A Thesis Project Report on

REDEVELOPMENT OF A TEMPLE TOWN

KANCHEEPURAM

Submitted By

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Under The Guidance Of

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STATUTORY

DECLARATION

I, Janani Ranganathan, author of the thesis 'REDEVELOPMENT OF A TEMPLE TOWN, KANCHEEPURAM' hereby declare that this thesis is a presentation of my original research work. Wherever contributions of others are involved, every effort is made to indicate this clearly, with due reference to the literature, and acknowledgement of collaborative research and discussions. The work was done under the guidance of Professor Shivashish Bose, at Jadavpur University, Kolkata.

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CERTIFICATE OF APPROVAL

In my capacity as supervisor of this candidate's thesis, I certify that the above statements are true to the best of my knowledge.

Prof. Shivashish Bose **Date:**
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ACKNOWLEDGEMENT

It has been said through times that any work produced involves the input of many people rather than just the author of the work. This is true in my case also. There has been a significant involvement of many people in completing this thesis and bringing it to a better version from its initial stages.

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SYNOPSIS

With the advent of technology and its often upgrade, it has leaded human life to be easier in many ways. A drastic change can be seen from the time when it use to take days or probably years to travel long distances to a scenario of today where very long distances can be covered in just few hours. One touch can achieve a lot more things in today's world. But we should never forget those things that really make us of what we are.

The cultural and religious diversity of India can be seen in the numerous ancient temples spread across the length and breadth of the country, many of which are also architectural marvels. Most of the places in India have an origin with one of the famous temples in their respective area or any feature that culturally binds the area together. In most places, the core element still remains the same with the addition of few other elements depending on time and need. The heritage as it's called has been a part of development in all ways.

So do we have to choose between our heritages and technologically advanced? Can't we amalgamate these where our heritage and technology go hand in hand without interfering in their counterpart's working? This is what will be analysed with the city of Kancheepuram where its heritage is something that has to be protected and along with that, the city also needs to meet its basic needs of upgradation in various fields.

A city can be a smart city only if it is not only technologically advanced but also protects its rice culture and heritage. Redevelopment is all about making the space more friendlier and usable to the users with their change in need with time and also that is sustainable for a certain span of years. The focus has to be balanced. Smart Cities focus on their most pressing needs and on the greatest opportunities to improve lives. They tap a range of approaches

Among the seven sacred, Kancheepuram is the only city in the southern part of India that gives salvation. It is a well known religious centre and sacred place of pilgrimage from the very beginning. It is sacred to both Saivas and Vaishnavas. Apart from the above, once it was the centre of Buddhism and Jainism.

Kancheepuram, City of temples is a place where the foundations foundation of South Indian architecture has been laid. It was a place where germs of local government had their beginnings. Kancheepuram, though not on the coast, had the impact of the Roman. Mahabalipuram, thirty miles away from Kancheepuram, was a natural port for Kancheepuram.

Belonging to the eighth century, Kailasanathar Temple is amongst the oldest structures in the city and is dedicated to Lord Shiva. The construction was commenced by Rajasimha Pallava, while his son Mahendra Varma Pallava completed it. The Devarajaswami Temple is dedicated to Lord Vishnu and was constructed by the Vijayanagar kings. A 10m tall statue of Lord Vishnu lies immersed in a large tank, which is drained once every 40 years. It is that time when the statue can be viewed.

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PREFACE

India is a diverse country and is known for its rich culture all over the world. The unity of the country has had a large influence from its culture and heritage. There is an underlying basic common factor to the whole of India, with variations in practices based on their local needs and influences. Temples have always had their contribution in the richness of the country,

Temples are again of varied types differing in art and architecture right from the north to the south of the country. Every temple's architecture has had its own influence of rulers over the glorious past.

Virtually every place in India can be termed as a temple town for temples have been the core of most of the development of the cities. But some places rise above the general description as the home of temples like Madurai, Kancheepuram, Kancheepuram, Puri etc.

What set temple towns apart from other older settlements is the heavy influence of culture, fine arts, and performing arts on its architecture. Beginning from the Pallavas, Cholas and later Pandyas right up to Arcot rulers have significantly influenced not only temple architecture, but also public spaces.

Located on the east coast of India, Kancheepuram is what one would define as a quintessential temple town. With a rich history to boast of, Kancheepuram currently serves as the administrative headquarters of the district of Kancheepuram. The skyline of Kancheepuram is studded with tall Gopurams or temple roofs, with intricate carvings of deities and other idols on them.

Known as the city of a thousand temples, is one of the seven most sacred pilgrim centers in India. Kancheepuram was ruled by the Pallavas and being the capital city, the Pallava rulers added glory to the town as they embellished the city with gigantic temples and shrines. Though a number of temples exist in Kancheepuram, the royal temples built by the Pallava rulers are declared as protected monuments by the Archaeological Survey of India (ASI) because of their historical and aesthetic value.

CHAPTER 1

1.0 INTRODUCTION

1.1 DEFINITIONS

REDEVLOPMENT : To change an area of town by replacing old buildings, roads, etc. with new ones or the improvement of an area that is in bad condition in a city.

TEMPLE: A building or place dedicated to the worship of a deity or deities.

TOWN : A place where people live and work, containing many houses, shops, places of work, places of entertainment, etc., and usually larger than a village but smaller than a city.

TEMPLE TOWN: A town whose major tourist attraction, origin, its basis of development is linked with temples.

Fig 1 (*Source:Google Images)*

1.2 BACKGROUND

Kancheepuram is one of the seven sacred cities of India and was successively the capital of Pallavas, Cholas and the Rajas of Vijayanagar. It is a town and the headquarters of Kancheepuram distict.In ancient times it was called Kanchi and Kanchiampathi.

Kancheepuram is located on the Palar River and known for its temples and silk sarees. There are several big temples like Varadharaja Perumal temple for Lord Vishnu and Ekambaranatha temple which is one of the five forms of abodes of Lord Siva.

Fig 2 (*Source:Google Images)*

Today, apart from its temples, this small town is also known for its thriving hand loom industry. Kancheepuram town is also known as the silk city since the main profession of the people living in and around is weaving silk sarees, more than 5000 families are engaged in this industry.

Kancheepuram town is traversed by river Vegavathi which bisects the Local Planning Area into the two. There are five major tanks which irrigate the fertile land within the Local Planning Area and therefore restricts the uniform development of the urban area. In the south of the Local Planning Area the river Palar runs towards east which also restricts the development in the southern side of the Local Planning Area.

Fig 3 (*Source:Google Images)*

1.3 RELEVANCE

The National Heritage City Development and Augmentation Yojana (HRIDAY) Scheme was launched on January 21, 2015 with the aim of bringing together urban planning, economic growth and heritage conservation in an inclusive manner with the objective of restoring, reviving and strengthening the soul and heritage of the city.

Fig 4a (*Source: http://news.vrindavantoday.org)*


New Delhi, 2014.12.01 (Dipak K Dash, TNN): In the next three years, you can expect to visit cleaner religious complexes and heritage sites having properly laid roads without hawkers blocking the way and well-lit surroundings, at least in seven cities. The Narendra Modi government will launch a flagship scheme in the next couple of months to revitalize the heritage cities of Amritsar, Ajmer, Gaya, Kanchipuram, Mathura, Varanasi and Vellankani.

Fig 4b (*Source: http://news.vrindavantoday.org)*

1.4 AIM

To develop civic infrastructure development around heritage sites, leading to revitalization of the city as a heritage and cultural destination**.**

1.5 OBJECTIVES

The seven objectives are as following:

- To provide improved connectivity with attractions focusing on last-mile connectivity along with provision for heritage walks and digital information kiosks along with pedestrianising tourist attraction areas..
- To provide more facilities for women, senior citizens and differently abled citizens.
- To identify heritage areas and propose for conservation of the same if required.
- To develop proper parking places and hawkers zones.
- To encourage the weaving industry and provide them a centralized area.
- To facilitate the use and movement of E-rickshaws.

1.6 SCOPE

- To enhance Art, Culture and Traditional value of the place.
- Improve connectivity
- Parking facilities
- Organized hawker areas (mainly near the temples)

1.7 LIMITATIONS

The duration of the thesis limits scope of the project to the following:

- Detailed analysis and designing of services.
- In depth proposal for Heritage Conservation.

1.8 RESEARCH METHODS AND METHODOLOGY

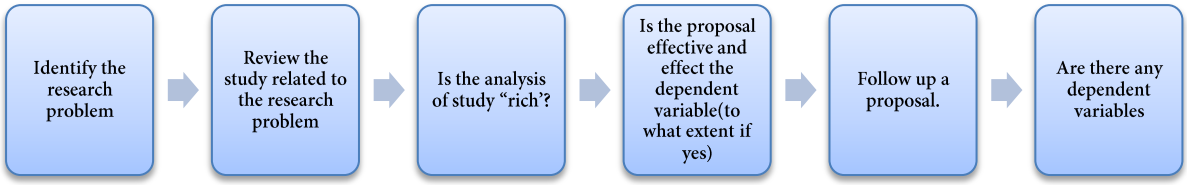
Research can be defined as a scientific and systematic search for pertinent information on a specific topic.

The following methods were used for the conduction of research in the project.

TYPE	METHODS	TECHNIQUES
Literature research	Analysis of historical records in books and internet	Collection of notes or data
	Analysis of any available documents from govt. officials	Content and reference analysis
Field survey and documentation	Participation observation	Interactional recording
	Interaction of local people and stake holders	Use of detailed questions on various aspects
	Visual survey and Direct observation	Observe ,note significant aspects and taking pictures of significant or noticeable area of concern, making note of the same
Lab research	Study analysis	A detailed discussion on the collected data, analysis of the data to conclude on with required proposals.

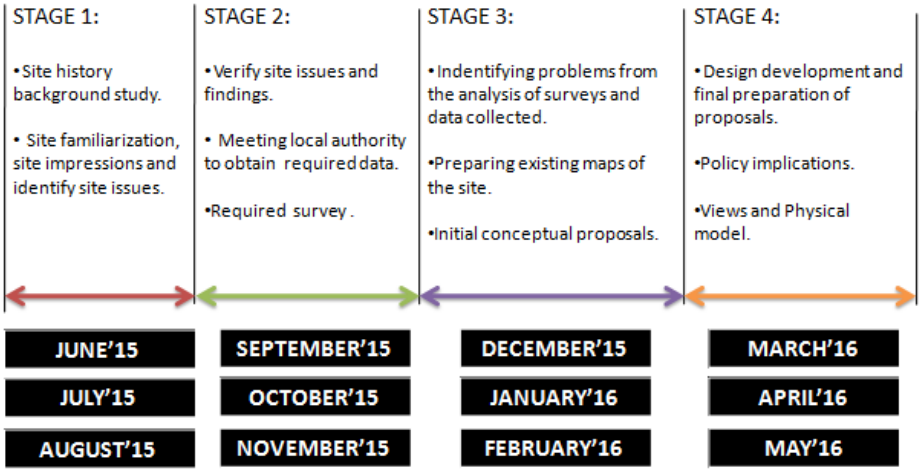
Table 1 (*Source: Research and methodology book by C.R Kothari)*

Research Methodology is a way to systematically solve the research problem.



Flow chart 1 (*Source: Research and methodology book by C.R Kothari)*

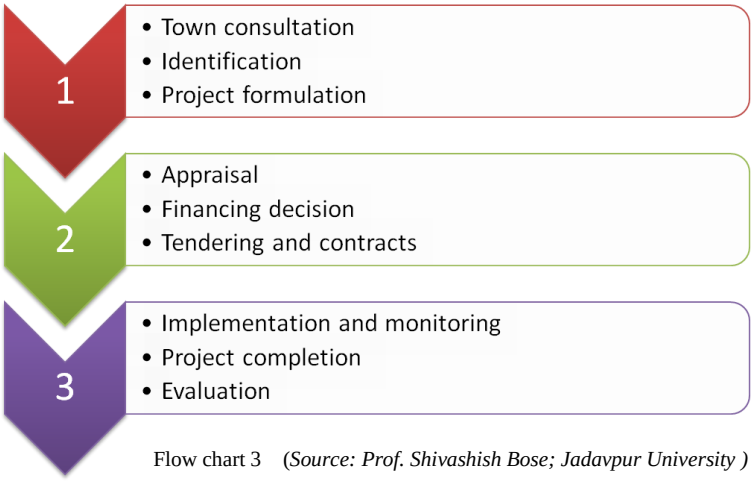
Research methods and methodology followed for the current project over a timeline.



Flow chart 2

1.9 IMPLEMENTATION

It is a general plan of action which outlines in sequential order the various stages of project implementation.



Flow chart 3 (*Source: Prof. Shivashish Bose; Jadavpur University)*

1.10 KANCHEEPURAM DISTRICT

Kancheepuram district is a district in the northeast of the state of Tamil Nadu in India. It is bounded in the west by Vellore District and Thiruvannamalai District, in the north by Tiruvallur District and Chennai District, in the south by Viluppuram District and in the east by the Bay of Bengal. It lies between 11° 00' to 12° 00' latitudes and 77° 28' to 78° 50' longitudes. The district has a total geographical area of 4,432 km^2 and coastline of 57 km.

Kancheepuram, the temple town, is the district headquarters. For administrative purpose, the district has been divided into 4 revenue divisions consisting of 12 taluks with 1,214 revenue villages. For development purpose, it is divided into 13 development blocks with 648 Village Panchayats.

