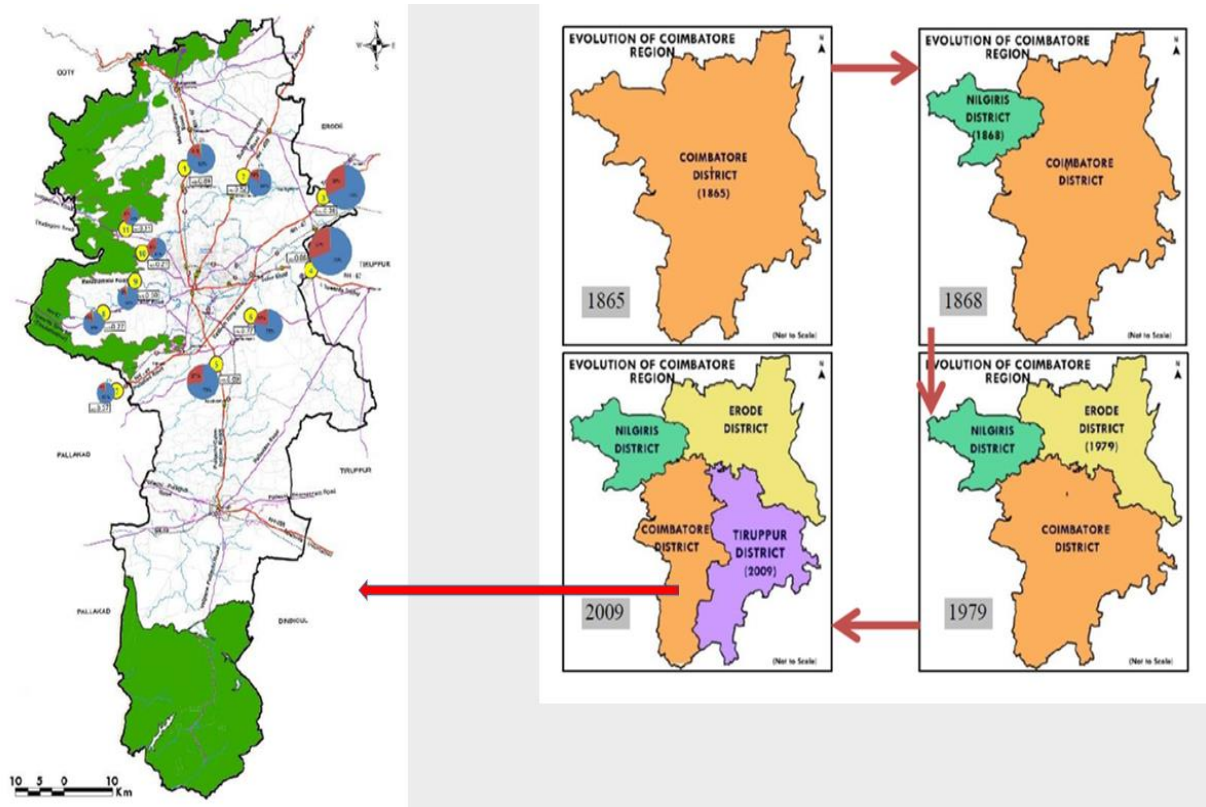


Fig.5: Maps showing the Evolution of the Coimbatore Region from 1865 to present.
Source: Draft Report (2018) Coimbatore Regional Plan – 2038, SPA Bhopal.

The soil of the district is very fertile and provides for excellent agricultural conditions. The major agricultural produce is maize, banana, coconut, paddy, cholan, groundnut, sugarcane, beetle nuts, curry leaves, jasmine etc. Coimbatore is very productive in terms of yield and irrigation facilities.

The district population is 3.46 million people over a land area of 4723 sq.kms at a density of 731 persons per sq.km (Census of India, 2011). Coimbatore District is mainly based on manufacturing and service sector economy. However, the other sources of income generation are household small scale industries, agriculture and allied activities etc. which also generate a sizeable amount of income. The district contribution to the GDP of the state of TamilNadu is about 6%, only behind the capital region of Chennai. Per Capita income of the district is 77,975 INR as compared to state's income of 89,050 INR.

2.2.1 Brief Profile

The Coimbatore Metropolitan Region or the Local Planning Authority (LPA) extent includes the city corporation (see Fig.6) and its surrounding towns and villages. Coimbatore lies at 11°1'6"N 76°58'21"E in south India at 411 metres (1349 ft) above sea level on the banks of the Noyyal River, in south-western Tamil Nadu and has many man-made lakes. Coimbatore is a major industrial city in India and the second largest city in the state of TamilNadu.

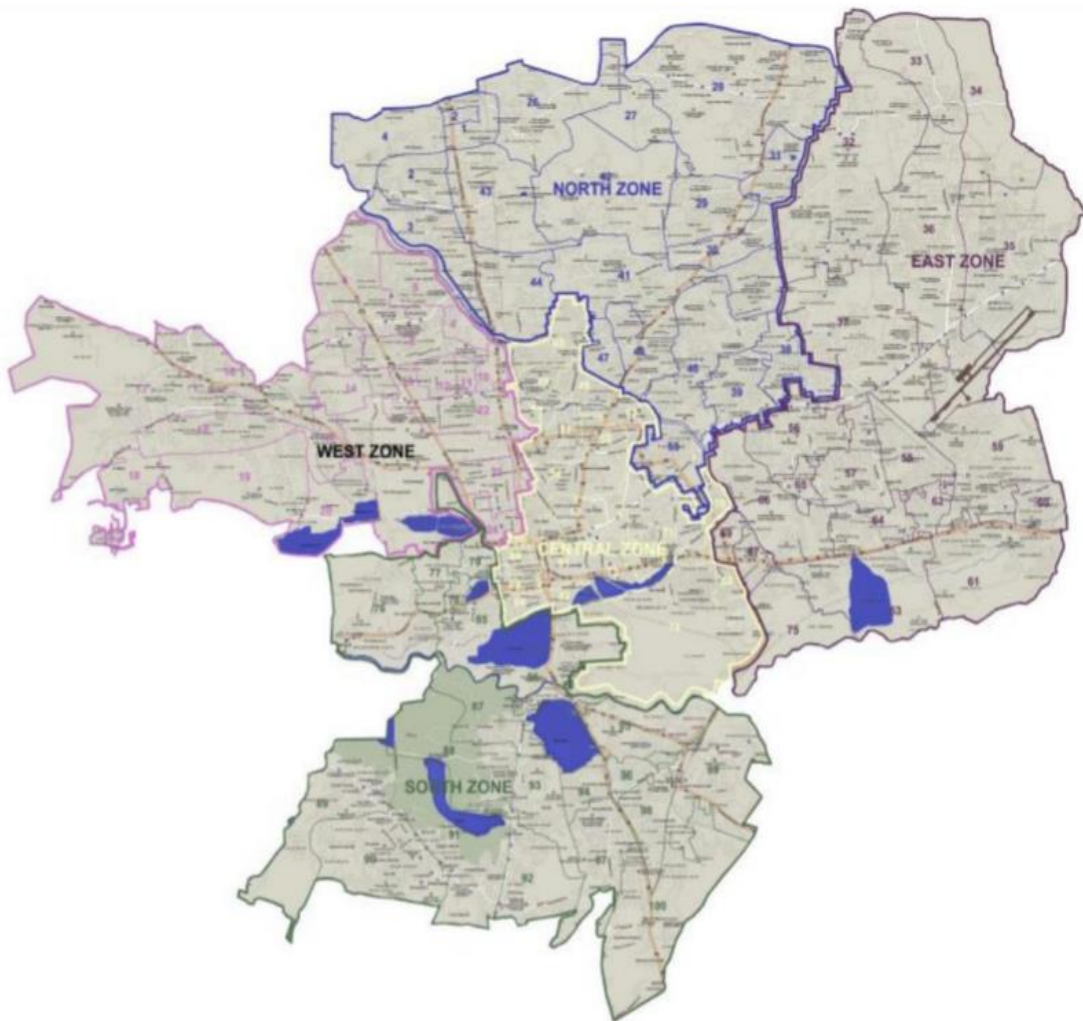


Fig.6: Map of the City of Coimbatore, CCMC, 2018.

Coimbatore is known for its Hospitals, Institutions, Textiles- Yarn, Knitted Garments, Handlooms, Textile Machinery, Motors, Pumps, Industrial goods, Cotton, Tea, Tourism and IT. Migration to Coimbatore in the past was largely from the neighbouring districts and states. Nowadays, a lot of migrants from the Northern and Eastern states of India come to Coimbatore for employment.

Coimbatore's weather is uniformly salubrious, owing to its elevation and the influence of the Palghat Gap. 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.

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. The City has total 24 lakes out of which 8 are within the Coimbatore Corporation limits namely Ammankulam, Narasampathi, Krishnampathi, Selvampathy, Muthannakulam, Selvachinthamani, Periyakulam aka Ukkadam Big Tank, Valankulam and Singanallur. These interconnecting wetlands were built by Chola Kings in the 8th-9th century to provide for agricultural irrigation, replenish the ground water table and prevent flooding. 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.

Sl.NO	Land Use	Area In Hectare	% of developed Area	% of the total Area
1	Residential use	6318.68	78.76	59.84
2	Commercial use	279.40	3.48	2.65
3	Industrial use	491.00	6.12	4.65
4	Educational Use	661.50	8.25	6.26
5	Public & Semi public use	271.89	3.39	2.57
6	Agricultural use	2537.53	-----	24.03
	Total	10560.00	100.00	100.00

Table 3: Land Use Percentage of Coimbatore, 2002.

Source: Draft Report (2018) Coimbatore Regional Plan – 2038, SPA Bhopal.

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. As per the (Citywide Concept Plan, 2018), the proposed land use in Coimbatore for 2021 shows increase in all categories at the expense of the agricultural land by nearly 10%. 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 number 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 that manifest themselves through festive occasions celebrated in Coimbatore.

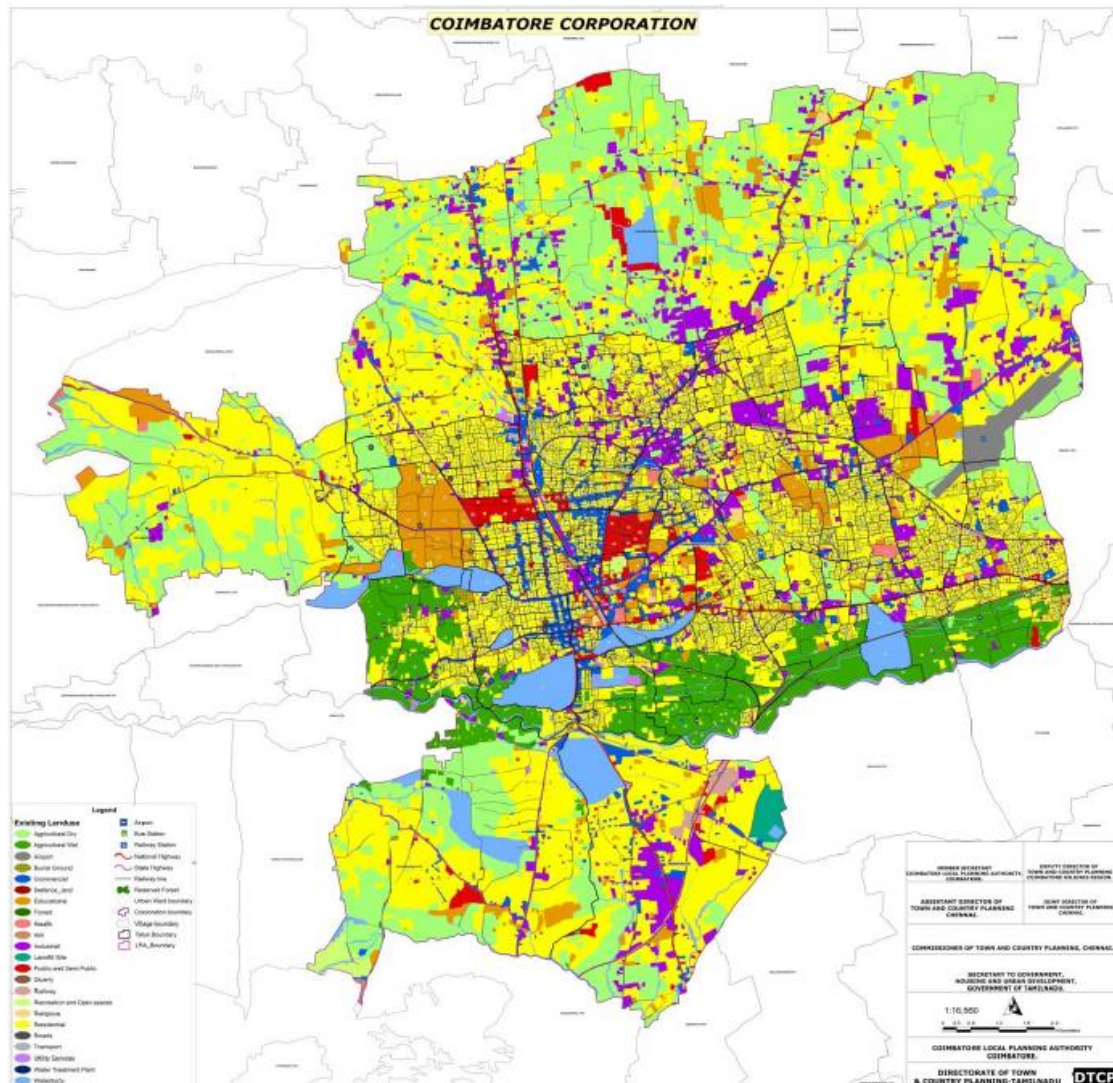


Fig.7: Land Use Pattern of Coimbatore, LPA draft Master Plan, 2011.

The city experiences growth in population due to rapid industrialisation and emerging educational institutions, both in the urban context and the outskirts and 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. Coimbatore, is currently confronted with problems of providing basic infrastructure and housing at the rate of its urbanization especially in the newly added areas south of the river Noyyal. The rapid rate of development since 2000 has exacerbated the city's urban problems, particularly of environmental degradation and housing for the urban poor.

Due to presence of numerous industries in Coimbatore, and no proper effluent treatment methods being used, the pollution levels are very high in the area. Coimbatore ranks 38th among the industrial area surveyed among 43 other industrial clusters with CEPI score above 70 on a scale of 1 to 100. Coimbatore can be counted among some of the majorly polluted areas in the country.

History: 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. On the other hand, the monarchy of the Vijayanagara Empire relocated Devanga weavers, along with numerous peasants and craftsmen, in the Kongu region. 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. Later, it was turned into a military transit town between Palghat in the west and Gazal Hatty in the north. 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.

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 setup units in this region. A major thrust to the cotton industry came from the Naidu community 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.

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 (Census of India, 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. This was followed by a tectonic shift from textile to machinery in the city's trade and commerce scenario.

The city experienced strain in its social fabric during the series of bomb blasts in 1998. Although the impact was contained, since then and post the demolition of Babri Masjid in 1992, communal tensions became severe. 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, the southern part of the old city that were predominantly muslim areas and its informal settlements were excluded from any development and governance from the urban local body.

Demographic Growth and Migration: 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. Migrants from Kerala have settled down in large numbers in the suburbs of Kuniyamuthur and Kovaipudur.

The dominant reasons behind these trends of migration 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 recent decades have witnessed large scale migration from the states of Andhra Pradesh, Bihar, Uttar Pradesh, Jharkhand, Odisha and the North East due to lack of opportunities in these states as well as due to the extensive requirement for labour in the various industries, shopping complexes, brick kilns and the construction sector.

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 increases in 2011 was an outcome of the extension of boundary of Coimbatore Corporation from 105.6 square kilometres to 265.36 square kilometres. The industrial part of the city comprises 22.70% of below the Poverty Line (BPL) 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 the Kadalakarasandhu slum in the north zone has the highest percentage (80.95%).

The (Wilbur Smith Associates report, 2008) suggests that the city extended its limits in the northern, eastern, and southern directions, along the 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, and Oppanakara Street 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 grid-iron layouts with mixed-use characteristics.

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, 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.

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 lies within the corporation limits (within the LPA).

Economy: 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. In TamilNadu, industries were faced with unannounced power cuts forcing many factories to close operations creating an industrial debt crisis and wrecking the economic growth of Coimbatore. Acute power shortages were a major constraint faced by industrial enterprises in the city since October 2007. Even after the decline of textile mills, the city's large textile and ancillary industries comprised 2,044 industrial units, and the machinery manufacturing sector provided the highest share of employment, its workforce statistic reaching 19.3 million.

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 TamilNadu. A good network of public and private bus transport network connects Coimbatore with all the neighbouring regions. However local transport is not very efficient and needs better connections with the suburbs and peri-urban areas. As a result, people have to depend on expensive modes as taxis and auto-rickshaws. Many therefore prefer to buy their own two-wheelers and cars increasing traffic and congestion during peak hours especially in the city's core where roads are narrow with no scope for widening.

Likewise, the rail transport experienced drawbacks in the past decade due to the delay in the rail conversion along the Coimbatore-Madurai link. However, this has been resolved now though more trains need to be organised for better connectivity. Coimbatore also has an international and domestic airport connecting it with major cities in India and international destinations of Singapore and Sharjah. It has been a long-time demand of the residents and business houses of Coimbatore to improve international connectivity to boost trade and tourism.

Infrastructure: The water supply to the city is taken care of by the Sarvani 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. 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.

Solid waste management in Coimbatore comes under the Corporation 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 segregated 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. There are three landfill sites for the disposal of solid waste: Kavundampalayam, Ondipudur, and Nanjundapuram. An incinerator has been specifically installed at Chockampudur for the disposal of hospital waste.

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. The sewage is treated in two plants, located at Ukkadam, which have a respective capacity of 24 MLD and 44 MLD. 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. In addition to roadside drains, the city is well served by a network of natural drainage channels. Rain Water Harvesting is mandatorily practised in all buildings, campuses and public zones.

Governance: There are numerous agencies from the national level to the state level to the district level, from the state departments to the urban local bodies to the village panchayats, and they support and administer the regular policy making, strategic planning and real-time implementation of various development works, projects and schemes of the Coimbatore Metropolitan Region. The Smart City Project for which Coimbatore was selected in 2014 is

underway with the participation and coordination of several government agencies. Several welfare schemes have been implemented by these agencies in recent times – Jawaharlal Nehru National Urban Rural Mission (JNNURM), Rajiv Awas Yojana (RAY), Slum Free City Plan (SFCP), Affordable Housing in Partnership (AHP), Prime Minister's Awas Yojana (PMAY), Basic Services to the Urban Poor (BSUP), Mahatma Gandhi National Rural Employment Guarantee Act (MNREGA), Tamil Nadu Urban Development Programme (TNUDP) etc.