Fig 5 (*Source: Pdf by TWAD board,Chennai)*

1.11 KANCHEEPURAM MUNCIPALITY

The Kancheepuram municipality was officially constituted in 1866, covering 7.68 km^2 and its affairs were administered by a municipal committee. It was upgraded to a grade I municipality in 1947, selection grade municipality in 1983 and special grade municipality in 2008. As of 2011 the municipality occupies 11.6 km^2 (4.5 sq mi), has 51 wards and is the biggest municipality in Kancheepuram district.

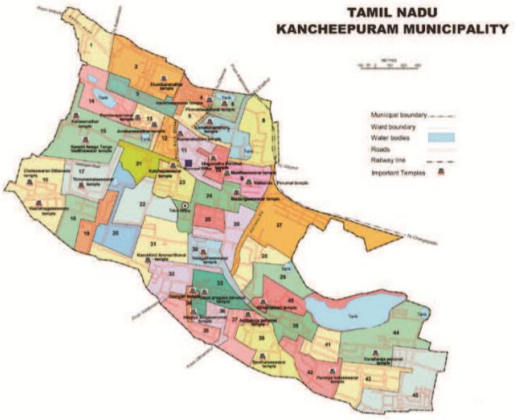


Fig 6 (*Source: Pdf by TWAD board,Chennai)*

1.12 KANCHEEPURAM LOCAL PLANNING AUTHORITY

Kancheepuram Local Planning Area covers Kancheepuram Municipal area along with 33 villages. Kancheepuram municipality is a selection grade Municipality. Other than this there is only one selection grade Town Panchayat. The rest are 33 villages. The total extent of the Local Planning Area is 8349.17 Hectares of which the developed area is 2082.05 Hectares. In between the railway line and Vegavathi river thickly residential and commercial area exist and also small and big temples are situated. The northern and southern parts of the Local Planning area are mostly covered by valuable agricultural lands.

CHAPTER 2

2.0 SMART CITY

2.1 INTRODUCTION

The first question is what is meant by a 'smart city'. The answer is, there is no universally accepted definition of a smart city. It means different things to different people. The conceptualisation of Smart City, therefore, varies from city to city and country to country, depending on the level of development, willingness to change and reform, resources and aspirations of the city residents. A smart city would have a different connotation in India than, say, Europe. Even in India, there is no one way of defining a smart city. The term 'smart city' is basically case specific.

2.2 DEFINITION AND MEANING

According to one of the perspectives of 'The Smart Cities Council', smart city is "*a developed urban area that creates sustainable economic development and high quality of life by excelling in multiple key areas; economy, mobility, environment, people, living, and government. Excelling in these key areas can be done so through strong human capital, social capital, and/or ICT infrastructure.*"

In the imagination of any city dweller in India, the picture of a smart city contains a wish list of infrastructure and services that describes his or her level of aspiration. To provide for the aspirations and needs of the citizens, urban designers and planners ideally aim at developing the entire urban eco-system, which is represented by the four pillars of comprehensive development: institutional, physical, social and economic infrastructure.

2.3 BASIC ELEMENTS

The core infrastructure elements in a smart city would include:

- Adequate water supply,
- Assured electricity supply,
- Sanitation, including solid waste management,
- Efficient urban mobility and public transport,
- Affordable housing, especially for the poor,
- Robust it connectivity and digitalization,
- Good governance, especially e-governance and citizen participation,
- Sustainable environment,
- Safety and security of citizens, particularly women, children and the elderly,
- Health and education.

Flow chart 4 (*Source: http://smartcities.gov.in/writereaddata/)*

2.4 WORKING OF A SMART CITY

The purpose of the Smart Cities Mission is to drive economic growth and improve the quality of life of people by enabling local area development and harnessing technology, especially technology that leads to Smart outcomes. Area based development will transform existing areas (retrofit and redevelop), including slums, into better planned ones, thereby improving liveability of the whole City. New areas known as greenfields will be developed around cities in order to accommodate the expanding population in urban areas. Application of Smart Solutions will enable cities to use technology, information and data to improve infrastructure and services.

2.5 NEED FOR SMART CITIES

Against the background of economic and technological changes caused by the globalization and the integration process, cities in India face the challenge of combining competitiveness and sustainable urban development simultaneously. Very evidently, this challenge is likely to have an impact on issues of Urban Quality such as housing, economy, culture, social and environmental conditions.

To enforce an endogen development and achieve a good position, these cities have to aim on identifying their strengths and weaknesses as well as to identify their chances for positioning and to ensure and extend comparative advantages in certain key resources against other cities of the same level. Being smarter can improve the way that we manage the challenges faced by towns and cities, such as traffic congestion, public wellbeing and energy supply, simply by virtue of the insight that additional, higher resolution, urban datasets can provide.

2.6 SMART URBAN DESIGN

Smart Cities are smart in two ways. First, they harness technologies to improve the way that urban places are led and managed. Second, they create better outcomes for the people that use them. This two-pronged approach applies to all aspects of Smart Cities.

1. The performance of the places that are produced by planning and design (the outcomes)
2. The processes involved in creating plans and designs (the inputs).

A smart city approach should direct the capabilities of urban planners and designers to:

1. Facilitate effective human transaction in new and existing places
2. Provide access to places of transaction, both physical and digital: on-land and on-line
3. Support the mobility required to access these places of transaction by providing networks of connectivity for all modes of transport, both physical (walking cycling rolling driving) and digital
4. Take an outcomes-oriented (i.e. transactions & emissions) approach first and foremost, aware of the inputs required (i.e. materials, energy & mobility) to achieve these desired objectives
5. Provide effective analytic and forecasting tools aimed at social economic and environmental impacts.

2.7 SMART URBAN DESIGN PRINCIPLES

An interesting view about the most significant smart city design principles comes from the blog The Urban Technologist. The author provides 23 principles that each city should consider with respect to infrastructure construction, connectivity and information accessibility, economic development and viability, transport, governance, privacy and public safety etc. The principles do not systematically address all the potential domains of a smart city design assignment.

Some of the proposed principles are presented below:

Principle 1: Consider urban life before urban place; consider urban place before technology.

Principle 2: Demonstrate sustainability, scalability and resilience over an extended timeframe.

Principle 3: Demonstrate flexibility over an extended timeframe.

2.8 CONTRIBUTION OF SMART DESIGN

What point does a ‘normal’ city become a ‘smart’ city? To paraphrase the department for business, innovation and skills a smart city is not a static concept, there is no absolute definition of a smart city, no end point, but rather a process, or series of steps, by which cities use digital technology to become more 'liveable' and resilient and, hence, able to respond quicker to new challenges.

Smart design is always the means that paves way for the other requirements to accommodate to make a city a ‘smart city’. It will add quality of life and along with the amalgamation of technology that a city needs it can help in improving the standard of life.

CHAPTER 3

3.0 SITE STUDY

2.1 REGIONAL SETTING

Kancheepuram town is located in the South West direction at a distance of 76km from Chennai. Kancheepuram is located at 12.98°N 79.71°E, 72 km south-west of Chennai on the banks of the Vegavathi River, a tributary of the Palar River.

The town has an average elevation of 275' (83-82m) M.S.L. The main land lies on the northern bank of the holy river Vegavathi, a tributary of the river Pallar.

Kancheepuram is well connected by roads and railways with Chegalpattu in the east. The National highway No.4 is situated on the northern side of the town at a distance of 3 km. Kancheepuram is one of the growth centers identified by the state government for development.

Fig 7 (*Source: http://www.radiosai.org)*)

Fig 8 (*Source: Google images)*

2.2 GENERAL DATA

- Area (Total of the district): 4,393 km^2
- Area (Of the city/town) : 11.605 km^2
- Nearest airport: The Chennai International Airport
- Nearest port: Chennai Port
- Nearest railway station: Kancheepuram
- Post office H.O: Kancheepuram P.O.H.O
- No. of Taluks: 12
- Bird Sanctuary: Vedantangal 48 km from the town
- Worth mention: Kanchi Kudil - Ancient House

2.3 HISTORY AND HERITAGE BACKGROUND

Kancheepuram is very ancient city dotted with large number of temples. The city is considered as one of the foremost 'Shakti Peetas' of Tantric works in India.The city was ruled by different dynasties. From the records available the city was ruled in 100 B.C by Thondaiman Ilanthirayan. During 985-1016 A.D by Rajaraja Chola, around 1522 A.D by Krishna Devaraya and since 1865 A.D it came under colonial rule.

The city was developed on the Nanthivartha pattern with 2 or 4 groups of settlements with a temple or the palace as nucleus, linked with straight roads cutting at right angles, it was thus on a cross pattern with palace or Temples as Vista closing and terminal points at the ends of the Rajaveedhi on North and South and Kailasanathar and Vaikunda Perumal temple at the eastern and western ends respectively.

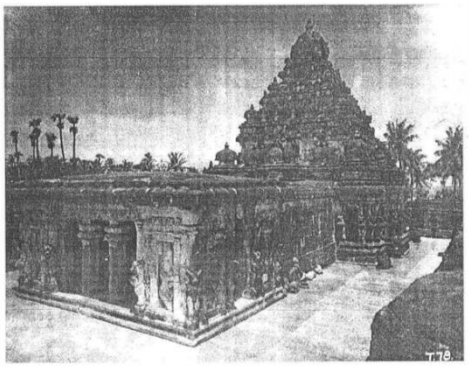


Fig 9 (*Source: Thesis titled 'Evolution of Kanchi City and its Philosophies 'by Gayathri S)*

Houses came up on raised grounds and with burnt bricks for the first time, and the concept of garden at the backyard, a wide front space in the form of 'Thinnai' or Verandah which is the scene in old parts of the city even today. This was to provide good ventilation and for draining of rain water swiftly.

Kancheepuram was the capital of the Pallavas rulers from the 1st to 9th centuries. It was also important during the Chola, Vijayanagar, and Nayaka periods. It was mentioned in the Mahabhasya, written by Patanjali in the 2nd century BC. The term "nagareshu Kanchi" in the above verse attributed the famous Sanskrit poet, Kalidasa, means that Kancheepuram was the best amongst the cities of medieval India.

Kancheepuram is one of the oldest cities in South India, and was a city of learning for Tamil, Sanskrit, and Pali. It was during the reign of Pallava dynasty, from the 4th to the 9th centuries that Kancheepuram attained its limelight. The city served as the Pallava capital, and many of the known temples were built during their reign.

The city was called as Kachchipedu, Kachichi and Kanchi in the past (Jouveau Dubreil 1918). From the 6th to 8th centuries AD, the Pallavas not only built magnificent temples, but also encouraged the tradition of silk weaving and the Bharatanatyam dance. The colonies of weavers can also be seen in the back lanes of the city. The Bharatanatyam dance was performed within the pillared halls of temples by devadasis, the young women who had dedicated themselves to the service of God. After the fall of Pallavas, Kanchipuram was taken over by various dynasties like the Cholas, Chalukyas, the Vijaynagar kings, Muslims and the British. All these empires left their artistic stamps in the elaborate temples built over 12 centuries.

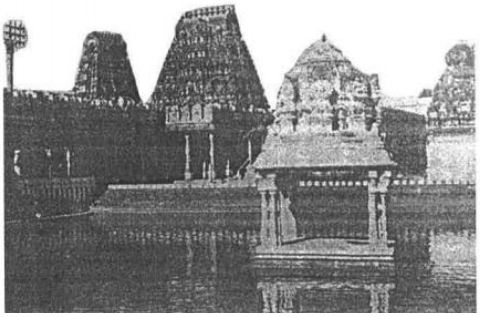


Fig 10 (*Source: Thesis titled 'Evolution of Kanchi City and its Philosophies 'by Gayathri S)*

Sanskrit was the official language of the Pallavas and Kanchi, the Pallava capital, was a great centre of Sanskrit learning. Both Bharavi and Dandin, the authors of Kiratarjuniyam and Dasakumarcharitam respectively, lived in the Pallava court. Dandin was also the author of the text "Avanti Sundari Kathasara". Pallavas were orthodox Brahmanical Hindus and their patronage was responsible for the great reformation of the medieval ages. Most of the Pallava kings were devotees of Siva, the exceptions being Simhavishnu and Nandivarman who were worshippers of Vishnu.

3.4 GROWTH AND MORPHOLOGICAL TRANSFORMATION

Fig 11 (*Source: Thesis titled 'Conservation of sandstone monuments at Kanchipuram Tamil nadu India 'by Jayanti.D)*

3.5 GEOGRAPHICAL FEATURES

3.5.1 AREA

Kanchipuram otherwise known as Kanchi is a city in the Indian state of Tamil Nadu, 72 km from Chennai – the capital of Tamil Nadu. The city covers an area of 11.605 km^2 and had a population of 164,265 in 2001.It is the administrative headquarters of Kanchipuram District. Kancheepuram district has a total geographical area of 4393.37 sq km and is has a coastline of 57 kilometers.

3.5.2 CLIMATE

Kanchipuram generally experiences hot and humid climatic conditions throughout the year. Temperatures reach an average maximum of 37.5 °C between April and July, and an average minimum of 20.5 °C between December and February. The daytime heat during summer can be oppressive; temperatures can reach 43 °C.

Relative humidity of between 58% and 84% prevail throughout the year. The humidity reaches its peak during the morning and is lowest in the evening. Relative humidity is higher between November and January and is lowest throughout June.

3.5.3 RAINFALL

The Northeast and Southwest monsoon are the major donors respectively to annual rainfall. The pre-monsoon rainfall is almost uniform throughout the district. The coastal taluks get more rains rather than the interior regions. This district is mainly depending on the seasonal rains, the distress conditions prevail in the event of the failure of rains. Northeast and Southwest monsoon are the major donors with 54% and 36% contribution each to the total annual rainfall.

Climate data for Kanchipuram, Tamil Nadu [hide]													
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Average high °C (°F)	29.1 (84.4)	31.2 (88.2)	33.4 (92.1)	35.6 (96.1)	38.2 (100.8)	37.2 (99)	35.2 (95.4)	34.7 (94.5)	34.1 (93.4)	32.1 (89.8)	29.3 (84.7)	28.5 (83.3)	33.22 (91.81)
Average low °C (°F)	19.2 (66.6)	19.8 (67.6)	22.0 (71.6)	25.4 (77.7)	27.3 (81.1)	27.0 (80.6)	25.9 (78.6)	25.4 (77.7)	24.8 (76.6)	23.7 (74.7)	21.6 (70.9)	19.9 (67.8)	23.5 (74.29)
Average rainfall mm (inches)	25 (0.98)	6 (0.24)	4 (0.16)	19 (0.75)	59 (2.32)	77 (3.03)	108 (4.25)	173 (6.81)	132 (5.2)	185 (7.28)	209 (8.23)	107 (4.21)	1,104 (43.46)
Source: Climate-Data.org[40]													

Table 2 (*Source: Wikipedia-www.climate-data.org)*

3.5.4 TOPOGRAPHY

Kancheepuram city is at an elevation of 83.2m above sea level. The land around the city is flat and slopes towards the south and east. There are only a few hills of considerable elevation in the district. The southern part of Maduranthakam taluk contains small hills.

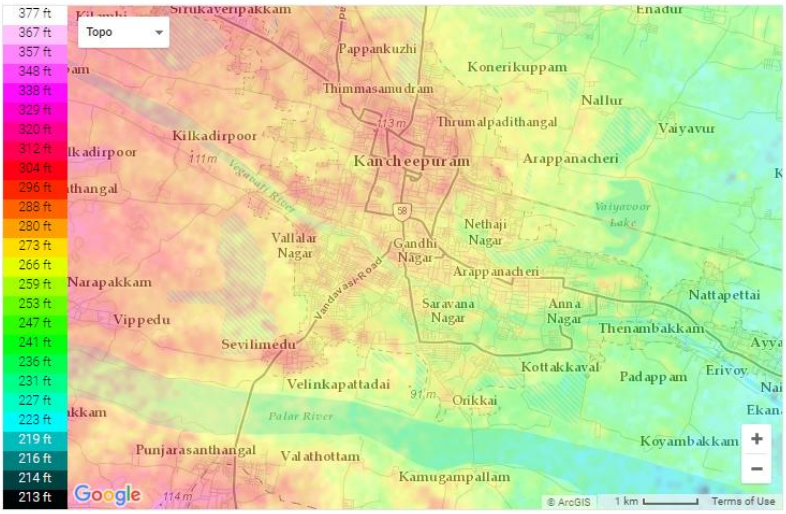


Fig 12 (*Source: http://en-gb.topographic-map.com/places/Kanchipuram)*

3.5.5 SOIL

The soils found in the city have been classified into:

1. Clayey soil,
2. Red sandy or red loamy soil
3. Red sandy brown clayey soil and
4. Alluvial soil.

Of the above soils brown clayey soil is the most predominant, covering more than 71 percent of the areal extent of Kancheepuram district. Alluvial soils are found on the banks of Palar, Cheyyar and other rivers. The river alluvium is transported and is seen in coastal area of this district. Sandy coastal alluvial occurs along the seacoast as a narrow belt.

3.5.6 RIVERS

The Palar River is one of the most important river running through the district. Tanks and wells are the main sources of irrigation in this district.

3.5.7 FOREST

The total forest area in the district is 23,586 hectares, it spread interior regions and around the district. In this forest area there are 366.675 hectares for Reserved Land. 76.50 Metric Tonnes lands are cultivated in Fuel wood and 8.039 Tonnes in Cashew.

3.6 KNOWN AS THE SILK CITY

Today, apart from its temples, this small town is also known for its thriving handloom industry. Kancheepuram town is also known as Silk City since the main profession of the people living in and around is weaving silk sarees. The silk weavers settled more than 400 years ago and have given it an enviable reputation as the producer of the best silk sarees in the country.

More than 5,000 families are engaged in this industry and their spectacular creations are marketed by a number of co-operative societies, located all over the state. The products of Kancheepuram silk sarees are in architectural techniques, by using standard quality of fine gold threads, thus they are worthy and good quality in nature. To compare with other silk sarees, the Kancheepuram silk sarees are very famous in the world.

Silk Industry: Kancheepuram's silk industries are scattered all over the city. The town had over 60,000 silk looms and 22 weaver cooperative societies in 2004, but only 13 are left today. Of these 13, only five are doing well.

This unique art of "korvai" has seen a gradual decline simply because there has been a steady decline of "helpers" over the years. The master weaver, typically, has a loom in his house and the entire family, including women, helps with the process. These helping hands are disappearing as people opt for more certain and less strenuous sources of livelihood.

3.7 INFRASTUCTURE

3.7.1 TRANSPORT FACILITIES

Kanchipuram is most easily accessible by road. The Chennai – Bangalore National Highway, NH 4 passes the outskirts of the city. Daily bus services are provided by the Tamil Nadu State Transport Corporation. Local bus services are provided by The Villupuram division of Tamil Nadu State Transport Corporation. As of 2006, there were a total of 403 buses for 191 routes operated out of the city.

The city is also connected to the railway network through the Kanchipuram railway station. The Chengalpet – Arakkonam railway line passes through Kanchipuram and travellers can access services to those destinations. The nearest domestic as well as international airport is Chennai International Airport, located at a distance of 72 km from the city.

Within the city there are public buses that facilitate the movement internally. Apart from these buses there are autos also. On call cars like ola are in their initial phase of providing services. People also own their own vehicles that range from cars to cycles depending on their financial status.

3.7.2 EDUCATION

Kanchipuram is traditionally a centre of religious education for the Hindu, Jainism and Buddhism faiths. The Buddhist monasteries acted as nucleus of the Buddhist educational system.

Total about 1.3 lakh people in the city are literate, among them about 68.6 thousand are male and about 62.1 thousand are female. Literacy rate (children under 6 are excluded) of Kancheepuram is 88%. 93% of male and 83% of female population is literate here. Overall literacy rate in the city has increased by 5%. Male literacy has gone up by 3% and female literacy rate has gone up by 7%.

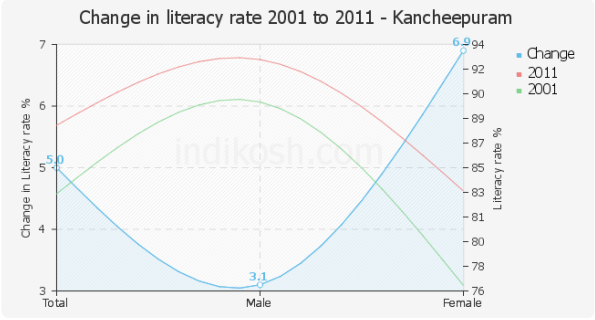


Fig 13 (*Source: http://indikosh.com/city/678305/kancheepuram)*

As of 2011 Kanchipuram has 49 registered schools, 16 of which are run by the city municipality. The district administration opened night schools for educating children employed in the silk weaving industry – as of December 2001, these schools together were educating 127 people and 260 registered students from September 1999.

Larsen & Toubro inaugurated the first rail construction training centre in India at Kanchipuram that can train 300 technicians and 180 middle level managers and engineers each year. There two Deemed universities present in Kanchipuram.

Kanchipuram is home to one of the four Indian Institute of Information of Technology. The city has two medical colleges. The city has 6 engineering colleges 3 polytechnic institutes and 6 arts and science colleges.

3.7.3 HOSPITALS

There are a few government hospitals like the KMH on the railway road, CSI Mission hospital. Private hospitals include Vanamali hospital, Arignar Anna Cancer Intitute, Lakshmi hospital etc.

3.7.4 RECREATION

Kancheepuram, if it lacks in something, it would be majorly in recreational means. Presently there are no shopping malls or centres along with lack of multiplexes. There are theatres and a sports stadium that is coming up. Parks or any other kind of recreational facility other than Anna Centenary Park is also not visible in the town. There is one historical attraction knows as Kanchi Kudil. Kanchi Kudil was born of a desire to turn ancestral property into a place of tourist interest. Apart from these there are a large number of temples in the city.

3.8 SOCIAL STRUCTURE AND ECONOMIC BASE

3.8.1 A HISTORICAL PERSPECTIVE

The beginning of the utilization of natural resources and production of commercial based trade items which was attested not only the rest of India. Further, intrusion of various activities in the region increased. Among them, were trade and commerce which promote the socio-economic conditions besides religious and educational activities. The region became a popular urban centre (Nagareshukanchi) in the southern part of India.

The commercial relations from very early times both by land and sea existed from the earliest days. The ports of the south on the west coast were in close commercial contacts with the civilization of the Middle East. The raw silk, silk-yarn and silk, brought on foot through Bactria to Barygaza (Broach) were to be exported to Damirica (Tamilakam) by way of the river Ganges from the Mathura via, Ujjain into the Dakshinapatha.

3.8.2 PRESENT SCENARIO

The economic base of the city still is depending on weavers and tourism. The temples play a vital role in the attraction of tourists and accounts to the major revenue. With the decline of the weaving industry, concerns are being shown by various professionals on the revenue of the town.

3.9 COMMUNITY STRUCTURE

3.9.1 A HISTORICAL PERSPECTIVE

The social structure during the Pallava period witnessed the growing impact of the Aryan culture. Because of this impact, a pre-eminent position was assigned to the Brahmins both in status and in grant of lands. Further, Aryanization was evident in the sphere of education. During the Pallava period, the Brahmins superseded the Jains and the Buddhists in formulating policies. Though the Jains and the Buddhist centres of education continued to exist, they lost the royal patronage. Ghatikas, the educational institutions catering to the needs of resurgent Sanantana Dharma were pervading. Every temple in general had a Ghatika attached to it.

Though in the beginning, any twice-born was admitted into these Ghatikas, gradually they became the centres of Brahmanical students. The Ghatikas in due course became important centres of political activity supporting the cause of monarchy as a political institution.

The Brahmans and the Buddhists vied with each other in cutting shrines and temples into the Deccan hills, where, by this time, worship at these shrines may have been open to anyone, the rivalry between the two religions not being particularly felt by ordinary people. The most impressive of these cave temples are the Buddhist shrines at Ajanta and the Buddhist and Hindu temples at Ellora. Even the Jains joined in and excavated a few temples at the latter site.

3.9.2 PRESENT SCENARIO

The community structure is based on the occupation & every community is inter-dependent. Silk weaving and temple revenue form the economic base of the city. The city is a centre for trade & commerce and arts & crafts – textiles.

The occupation-based settlement of the past times has survived till the present times. Most of the weavers near Kailasanathar temple, clay doll makers near Perumal temple, etc. But the caste based settlements have become mixed settlements, with the migration of the residents, or selling of properties to people, not belonging to the same caste, etc.

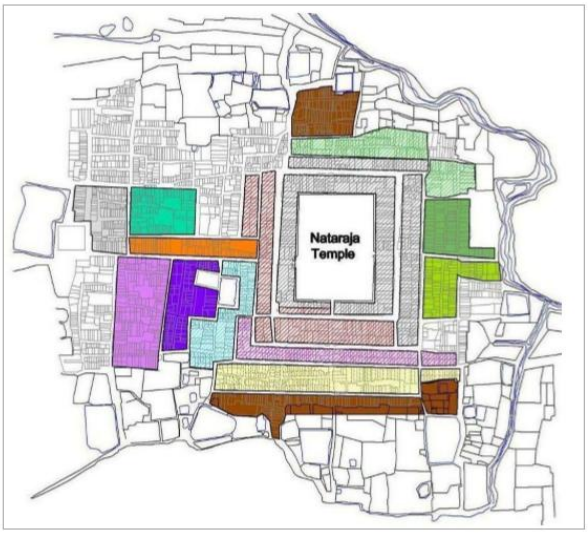


Fig 14 (*Source: info from know boutkanchi.com/places/Kanchipuram)*

Fig 15 (*Source: info from know boutkanchi.com/places/Kanchipuram)*

The analysis highlights the differences and hierarchy of different communities in the structuring of the town. The bonds of community and occupation, which may have coincided with caste, formed the basis of separate neighbourhoods. But the present pattern with the changing economies is contended with the fragments of traditional and formative cultures of the past.

The various communities which occupied this town traditionally include Dikshitars, Brahmins, Chettiyars, Vanniyars, Vellalas, Shetty, Drivers, Potters, Goldsmiths, Chariot Puller, Security men, Carpenters, Blacksmiths, Dhobis and Barber. This distinct separation is gradually fading these days.

3.10 SECONDARY DATA COLLECTION

3.10.1 DEMOGRAPHICS

According to 2011 census, Kanchipuram had a population of 164,384 with a sex-ratio of 1,005 females for every 1,000 males, much above the national average of 929 and the District had population of 39.90 lakh, which is about 5.53% of the total State population. The total population of the District was 39, 90,897, in which 20, 10,309 were Male and 19, 80,588 were Female. A total of 15,955 were under the age of six, constituting 8,158 males and 7,797 females. Scheduled Castes and Scheduled Tribes accounted for 3.55% and .09% of the population respectively. Kancheepuram City has total household 124,877 from which 44% is in rural area and 56% is urban area.