Smart City Project: The Government of India 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 central ministry 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, proposed under the Smart Cities Challenge Proposal 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 and the Coimbatore City Municipal Corporation (CCMC) 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.

Development for the Future: 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.

Urbanisation has taken a toll on the natural resources of the Coimbatore 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 can be used to understand, identify and improve on factors such as migration, poor infrastructure, hazardous zones, and social and political agendas that have created them. A more detailed understanding of the slums with regard to their origin and development in the specific context of Coimbatore is essential for inclusive and sustainable development.

2.2.2 Informal Settlements of Coimbatore

Coimbatore Corporation is divided into five zones. Each zone comprising 20 wards. Totally 215 slums had been identified for the enumeration purpose under Rajiv Awas Yojana (RAY) scheme. Coimbatore city has a total of 319 slums (see Table 4) with 46650 households. Out of the 319 slums, 44 slums were developed earlier under various schemes by the TamilNadu Urban Habitat Development Board (TNUHDB) and the urban local body. About 60 slums could not be surveyed due to non-cooperation of slum dwellers. Hence, the board had planned the investment to be utilised only for the surveyed slums, and details of the slums in Coimbatore (both notified and non-notified) were collected from the Coimbatore Corporation through the TamilNadu Urban Habitat Development Board.

The slum population of the Corporation constitutes nearly 16% of the total population of the Corporation. The largest slum of the city Nanjundapuram Ittery has a population of 4631 persons and is situated in ward No.95 of South zone.

S. No	Name of the Slum	No. of Slums	House Holds
1	Developed Slums by TNSCB	44	5964
2	Slums not surveyed under RAY due to non cooperation from Slum Dwellers	60	10749
3	Surveyed Slums under RAY	215	29937
Total		319	46650

Table 4: Slums in Coimbatore, NITTR Report, 2012.

Because of IT, Educational institution and other Industrial growth, the migration to the city is high. High rents, prohibitive land prices, very limited or no access to credit facilities for the urban poor, and lack of credit worthiness have been the important factors contributing to the growth of the slums (see Fig.14) in Coimbatore Corporation area. Estimated statistics from the socio-economic survey shows there are 29937 slum households in Coimbatore Corporation of 3.42 sq.km area.

Out of 215 surveyed slums, 99 slums were found to be in objectionable zone. This constitutes 10586 households. Around 32.02 acres of vacant lands have been identified by TNUHDB, Coimbatore for the resettlement of the untenable slums. Currently TNUHDB is constructing 13440 tenements for the slum dwellers under JNNURM scheme. These tenements will be sufficient to accommodate the untenable slums, while the densification of low-density slums will also help in creation of land vacated by the resettled slums. Option of relocation depends upon the availability of land and the number of slum dwellers. Only 99 slums fall under the unstable land tenure thereby indicating that the remaining 116 slums either have legal land titles or are in the process to secure them.

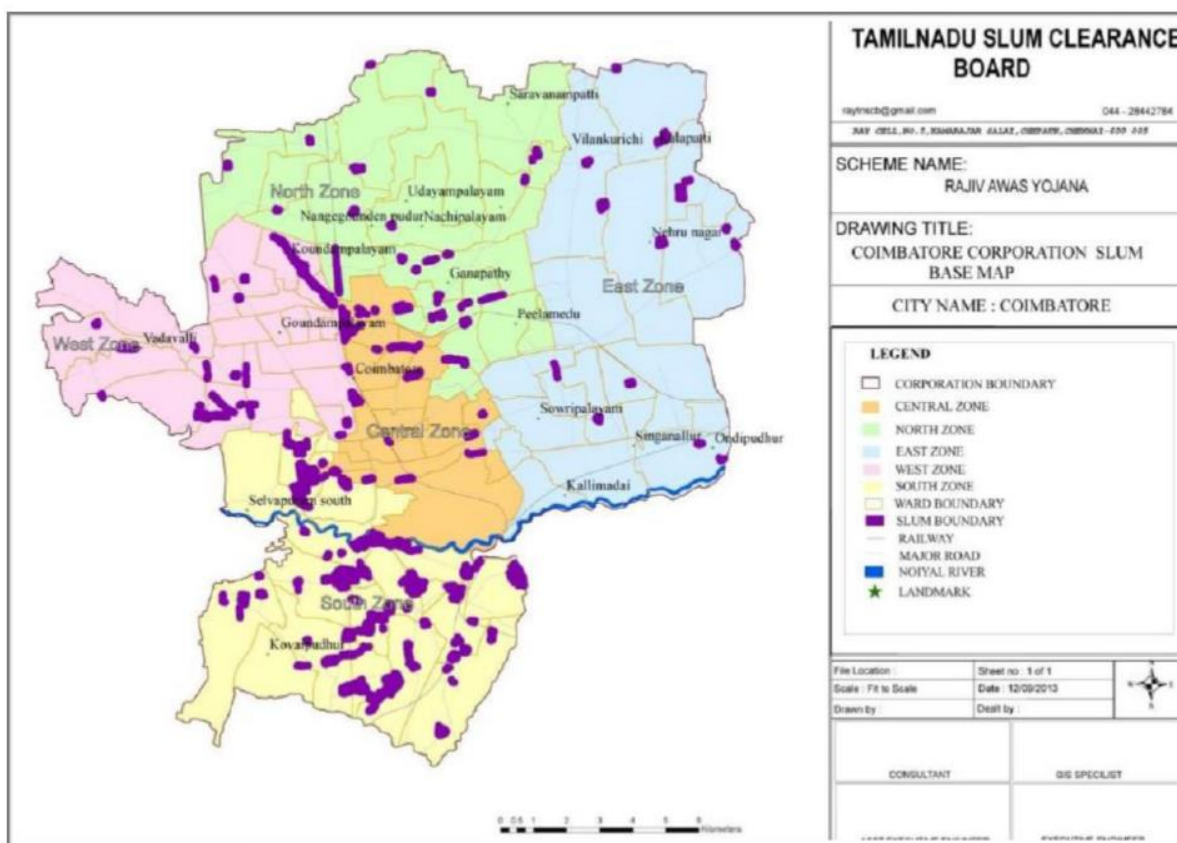


Fig.14: Location of Slums in Coimbatore, TNSCB, 2013.

	North zone		East zone		West zone		South zone		Central 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
Tenable	15	1498	13	1400	13	1589	69	13767	06	1097	116	19351
Untenable	11	1101	4	228	22	2176	44	4059	18	3022	99	10586
Total	26	2599	17	1628	35	3765	113	17826	24	4119	215	29937

Table 5: Tenability of Slums in Coimbatore, NITTR Report, 2012.

Housing disadvantage is a complex concept. It usually refers to the adequacy of the structure and associated services; but it may also include aspects of security of tenure and affordability. Three most common indicators of housing adequacy are: (a) Space per person, (b) Permanent Structures and (c) Housing in compliance with local standards. Main objective of the slum development programmes is to provide decent shelter and minimum acceptable size. Kutchha and Semi pucca households need to be transformed to Pucca structure with due consideration of the land ownership. In Coimbatore Corporation around 25000 households are Semi Pucca & Kutchha category which needs to be transformed to Pucca structure. Households in informal settlements use less than half of the amount of water as the average usage in the

same cities, owing to poorer availability and greater costs. Irregular water supply leads to spend excess amount towards procuring water for potable purpose. The median water price in informal settlements is almost five times the average price. In Coimbatore Corporation 87.6 % of slum households are not having Individual water supply facility. There is a highest demand for water supply connection in the Central zone which is having 0.42%. Likewise, about 85 informal settlements in Coimbatore do not have the facility of solid waste collection, and about 62% of the slum households lack individual toilets.

2.2.3 Entanglements of the Social and Material Ecologies

Informal settlements are often misrepresented merely based on the forms, arrangements, materials and conditions of the settlement, housing and service provisions. But beyond the disordered physical environment, informal settlements are also communities that show resilience in the face of constrained livelihood choices, and active sites of interaction between these communities and the physical environment. It thus represents the complex realities of social and spatial inequalities that are prevalent and created by systemic processes, that disadvantaged groups must constantly encounter - besides their poverty struggles - to survive in urban regions.

The inequalities are so deeply embedded that they are almost invisible to even governments, policy makers, planners and common urban residents. As a solution to reducing the inequalities, governments mostly perform token measures in the form of freebies, the state of TamilNadu is reputed for offering several freebies to its citizens especially the urban poor. Caste based politics and notional affiliations to political parties by certain caste groups has helped power equations, won elections and government formation.

Freebies before and after elections, as cash handouts, televisions, free clothes, festival gift hampers, bicycles etc, while providing some benefit to the disadvantaged groups from their immediate minor deprivations, sadly do not address enough their major deprivations such as poor shelter, lack of basic amenities, access to higher education or better employment opportunities, nor work towards reducing the inequalities caused by the lack of opportunities and resources, or further still to address the unequal power relations that are superimposed on caste and religious divisions. Inequalities cause frictions and frictions lead to informal arrangements, which in turn reinforce other forms of inequalities. To decipher these complex

socio-spatial relationships and entanglements, this study deconstructs the key frictions in the city of Coimbatore as deduced from literature sources.

The spatial segregation practised and prevalent in medieval towns and cities in India based on caste and religious stratification, is visible even today, as an outcome of caste discrimination - is still prevalent in some regions in TamilNadu although to a tiny extent. This is visible in the spatial form of the “Oor” and the ‘Cheri’ and extending to other forms of socio-spatial exclusions (Gorringe et al, 2016) ranging from separate arrangements in schools and tea shops, lack of access to certain temples, separate community spaces including burial and cremation areas. It is still a challenge for certain social and religious groups to set up businesses and commercial activities, or access rental residential accommodation in certain areas of the city owing to social prejudices, and even based on food preferences. Today while such discriminatory and exclusionary practices are practically non-existent in cities in TamilNadu especially in Coimbatore, spatial segregation zones of the past have undergone varied levels of hybridization and are prevalent and functional.

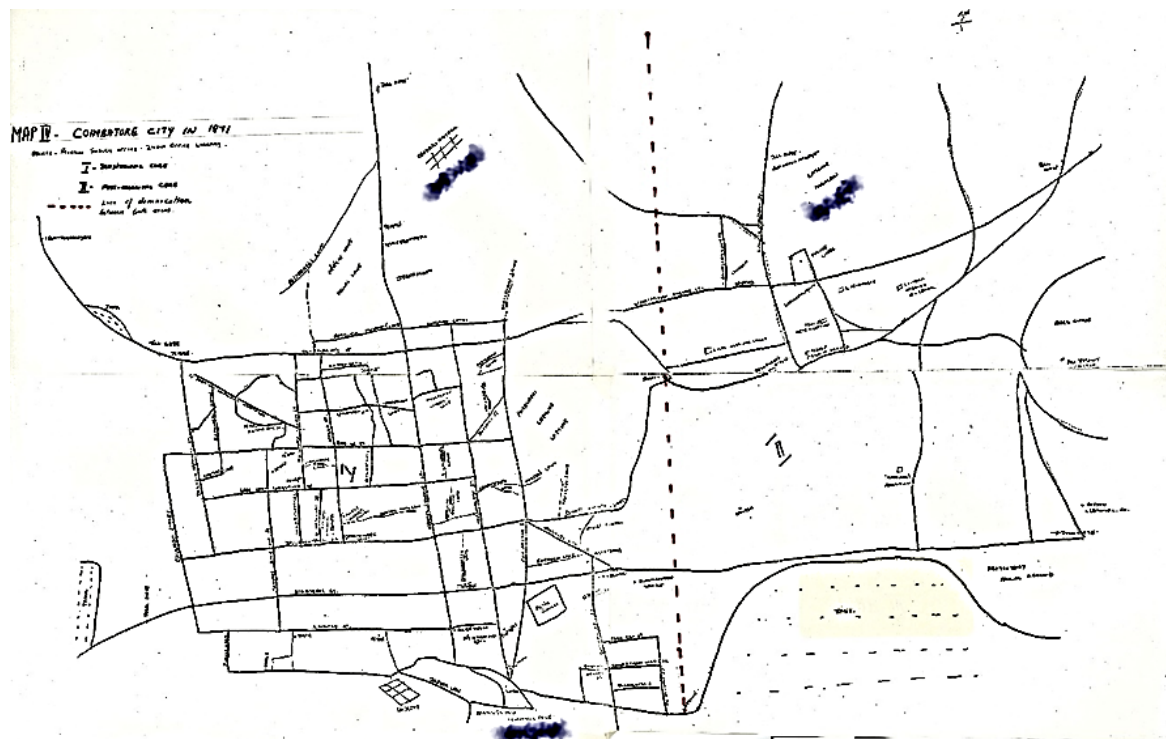


Fig. 9: Highlighted - hutments of ex-untouchables - Coimbatore 1871
Source: Joy, 1975

(Joy, 1975) in her work on social organisation of Coimbatore, reports how traditional cities in India clearly reflect key social values especially those of race, occupation and its

related purity. Residential areas of the ex-untouchables were almost often beyond the boundaries of the city, lower social groups were confined to the peripheries, with higher ranking groups and religious, administrative and commercial spaces occupying its central spaces. The map of Coimbatore in 1871 (see Fig 9) clearly reflects this spatial divide along social divisions.

A recent survey by the Pew Research Center highlights how Indians while expressing enthusiasm for religious tolerance simultaneously also show preference for segregated spheres based on religious beliefs and practices. The same survey indicating that while most Indians do not perceive or subscribe to the discriminatory practices, disadvantaged groups such as the scheduled caste and scheduled tribes disagree and perceive discrimination, with caste discrimination being more rampant in the south and the north-east than the rest of the country although religious integration is high in these regions (Sahgal et al, 2021).

The hutments of the ex-untouchables were initially squatters on the village outskirts where they were allowed by the village administration to hold the sites of their huts and small backyards without any monetary consideration (Hjejle, 2011). The hutments (three highlighted portions) of two predominant scheduled caste groups, namely the Chakkiliyar and Paraiyar are situated outside the peripheries of the traditional cores (marked in Fig 9 as I) on the south, north and east. Also, the hutments of the Chakkiliyar and the Paraiyar were spatially segregated from each other. The term used to describe the hutments of these groups are the 'Chakkili-Natham' and the 'Para-Cheri' with 'Natham' - a Tamil word meaning unused and bare lands and 'Cheri' - another Tamil word originally meaning wet or marshy land. But the term 'Cheri' continues to be used in a derogatory manner and to stigmatize the socio-economic position of the disadvantaged groups.

The peripheral lands occupied by these social groups were the traditional wastelands and commons of the region, with prime lands occupied or belonging to the other caste groups. These wastelands and wetlands also called the 'poramboke' were the village commons and as they were not suitable for agriculture, they were used only for residential purposes, that too by people of the lower castes and ex-untouchables. At the same time of the preparation of the above map, Coimbatore was still a village (and had lesser population than had a population of 35,274 people living in 4,735 houses. The assessed lands owned by the government stood at

1020 acres while the area of unassessed lands stood at 864 acres, and these unassessed lands most likely are the 'poramboke' or the uncultivable commons including village sites and roads.

That this socio-spatial distinction and the fact that the street names in the traditional core are based on caste groups - most of the names exist even to this day - found its way in the revenue map compiled under the colonial administration is also indicative of the social-political narrative prevalent during that period. Coimbatore saw the establishment of the 'British Part' in the east and north, clearly away from the existing 'Traditional Part' in the west, with hutments of the ex-untouchables initially along the peripheries of the old core and later along the roads and railway tracks in the new core, as well as the peripheries of the new core. Most of the hutments were along the marginal lands, and the presence of numerous lakes in the old peripheries and the Sanganoor stream in the north and east were the preferred locations. Writing about the spatial distribution of the ex-untouchables almost a century later - during the 1970's - (Joy, 1975) highlights the significance of the hutments of the ex-untouchables not only to as spatial isolations - caste ghettos - but as key peripheral markers between old core, old peripheries, new core and new peripheries indicative of the growth of the urban region.

Further the growth of Coimbatore over the past five decades has seen more surrounding villages and towns being engulfed into its urban region, and similar socio-spatial characteristics of the surrounding towns and villages as regards to the hutments of the ex-untouchables have also been carried forward as informal settlements. Depending on the rate of growth in different directions, informal settlements have also grown in the peripheral areas of these surrounding areas (which are the newly added areas of the urban region). The informal settlements of Coimbatore have undergone multiple stages of peripheral evolution within the urban agglomeration with the result that the older hutments of the ex-untouchables are now situated in the new urban core.

These resulting spatial positions while allowing for better livelihood opportunities and increased access to urban infrastructure, services and amenities carries its own set of woes as well. In the recent past, the sites of informal settlements especially in the new urban core are being increasingly sought back, citing issues of illegality and encroachments on government lands - often with political and legal backing - to enable space for creating new urban infrastructures such as road widening projects, flyovers, and lake beautification project; or citing health, safety and environmental concerns - such as untenable locations, river buffer

zones, environmental hazards, and flooding risks. This has resulted in conflicts between the inhabitants and the government, largely due to evictions - both voluntary and forced - unmindful of the factual position of the existence of these communities and settlements since the origins of the city, and unmindful of the social networks, capital and relationships. The current relationship between informal settlements and cities, especially the frictions and informal arrangements can be likened to (Swyngedouw, 1999) description of urban regions existing in a network of interwoven processes occurring simultaneously, and how the outcomes of such processes and conditions result in contradictions, tensions and conflicts.

Historically, the eviction and resettlement of native communities and their settlements during the early period of colonial occupation of India was done in order to gain access to lands and other resources, especially all common lands to secure the region, and to enable the establishment of the 'white town' and the cantonments, and to create the infrastructure necessary for easy and quick trade and commerce. In the recent past however, eviction of untenable settlements and those that had to be relocated owing to urban infrastructure development witnessed resettlements in the new urban peripheries.