Historical population

Year	Pop.
1871	37,275
1881	37,312
1891	42,547
1901	46,164
1911	53,864
1921	61,376
1931	65,258
1941	74,685
1951	84,810
1961	92,714
1971	110,657
1981	131,013
1991	144,955
2001	153,140
2011	164,265

Table 3
(*Source: http://www.liquisearch.com/kanchipuram/demographics)*

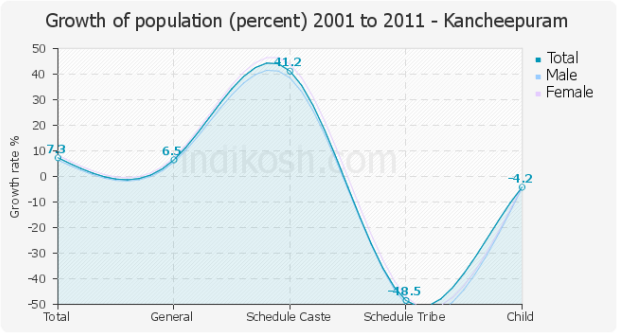


Fig 16 (*Source: http://indikosh.com/city/678305/kancheepuram)*

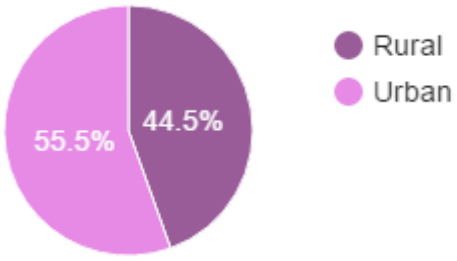


Fig 17 (*Source: http://www.neighbourhoodinfo.co.in/city/Tamil-Nadu/Kanchipuram/Kancheepuram)*

3.10.2 TOURISM PROFILE

Tourism is the temporary, short-term movement of people to destination outside the places where they normally live and work and their activities during the stay at each destination. It includes movements for all purposes.

Kancheepuram is on the top position in attracting foreign tourists and posted 12.03 per cent increase in visitors from abroad in 2013 when compared to the previous year.

Kancheepuram district, home to many heritage temples with stunning architecture, attracted 8, 05,983 Foreign Tourist Arrivals (FTAs) in 2013. Flow of tourists indicates that there is substantial flow of international, national and regional level tourists. On an average, during peak season, they account for about 10000 people a day.

Disruict	Foreign Tourists 2001	Foreign tourists 2006	Foreign tourists 2011
Kancheepuram	109389	182158	448443

Table 4 (*Source: International Journal of Geomatics and Geosciences 314 Volume 5 Issue 2, 2014)*

Districts	Domestic Tourists 2001	Domestic Tourists 2006	Domestic tourists 2011
Kancheepuram	1381906	2354635	6785520

Table 5 (*Source: International Journal of Geomatics and Geosciences 314 Volume 5 Issue 2, 2014)*

3.10.3 PRESENT PHYSICAL INFRASTUCTURE

Presently there is a development being seen in the infrastructure of the town. But the rate of development is very slow. A sports stadium is under construction which will cater to the whole Kancheepuram district.

Near the Collectoral area a significant number of better facilities can be seen. There are no shopping malls, multiplexes or even for that matter any public space that can accommodate a large number of people in case of any gathering. Water bodies are unattended and not maintained. Facilities for parking and other requirements like bus stoppages etc are not available. Currently they are encroaching the roads resulting in traffic congestion.

The bus stand is also not planned and organized which leads to chaos in the area along with the hawkers also taking up a lot of space.

2.8 REMUNERATIVE PROJECTS

The following remunerative projects are suggested to be implemented by Kancheepuram Municipal body.

Projects Outlay:

1. Rajaji Market improvement
2. Yathrika Nivas

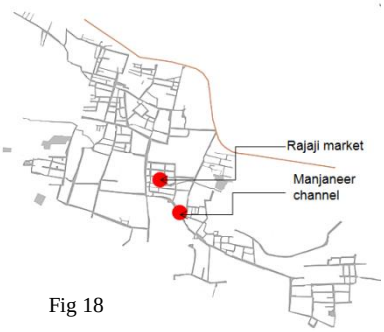


Fig 18

Service Projects:

1. Improvement of the Manjaneer channel.
2. TWAD Board has been requested to formulate a drainage improvement scheme for the following areas:
    - Munuswamy Mudaliar Avenue
    - Mamallan Nagar.
    - Vaikundaperumal Area
3. Solid waste management:

These proposals will be incorporated in the redevelopment proposal with the limitation of detailed proposal of drainage and solid waste management.

CHAPTER 4

4.0 SITE ANALYSIS

4.1 NATURAL SYSTEMS

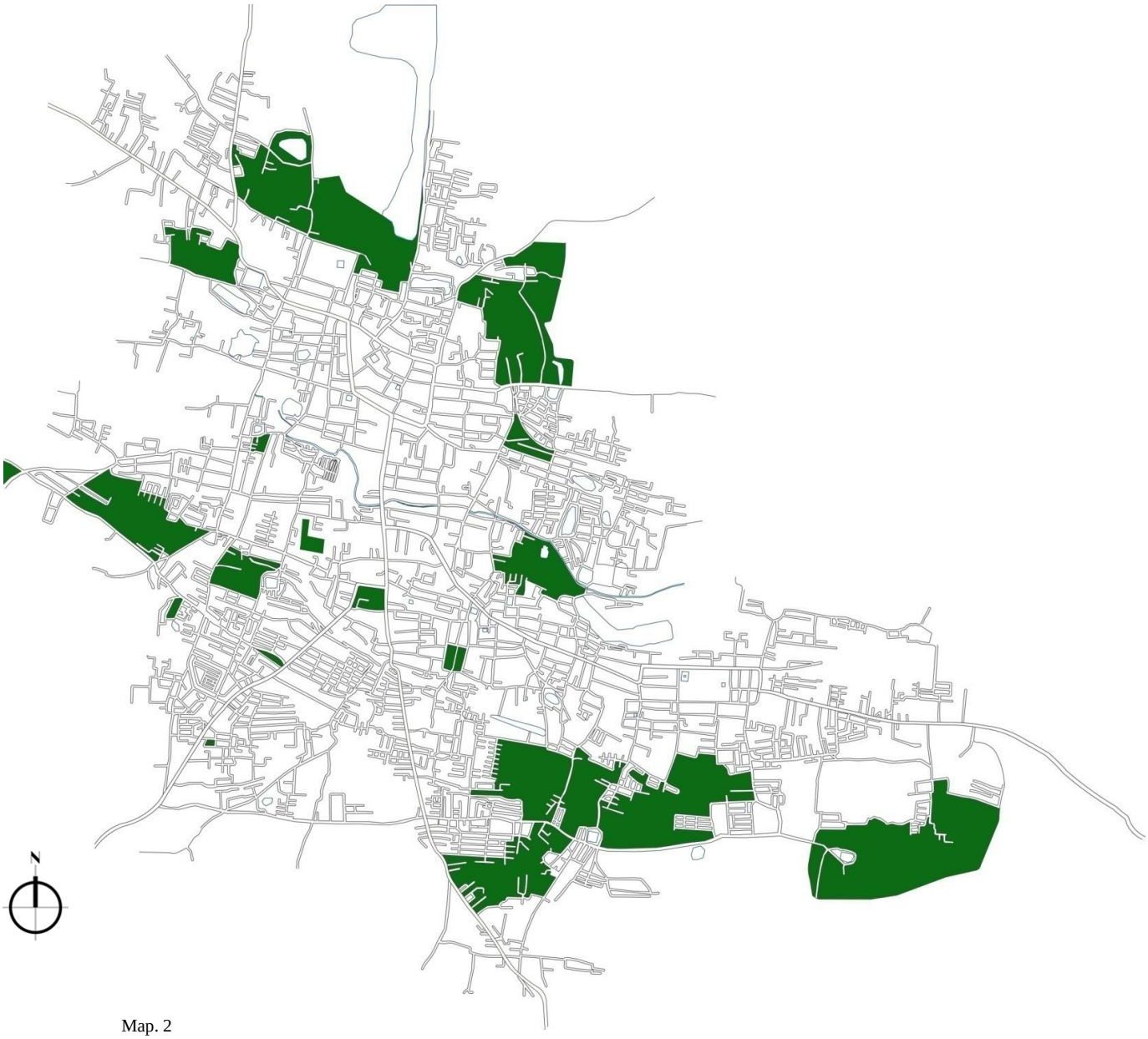
4.1.1 BLUE SYSTEM

Map. 1

INFERENCE: There is a system of tanks which is a distinctive feature of Kancheepuram. Some of the tanks are manmade for agricultural purpose in earlier times and some are natural tanks. Almost all temples are accompanied by a tank and believed to be sacred. There is a man-made canal that has not been maintained in the present times.

There are two huge lakes just outside the boundary of the town namely the Nathapettai and Vaiyavoor Lake. River Palar flows to the down south of the town.

4.1.2 GREEN SYSTEM



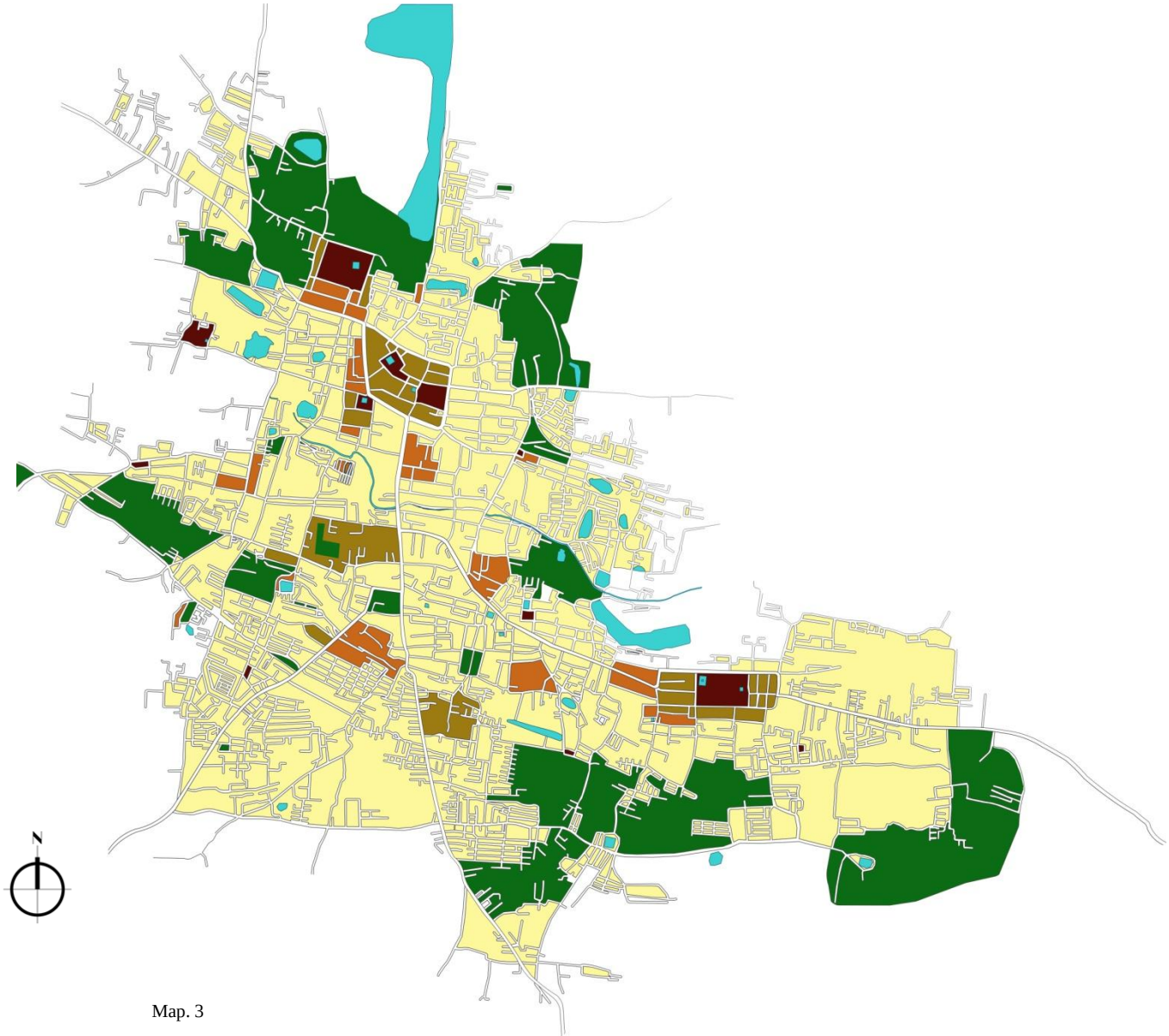
Map. 2

INFERENCE: There are a few green pockets that can be seen in the town. Every major temple has its own open lush green area which was built along with the temples during ancient periods for various purposes and still has been maintained. One of the famous locations is the Anna Centenary Park along with the Collectorate Ground, The District Sports Stadium and Thanga Ammal Manickaa Pillai Garden which contribute to the green system. A lot of open land undeveloped lands can be seen along the fringe areas of the town.

4.2 MORPHOLOGICAL DIMENSIONS

4.2.1 BUILDING FABRIC

4.2.1.1 LANDUSE

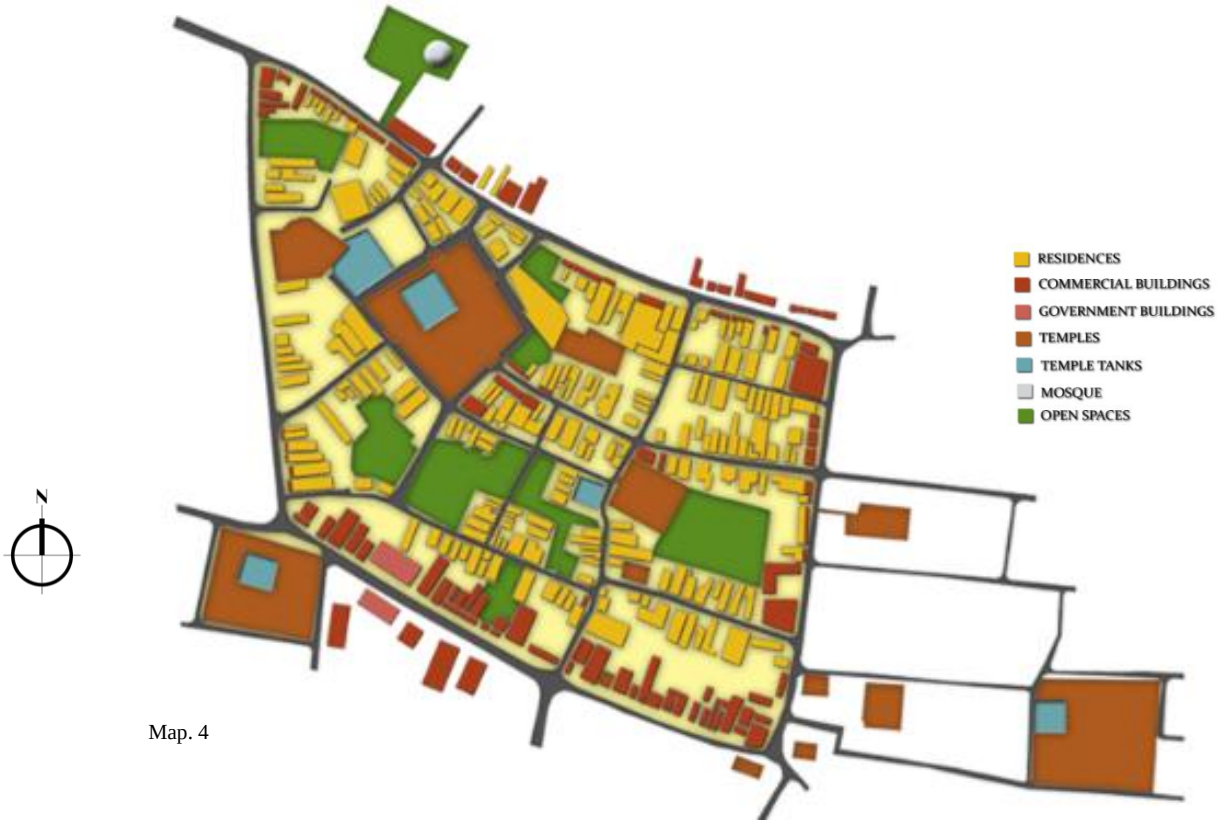


Map. 3

INFERENCE: The land use is predominantly residential, with the commercial activities mainly at the centre of the temple along the car streets, Bazaar Street, market place etc. The government offices blocks are on the southern side of the town. Tanks are generally spread across the town and are accompanied by the temples. The backyard spaces, the flood banks of the river form the resultant green spaces in the town, accompanied by the agricultural lands on the outskirts. Slums are a common feature along the tanks particularly. The public and semi public zones are spread across the town with the temples, schools etc. The newer developments and residential layouts in the city are towards the eastern edge and in the outskirts of the city.

4.2.1.2 BUILDING USE

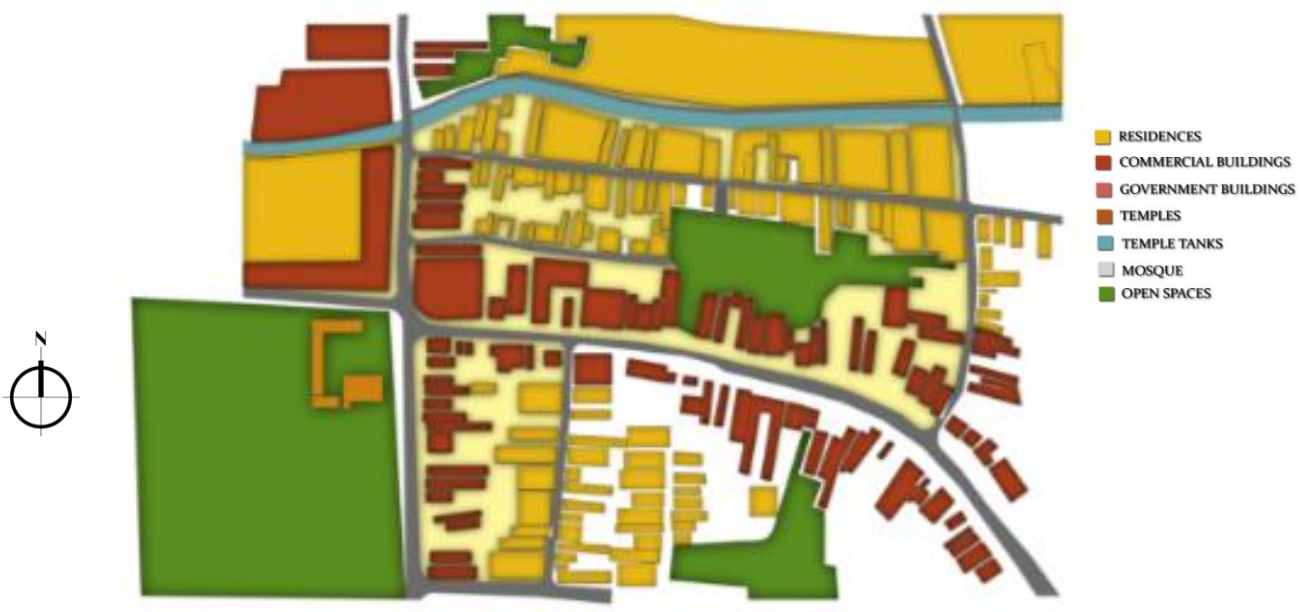
4.2.1.2.1 RAJAVEEDI AREA



Map. 4

INFERENCE: Rajaveedi is the major road of Kancheepuram. It encloses the Kamashi Amman temple, Kumarakottam temple.Ulagalandha perumal temple, and kali temple. As one can see the main building typology is residential maintaining the trend from ancient times. There are some commercial buildings along the entrance of the temples but the dominance is by residential. Water body is always accompanied with the temple.

4.2.1.2.2 MOONGILMANDAPAM AREA

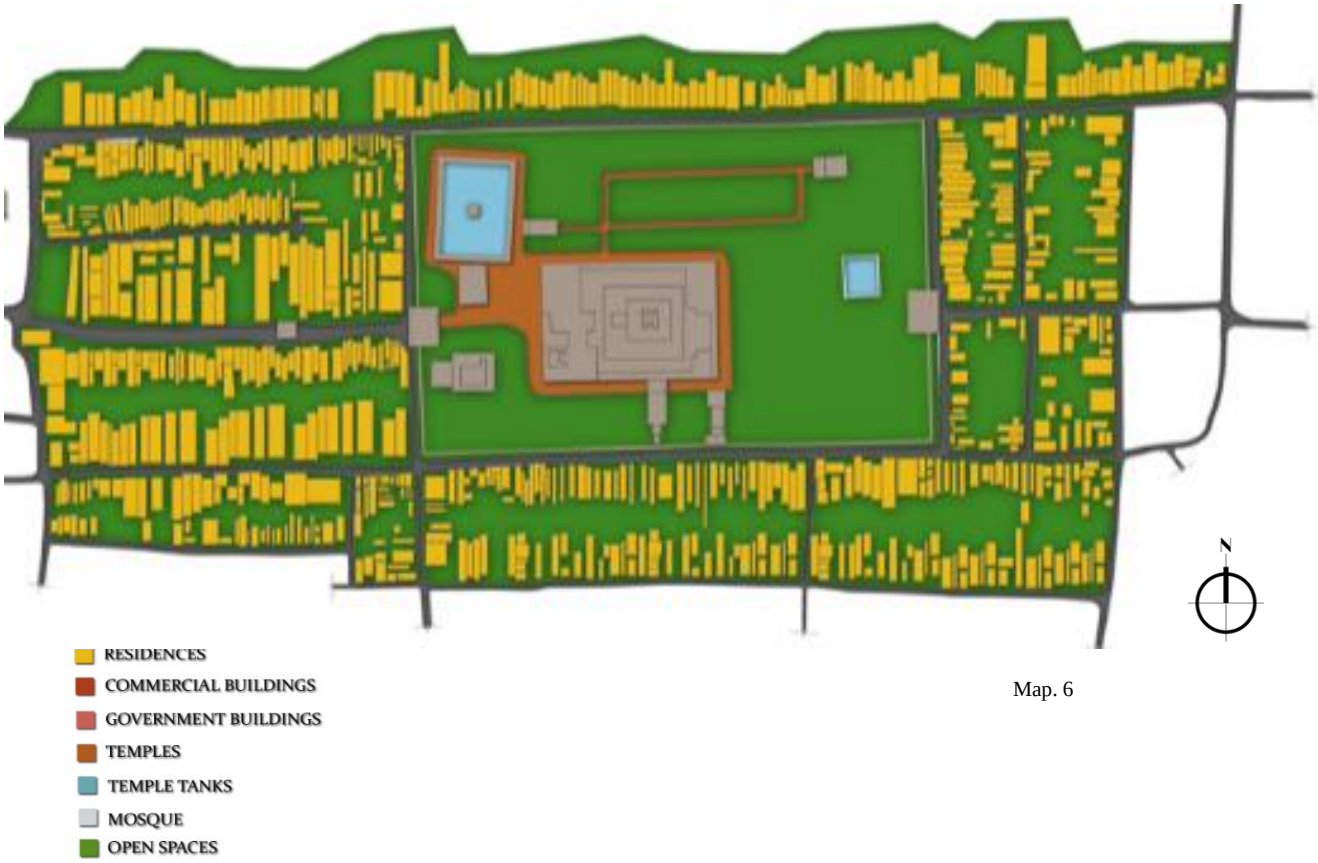


Map. 5

INFERENCE: This settlement at the state highway 58 is the major traffic zone. Commercial buildings are dominant in this area with fewer residential buildings. There is a school-educational building-located in the area.

The commercial buildings are along the state highway and the residential buildings are away from the state highway there by facilitating the highway travellers since this is a major high way connecting Chennai, Chengalpet, Uthiramerur etc.

4.2.1.2.3 VARADHARAJA PERUMAL TEMPLE AREA

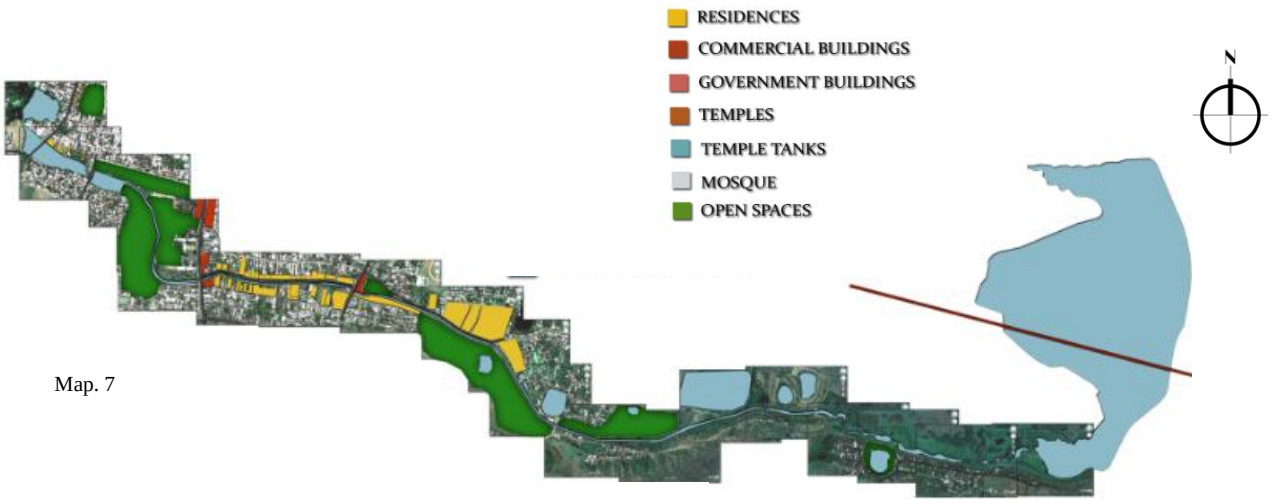


Map. 6

INFERENCE: This settlement can be termed just as residential. Not other building typology can be seen. This again follows the trend of having only residential buildings around the temple.

Being lord Vishnu's temple, the vicinity is occupied by Brahmins still who are either a part of the temple or their ancestors have been a part. Settlement of any other caste was prohibited in ancient times. Commercial zone includes only the hawkers. No permanent commercial building is seen.

4.2.1.2. 4 MANJALNEER KALVAI



Map. 7

INFERENCE: The Manjalneer Kalvai was constructed for providing drinking water, instead now it has converted as a drainage canal which is contaminated the water storage.

Predominantly it has been encroached by residential and commercials buildings along the canal.

4.2.1.3 FIGURE GROUND

Map. 8

INFERENCE: The city is generally characterized by contiguous built form. In the old city, the urban solids are the built, enclosing the voids that are the Kulams, streets, canals etc. whereas in the newer parts of the city, urban voids encase the urban solids. The voids of the temples, enclosed by the urban solids, in the traditional core of the city emphasizes the hierarchy of the solid contained within. Being a traditional fabric it is denser than the later settlements away from the core temple areas, with less wide roads within the settlement.