Between these two periods, and post India's Independence, despite the formation of the TamilNadu Slum Clearance Board in 1972, informal settlements in Coimbatore and rest of the state of TamilNadu excluding Madras were mostly redeveloped as the TNUDP in three phases through funding from the World Bank from the late 1970's to as recent as 2010 according to the World Bank Report ISR1098 of 2010. However, besides redevelopment of the existing settlements, the GoTN and TNSCB also implemented several resettlement projects which involved the construction of medium rise housing tenements in the new urban peripheries owing to land availability. The projects in these phases largely covered granting of land tenures, housing and improvement of the delivery of urban services.

The MoHUA, GoI launched the 'Slum Free City Plan' under the RAY scheme in 2011 with the aim to bring all informal settlements within the formal system by the provision of better housing and basic services and amenities. One such ambitious plan of action was drafted out for the city of Coimbatore as a ten-year plan from 2013 - 2022 and included the redevelopment and resettlement of informal settlements, as well as a preventive strategy to prevent the formation of new settlements. More than one-fifths of the informal settlements could not be surveyed due to non-cooperation of the inhabitants (NITTR Report, 2011) probably

due to the untenable nature of their settlement location and therefore possible eviction and resettlement.

Under the RAY schemes and TNUDP project, housing tenements were developed on resettlement sites, many such projects being situated in far flung areas along the new urban peripheries. On a more positive note, few informal settlements in Coimbatore have also undergone on-site redevelopment and resettlement near their existing locations.

The announcement of the 'National Smart Cities Mission' in 2014 included the city of Coimbatore as one of the beneficiaries and an enthusiastic local government drew ambitious plans in their feasibility report. These plans comprised urban renewal and retrofitting proposals including upgrading its infrastructure and smart applications. The proposal for Coimbatore hinged around the integrated beautification of the major lakes (mostly in the central zone of the city) as a form of eco-restoration (initiative among other measures such as water supply, solid waste management, model roads, infrastructure development and enhanced digital surveillance. Sadly, the redevelopment of informal settlements was not covered under this project, probably because existing schemes and projects under the TNUDP, RAY and BSUP were already operational during the feasibility stage of the smart city project. However, the beautification of lakes in the urban core also meant the eviction and clearance of several established and old informal settlements that were sited on the edges of these lakes, the inhabitants of these settlements were allotted tenements of the TNSCB at different locations with CSCL paying the beneficiary amounts on behalf of all the affected inhabitants.

The NITTR report created as part of the SFCP revealed the factual position of the surveyed informal settlements with respect to poverty, vulnerability of housing infrastructure deficiency. During the enumeration, socio-economic data was collected but the focus was more on improving the material and physical conditions of the inhabitants and their settlements, understanding and addressing social conditions, structural deficiencies, and systemic failures did not figure in the report. The approach seems to be one-side heavily focussing itself as a technical one, devoid of any social objectives and recommendations that produce these spatial inequalities.

Greater inequalities according to (Mohanty, 2018) have been generated alongside social tensions due to the focus of the government on higher economic growth. Informal settlements as sites of social inequalities are affected not merely by uneven possessions - income, assets,

education, employment, benefits, health, housing, services, amenities, transport among others; but fundamentally by the conditions that allow certain groups to dominate over others in the form of power relations - segregation, stratification, discrimination, exclusion, dispossession, political linkages, planning, policies, legal systems among others. Holistic improvement of informal settlements in the context of Coimbatore as witnessed from the findings of literature suggest more emphasis and focus on improving the conditions that produce inequalities in the first place, as well as addressing the deprivations of the disadvantaged groups.

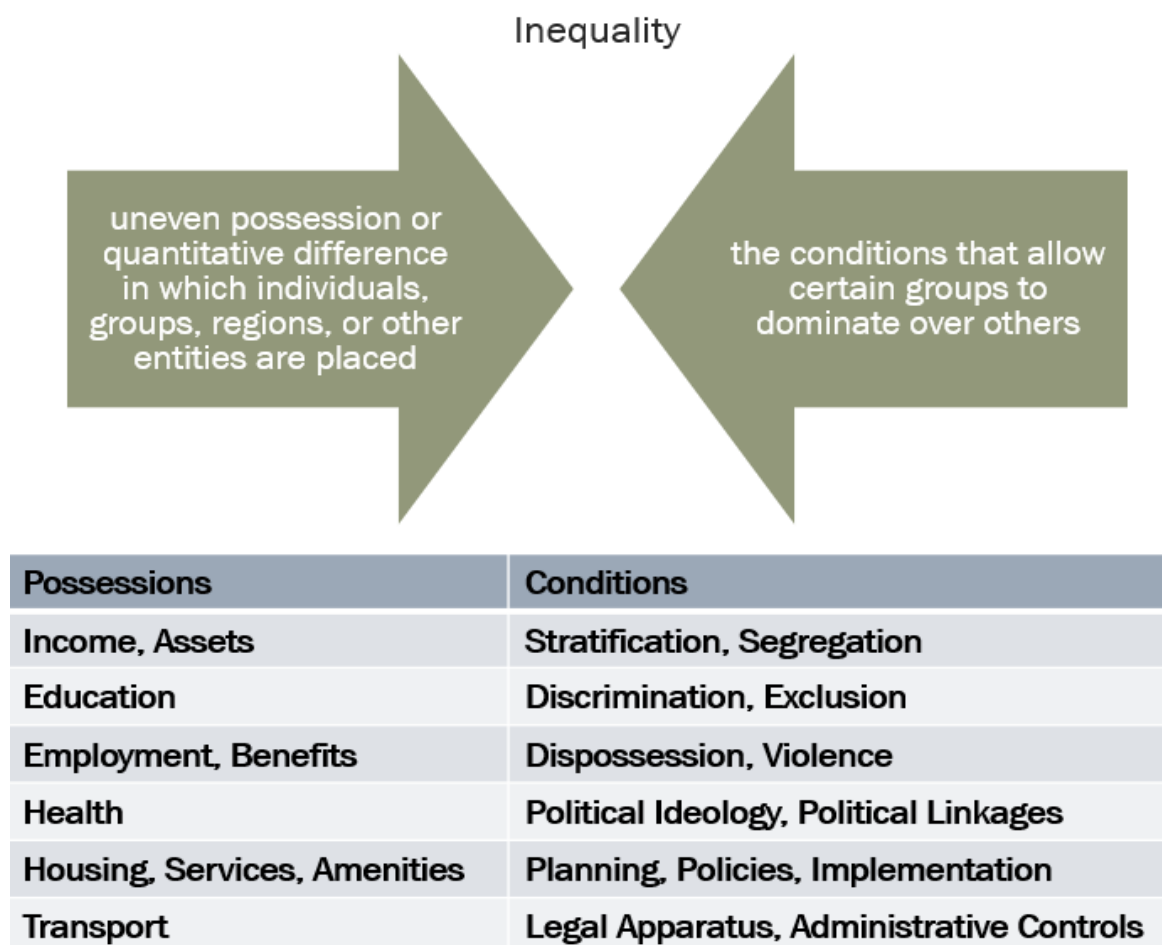


Fig 10 - Inequalities as both possessions and conditions
Source: Mohanty, 2018

Enabling the discussion on the conditions that produce inequalities is not an easy task as this requires drastic changes in social legislation including power sharing. Even the colonial administrators of the Madras government were unwilling to enforce (Hjejele, 2011) any legislation addressing the inequalities in the traditional social systems.

Current governments and political parties too avoid this delicate terrain in order to either garner votes from supporting social groups or to avoid any standoff due to structural

changes in social systems. Further the inhabitants of the informal settlements in Coimbatore also come up with innovative political strategies by naming their settlements after popular political leaders, flag posts of political parties and pictures of the leaders in their huts and homes, something that reminds as (McFarlane, 2011) suggests about the 'relationalities through which the politics of slum dwellers are constituted'. This is seen as a form of legalisation and extends the belief that forceful evictions may not happen or political support will come to their calling if and when that happens. It is also a strategy that political affiliation could indirectly help to obtain land tenures, utility connections, statutory documents, welfare benefits and scheme funding for redevelopment and upgradation. Then there is the 'no participation' strategy that many settlements have exhibited during the RAY surveys, of non-cooperation as a form of protest and as a form of collective stand in order to protect themselves from being forcefully evicted.

Caste based politics continues to dominate the political scenario especially in TamilNadu and the two predominant Dravidian parties - DMK and AIADMK - and the CPI have strong connections and networks with certain caste groups. Both these political parties project themselves as saviours of the poor and disadvantaged groups. The election manifesto (news article of the EconomicTimes dated March 18, 2021 - what AIADMK and DMK manifestos offer) of both parties released in the run up to the last held elections in 2021 contains several promises to seek the attention of disadvantaged groups. The AIADMK manifesto included enabling free houses to the homeless, one government job per family besides providing free washing machines, cable television connections, solar stoves, mid-day meal for senior school students, two gb data for college students and many more. The DMK manifesto offered a digital tablet to every government school and college student, waiver of education loans, free public transport for women, increase in maternity benefits as well as providing maternity allowance, opening of subsidized canteens, assistance for farmers.

While such freebies continue to woo certain disadvantaged groups through these attractive offers, the current ruling DMK party offered solutions to achieve inclusive societies, reduction in corruption, transparency in administration, social justice and welfare of disadvantaged groups through the various benefits, schemes and projects. Recommendations pertaining to equal opportunities for minorities and disadvantaged groups in education, housing, and employment feature in the list, but the question remains as to how much of this is achievable in a large state like TamilNadu in the given five years. Two manifestos particularly

of relevance here - firstly, the issue of patta (record of land rights) for people occupying village natham lands, and secondly, the offer of houses for families below the poverty line under new schemes.

As regards the issue of patta, the Communist Party of India, a coalition party of the ruling DMK party organised public protests demanding the issue of patta to the families living in poramboke lands across the state. A call for applications in 2019 by the Coimbatore Corporation from BPL - below poverty line - families received nearly 2.26 lakh responses, that is almost half the total number of households in the city (News article, the Hindu, March 11, 2019).



Fig x3: Political protests demanding issue of patta for poramboke lands
Source: The Hindu, 6th May 2022

And how this and the existing social dynamics gave rise to the wrongful classification of the settlements of certain caste groups and their negative portrayal as unhygienic and undesirable, as a result of which public strategies especially in India have in the past and continue even today in the form of post-colonial institutions such as the 'slum clearance board' and post-independence urban development schemes such as the 'slum free city plan' to sanitise the city of such informal settlements, as they seem fit.

Part III - The Mobility Perspective

3.1 The travelling of the 'Slum':

This mobility perspective moves beyond the mere fixation of the term and negative connotations of the 'Slum' across the world, to explore the historical pathways of bias and prejudice against race, class, caste and other marginalised groups and their impoverished housing conditions, from its origins in the west to cities and towns in the global south. It also traces the pre-colonial existence of spatial segregation along caste and religious lines in India and the ghettoization of marginalised groups in undesirable areas with little or no access to opportunities, resources and services. It proceeds further to highlight the process of discrimination in India during the period of colonial occupation by the forceful eviction of native communities, the demarcation and identification of urban areas based on racial discrimination, and the denial of basic services such as water supply and sanitation to native neighborhoods, ideas which still seem to be working against slums to this day. The depiction of such travelling of ideas as a mythological narrative often used to refresh existing knowledge and tradition (Lieto, 2015), a depiction that is likely comparable here to the colonial narrative of the notion of slums in their occupied southern countries based on the knowledge of slums that existed in their countries in the first place at that time. Not one of informality, but largely that of decrepitude. Moving forward from the colonial period, the mobility perspective discusses the negative effects of colonial era policies during post-independence regimes and the long-lasting role of the institutions created during that period. The policy responses in the past by global agencies and the transfer of western ideas of urbanisation, and the strategies that were especially directed towards improvement of slums also enabled transfer of western cultural values of understanding and resolving urban challenges without a fair understanding of indigenous cultures and value systems. With the continued role of global and national agencies and their diktats about how to (re)solve or tackle the 'slum problem' largely driven through their funding for projects across the global south, the 'slum' is always on the move.

This part of the chapter - the travelling of the 'Slum' - has been dealt very briefly here, as a transnational idea along a historical timeline, solely with the intention to reinforce the main hypothesis of this thesis, that of transition and dynamism of slums.

3.1.1 The notion of 'Slums':

Urbanization, the process by which cities and towns grow and develop and Globalisation, the process by which movement and exchange of trade, culture and people happens all over the world have provoked their fair share of 'by-products.' One of the most

persistent among them happens to be the pockets of poverty and neighborhood decay, famously called 'Slum' in most development writing. Today, this catchall term 'Slum' is loose and deprecatory. It has many connotations and meanings and is seldom used by the more sensitive, politically correct, and academically rigorous. But in developing countries, the word lacks the pejorative and divisive original connotation, and simply refers to lower quality or informal housing.

Today, slums are mostly associated with informal settlements in cities and towns of the global south, the examples of Dharavi, Kibera and Rocinha are well known and widely documented. But the word 'slum' first came into use in the 1820s from London Cockney vernacular and began to be used to denote poor districts across London in a damning way for having the poorest quality housing, unhygienic conditions and sheltering the most criminal of people as these locations were then reputed for being the breeding grounds for marginal activities including many criminal activities and drug abuse. This piece of cultural baggage and the negative connotations associated with it got exported to other English settler societies and colonies across the world.

Interestingly during the same period and on the other side of the world, in the southern state of TamilNadu in India, the Tamil word 'Cheri' originally meaning 'a muddy and wet place' or 'marshy land' was also used colloquially to describe in a derogatory way, the location or place of the hutments of the 'ex-untouchables' - the lowest social group in the caste system in India - who were considered as inferior and polluting. In the past, most cities and towns in India were spatially planned as caste and religious segregations based on social hierarchical structures and the lowest social groups were thus excluded to the marginal and waste lands in the peripheries with little or no access to resources and opportunities leading to informal housing.

The crisis that these changes engendered in society in Europe and elsewhere from the 17th to the 19th centuries has been documented in a lot of literature describing slum conditions possibly worse and more degrading than those currently prevailing in the developing world, accompanied by more profound political and social unrest. Rapid industrialization in 19th century Europe was accompanied by rapid population growth and the concentration of working-class people in overcrowded, poorly built housing. England passed the first legislation

for building low-income housing to certain minimum standards in 1851 and laws for slum clearance were first enacted in 1868.

In the United States of America, slum development coincided with the arrival of large numbers of immigrants in the late 19th and early 20th centuries; laws concerning adequate ventilation, fire protection, and sanitation in urban housing were passed in the late 1800s. In the 20th century government and private organizations built low-income housing and appropriated funds for urban renewal and offered low-interest home loans.

(Herbert J Gans, 1962) investigated Boston's West End, an inner-city district mainly occupied by workers' families of Italian origin, designated for demolition. He discovered that, despite the modest appearance of the buildings, the area had a strong vitality and people lived there by choice. To depict similar areas, he used the term 'Urban Village' challenging the idea that central areas with small, old buildings were synonymous with Slums. Gans focused on the inequality of urban renewal and changed the public perception of the problem, asserting that tearing down buildings does not improve the living conditions in neighbourhoods where the main issue is the residents' low income.

3.1.2 The White Town, the Black Town, and 'Slums':

It was between the late 15th century and the early 20th century that major European powers established trade linkages and colonised parts of North America, China and Japan and almost the entire global South. It was clearly the absence of understanding of the contextual variations, social settings and vernacular way of life that influenced the settlements in their new found colonies and the stark variation in the social and material ecologies of the settlements as compared to their own typologies, that the perception and identification of these settlements as black towns and eventually as slums were conveniently described. This helped to segregate the existing native people and their settlements whilst creating European quarters for their own use.

(Davis, 2009) mentions how European colonialism denied native populations the rights of urban land ownership and permanent residence and how apartheid, took this system to its dystopian extreme enabling for the uprooting, with enormous brutality, of historical inner-city communities of color and eviction from supposed 'white' areas forcing relocation. (Banerjee

and Iyer, 2005) have argued theoretically, and demonstrated empirically that colonial occupation has had profound and long-lasting effects on the quality of institutions and governance at the national level in developing countries. These studies highlight the path-dependent nature of colonial institutions and their effects on contemporary outcomes.

In sub-Saharan Africa, (Fox, 2013) argues and elucidates using empirical models that slums are a result of “disjointed modernization” and traces its origins back to the colonial period that show how colonial era investments and institutions are reflected in contemporary variation in slum incidence. He further argues that status quo interests and the rise of an anti-urbanization bias in development discourse have inhibited investment and reform in the postcolonial era.



Fig.12: William Faden's plan of Madras (Chennai), published in London in 1816 showing Black Town.

Similarly, (Okpala, 1988) reiterates the lasting effects of colonial town planning, investment, and the design and enforcement of institutions in urban areas in Africa. He also argues that effective policy responses can only be derived from a more realistic evaluation of African urban problems, based not only on Western European analytical perspectives, but also on the analysis of economic, historical socio-cultural factors indigenous to Africa itself. Concepts and theories employed in contemporary African urban studies have often been

transfers from western urbanisation studies which have embodied transfers of cultural values. These have generally been applied without paying enough attention either to indigenous sociocultural and value systems, nor to analysing and interpreting the relevance of Africa's point in an urban evolutionary continuum. The uncritical transfer and application of such concepts has led to prescriptions and recommendations for urban management policies and programmes that have proved largely ineffective, and involved much misdirection and misapplication of limited resources. The consequence has been the continued exacerbation and compounding of urban problems.

The representation of native settlements as 'Black Towns' in several maps (Fig.12) of these colonies especially in Southern India is proof of this lack of social and physical understanding as well as evidence of social injustice because of discriminatory practices arising from political motives. This way, the very notion and concept of overcrowded and poorly built housing of the native communities of weavers, farmers, fishermen and landless labourers without sparing a thought about the centuries of evolution and creation, ethnic diversity and social intricacies got so easily tagged to the vernacular settlements of the people in these regions.

Institutional roadblocks to fast urban growth were removed by paradoxical combinations of colonial counterinsurgency and national independence in Africa and Asia, and by the overthrow of dictatorships and slow-growth regimes in Latin America. Driven toward the cities by brutal and irresistible forces, the poor eagerly asserted their "right to the city" even if that meant only a hovel on its periphery. In colonial India, the tightfisted refusal of the Raj to provide minimal water supplies and sanitation to urban Indian neighborhoods went hand in hand with a de facto housing policy that relied on the greed of local landlord elites, who built the horribly overcrowded, unsanitary, but profitable tenements that house millions of Indians.

In Kolkata, (Weiner, 1978) highlights the historical traces of a stream of migration with roots in colonial labor-recruitment policy, involving patterns of circular interstate migration linked to key segments of the urban labor market through an "ethnic division of labor". Such forms of migration are characterized by intricate systems of kin and village networks that regulate entry into urban labor markets (de Haan, 1994).

3.1.3 A non-violent independence, a painful partition and slow violence

Even more than famine and debt, civil war and counterinsurgency were the most ruthlessly efficient levers of informal urbanization in the 1950's and 60's. In the case of the Indian subcontinent, Partition and its ethnoreligious aftershocks drove millions into slums. Bombay, Delhi, Calcutta, Karachi, Lahore, and Dhaka were all forced to absorb floods of refugees (Fig.13) in the violent aftermaths of 1948 (Partition), 1964 (Indo-Pakistani War), and 1971 (secession of Bangladesh). In the cities of Uttar Pradesh during the interwar years, the unceasing efforts of colonial officials and newly enfranchised native elites to push the poor to the cities' edges and beyond are well chronicled.



Fig.13: Refugees waiting to cross over from India to Pakistan. 1948.

Source: The Mint, 2018

Likewise, Dharavi was once a mangrove swamp inhabited by Koli fishermen. The slum was established in 1882 by forceful resettlement and grew due to the demolition of factories and expulsion of the residents in downtown Mumbai. Today Dharavi no longer bears any remnants of the fishing village it once was and has evolved into Asia's largest slum accommodating more than 1 million people. Several decades ago, it was a neglected and highly ignored part of the city with agencies unwilling to provide infrastructure and services and improving the social life and physical environment of the slum. However, as it has now become

prime land in the heart of Mumbai city, government agencies and private developers are vying with one another and keen to explore redevelopment plans, truly reflecting a paradox of the time in Dharavi's slum history and a lesson for all urban researchers.

3.1.4 Ideas from Global-National-Regional-Local through funds

Slums remain an expression of disapproval or oddness, whose ultimate meaning is still insurmountable and ambivalent. The incapacity to create a consistent definition of 'slums' may be pointing to a deeper ontological weakness of 'urban space' to unify the overly complex relationship existing between the social and spatial dimensions of cities. The narrative surrounding the institutionalization of slums as part of the MDGs claimed knowledge and control over urban spaces; however, too many issues – overcrowding, inequality, urban violence and lack of physical infrastructure – cannot be encapsulated into a single concept. The solution to this epistemic dilemma may lie close to reality, where problems receive clear and perhaps more humble names.

Slums returned to the global urban policy arena in the advent of the Millennium Declaration, a charter that aimed to renew the ambitions of the 1948's Universal Declaration of Human Rights, while innovating in its capacity to be monitored and evaluated. To this end, the UN subscribed to eight theme-based Millennium Development Goals, or MDGs, each composed of policy targets and indicators for monitoring progress. In the 1990s, UN agencies prepared their fitting to the Millennium Declaration and UN-Habitat, the smallest of its agencies, found in 'slums' a synthetic, striking problem that could raise its institutional relevance vis-à-vis the monitoring of MDGs.

Commenting on this approach of the UN agencies, (De Castro, 2018) is of the opinion that the definition of 'slums' was amended in a way to be designated and monitored by measurable indicators to operationalise and assess progress. This he believes paved the way to the arising of an epistemological problem, namely the conflation of realist and nominalist perceptions of slums. As characterized by the UN, slums aim to represent the external reality of certain urban settlements, however, they greatly represent the system of values of its creators. This renders itself evident in the definition, geography, and history of slums coined by the UN between 2003 and 2005.

Part IV - Empirical Findings

This chapter aims to present the detailed findings of the fieldwork conducted in the sample informal settlements in the city of Coimbatore. In total, twenty-one informal settlements were selected (applying the criteria as highlighted in the methodology section) and primary data collected using visualization techniques, questionnaires and personal interviews to obtain information at both settlement and household level.

In this first part, the data thus collected has been compiled and presented as collective summaries and individual details based on settlement characteristics, demographics - social and economic, and housing - including top-structures and services.

- Spatial Transformation
- Demographics
- Morphology - surroundings, access, features, streets, housing, open spaces, vegetation
- Housing - condition, materials, space, incrementality

4.1.1 Spatial Transformation:

Like its most other south Indian counterparts, the city of Coimbatore evolved in stages largely influenced by the political and demographic changes. The historic town had a well-developed core (Oor) north of the Noyyal river and comprised the residential and commercial spaces occupied by the prominent social groups, and on its peripheries in the south, north and east were the hutments (Cheri) of the ex-untouchables. This Oor-Cheri concept was the existing pattern of most towns and villages in this region. One of the earliest expansions to this medieval town happened on its east side during the annexation of this region by Tipu Sultan in the mid 18th century. This led to the establishment of the muslim community in the town and their residential and commercial areas being developed.

This was followed by further expansions to its east and north during the colonial period starting from the late 18th century, and initiated the formal urban development of the town. During the early stages, infrastructure and agriculture exports were chief concerns of the East India Company and all development were oriented towards that purpose. The later period of British Raj witnessed the development of the town as an administrative centre, and its peripheral expansions engulfing neighbouring villages on the east and north. Hutments of the ex-untouchables that were at the peripheries of the historic core were now in its new core. Likewise many new hutments also sprang up along the new roads and railway lines that were

established during this period. At the same time, the village of Kurichi south of the Noyyal river saw the establishment of the Podanur railway junction and witnessed expansions too.

Coimbatore recorded its highest decadal growth rate between 1971 - 1981 when one of its largest neighbouring town - Singanallur, was taken into its fold and the municipality was upgraded to a corporation. Similar developments occurred simultaneously albeit at different times and scales in all the peripheral villages of the city of Coimbatore (see fig 14).

The surroundings towns and villages of Kovilpalayam, Annupparpalayam, Telungupalayam, Peelamedu, Ramanathapuram Singanallur, Kurichi, Kuniyamuthur, Vadavalli, Kavundampalayam and several other such peripheral towns and villages being integrated with the city of Coimbatore over the past century has enabled its growth into a metropolitan region with a population of nearly 1.6 million in 2011 from just 47,000 a century earlier.

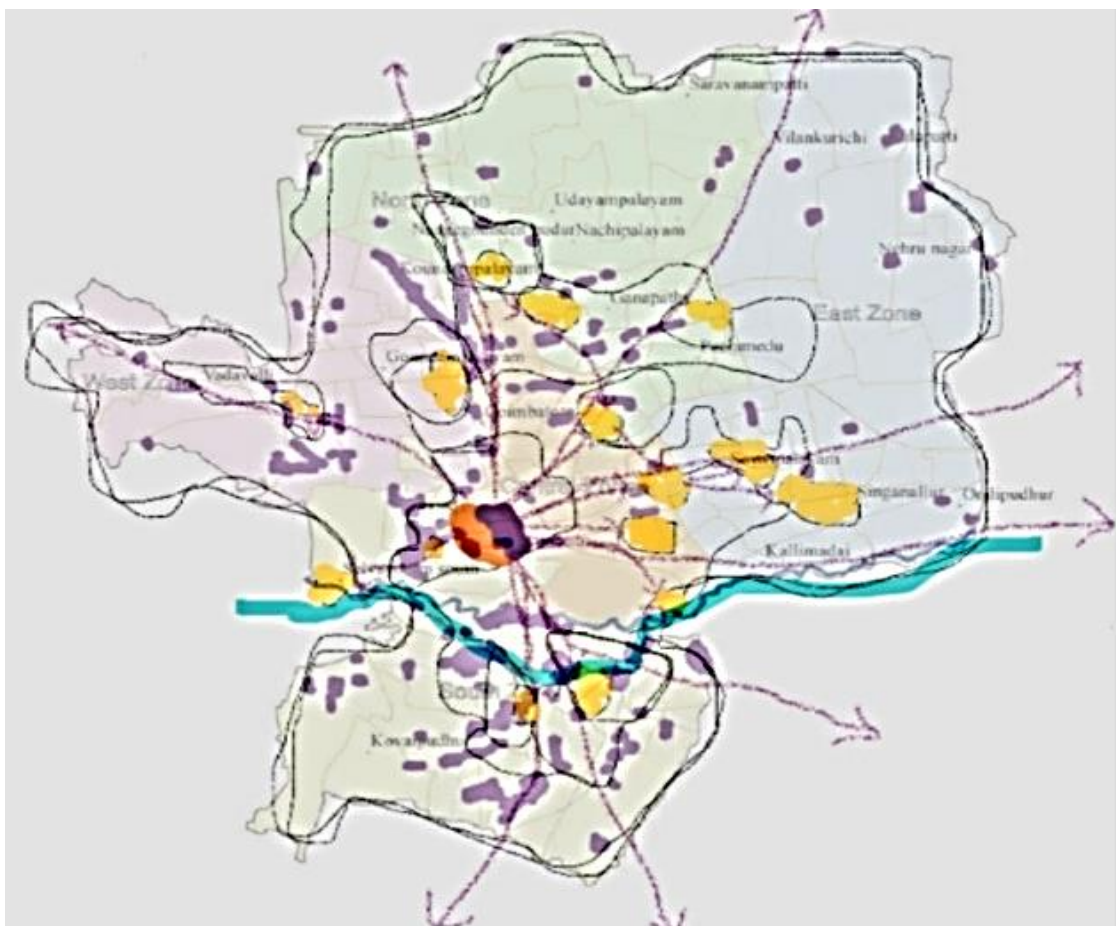


Fig 14 - Representational image - evolution of Coimbatore and its informal settlements
Red/Orange-historic core, Blue-Colonial extension, Yellow-Surrounding Towns, Purple-Informal Settlements, Blue-River

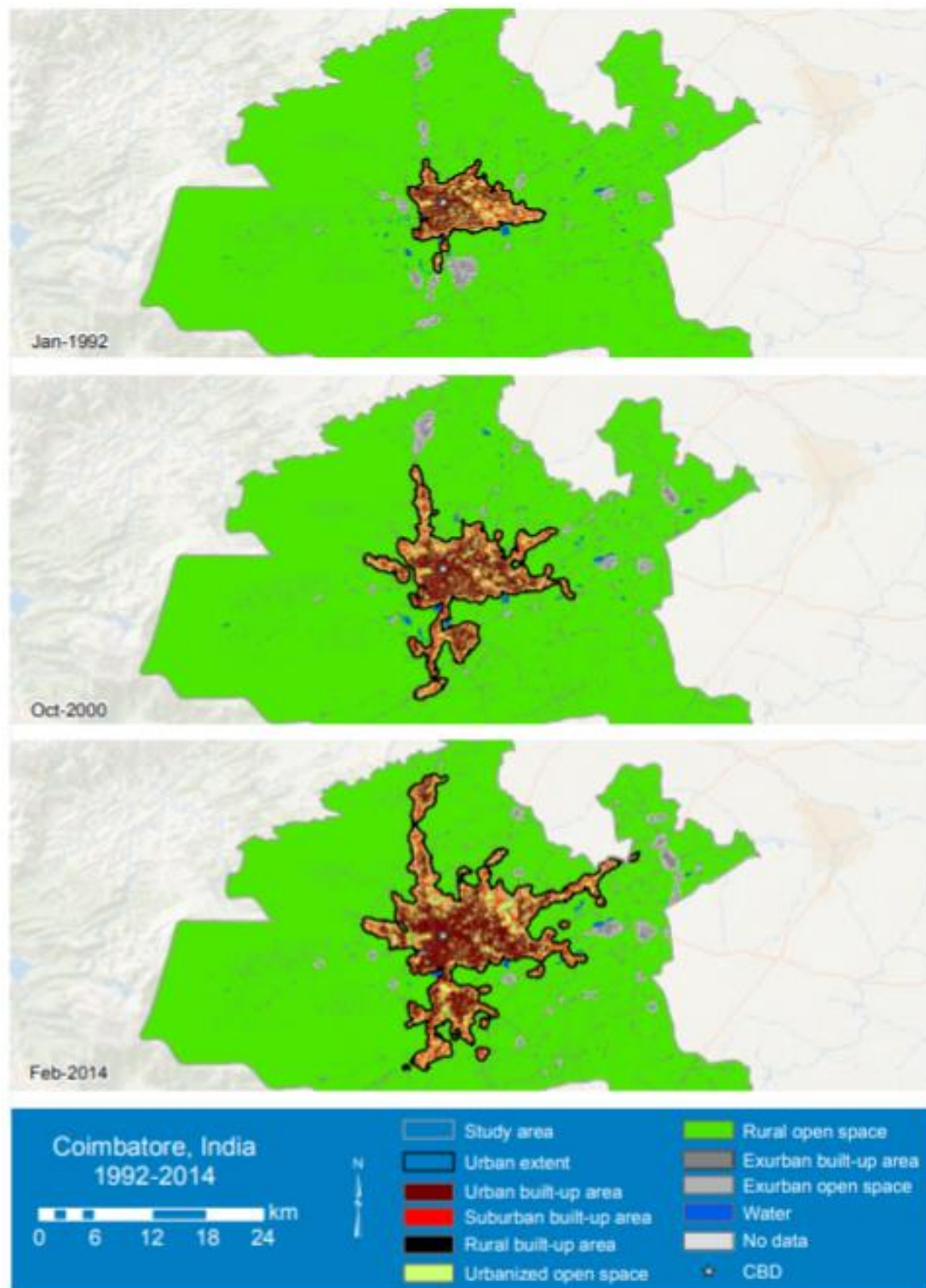


Fig 15 - Urban growth of Coimbatore 1992 - 2014

Source: <http://www.atlasofurbanexpansion.org/cities/view/Coimbatore>

This also meant that informal settlements shifted positions from the historic peripheries to the new core (suburban to urban), and informal settlements in the peripheries of the newly added towns and villages also integrated into the metropolitan region situating themselves due to this

expansion into the new core (rural to urban), old peripheries (rural to suburban) and new peripheries (rural to rural). This shifting continuum is visible in the livelihood opportunities, access to health and education, settlement form, housing conditions and access to urban services and infrastructure.

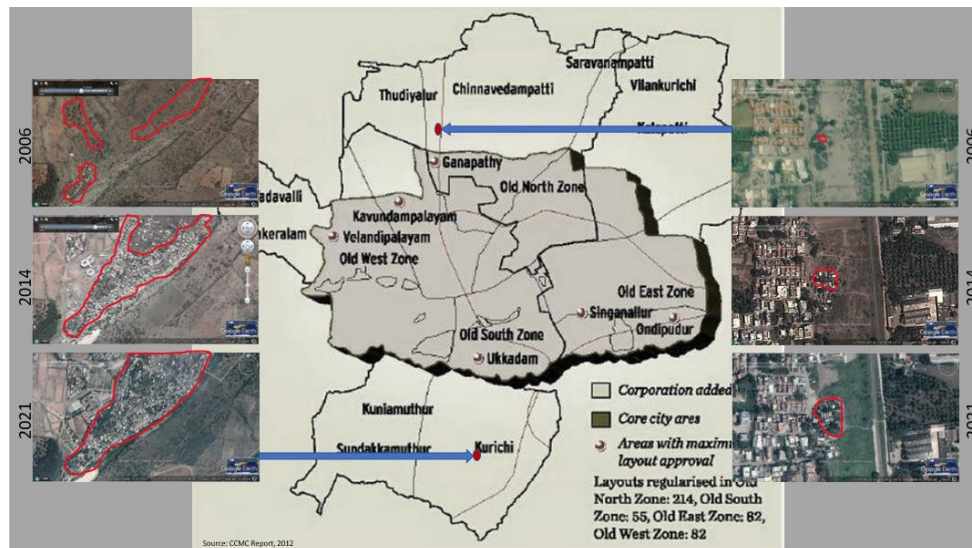


Fig 16 - Example of two settlements in the old peripheries and their growth pattern

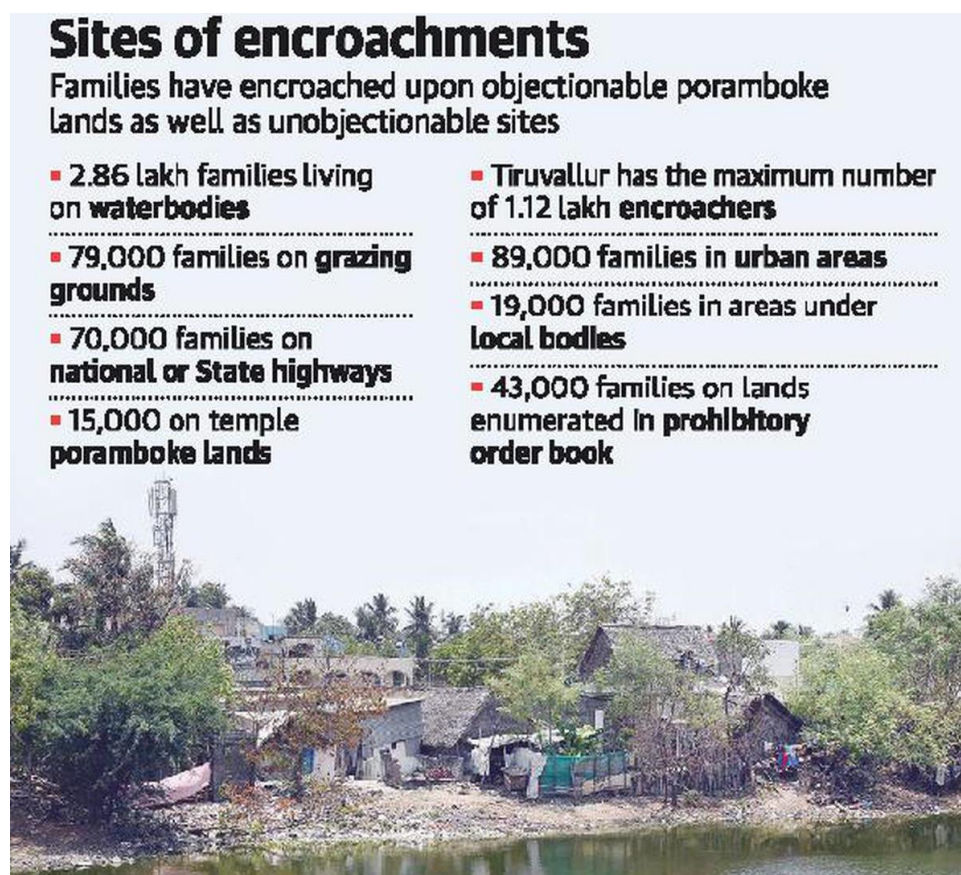


Fig 17: Sites of Encroachments - Poramboke lands.
Source: the Hindu, 19th December 2018

The survey of India map of 1993 records this presence of hutments not only in the old and new peripheries, but also in the peripheries of the surrounding towns and villages. Such hutments as has been explained earlier developed on poramboke lands, the ownership of which rested with the corporation, municipal town or town panchayat. This issue of illegality arises out of this shift over the decades and over changes in administrative policies, in the legal status of urban and village commons for the disadvantaged groups - from right to occupancy to illegality.