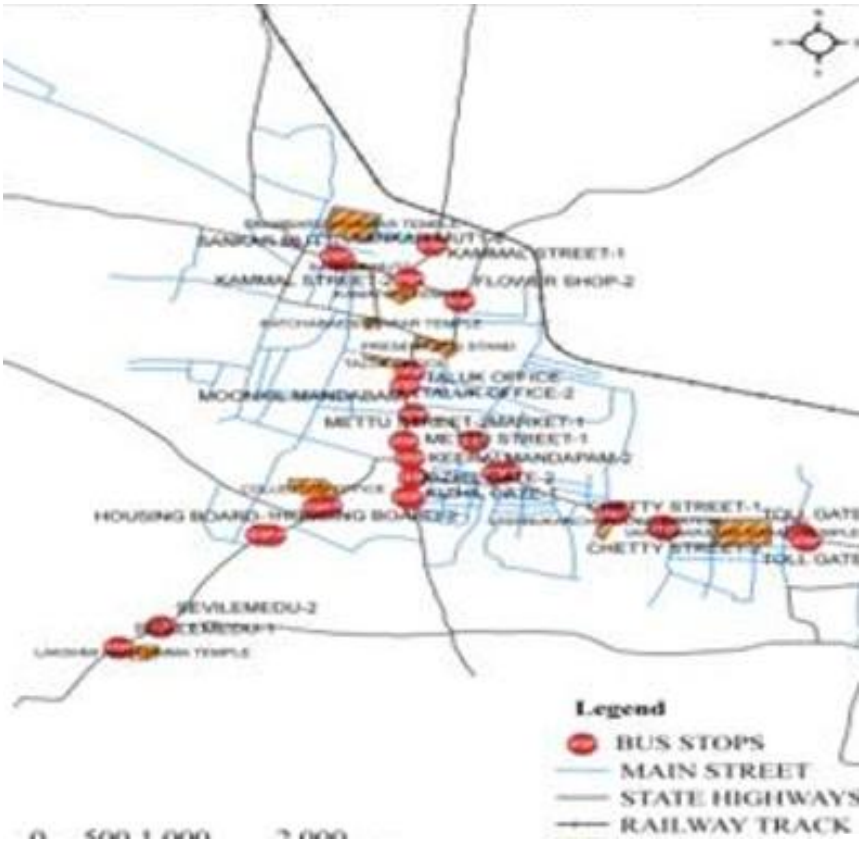
4.2.2 PUBLIC REALM

4.2.2.1 TEMPORAL URBANISM

4.2.2.1.1 BUS STOPS

Temporal urbanism is nothing but the temporary events which happen throughout the day, it can be either the daily activities or the weekly activities like weekly markets or even the seasonal activities which goes on some particular days such as on festival day, the type of activities can be either street vending, ritualistic activities and so on.

Here the subdivision of temporary activities is done as per seasonal activities, weekly activities and daily activities.

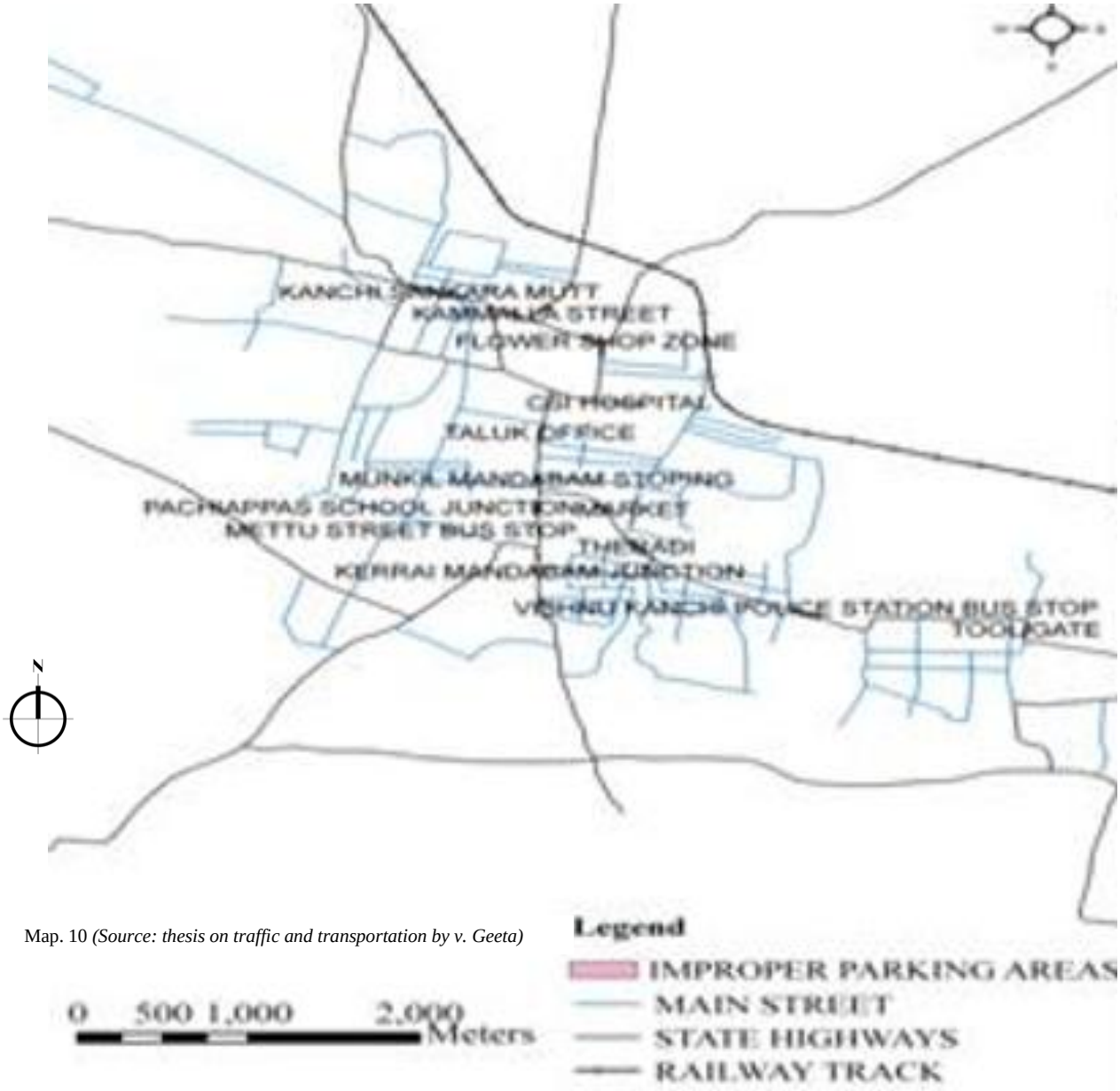


Map. 9 *(Source: thesis on traffic and transportation by v. Geeta)*

INFERENCE: Bus stops are located at short span of intervals in town this makes the traffic jams in town. The spatial information of bus stop clearly shows the distance between the bus stops is very less and also most of bus stop location is very closer to junction points. So that there is a very big traffic volume generated these zones.

Due to the rapid growth of automobile users the demand for parking space is one of the major problems of traffic problems in cities and towns. In commercial, tourism places, multi storied buildings, schools, parking demand is particularly high due to more approaching of people. The parking demand is identified based on the improper parking areas in Kancheepuram town on field study and noted the parking demand in the study area is higher than the parking space available.

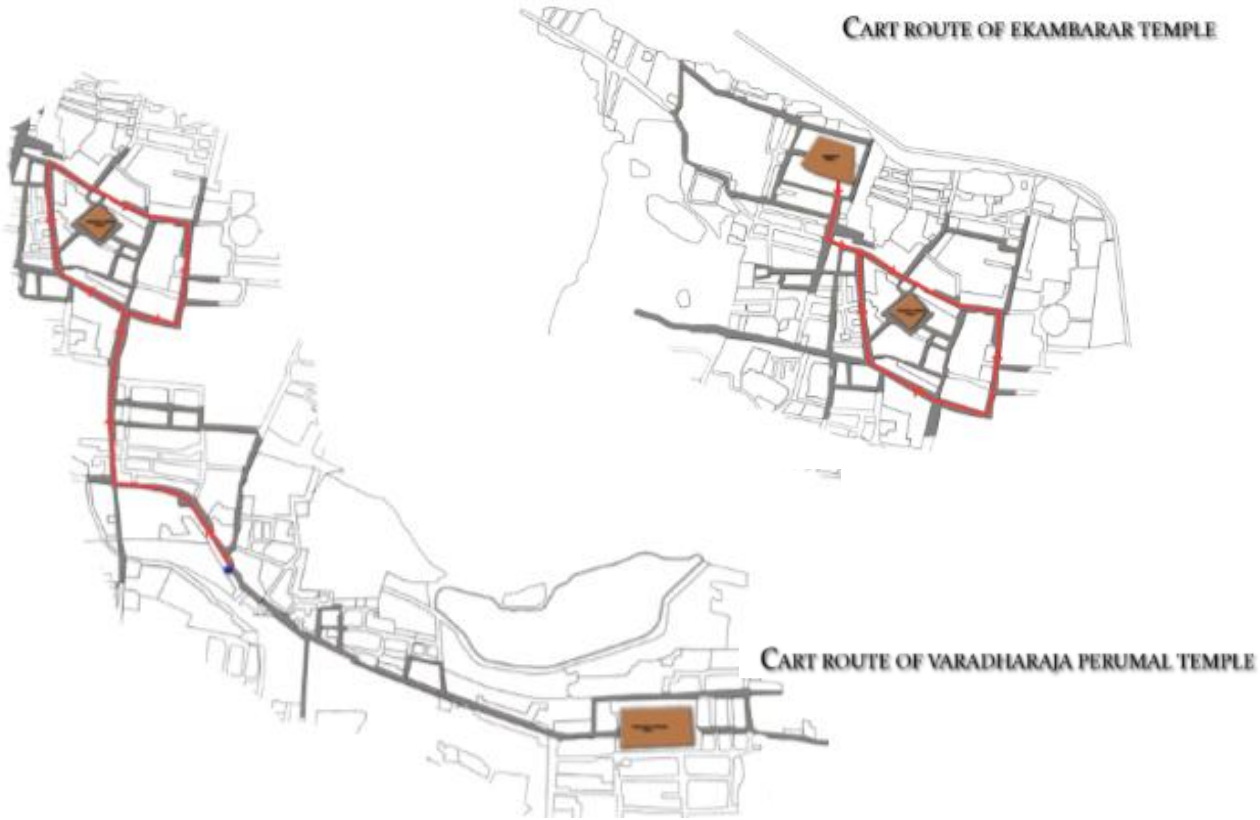
4.2.2.1.2 PARKING



Map. 10 *(Source: thesis on traffic and transportation by v. Geeta)*

INFERENCE: Parking is one of the major issues in the present scenario. Street parking occupies major area there by leaving lesser area for the movement of vehicles. This causes traffic jam and congestion in most parts of the city especially near the temples and in the state highway.

4.2.2.1.2 CART ROUTES



Map. 11

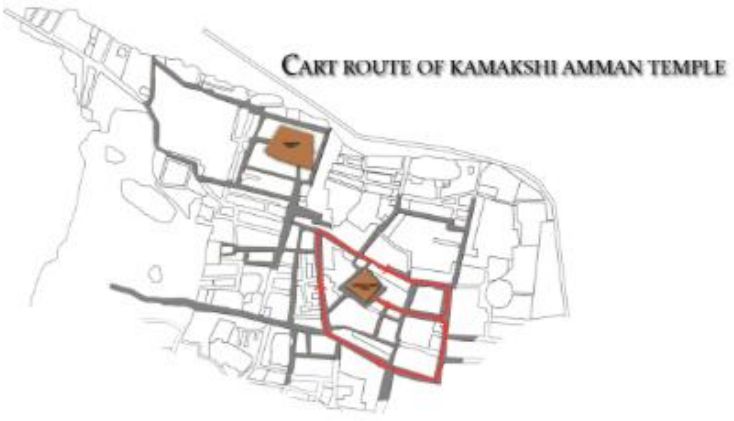


Fig 19

INFERENCE: Cart routes are nothing but routes that the temple chariots take during special occasions taking the idol of the god for a stroll after the festival. This happens once or twice a year for each major temple in a grand fashion.

4.2.3 SANITATION

4.2.3.1 WATER SUPPLY

River Palar is the main river in the district, which is not perennial. This is the only river that flows thorough the district, originating from Nandhi Durg in Karnataka. It runs through for a length of 350 km and nearly half of it in this district covering a basin area of 2187 sq.km The river has part of its basin in Karnataka and Andhra states. Most of the year it remains dry because of the construction of dams across the rivers in Andhra Pradesh. Cheyyar and Vegavathy rivers are tributaries of Palar and join it at Thirumakkudal.

High level of ground water development in large area in the western and southern part of the district both in hard rock and sedimentary aquifers and failure of abstraction structures with time.

1. Sea water ingress
2. Water logging
3. Industrial pollution

The water level depletion in the eastern part of the district is mainly due to exploitation of ground water for domestic drinking and other purposes.

Organized water supply system is 100 years old. As back as in 1897 protected water supply system was established for the town near vegavathi river. This was designed for an ultimate population of 56000 at 75 lpcd. In 1961 another source in palar river bed was developed to supply water to the town. Under a new scheme, all the old water mains were replaced. There are seven water supply zones in the town each supplied by a OHT and five more OHTs were proposed. There is one ground level reservoir near Ekambaranathar temple.