4.1.2 Demographics:

The socio-economic conditions of the inhabitants of the informal settlements were compiled from the household surveys. Due to the precarious socio-economic conditions as an inheritance from the past, the inhabitants were stigmatized in the past, although now social discrimination is reportedly low. Almost all of the inhabitants belong to the scheduled castes, scheduled tribes, most backward and backward communities or religious minorities and were highly disadvantaged in terms of poverty, migration status, education and skills, lack of formal opportunities, community participation, low wages, need for secondary income and lack of access to credit. Such multiple deprivations added by lack of institutional support leads to further enhancement of inequalities.

Unlike the past, there has been a shift in the family structure, nearly two-thirds are nuclear families and multi-generation families are on the decline. This is invariably an urban influence and may be because younger people often migrate a lot more in search of opportunities. Many families also prefer to subdivide the unit for social reasons, to get food subsidies, to obtain below poverty cards and avail other welfare benefits.

Nearly 60% of the inhabitants belong to the scheduled caste and scheduled tribe groups, while their percentage of the city's population is around 10%. This indicates that they are severely disadvantaged in comparison with other social groups who are more in number but less among them are disadvantaged. This could also be an indication of the natural growth of the ex-untouchables who earlier resided in the peripheral hutments, and who are now the scheduled castes and scheduled tribes, as well as increase in numbers from other districts of TamilNadu in the recent decades.

Hindus comprise the religious minority on the same lines of the region, with religious minority groups comprising Muslims and Christians comprise another 10%. In terms of mother-tongue, besides Tamil, Telugu is spoken among nearly one-fourths of the inhabitants, this could be due to the large-scale migration that was witnessed in the state from the northern Telegu speaking regions of the erstwhile Madras state during and after bifurcation.

Household Distribution - Family Structure:		
Family Structure	Number of Households	Percentage of Households
Joint	100	32.68
Nuclear	199	65.03
NI/DNR	7	2.29

Table 6 - Demographics - Family structure

Household Distribution - Caste:		
Caste	Number of Households	Percentage of Households
Scheduled Caste/Tribe	183	59.80
Most Backward Caste	33	10.78
Backward Caste	42	13.73
Others	2	0.65
NI/DNR	46	15.03

Table 7 - Demographics - Caste

Household Distribution - Religion:		
Religion	Number of People	Percentage of People
Hindu	269	87.91
Christian	18	5.88
Muslim	12	3.92
Mixed	7	2.29

Table 8 - Demographics - Religion

Household Distribution - language:		
Mother Tongue	Number of Households	Percentage of Households
Tamil	199	65.03
Telugu	77	25.16
Malayalam	9	2.94
Vagri - Tribal	9	2.94
Bhojpuri - Bihari	7	2.29
Others	5	1.63

Table 9 - Demographics - Language

One settlement comprised of the Koravar tribes who speak Vagri-boli but are also fluent in Tamil. These tribal groups are a highly stigmatized group with severe multiple deprivations.

Another settlement comprised of migrant labourers from the northern Indian state of Bihar who speak Bhojpuri and are not well versed in Tamil. Due to the language barrier, they face stigmatization and it was also observed that the children of this group do not attend school.

Despite the general notion that people from informal settlements are discriminated upon, 81% of the inhabitants reported no discrimination within the settlement, neighborhood and city. This is a positive indication that discrimination is on the decline among the people of Coimbatore. However, more than one in two people also reported that people outside their settlement do not consider them as equal. Also while most inhabitants did not receive major benefits from social welfare schemes, every single household received food supplies at highly subsidised rates (or free during the covid pandemic).

Household Distribution - Social Discrimination:		
In the settlement/city	Number of Households	Percentage of Households
Yes	33	10.78
No	250	81.70
NI/DNR	23	7.52

Table 10 - Demographics - Social discrimination

The social status of women is good, majority facing no restrictions to work, study, marry and take independent decisions. Likewise, majority of the households reported equal opportunities irrespective of gender.

Household Distribution - Status of Women:		
<i>Status of Women</i>	<i>Number of Households</i>	<i>Percentage of Households</i>
Freedom*	246	80.39
Partial	10	3.27
No freedom/Restrictions	39	12.75
NI/DNR	11	3.59
* - freedom related to study, work, marry, take independent decisions in the family		

Table 11 - Demographics - Status of women

Only one settlement had seven migrant families from the north Indian state of Bihar, living near their workplace. It is common practice for medium and large industries to provide residential accommodation for employees from other states, hence this low number in the informal settlements. Likewise there are more than eleven families from the neighbouring state of Kerala, mostly living in the southern part of the city. Around 25% of the inhabitants have reported migration from other districts. These are recent migrants, as older migrants now

consider themselves as natives having lived in the city for long enough, connect with the region, have sufficient documentation and are also enrolled in the city's voting list.

Household Distribution - Migration:		
Migration	Number of Households	Percentage of Households
Native	191	62.42
Other districts of the region	65	21.24
Other regions	13	4.25
NI/DNR	37	12.09

Table 12 - Migration

In terms of education, it is witnessed that priority for education is on the rise partly due to several institutional measures and partly as education is seen as an emancipator from poverty. Higher education levels are visible among the adolescents and the youth compared to mature and senior adults. Almost all the younger children were enrolled in schools, although majority were enrolled in government schools that offer free education, food, books and clothing, and private tuition is expensive.

Population Distribution - Education:		
Education	Number of People	Percentage of People
No schooling	382	30.54
Upto 5 grade	90	7.19
6 - 10 grade	320	25.58
11 - 12 grade	114	9.11
Undergraduate degree and above	150	11.99
Professional qualifications	7	0.56
NI/DNR	188	15.03

Table 13 - Demographics - Education

In terms of income, nearly two-thirds reported low incomes, as being below the poverty line. While this meant some benefits in terms of food supplies and other welfare, it makes it difficult for the family to improve their living conditions and top-structures with the low income. Likewise, majority - about 78% of the working population are engaged in informal work - unskilled and semi-skilled. More than half of the working population in informal settlements are employed on a temporary basis, losing employment is easy and any such unemployed periods could be disadvantageous to the family. Similarly more than half of the working population was self-employed. It is encouraging that despite the lack of capital, people are self-employed, although mostly as freelance masons, carpenters and similar trades.

Household Distribution - Family Income:		
Family Income per month	Number of Households	Percentage of Households
< ₹15,000	200	65.36
> ₹15,000	93	30.39
NI/DNR	13	4.25
* - ₹15,000 is the income threshold, below it is considered as below poverty level		

Table 14 - Demographics - Family income

Population Distribution - Nature of Work:		
Work Status	Number of People	Percentage of People
Formal	64	21.69
Informal	231	78.31
Permanent	141	46.69
Temporary	161	53.31
Employed	121	45.66
Self-employed	144	54.34

Table 15 - Demographics - Nature of work

About two-thirds of the families struggle to make ends meet, with incomes less than the expenses. This is largely because education levels are low among the working population, many are semi-skilled or unskilled and are mostly employed on a temporary basis. Although permanent job opportunities in the public sector exist with special reservations for people from socially disadvantaged groups, many are unable to derive benefits due to low education levels.

Household Distribution - Family Expenses:		
Family Expenses Vs Income	Number of Households	Percentage of Households
Income < Expenses	234	76.47
Income > Expenses	43	14.05
NI/DNR	29	9.48

Table 16 - Demographics - Family expenses

Household Distribution - Reservation benefits for Employment:		
Employment Opportunities	Number of Households	Percentage of Households
Yes	14	4.58
No	277	90.52
NI/DNR	15	4.90

Table 17 - Demographics - Reservation benefits for employment

Household Distribution - Access to Credit:		
<i>Access to Credit</i>	<i>Number of Households</i>	<i>Percentage of Households</i>
Yes	79	25.82
No	227	74.18
NI/DNR	0	0.00
Loans pending	48	60.76
Loans closed	3	3.80
NI/DNR	28	35.44

Table 18 - Demographics - Access to credit

About two-thirds of the families struggle to make ends meet, with incomes less than the expenses. This is largely because education levels are low among the working population, many are semi-skilled or unskilled and are mostly employed on a temporary basis. Even though permanent job opportunities in the public sector exist with special reservations for people from socially disadvantaged groups, many are unable to derive benefits due to low education levels.

Due to lower incomes, families often require to access credit during times of emergencies, but are unable to explore formal means of credit, and end up borrowing from private lenders who charge high rates of interest. With little personal wealth, low education levels and skills, low waged employment - temporary and informal, higher expenses, and loans to repay, the economic conditions of the inhabitants are largely precarious while the social conditions are though not strongly in favour, are improving.

4.1.3 Morphology:

By virtue of the geographical features comprising numerous lakes, streams, abandoned quarry sites, roads, railway tracks, hillocks, scrublands and other marginal lands within the urban region and its peripheries, and being the only lands that were at their disposal since historic times, disadvantaged groups formed and developed their settlements in these lands.

The selection of settlements deliberately included samples located along varied geographical features in order to understand the response to such features. From the field, we observed the following:

- The older settlements in the urban core and its old peripheries are reasonable well planned than the new settlements in the new peripheries. The old temporary structures under the TNUDP scheme were converted to new semi-permanent structures, and the streets were re-aligned to create proper alignments, access and approach.

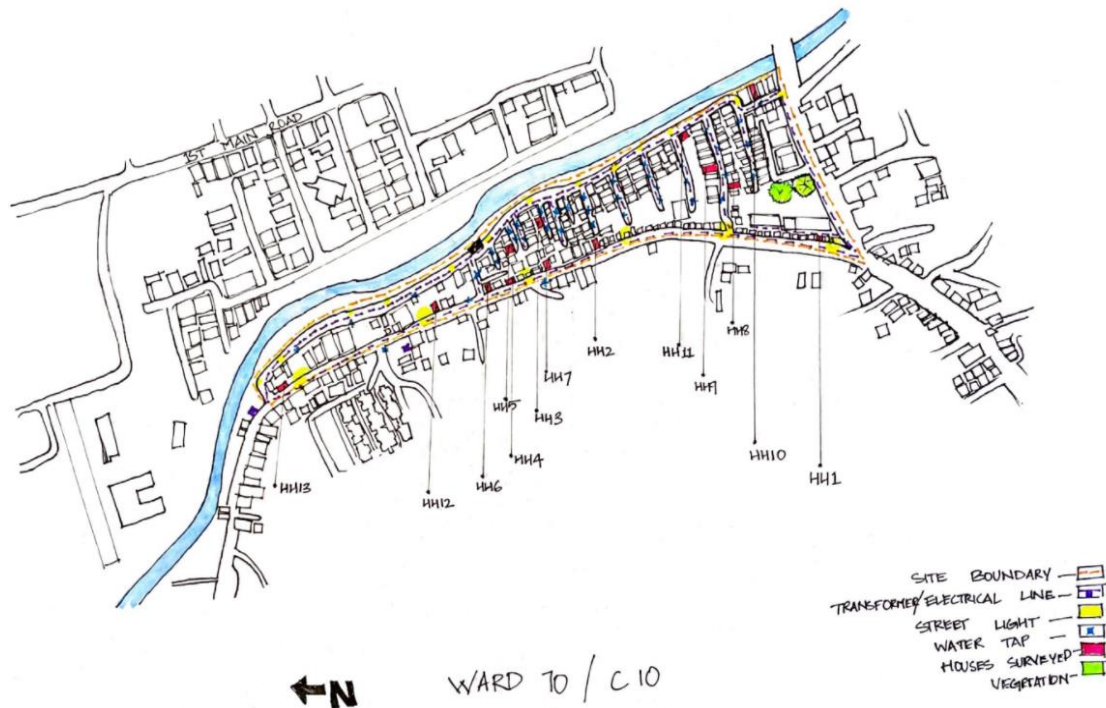


Fig 18: The Driver Colony settlement along the Sangaur stream

- Settlements along the stream (see Fig 18) and lake edges, and those along the roads and railway tracks were largely linear following the profile of the feature. In these settlements, the edges along the water bodies are rugged, not well protected and not well maintained. This has also enabled more developments on their banks during the dry years. Further over periods of time, as the surroundings develop, these settlements become more isolated and segregated becoming urban backyards with indirect and mostly one long linear narrow street from which to access from the main road.

- In the case of the settlements along the roads and railway tracks, the growth has been likewise linear along the transport network and reaching out as far as the extent of the marginal lands or common municipal lands. These settlements have unhindered access to the roads and tracks posing severe risk to human life. Settlements along the roads also have easy access to

neighbouring areas and amenities but face higher risks of eviction and resettlement when urban infrastructure demands widening of the roads.

- Settlements along the abandoned quarry sites almost occupy or encircle the quarry pit depending on its depth and access, building upto its edges. In the case of the Kallu Kuzhi Puliyakulam settlement, the access is a narrow winding street leading to the main road. Also in this settlement, the pit is almost used up with top-structures gradually filling the entire site. During periods of heavy rains, the settlement is severely flooded owing to rain water filling up the quarry pit (see Fig 19).



Fig 19: Rain water collected in the abandoned quarry settlement
Source: Historical imagery of 2012, Google Earth.

- There is just one settlement among the samples studied that is situated on the hillock, Gandhi Nagar Upper. Here the houses are scattered in order to navigate the hill slope and the top-structures located amidst its rocky outgrowth. While the lower part is easily accessible, for the upper reaches, the inhabitants must navigate a difficult terrain to reach their houses.

- Most of the settlements are very dense except the settlement on the hillock, and have very little open space or vegetation except in the left-over spaces. There are no play areas and children can often be found exploring the stream, quarry pit, and the hillock.



Fig 20: The Gandhi Nagar-Upper settlement on the hillock

Ward, Settlement Name	Area(sq.km)	Number of Households	Population	Population Density
W9 Driver Colony	.028	193	579	20679
W1 Anna Colony Thudiyalur	.011	154	462	42000
W1 Pudhu Muthu Nagar	.003	31	93	31000
W31 Saravanampatti Big Street	.013	133	399	30692
W45 Balusamy Nagar	.011	139	417	37909
W45 Kannapa Nagar				
W49 7th Street Bridge	.005	36	108	21600
W70 Erimedu Ammankulam	.025	382	1146	45840
W69 Masala Colony	.017	158	474	27882
W71 Puliyakulam Kallu Kuli	.017	252	756	44471
W79 Ponnaiya Rajapuram	.004	58	174	43500
W87 Thiruvalluvar Nagar	.017	227	681	40059
W94 Silver Jubilee Street	.015	180	540	36000
W40 Avarampalayam Patallaman Koil Street	.023	266	798	34696
W97 Karuppurayan Koil Street	.011	132	396	36000
W97 Kurichi Indira Nagar				
W97 Thirumurugan Nagar				
W97 Gandhi Nagar Upper	.11	390	1170	10636
W100 Kurichi Kallu Kuli	.011	43	129	11727
W10 Periyar Nagar	.07	279	837	11957
W10 Karunanidhi Nagar	.02	312	936	46800
W9 Prabhu Nagar	.025	393	1179	47160

Table 19: Population densities of the surveyed settlements.

- in all these settlements, as is the case in most informal settlements, the top-structures develop first according to the topography of the site and availability of land, streets and open spaces are outcomes of such development. This is the reason for the high densities as well.

- in these settlements, the highest densities are found in the older settlements. They are also the settlements along the stream and in the urban core and its older peripheral boundaries. These settlements also have comparatively better streets, public toilets, water provisions, and in few community spaces as well.

As a result of occupying the marginal lands, most of the informal settlements lack proper access and connectivity. Due to the high densities, there are few or no open spaces except for narrow streets. As a result, common activities such as recreation and playing can be seen happening on the street. In most settlements, activities such as washing clothes and storage in front of the houses also take over the street, leading to more congestion. It is also common to find smaller temporary structures being raised or extending into the street or setback spaces to accommodate a bathroom or toilet, to accommodate a shed for cattle or poultry, and to accommodate smaller commercial activities.

4.1.4 Housing:

The housing condition in the informal settlements in Coimbatore is comparatively better than in most other cities in India. This is largely due to the redevelopment of houses in the older informal settlements, irrespective of whether recognised or notified or not. This happened during the TNUDP - I phase in the 1980's and all the top-structures that were temporary in condition and built using materials as thatch and wood were converted to semi-permanent type of brick walls and clay tiles (see fig 21 below) over wooden roof structures.

In the Fig. 21, temporary construction in the form of a thatched structure in front of the house can be seen. Such temporary additions are a common feature in many houses. Over periods of time, and with usage and availability of resources, these get converted to an additional space.

Puthu Muthu Nagar, a relatively new settlement, inhabited by the Koravar tribal people is in precarious condition. Built without a plinth, using asbestos sheets for the roof and walls and mud or cement flooring, these structures (see fig 22) are unstable and temporary.



Fig 21: House at Silver Jubilee Street settlement



Fig 22: House at Puthu Muthu Nagar settlement

There are a greater number of semi-permanent houses due to the scheme implementation in the past. Out of these, few in the old settlements also received public funding for improvements to the structure and construction of toilets. This is the reason for around more than one-fourth of the houses in the permanent type, constructed with durable materials.

Top Structures - Physical Condition:		
Physical Condition	Number of Houses	Percentage of Houses
Permanent	84	26.33
Semi-permanent	141	44.20
Temporary	90	28.21
No Information/Did not record	4	1.25

Table 20: Top-Structures - Physical condition

Top Structures - Number of Rooms:		
Number of Rooms	Number of Houses	Percentage of Houses
1 room	68	22.22
2 rooms	106	34.64
3 rooms	64	20.92
4 rooms	31	10.13
> 5 Rooms	15	4.90
NI/DNR	22	7.19

Table 21: Top-Structures - Number of Rooms

Most of the houses have three rooms or less (around 78%), one of which is a kitchen. In cases where there is only a single room, the kitchen is invariably in the open side or backyard. The rooms are smaller in size, space being insufficient to carry out activities comfortably or to accommodate furniture. Such small rooms also cannot accommodate sufficient storage.