4.2.3.2 DRAINAGE AND SEWAGE MANAGEMENT

Kancheepuram one of the town where underground sewerage and drainage system is available for the purpose of collection and disposal of sewage and rain water . Town with similar population size are having only open drains and no underground sewerage system.

This scheme was sanctioned at the instance of the Government of India which declared Kancheepuram as one of the hyper endemic towns and Rs. 1.20 crore was sanctioned in the year 1970 for this project. The scheme was designed for a population of 1.50 lakhs with an estimated discharge of 90 MLD, but now the discharge as per municipality’s information is 137 MLD.

For the purpose of collection and disposal of sewage and rainwater the entire town is divided into two parts i.e., east zone and west zone. The sewage is pumped into lagoons and, left to natural treatment and the water is used for raising grass and coconuts etc.

The Sewage is pumped into lagoons at Tirukali Kadu and, left to Natural Treatment, and the water is used for raising grass and Coconuts etc, over an Area of 112 Acres.

As of now the actual disposal is higher by 27 MLD. Thus the system needs expansion if it is to serve the town satisfactorily.

The Manjalneer Kalvai is primarily a flood drain channel for the town. The present condition is very tragic and there have been many adverse effects because of this scenario. Apart from this the general slope of the town is towards the Palar River in the southern area. Hence water from below the Manjalneer Kalvai drain into this river.

The Manjalneer Kalvai was constructed for providing drinking water, instead now it has converted as a drainage canal which is contaminated the water storage.

4.2.3.3 WASTE MANAGEMENT

In Kancheepuram the collection, transportation, storage, handling, treatment and disposal of hazardous wastes are important issues since improper handling and disposal could cause serious damages to the environment.

9 mld capacity STP with oxidation ponds (3 nos., 1.2 m. deep) were constructed in the year 1979 by Kancheepuram Municipality for treatment of domestic wastewater of the town. Due to poor operation and management, all the ponds are filled with sludge/silt to about 80 cm depth.

Weeds/plants are growing on the surface of the water in most parts of the ponds. Plant is lying abandoned since 2004.

Renovation/augmentation of sewerage system and STP for 14.5 mld capacity has now been taken up by Kancheepuram Municipality by having Waste Stabilization Ponds system with grant/loan from World Bank/State Government.

4.2.3.3.1 HAZARDOUS WASTE

For the management of hazardous chemicals and hazardous wastes in an environmentally friendly safe manner, effective steps have been taken. The Board has identified 2117 units generating hazardous wastes for which 2000 authorizations were issued.

For the establishment of secure landfill facility for the disposal of sludge generated from the treatment of textile dyeing effluents, sites at Tirupur and Karur have been identified. In addition, a site at Kancheepuram district has been identified for establishing a common hazardous waste treatment, storage and disposal facility through a private operator.

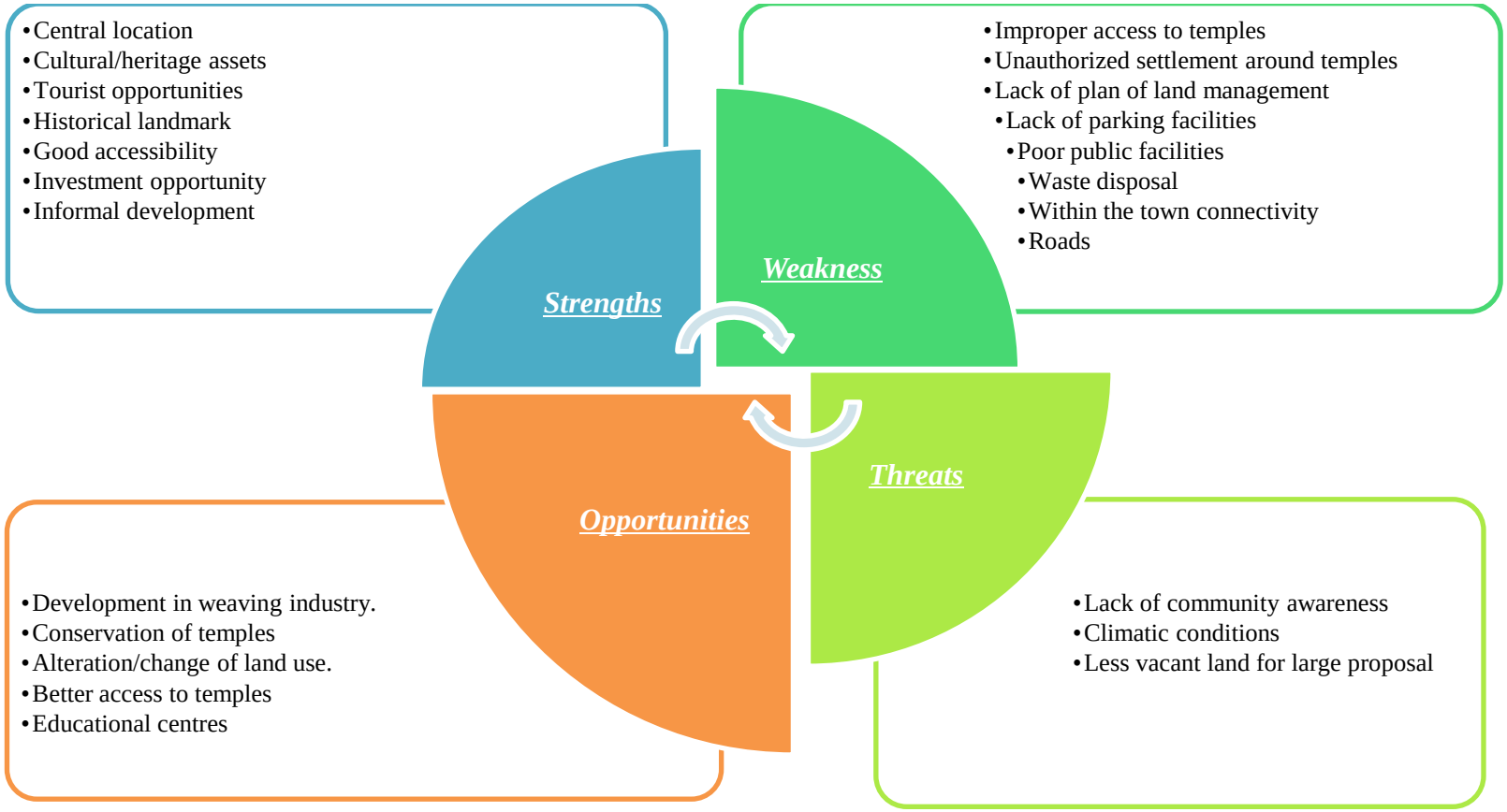
4.2.3.3.2 SOLID WASTE DISPOSAL

About 90 tones of solid waste are generated every day and they are transported by 6 mini lorries, 6 power tillers and 10 carts. The wastes are dumped at a place called Vaiyavur.

CHAPTER 5

5.0 GENERAL ANALYSIS

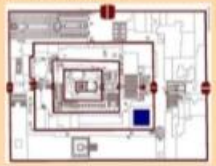
5.1 SWOT ANALYSIS



Flow chart 5

5.2 ANALOGY OF TEMPLE TOWNS

	SRIRANGAM	MADURAI	KANCHIPURAM	CHIDAMBARAM	TIRUVANNAMALAI
LOCATION	Srirangam is an island and a part of the city of Tiruchirapalli, Tamil Nadu.	Madurai is a historic Hindu temple located in the holy city of Madurai, Tamil Nadu	Kanchipuram is located 72 kilometers from Chennai, the capital city of the state Tamil Nadu.	Chidambaram is an industrial town in the eastern part of Tamil Nadu and Taluk headquarters in Cuddalore.	Located at the bottom of the Annamalai hill in Thiruvannamalai Tamil Nadu.
SIGNIFICANCE OF LOCATION	Located on an island with the Cauvery River on one side and the Kollidam River on the other that binds Srirangam town	Located on the banks of River Vaigai, it has been a major settlement for two millennia	Located on the banks of river Vegavathy, it served as the capital city of the Pallava Kingdom.	Located on the Kollidam river valley, which is a tributary of Cauvery river	The temple is located on the eastern side of the hill Arunachala, part of the eastern Ghats. It occupies a special place in the Saivite realm and is regarded as one of the Pancha Bhoota Sthalams (one of the five grand temples associated with the five basic elements) – associated with the element Fire (Agni)
SIGNIFICANCE OF PLACE	It is the first and foremost among the 108 Divya Desams, the holy abodes of Lord Vishnu.	The temple is a significant symbol for the Tamil people, and has been mentioned since antiquity in Tamil literature, though the present structure is believed to have been built in 1600.	It is one of the main temples in the 108 holy shrines of vishnu. It has sannathis for chakkarathazhvar,azhvars & acharyas.	Chidambaram is one of the five holiest Shiva temples, representing one of the five natural elements : Ether (Akash)	
HISTORICAL IMPORTANCE	Srirangam has its origin in mythology, tradition recounts that the temple raised out of the ancient Ocean (milk of Ocean when the universe was created. The temple belongs to the gods, and more particularly to Vishnu avardar Rama	The earliest history suggests that Madurai was originally a forest known as Kadambavanam. It was in this forest Indra (The king of the gods), worshipped a swayambhu (self created Lingam) under kadamba tree.	Kanchipuram was the historical capital of the Pallava Kingdom. It was under the Pallavas from 6th to 8th century A.D and later become the citadel of the Cholas Vijayanagar kings, the Muslims and the British. It has been a center of Tamil learning and culture and religious background for centuries	The early history of the temple lies hidden in the mists of time. It reached its present form under the patronage of the kings of the Chola dynasty in the 11th, 12th and 13th centuries.	The early history of the temple lies hidden in the mists of time. It reached its present form under the patronage of the kings of the Chola dynasty in the 11th, 12th and 13th centuries.
ARCHITECTURAL SIGNIFICANCE	1. The temple occupies an area of 156 acres with a perimeter of 1,116m making it the largest temple in India 2. The temple is enclosed by 7 concentric walls with a total length of 32,592 over six miles. These walls are enclosed by 21 Gopurams (Towers). Among the marvels of the temple is a "hall of 1000 pillars"	1. The complex is in around 45 acres 2. The temple is the geographic and ritual center of the ancient city of Madurai. 3. The temple walls, streets and finally the city walls (ancient) were built around the temple in concentric squares. 4. Ancient Tamil classics mention that the temple was the centre of the city and the streets happened to be radiating out like the lotus and its petals.	1. It is located in part of Kanchipuram called the Vishnu Kanchi 2. The temple was originally built by the Cholas in 1053 and it was expanded during the reigns of the great Chola kings Kulottunga Chola I and Vikrama Chola. In the 14th century another wall and a gopura was built by the later Chola kings	1. The temple has 9 gateways and four of these have towering pagodas or gopurams . The eastern pagoda has all the 108 postures (karnams) of the Indian dance form – Bharathanatyam sculpted on it. 2. There are 5 sabhas or diases or halls: Chit sabhai, Kanaka sabhai, Natya sabhai, Raja sabai and Deva sabai	1. The temple has 9 gateways and four of these have towering pagodas or gopurams . The eastern pagoda has all the 108 postures (karnam 2. There are 5 sabhas or diases or halls: Chit sabhai, Kanaka sabhai, Natya sabhai, Raja sabai and Deva sabai.
PLANNING PRINCIPLES	It represents a mandala, a cosmic diagram of the worlds situated in concentric rings around Brahman. The south Indian mandala instead visualizes the centre of all Being as Brahman around which are concentric rings, the innermost being the world of gods, beyond which are those of the human world, and the outermost those of goblins, demons, and spirit	Vishwanatha Nayak the first Madurai Nayak king redesigned the city in accordance with the principles laid down by Shilpa Shastras relevant to urban planning	The planning conforms to such high regular configurations, with street layout dominated by single focal sanctuaries	The layout and architecture of the temple is replete with philosophical meanings. 1. The 9 gateways signify the 9 orifices in the human body. 2. The Sanctum sanctorum is held by 28 pillars – representing the set methodologies for the worship of Lord Shiva. 3. The roof is held by a set of 64 beams representing the 64 forms of art 4.The roof has been laid by 21600 golden tiles with the word SIVAYANAMA inscribed on them 5. The roof is topped by a set of 9 sacred pots or kalasas, representing the 9 forms of energy.	The layout and architecture of the temple is replete with philosophical meanings. 1. The 9 gateways signify the 9 orifices in the human body. 2. The Sanctum sanctorum is held by 28 pillars – representing the set methodologies for the worshi 3. The roof is held by a set of 64 beams representing the 64 forms of art 4.The roof has been laid by 21600 golden tiles with the word SIVAYANAMA inscribed on them 5. The roof is topped by a set of 9 sacred pots or kalasas, representing the 9 forms of energy.
URBAN SCENARIO	1.The town is described as conservative Vaishnavite town, slowly waking up to developments of technology 2.The town is deeply attached to the temple, where peoples routines revolve around the temple	2.With the effect of urbanisation, the temple no longer retained the unitary form, but continue to remain the centre for Hindus 2. Madurai became the headquarters of a large colonial political complex and an industrial town – with the urbanisation, the social hierarchical classes became unitary	1. This temple town is one of the largest industrial areas of Tamil Nadu. 2. The shrine gradually attracts not only daily worshippers, but entities interested in commercial dealings with this destination – the mobile food silk, the craft stand, the flower seller, the alm-seeker, and the loud-speaker all represent elements of a larger evolving urbanism.	1. The town is largely linked to the Natarajar temple and Annamalai university 2. The town is deeply attached to the sentiments of the temple and slowly waking up to the developments 3. Religious rites also change the urban space with meaning.	1. The town is largely linked to the Natarajar temple and Annamalai university 2. The town is deeply attached to the sentiments of the temple and slowly waking up to the developments 3. Religious rites also change the urban space with meaning.
CONCLUSION	An exceptional testimony to a cultural tradition or a civilisation , it exhibits an important interchange of human values over a span of time or within a cultural area of the world on development in architecture or technology monumental arch and town planning. It is largest functioning temple in the world	It's one of the oldest continuously inhabited cities on earth. It represents an outstanding creative achievement in the architectural conception of the pure form of the Dravidian type of temple	Being historically important, belonging to the Pallava Period this temple has been expressing overlapping spheres of sacred and spiritual cultures	The complex is an outstanding example of a type of building, architecture or technological ensemble, which illustrates significant stages in human history . It is directly or tangibly associated with events or living traditions with ideas or beliefs with artistic and literary works of outstanding universal significance	The complex is an outstanding example of a type of building, architecture or technological ensemble, which illustrates significant stages in human history. It is directly or tangibly associated with events or living traditions with ideas or beliefs with artistic and literary works of outstanding universal significance. It considers the aesthetic and ecological appreciation as well as the transcendental priorities of a culture that extols a symbol for Fire and also a foremost position in mythology.