Very few inhabitants have enhanced or upgraded the top-structure. Even among those that did, they were largely improvements to the existing structure or construction of toilets, very few added an additional floor or built an additional room.

Top Structures - Incrementality:		
Incrementality	Number of Houses	Percentage of Houses
Additional floor	9	2.94
Improvements to existing structure	74	24.18
Additional Room(s)	3	0.98
Bath / Water Closet added	11	3.59
No improvements	178	58.17
NI/DNR	31	10.13

Table 22: Top-Structures - Incrementality

4.2 Socio-Spatial Dynamics and Transition

The results indicate recognisable levels of variance among and within the sample settlements - as sites of hazards, conflicts, inequalities, poverty, crowding and fear; and as sites of survival, cohesion, informality, transition and hope. The findings of the fieldwork have been classified as - facts/issues/challenges as listed above with the help of specific examples - to highlight the very nature of the entanglements in the slums processes that is the objective of this research.

This is particularly helpful as it is difficult to compartmentalise and segregate social and material aspects from the physical characteristics of slum locations. The evidence gathered from this research on slums from a specific context is also presented with a view to engage and relate or differ with the general understanding of slums. Further such empirical studies of informal urbanization in new and emerging cities like Coimbatore are also crucial to strengthen existing theoretical perspectives. The key findings of the fieldwork are discussed below:

Hazards: Slums often develop and grow in marginalised and unusable lands that are neglected and set up shelter there despite being aware of risk and danger to lives and property. Left with no other affordable choice to live and work in cities they inhabit such objectionable lands. However, with drastic climate changes and risk from natural disasters increasing over the decades, the vulnerability had increased manifold putting the communities at grave danger.

Of the 24 sample settlements examined, 9 are located in areas of high risk and objectionable zones - along the edges of large lakes, around abandoned quarries and along railway tracks that are fully functional; 10 are located in areas of moderate risk - along steep slopes, and along the banks of streams and natural storm water drains; only 5 are located in low-risk areas - along the roads.

The settlements (refer Fig 23(a-c)) located at the edges of the lake bunds are a huge risk during heavy rains or flash floods or when the lake overflows, and any spill over or damage to the lake bunds could be disastrous for the communities living in its vicinity. Slums especially are more vulnerable due to the largely semi-permanent structure of the houses built on weak foundations. Even during the monsoon period, the narrow mud roads to the houses are difficult to navigate.

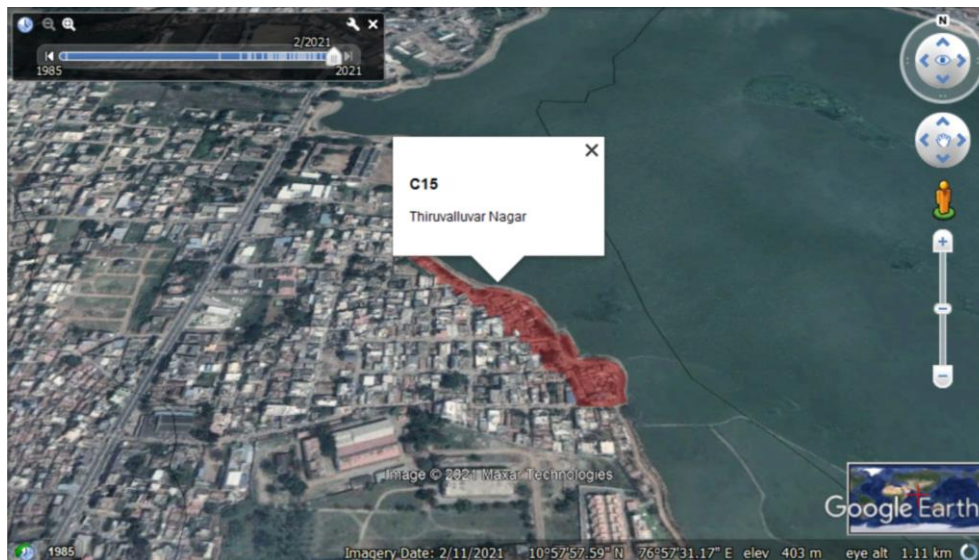


Fig 23(a-c): Geospatial images of the settlements (highlighted in red) along the Kurichi lake.
Source: google Earth.

Two settlements (refer Fig 24) are located around old and abandoned quarries. The rock of this quarry has been blasted during mining and is fractured making it very unstable and a great hazard. Its edges are steep and sharp leading to a pit that is more than 15 metres deep. Old quarries are ideally supposed to be cordoned off and reclaimed. Falling off the cliffs or drowning in the waters of a quarry pit are life risks for people and pets. Placing building structures on such edges can be dangerous as there is always the possibility of a part of the rock giving away due to the load. Historical geospatial imagery in the years 2006 and 2017 of the settlement Kallu kuli around the abandoned quarry show how houses have grown around the quarry and the pit size has reduced greatly over the years.



Fig 24: Settlement around the abandoned quarry.

The Gandhi Nagar upper settlement (refer Fig 25) is located on the Sugunapuram hill slopes. The settlement is located on a steep gradient and is accessible with great difficulty and by slow and careful negotiations through the rocky pathways. These rocky hill slopes are an extension of the foothills of the western ghats and home to dangerous reptiles such as snakes and scorpions. For the slum dwellers, this is an everyday occurrence that is filled with a lot of hardships, risks and danger.

It was observed that few activities in informal settlements that cause damage to the environment and are detrimental to the health of the community, and others in the neighborhood. Absence of proper solid waste management systems in the informal settlements results in people dumping garbage including bio-degradable food waste, plastic bags and containers, glass bottles and construction debris in the waterbodies, quarry pits and hill slopes

adjacent to the settlement. Many respondents also highlighted the lack of proper sewage disposal and it was observed that sewage was being let out into the street drains.



Fig 25: Gandhi Nagar-Upper settlement on the hillock

Conflicts: All informal settlements by virtue of their lack of legal tenure and therefore being in illegal occupation are sites of perennial and long-lasting conflicts. Such sites have been further classified based on their tenability and tenable sites - lands that are not in hazardous zones and suitable for habitation - are allowed to be retained and redeveloped through government schemes. During the household surveys and focussed group discussions in the settlement number 13, all eleven households surveyed responded their tenure status as other - that is neither rented or owned or leased. This is due to the delays in issuing the patta documents - the legal ownership documents - by the government in favour of the residents despite having lived there for more than three generations. Absence of legal documentation is a hurdle in the improvement of the housing condition and subjects the communities to legal harassment and fear of possible eviction.

Evictions and resettlement of communities from the land they have occupied and made home for generations places them in great peril and often at loggerheads with the government agencies and officials. While planned and properly executed evictions that have taken the communities into confidence may occur smoothly and without conflict, frictions could still happen when evictions happen at short notice and often the communities are left with no time to safeguard their belongings and gather possible materials from the structures.



Fig 26: Demolition of the houses (voluntary eviction) at Thiruvalluvar Nagar settlement witnessed during the fieldwork

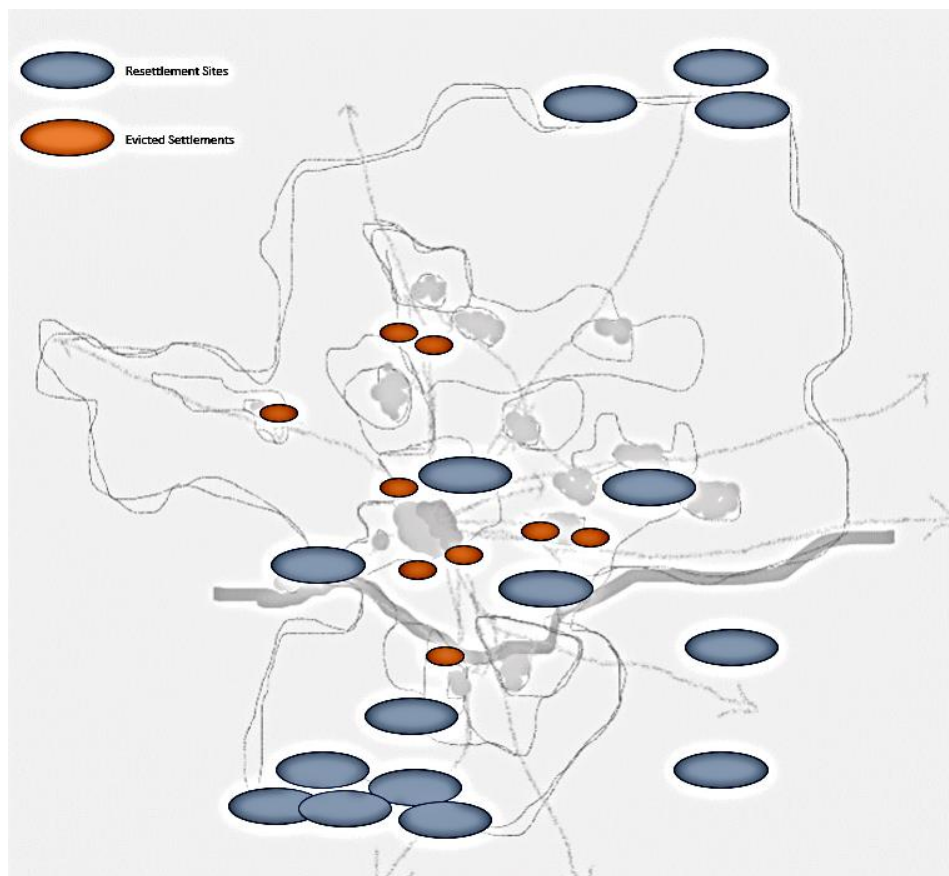


Fig 27: Representational Image - Evicted settlements and Resettlement sites in Coimbatore.

Another conflict in slums is over the resettlement locations. Slum dwellers usually try to place themselves in closer proximities to central business districts, industrial zones, commercial areas, transit zones, and residential areas where opportunities for livelihood and informal work are plenty. But resettlement locations are far from these areas and mostly located in the peri-urban areas of the city as is evident from the map (refer Fig 27) showing the TNSCB tenements. Such locations lead to loss of livelihoods, higher transportation costs and lead to severe challenges for the women and children.

The draft of the resettlement and rehabilitation policy recently exhibited for public opinion by the TamilNadu Urban Habitat Development Board in October 2021 specifies that lands identified for resettlement shall be well connected by transport modes and that the livelihood of the intended beneficiaries be considered. One lacuna is the lack of clarity and specification that all resettlement sites be with a certain reasonable radius from the evicted site. Most of the sites identified in Coimbatore for resettlement of evicted slum dwellers are in the urban peripheries that are more than 15kms away from the CBD and also lack frequent and affordable transport connectivity.

Inequalities: The inequalities in housing, physical and social infrastructure, income, education, health, sanitation, are visible as spatial divisions. They also exist as the conditions that allow for certain groups to dominate over others in the form of power relationships. Slums and their communities are extreme examples of inequalities in cities.

The average monthly rents paid by the six migrant families from north India - each family comprising 2 to 5 members - who were surveyed in the settlement number 21 (refer Fig 28 (a-c) below) is ₹2100 excluding utilities. All except two houses did not have an attached toilet, and all houses only had access to a common water tap. The rental values for a better house of the same size and with better amenities in the rest of this suburban neighborhood range between ₹4000 to ₹5000 excluding utilities, almost double the amount these migrant families are paying now. Living in an informal settlement is the only option for poor migrants when the city has fewer choices of affordable housing to offer.

Inequality is evident in the government's slum free city plan that aims to rid the city of slums. This can only be achieved by the upgradation and redevelopment of tenable slums

in order to declassify them and the resettlement of untenable slums in the urban fringe villages.



Fig 28(a-c): Settlement occupied by migrants from Bihar.

While the former is ideal, many slums in Coimbatore fall in the latter category. Resettlement of socially and economically weaker communities to the fringes snatches away from them whatever limited opportunities available. Further the move to relocate large groups of slum communities will reinforce existing caste divisions, is exclusionary and will lead to further marginalisation and discrimination.

Poverty: Poverty can be measured by the family income, regularity of livelihood, income sufficiency, need for secondary income, condition of the top-structures and home amenities. The annual family income threshold for below poverty line families in India is ₹1,20,000. Majority of the families surveyed fall in the below poverty line category. The informal and temporal nature of livelihood of the communities is often an opportunity for exploitation and lesser wages with no additional benefits. This means that there is no income if they do not report to work due to poor health or other emergencies and families end up exhausting their meagre savings or take loans often at high interest.



Fig 29: Conditions of top-structures across the settlements.

A positive outcome recorded across the settlements was the availability of ration card among all families except the very few migrant families from north India. This meant the supply of free rice grains, pulses, cooking oil and sugar, as well as benefits of one-time financial grants extended during the covid pandemic and major festivals. Data from the household surveys also indicate many families availing free medical insurance under a state government sponsored scheme and few family members being beneficiaries of old age and widow pension.

Families with more income and savings are the ones likely to build and maintain (refer Fig 29) the top-structures, create permanent or semi-permanent structures, construct individual toilets, afford individual water connection, and purchase and use home appliances and furniture.

Crowding: Urban areas are always identified by their high densities. An urban area can be defined broadly as one with high density of people, who are actively engaged in occupations other than agriculture. Coimbatore city has an urban area extent of 256.36 sq.km accommodating 1.6 million people at a population density of 6029 people/sq.km. We analysed the densities (refer table 2) of the 24 settlements surveyed using geospatial imagery to calculate land area occupied and using the household data from secondary sources.

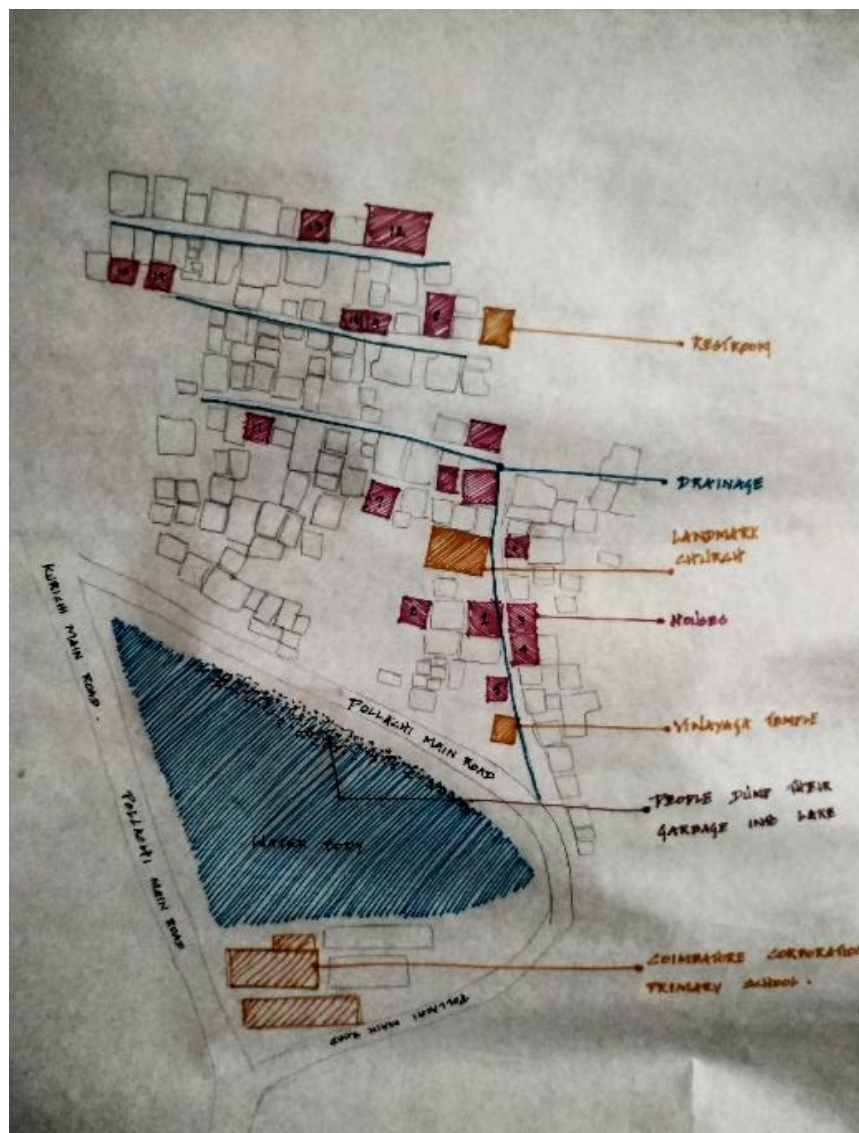


Fig 30: Morphology of the Silver Jubilee settlement

For the purpose of calculating the population of each settlement, each household is assumed to comprise 3 members. Lower densities are found in the hill slopes while higher densities are found in the older settlements located in the central zone. The population density varies in the range of 10000 to 47000 people/sq.km with an overall population density of 24949 people/sq.km which is more than 4 times the overall population density of the city.

We analysed the morphology (refer Fig 30) of the settlements and found most of them to be compact or semi-compact in nature except a few settlements. Settlements along the edges of the lake, stream and railway tracks followed a linear arrangement, those along the hill were scattered according to the slope of the terrain. All settlements being over-crowded, having narrow streets and pathways, lack of proper setbacks, insufficient lighting and ventilation, sparse vegetation, lack of community facilities and lack of open spaces for play and gathering in all settlements. The only open space and gathering in the settlement is usually attached to the temple. Crowding is also witnessed during the use of street taps and common toilets.

Cohesion: Despite the conflicts, frictions and struggles, we found all communities to be strongly bonded. One probable reason for this could be that most of the people in every settlement were of the same caste and had migrated from the same regions. In few settlements, we also found few families to be closely related.



Fig 31: Elderly women gather to chat

As a result, they benefitted from mutual help and support. However, almost all respondent mentioned that despite the social support, nobody helped each other financially. Few respondents themselves clarified that was because they had their own difficulties and struggles, few were already in debt and many had no extra money or savings to help others.

A high level of interaction was observed among the community especially among the men, women and children. During our surveys, we found the women chatting and working in front of their houses, and children playing together in the pathways and open spaces. Many respondents in all the settlements surveyed mentioned the entire community gathering in the temple during festivals and religious days.

Informality: A reality of the urban, informal systems and arrangements play a major role in accommodating the social and material needs of people and communities outside of formal systems. In India, the level of access and participation in governance, planning, economy, and material resources continues to be influenced by social and caste hierarchies and is often exploitative and discriminatory. Amidst these inequalities, the poor and marginalised groups often resort to numerous informal arrangements (refer Fig 32(a-b)) as a way of problem solving to live and work in cities. But they are not the only groups to thrive on informal structures. Urban centres in India are embedded with formal and informal systems of economy, social relationships, material resources, and housing.

In the slums investigated, many such informal systems thrive and provide the communities with easy and affordable alternatives based on self-help and self-building as individuals, families, and communities. People in the slums used their skills and part of their houses as work places, this required little investment and expenditure and helped create a family income. Mostly women were engaged in part-time occupations involving traditional skills such as rearing hens and cattle, petty shops, tailoring, collecting, and recycling scrap and several other ways to supplement earnings.



Fig 32 (a-b): Images showing informal work

The men mostly were engaged in physical labour activities finding temporary jobs for daily or weekly wages in nearby industries, workshops, markets, shops and the semi-skilled ones as construction workers, drivers, mechanics, helpers, tailors, barbers. Our surveys revealed that families with better education and skills were permanent workers in formal organisations, were getting better salaries and some benefits and this was also reflected in their housing and access to services.

As all families in the slums are struggling to make ends meet, financial help is hard to come by and families are forced to borrow money from private moneylenders for emergencies. Lack of collateral or regular income leaves them out of formal banking systems of availing

credit. To overcome this, women formed their own community groups that mutually support each other providing small loans on low interest.

The informal arrangements with respect to building occupation, sharing resources, land holding and utilities, as well as usage of streets and open spaces are complex but are resolved easily by the strength of the social relationships and through collective negotiations. Despite the lack of tenure, it is common to see families occupying small portion of the houses as tenants utilizing the available services from the main house and by accessing common facilities.

Resilience: During the conduct of the focussed group discussions (refer Fig 33), our agenda revolved around knowing the collective opinion of the women and children on three aspects of slums and communities - first, was about the common frictions and informal arrangements at slum level; second, was to understand the specific challenges with respect to health, education, transportation and employment; and last, to understand the aspirations of the community in terms of housing and infrastructure. The women expressed the long-term delays and challenges in obtaining patta for their land despite several representations made to the government and fear eviction from the place due to legal entanglements. As a result, they could not carry out improvements nor avail collateral loans for the same. They highlighted challenges during heavy rains when the streets and houses get flooded leading to damage to the house, disruptions in work and loss of livelihood being preoccupied in removing the rain water.



Fig 33: focus group discussion with the inhabitants

Most of the respondents seem contented about the availability of health facilities, ration shops, proximity to transport modes, availability of public schools providing education for the children at no costs, and opportunities for informal work. The only reason for such positive opinion could be that this settlement is in the urban core. However, they were keen to get government jobs that would ensure regular income and avail pension benefits that would help when they retire. This and a better life for their children formed their aspirations. Despite the struggles and a small list of aspirations, they expressed sincere hope to be able to resolve the issues soon.

Transition: Slums are dynamic places with constant changes in the lives and activities of their communities. We traced the evolutionary processes of the surveyed settlements through geospatial imagery of historical timelines as well as through discussions with the communities and mapped growth patterns (refer Table 23) through changes in the physical environment. This is showcased through the examples of a few settlements that show stark changes in the slums and their surrounding urban areas over the past fifteen years for which geospatial data is available for Coimbatore.

Puthu Muthu Nagar has transformed from barren agricultural land to a slum in this time period. Also observed is the growth of industrial zones and residential zones in the south, between the slum and the urban core. In the case of Ponnaiya Rajapuram, few of the top-structures along the main road have been demolished as that portion of land belongs to the forest department. In the case of the Erimedu Ammankulam settlement, the only visible changes are in the roofing material of the top-structures and densification and development of residential areas in the east and south. However, disturbing is the conversion of the Ammankulam lake on the west into a slum resettlement site. Agricultural lands west of the Prabhu Nagar settlement have been converted into residential zones. The settlement has not undergone major transformation. The Gandhi Nagar upper settlement was a small hill temple and a few houses in 2006 when this zone was part of the Kurichi Town Panchayat. After its inclusion with the city limits in 2011, the settlement has grown many folds due to the presence of industrial zones in the north and the development of new industrial zones in the neighbouring villages in the south.

We also observed transition in the slums at the household and street level. Households that benefitted from the various redevelopment schemes in the past fifteen years such as the Masala colony and Periyar Nagar settlements saw major improvements in the top-structures

and the provision of basic services such as roads, street lights, electricity connections, water and sanitation. Others that did not benefit from the schemes but witnessed minor improvements at the household level are the Anna Colony Thudiyalur and Kurichi Indira Nagar settlements, both tenable sites and largely due to the issuance of patta (land ownership document) to some families and their subsequent personal efforts. We interviewed many respondents in these settlements who were not issued the patta and they were not willing to risk their savings and efforts in improving the houses due to the tenure status.
















Year	2006	2014	2021
Settlement			
Puthu Muthu Nagar			
Ponnaiya Rajapuram			
Erimeedu Ammankulam			
Prabhu Nagar			
Gandhi Nagar Upper			

Table 23: Growth patterns using historical timeline.

It has been observed that some families improved their socio-economic and living conditions as well as enabled better education for their children while others did not. The former preferring to continue to stay in the settlement despite having the means to shift to better neighborhoods mainly because of the social relationships and strong community ties with the rest of the families.

From the surveys, we also found that the family members who periodically migrated from the slums were mostly young women moving out of the family after marriage to stay with their husbands, this being the social custom and norm in this region. A few married men also relocated due to changes in their employment and finding homes closer to workplace, while a very small number of family members reportedly left the slums due to personal disagreements in the family.

Part V - Conclusion

5.0 Poverty Traps or Transition Zones

Contrary to the negative portrayal of Informal settlements and its inhabitants, they have specific roles to perform in cities. But predominant and elitist western visions of the city are blurs, hidden from the realities of our cities. This frames the false perception of informal settlements as being scars of the city that need to be eliminated or kept out of sight. Or the other false perception as poverty traps that harbour the poor, the uninvited migrant, and undesirable groups. Many findings in the past, including this one show evidence that inhabitants of informal settlements struggle hard to survive, doing the most difficult tasks (that directly or indirectly concern all the city's inhabitants) while earning way less than is required for decent living in expensive cities, cities that are continuously tackling increasing inflation.

For their services, the least any city can provide is to enable shelter, a decent liveable one. But sadly, the city does not. Neither does it enable. Left with no choice then, people from the disadvantaged groups have from the past occupied marginal lands (most public lands) and self-built their shelters and created supportive communities of people who experience the same deprivations and inequalities. They start from scratch, unlike their richer counterparts who have fully furnished villas and apartments with luxurious club houses and complete with all amenities, to help the family live, sleep, build a safe structure (or rent one) that is affordable and despite its lack of conveniences and amenities, can be something to begin with.

The 'Slum' or informal settlement then is the perfect place to pitch tent for people left out of formal systems and rich and powerful legacies. Unlike the past, evidence from Coimbatore suggests that informal settlements are no more a caste equation alone. They may be carrying the burden of social stratification of the past in the form of spatial segregation but there are positive signs of improvement and mobility especially where land tenures are almost secure and the sites are tenable. But deprivations still exist in informal settlements because governments and corporations are slow to provide recognition, support and services, and of course land tenure and documentation that easily.

The lack of envisioning and provisioning then by the city to accommodate its vulnerable citizens is nothing less of a slow form of violence. And cities and the powerful influential people who rule (not govern) them are guilty of this violence. Under these conditions, an informal settlement is a simple sustainable solution, to a grave problem. Our evidence from the informal settlements of the city of Coimbatore is indicative of several distinctive groups and

varying conditions of deprivation as is evident from this ray diagram (refer Fig 34) of the different characteristics of the sample settlements.

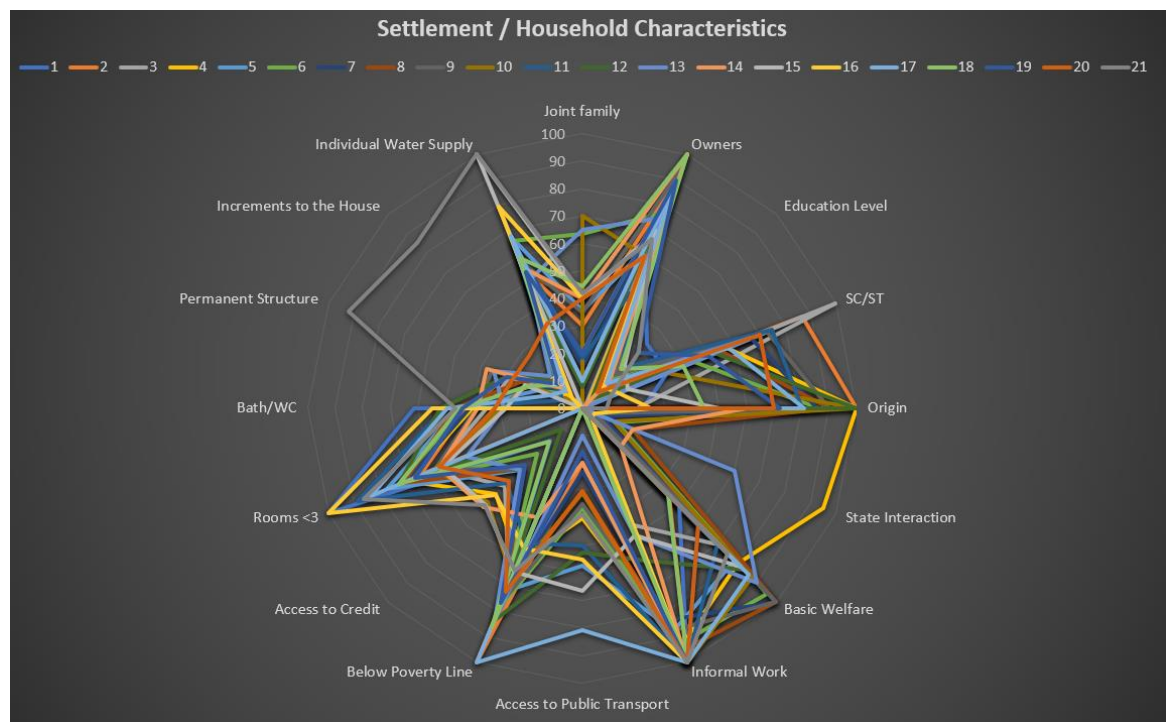


Fig 34: Ray diagram showing variations and similarities

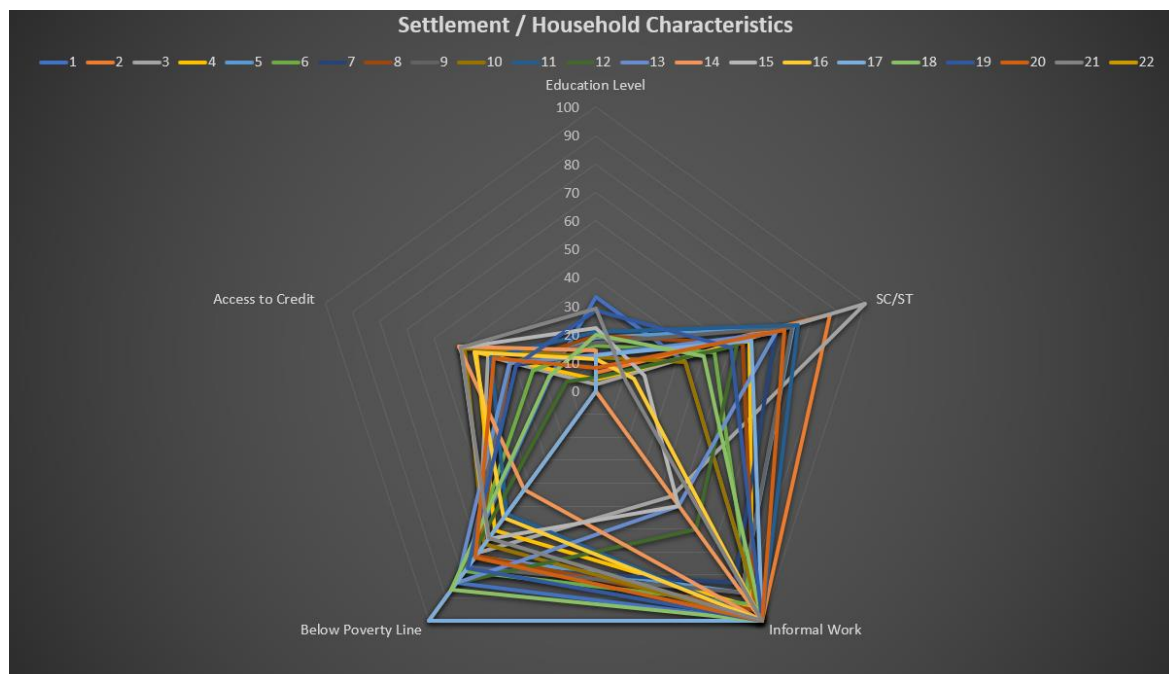


Fig 35: Ray diagram showing socio-economic conditions

Foremost - the first disadvantaged groups who from the time of the birth of the city have been living in hutments and terrible conditions both socially and spatially. Over the years

they have developed their settlements, on their own, and also with occasional help that comes with government schemes funded by foreign agencies right around elections. Having voting rights and with some network, they have learnt to negotiate and get the best out of any schemes that are operational. Their house is no more a hut, and no more in the periphery, is closer to the city centre, may not have all amenities within it, but other public facilities are at easy reckoning, and loads of opportunities to work available with short commute times. Over the years, they have obtained the best possible amenities, very gradually and at affordable prices. They also socially uplifted themselves, few have left the settlement (and old parents too) to live in the gated communities, yet retain their old house to rent them out to others in need or to get an alternate allotment in the resettlement project, so they can repeat the same story. These have moved towards better stability than their earlier family members. And good for them too, it has been a long struggle against the slow violence.

Lastly - the new poor, little educated, culturally different, non-vernacular speaking migrant to the city. Life is not so complicated even then. Such migrants live in groups for social cohesion and community, rent the most precarious of houses in the informal settlements in the peripheries or suburbs, at higher prices, manage to survive with less or no water, poor electricity, leaking roofs, absolutely no documentation and voting rights several thousands of kilometres in his native village in Bihar. The family is happy they are earning enough to even send some money back to the village, and worst case, they head back to village. This is a temporary arrangement for now. The more informal it is, the better then.

And in the middle - a wide range of socio-spatial conditions. But only a few are discussed here. Our intention is to exhibit and establish the range, and give a hint of its operation.

Inhabitants, who have some social network in the settlement or outside, can speak the vernacular. Who have recently built temporary shelters but have better prospects for obtaining land tenures or housing tenements by virtue of their social group, due to past, current or future political affiliation. Inhabitants who were once nomads, are not capitalistic material, nor fond of the city and its ways. But who are lured by the promises of social justice and empowerment, and rare examples from their own group, aiming for a better life and future for their children. Anything beyond what they currently live and experience is obviously better. Who are statistically a miniscule minority, highly disadvantaged, and therefore truly deserving high priority.

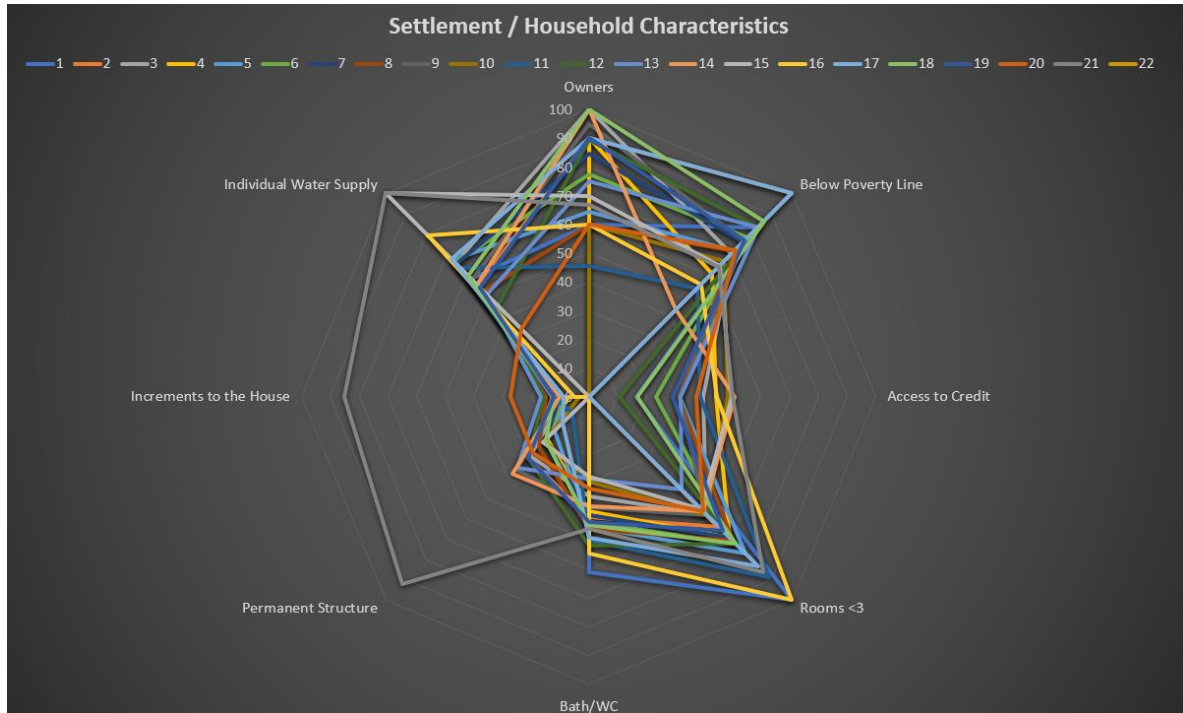


Fig 36: Ray diagram showing poverty and housing conditions

Inhabitants, who have migrated from neighbouring districts and states, have reasonable resources to cash out informal sale of top-structures and amenities, are smart enough and reasonably better educated to understand the tenable nature of the settlement and therefore might therefore never get evicted. People who have the slightly better paying jobs and prefer to buy their own two-wheelers to commute. This house then becomes a permanent home, one that can be incrementally added, horizontally and vertically over time.

Inhabitants, who have been living for decades, but on private land. The land they once occupied purely was by oral traditions, no documentation. And land prices are sky rocketing where they live, and the new owners of the land, the ones who have the documents, are rich, powerful and with strong legal backing. They rarely maintain their shelters or invest in them, never knowing what the next move would be, and when. They believe in all the false promises that are thrown to them by the political bosses and their followers, have immense faith in miracles, hoping that the government, any party in power, would rescue them if they face eviction. Rescue by allotting a tenement, even far off in the new peripheries would suffice, although then they would negotiate for more.

This is part of the spectrum, of informal settlements. A spectrum offering varied opportunities and alternate resources to people and places that least have them; people from

diverse circumstances to find their niche, to operate, negotiate and survive; and places that are ignored, unfit and undesirable to develop and thrive.

Then there is the other angle, the predominant spatial position within the urban region and how that influences the processes and conditions of the informal settlements. This draws its inference from the literature that (Joy,1975) provides, of informal settlements being key markers of the periodic growth of the city, and from official literature that separate tenable lands from untenable ones. Of informal settlements as urban edges, more specifically on wastelands or urban commons and some being the environmentally sensitive parts. It also draws inferences from the empirical findings, through the varied conditions - social groups, physical features and especially through the conflicts that surround them.

Informal settlements along the lakes are being evicted, especially the ones in the historic and new urban core, like the case of the Valankulam settlement (see Fig.37) that was a vibrant community of people living there for more than two generations, a settlement that was in the suburbs during the colonial period was not at the heart of the urban core with easy access to urban amenities including work opportunities for adults and education opportunities for the children (Sharieff et al, 2014). Fortunately as most inhabitants were resettled in 2019 at nearby sites, there was not much of a protest.

The Thiruvalluvar Nagar settlement along the Kurichi lake is another such example which was being self-demolished by the occupants, as witnessed during the fieldwork. But the settlements along the Muthannakulam lake saw wide protests, lost legal suits and finally ended in forceful evictions in the middle of the covid pandemic period in 2021. A time that suited the establishment because of restricted movement and little physical protests. These settlements have given way for the lake rejuvenation projects (some activists see it as lake beautification that also involved extensive use of steel and concrete, and invasion into the lake edges to create floating bridges) executed as part of the smart city project.

On the other end of the urban-rural continuum, in the new suburbs and peri-urban regions, informal settlements are growing and expanding. They are now accommodating the new members of the city, comprising migrants the other states of India who find opportunities for unskilled and semi-skilled labour in the smaller factories and industries that dot the peri-urban landscape in large numbers especially in the south and east portions of the city.



a - Presence of the Settlement along the Valankulam Lake (2014)



b - The Settlement along the Valankulam Lake stands evicted (2019)



c - Floating bridges and other features now developed along the Valankulam Lake (2022)

Fig 37 (a-c): Images showing the transformation of the Valankulam Lake from 2014-2022

Source: (Sharieff et al, 2014)

There are also the tribal communities (from the nearby districts within TamilNadu) comprising mostly nomadic groups traditionally, who recently over the past decade only have taken to create their own informal settlements in the new peripheries with semi-permanent structures, as in the case of the Puthu Muthu Nagar settlement. With a decline in the access to forest resources their nomadic activity stands greatly reduced as has their source of income. Seeking other opportunities and a better life for their children in terms of health and education, they have created semi-permanent structures instead of temporary ones. It is this new settlement that is lacking in amenities and services, and will have to go through the processes that other settlements in the past have undergone. Fortunately for most of the new settlements, they are not along waterbodies, meaning they still have a good chance at obtaining land tenures. Despite this, the settlement still has conflicts with the lands either belonging to the forest department or the railway department. These conflicts mean utilities will never be granted easily, although like most other people in the past, they will obtain them through other means and survive.

These then are the transition zones in the urban region of Coimbatore, between its urban and the rural, between poverty and upscaling, between change and stability, and comprising a multitude of frictions and informal arrangements. For an upcoming and new metropolitan city of Coimbatore, this is quite a diverse, evolving, hybrid, conflicting, informal, functional, natural continuum. A continuum of social-spatial-material-political-ecological-informal processes, within and as ‘transition zones.’

5.2 Informal Settlements to Cities, Local to Global

Taking cue from the mobility perspective discussed in the third chapter, this study offers an alternate approach. One that displays fine-grain knowledge from the informal settlements of the city of Coimbatore, examining its social-economic-political-ecological-spatial characteristics as a means to inform the city governments, planners and stakeholders about the severity of deprivations faced by disadvantaged groups and the lacunae in addressing them. This it does by demonstrating through evidence that informal settlements are not poverty traps but transition zones, zones of self help with minimal public intervention. It highlights to cities the urban inequalities not just in terms of possessions but also in conditions as power relationships, that produce these socio-spatial sites and also lead to further amplification of the inequalities due to lack of timely intervention.

It informs not only about the current state of informal settlements, but about their growth and evolution, and the conditions and processes that occurred and are occurring alongside the process of urbanization. In this peculiar context of the city of Coimbatore, it reveals how social stratification inherited from the past has largely contributed to the persistence of inequalities in the form of socio-economic disparities and varying conditions of housing conditions and services in informal settlements.

These nuances are so varied from the studies of informal settlements in other cities in India and the rest of the global south. This study offers critical insights to framing urban planning, shaping policy and developing strategies for informal settlements in this region and beyond. It also serves as a valuable tool for the governance of urban regions and possible measures for social welfare that can be undertaken.

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Appendix:

1. Detailed Survey Questionnaire

- Household - Social and Livelihood
- Housing - Top-Structures, Utilities and Amenities
- Settlement - Morphology and Hazards

COLLABORATIVE STUDIO

Informal Settlements (Slums) of Coimbatore

[Research Work of Prof Mohammed Ali Sharieff and M.Plan - Semester I of AY:2021-22 - Housing Course]

Prof Mohammed Ali Sharieff-Doctoral Researcher, Prof Dr Laura Lieta-Full Professor Urban Planning Specialization, Department of Architecture University of Naples Federico II, Naples, Italy	Prof Ramakrishnamoorthy-Professor, Prof Karthick R, Prof Anuvijay, Prof Jayanandini - Assistant Professors, 1 st Year M.Plan students, 3 rd Year B.Arch students, NSS Volunteers Department of Planning, Faculty of Architecture, Planning and Design Karpagam Academy of Higher Education, Coimbatore
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DETAILED SURVEY QUESTIONNAIRE

Date(s) of Survey:	
Ward, Cluster Code and Household Number:	W_____/C_____/HH_____ (also mark on the map)
Survey Team Members:	
Faculty in charge:	
Date of Verification and handover to Faculty	

A. SOCIAL

1.	Household	Type Tenure Name of the family elders Number of Members	Nuclear/Joint Family Owner/Tenant/Lease _____
2.	Age of family members (years) Relationship	0-3 3-17 18-25 25-40 40-60 Above 60	_____ _____ _____ _____ _____ _____
3.	Languages	Known Mother tongue	_____ _____
4.	Education	No schooling Upto 5 th standard 5 th standard - 8 th Standard 9 th standard - 10 th standard 11 th standard - 12 th standard Graduation and above Professional (mention separately)	_____ _____ _____ _____ _____ _____
5.	Religion	Hindu/Christian/Muslim/Others Mixed religion	_____ _____
6.	Caste	Name of the caste	_____ _____

		Inter-caste Marriage Beneficiaries of caste reservation	Yes/No Education/Work
7.	Marital status of family members	Married Divorced/Widowed Deserted/Separated Unmarried	<hr/>
8.	Status of women	Freedom or Restrictions to Work, Study, Marry, daily Activities, take Decisions, spend Money	(elaborate here)
9.	Gender relations	Are equal opportunities given to girls/boys? Whether there are any differences in interaction, behaviour, relationships due to gender? If yes, the reasons thereof Is any member a transgender? If yes, the challenges faced by the member	(elaborate here)
10.	Vices Whether this leads to frictions and/or economic difficulties for the family?	Drinking/gambling/smoking/none If yes, what are the frictions and compromises? (disagreements, loss of education, health issues, debt, home repairs postponed etc)	(elaborate here)
11.	Instances of domestic violence, abuse, crime	Yes/No Frequency and reasons	(elaborate here)
12.	Is any member differently-abled? Yes/No	Type of ability Beneficiary of any govt scheme? Difficulties faced by the member	(elaborate here)
13.	Migration pattern	Native/Place of Origin Difficulties faced there and the reasons for migrating (employment, education, health, social discrimination) Period of stay in this cluster and the social challenges faced during the initial stages, over the years and now	(elaborate here)
14.	Social Mobility	Whether any family member left the household in the past few years? If yes when, where and the reasons for moving out (study/work/marriage/disagreements)	(elaborate here)

15.	Interaction with neighbours and families within the cluster	<p>Level of interaction</p> <p>Activities together</p> <p>Social support</p> <p>Financial help</p> <p>Is there sufficient space for interaction, recreation and gathering?</p>	(elaborate here)
16.	Interaction with friends and families outside the cluster	<p>Level of interaction</p> <p>Reason for the interaction</p> <p>Activities together</p> <p>Social support</p> <p>Financial help</p>	(elaborate here)
17.	Belonging to the neighbourhood and city	<p>Do you and the family feel comfortable and settled within this cluster and city?</p> <p>Do you feel people outside this cluster look at you and deal with you as equal citizens?</p> <p>Do you think the govt agencies deal with empathy and justice?</p> <p>Do govt agencies hold grievance meetings or consultations with the community?</p>	(elaborate here)
18.	Community participation	<p>Social, religious, political events</p> <p>Do people vote? To whom and why?</p> <p>Is anyone from the community represented in the local body as representative, ward member/counsellor? Does this help in getting facilities and amenities in the cluster?</p>	(elaborate here)
19.	Social discrimination/prejudices	<p>Do you find any of the social practices discriminatory?</p> <p>Do people (within and outside the cluster) exhibit bias or prejudice on the basis of caste/religion/language etc)</p>	(elaborate here)
20.	Social welfare	<p>Are you aware of different welfare schemes for the urban poor - education, food rations, health, employment, housing, skill development, marriage etc</p> <p>Details of scheme and beneficiaries</p>	(elaborate here)

B. LIVELIHOOD

1.	Skill set of the family members	Unskilled Semi-skilled Skilled Undergoing study/training Traditional occupation, if any	(elaborate here)
2.	Opportunities that are readily available	Formal/ Informal Permanent/Temporary Employed/Self-employed Are the opportunities commensurate with education and skills?	(elaborate here)
3.	Preferences	What type of opportunities do you prefer, where? Is there need for training, study and skill upgradation?	(elaborate here)
4.	Nature of work Study	Full time or part-time (office administration, shop keeper, teaching, housekeeping, babysitting, physical labour, street vending, Driving and minor repairs, Trades-Mason, Electrician, Welder, Tailor, others pls specify) Full time or part-time (Academic/Vocational/Others)	(elaborate here)
5.	Duration of work/study	Number of hours per day Lunch break, weekly off, leave	(elaborate here)
6.	Place of work/study	Location of workplace and distance from home (in kms) Workplace type Facilities and work environment	(elaborate here) Factory, Office, Shop, Market, Home, Road/Street, Bus-stand, Institution, other pls specify_____
7.	Travel mode to work /study	Public/Private Frequency and service	(elaborate here)
8.	Salary and benefits	Daily wages/Monthly salary PF, Insurance, other benefits Allowances, if any	(elaborate here)
9.	Monthly expenses	Food and groceries Gas, Electricity, Water Medicine Clothing TV, Internet and Mobile Travel costs Education Sports and Recreation Other essentials	(elaborate here)

10.	Secondary work/income	Is the family income sufficient? Is it necessary to do additional jobs to increase family income? Are there opportunities for secondary work from the residence like shop etc?	(elaborate here)
11.	Access to work/study	Govt job reservation Urban employment schemes Education reservation	(elaborate here)
12.	Welfare/scholarship - Ration card and benefits, Old age pension, Widow pension, Marriage allowance, free medical insurance Educational scholarships, Bus pass, free travel	Beneficiaries of social welfare schemes, housing schemes Amount and duration of the scheme	(elaborate here)
13.	Access to loan / credit	Do banks/cooperatives lend loans with/without collateral? What does the family do in case of emergency loans?	(elaborate here)
14.	Current savings /debt/EMI's	Does the family have savings for emergencies? Is the family repaying any debt or paying any emi's? Period of loan and principal/interest still payable	(elaborate here)

C. TOP-STRUCTURES (HOUSE)

1.	Tenure status	Owner/Tenant/Lease/Other	(elaborate here)
2.	Access, size and layout (draw a rough sketch showing interior and exterior spaces)	Access Area Number of rooms Kitchen and Toilet(s)	Easy/Manageable/Difficult _____sq.ft Indoor/Outdoor, Attached/Detached
3.	Construction type	Permanent/Semi-permanent/Temporary/Tent Condition of the house	(elaborate here) Good/Fair/Poor
4.	Materials	Walls Flooring Doors and windows Roof	Brick/Blocks/Mud/Sheet/Other Stone/Tile/Cement/Mud/Other Wood/Metal/Jaali/Other RCC/Asbestos/MetalSheet/ClayTile/Other
5.	Space sufficiency	Is the space sufficient for all members and their activities? What are the activities that happen outside?	(elaborate here and mark on the sketch)

6.	Privacy	Is there sufficient privacy from the neighbours? Does the family have space for changing/dressing?	(elaborate here and mark on the sketch)
7.	Lighting and ventilation	Do all rooms have sufficient natural light and ventilation?	(elaborate here and mark on the sketch)
8.	Incrementality	Has house been upscaled over the years (like adding rooms or improving the house) by the family? Who contributed? Has house (or a part of it) been demolished by the govt agency?	(elaborate here and mark on the sketch)
9.	Scheme beneficiary	Has house been upgraded by any govt scheme? (write the name of the scheme) Year and contribution by govt agency	(elaborate here)
10.	Functional uses	Is some part of the house used as a shop or store or for holding cattle? Is the shop/store used by the family or rented?	(elaborate here and mark on the sketch)
11.	Utilities	Cooking Electricity Water Sewage Ownership of the utilities?	(elaborate here) Gas/Kerosene/Firewood Individual/Shared/Not available Individual/Street tap, Frequency, Quality Individual Pit/Street Drain
12.	Toilet	Does the house have exclusive Water Closet/Bath as part of the house? If No, where do they access and what are the issues?	(elaborate here)

D. AMENITIES :

1.	Cooking Stove - Gas/Kerosene/Firewood	Cooking gas connection Number of cylinders	Yes/No _____ .
2.	Television	Type and cost Connection Condition	_____ Satellite/Cable New/Used/Gifted
3.	Refrigerator	Type and cost Condition	_____ New/Used/Gifted
4.	Other appliances, if any	Type and cost Condition	_____ New/Used/Gifted
5.	Cot/Mats	Type and cost Number of users Condition	_____ New/Used/Gifted

6.	Furniture	Sofa Table/Chairs Number of users Condition	<hr/> New/Used/Gifted
7.	Storage	Almirah Drawers/Shelves Kitchen Cabinets Condition	<hr/> New/Used/Gifted
8.	Vehicles	Mini-van/small truck Car Bike/Scooter Users	<hr/> <hr/>

E. MORPHOLOGY

1.	Neighbourhood	Is the cluster well connected and integrated in the neighborhood or is it isolated and segregated? What is the land use in its immediate surroundings? Mark important landmarks.	(Elaborate here and highlight in the map)
2.	Access	Is the cluster easily accessible from the main roads, bus stops? Does the cluster have easy access to multiple neighborhoods along all directions?	(Elaborate here and highlight in the map)
3.	Cluster type	Compact/Semi-compact/Dispersed/Mixed Rural/Hybrid/Urban Permanent/Semi-permanent/Temporary/Mixed	(Elaborate here and highlight in the map)
4.	Physical features	Is the cluster along a water body, stream, drain, railway track, road, hillock, wasteland, abandoned quarry etc? Is the cluster a temporary squatter comprising tents, sheds? Who are the users?	(Elaborate here and highlight in the map)
4.	Extent and growth pattern	Mark the proper extent (boundaries) of the cluster. How has the cluster evolved over the years? Has any govt intervention happened in the past? Explore in detail.	(Elaborate here and highlight in the map)

5.	Agent/ process of transformation	What are the reasons for the transformation? Is it the growth of industries or proximity to residential sectors? Is it the opportunities for informal work in the urban core areas? Or is it due to social connections with other people in the cluster?	(Elaborate here and highlight in the map)
6.	Road and Street network	Mark the roads and streets, highlight its condition Mark informal activities, if any Mark parking areas, if any	(Elaborate here and highlight in the map)
7.	Open spaces	Mark the open spaces present. Are the open spaces linked to a community facility such as a temple or school?	(Elaborate here and highlight in the map)
8.	Vegetation	Mark the vegetation (trees, scrubs, grasslands, marsh) in and around the cluster. Identify important species.	(Elaborate here and highlight in the map)
9.	Top structures	Mark location of all houses, toilets, sheds.	(Elaborate here and highlight in the map)
10.	Community facilities	Identify and mark all community facilities (school, playground, park, place of worship, community centre, ration shop, health centre, theatre, shopping centre) in and around the cluster.	(Elaborate here and highlight in the map)
11.	Services	Water taps/lines Drainage Sewage connections Solid waste disposal Electricity lines Street lighting Transportation	(Elaborate here and highlight in the map)

F. HAZARDS CONFRONTING THE SETTLEMENT/ HOUSE

1.	Flooding	Has there been instances of flooding in the cluster/house? Is it due to overflow from lake/stream/drain or due to heavy rains or both?	(elaborate here)
2.	Air pollution	Is the cluster situated next to industries? Are there issues of smoke or air pollution?	(elaborate here)

3.	Water Contamination	Is the cluster situated along stream or drain? Is the water contaminated? Who is responsible for this contamination? Does the cluster let out its sewage into the stream/drain?	(elaborate here)
4.	Noise pollution	Is the cluster situated along the railway track or busy road or adjacent to an industry? Which noise is the most troublesome and when?	(elaborate here)
5.	Disease	Are people (especially children) in the cluster prone to any diseases? Is the cause for it due to improper-solid waste disposal/sewage treatment or other pests such as flies, mosquitoes and rats?	(elaborate here)
6.	Danger	Are people in the cluster frequently affected by snakes, monkeys, stray pets? Are there frequent incidents of theft, petty crime or abuse?	(elaborate here)
7.	Fear	Do people of the cluster live in constant worry of eviction, harassment by people /government agencies? Do they fear loss of job/savings, damage to the house etc?	(elaborate here)

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