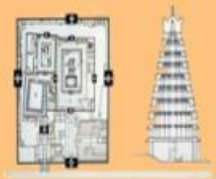


Table 6

CHAPTER 6

6.0 TYPOLOGY ANALYSIS

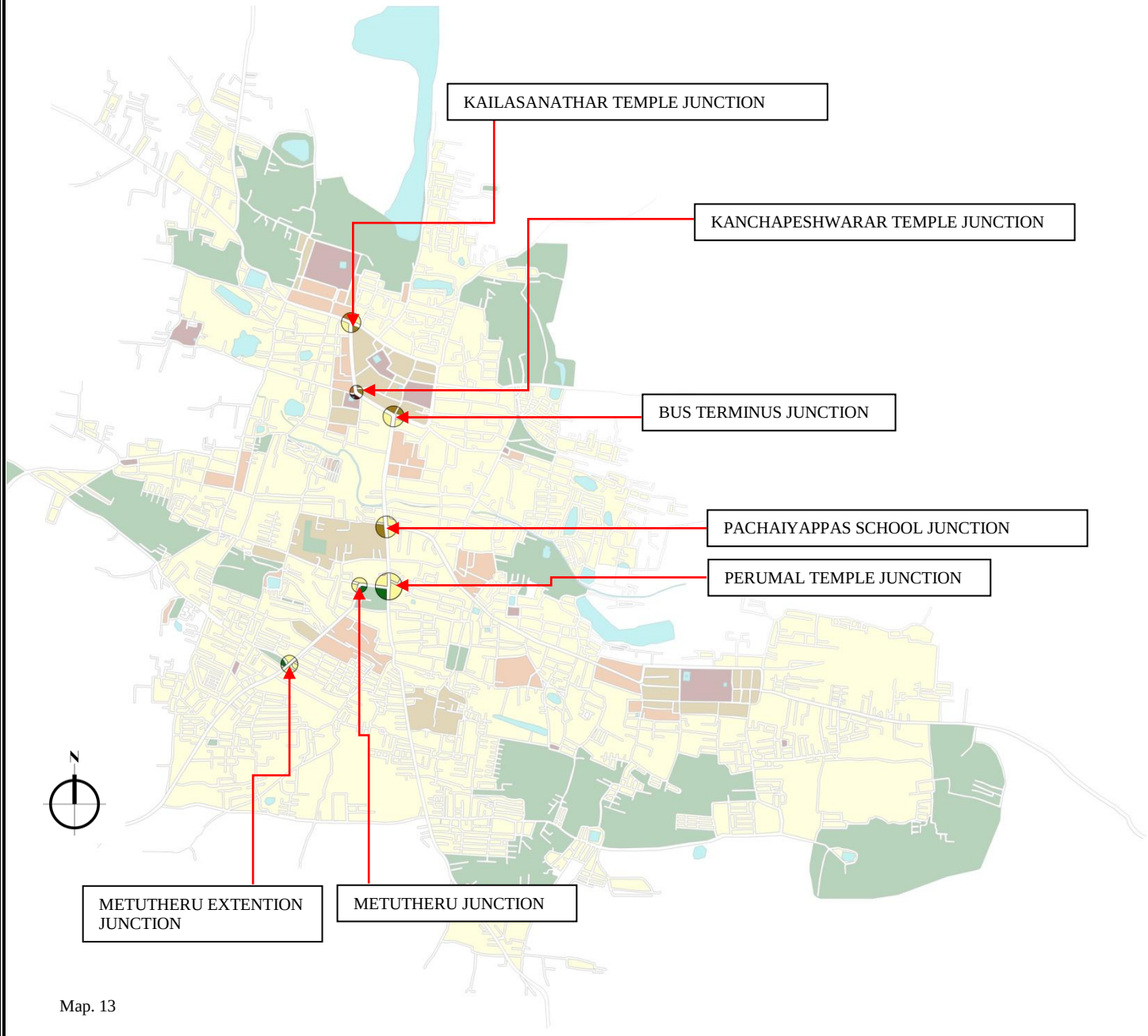
6.1 URBAN TISSUE

6.1.1 AXIS AND ORIENTATION

Map. 12

INFERENCE: The city has been organically developed with the Ekambarar temple being its core in ancient time. There is presently no grand axis but the main axis is the State highway 58. Any change in the geometry or axis is not possible because of the organic development and historic significance of the place.

6.1.2 JUNCTIONS



Map. 13

6.2 SETTLEMENT

6.2.1 AGRAHARAM UNIT

Every Agraharam dwelling starts from 'thinnai' which is meant for receiving the guest c passers by their home. Toilet spaces are isolated from the house and placed at the end of housing area by cattle shed as a barrier. Well is located near the toilet.

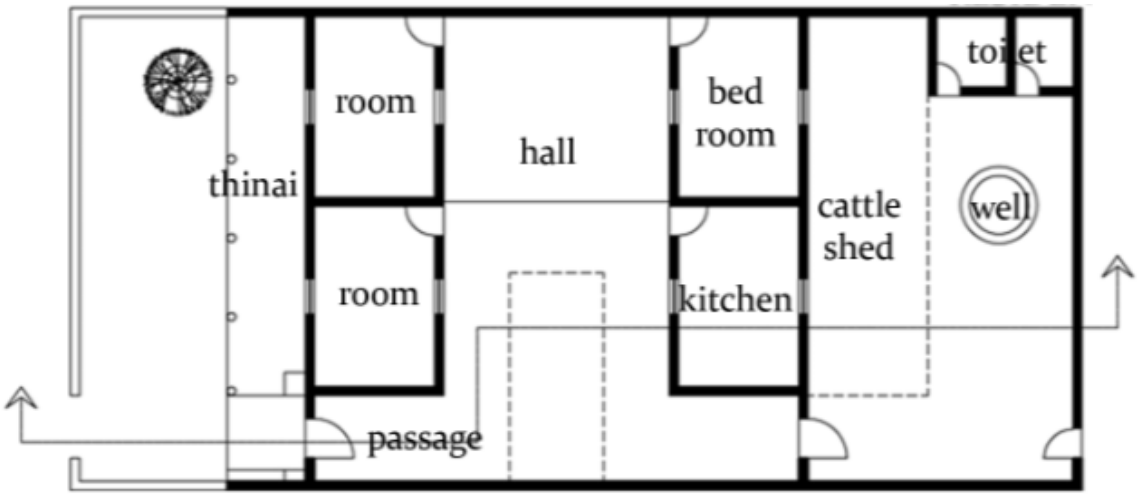


Fig 20

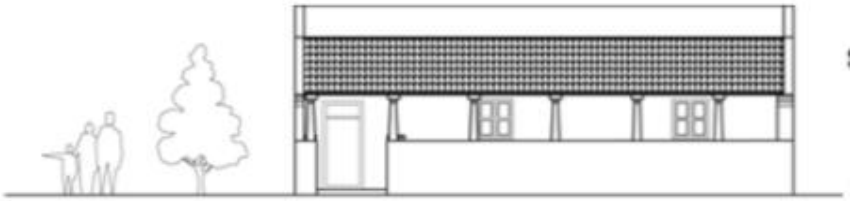


Fig 21

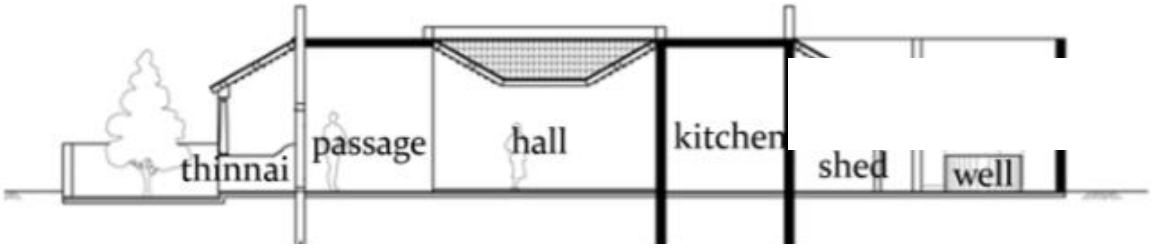


Fig 22

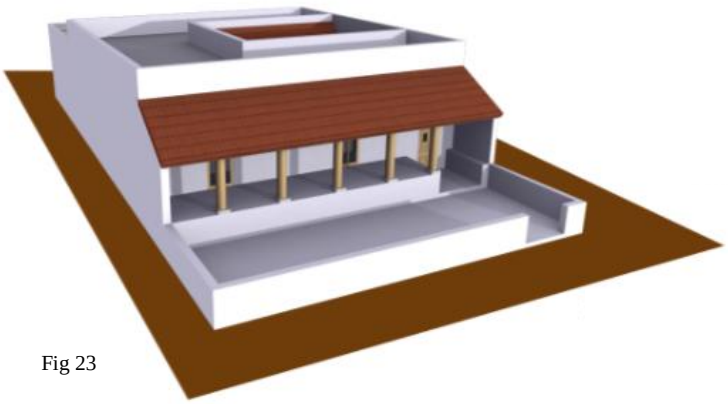


Fig 23

6.2.2 SILK WEAVER'S DWELLING UNIT

The work place-silk weaving area-is placed at the entranced so that the workers are not allowed to the home.Number of windows are provided at the weaving room for getting maximum lighting to work.here toilet with open space spilt the work room and the hous- unit.

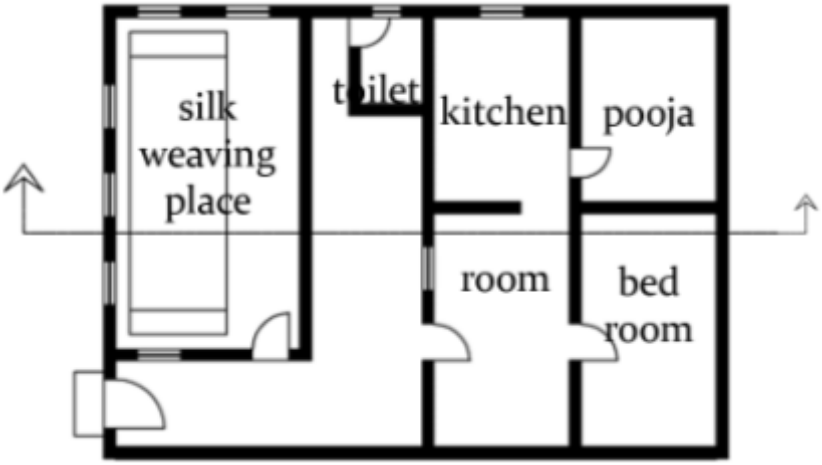


Fig 24

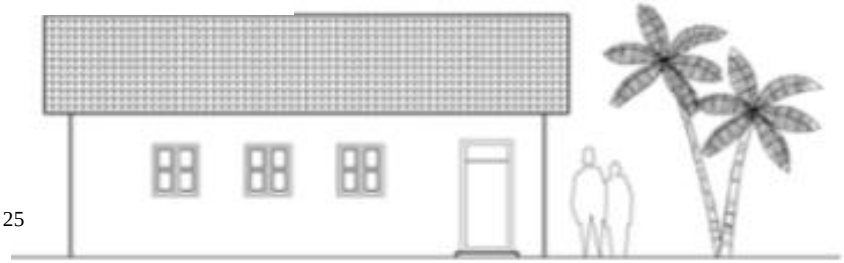


Fig 25

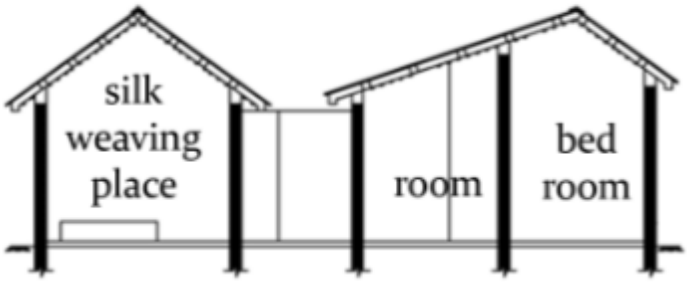


Fig 26

Fig 27

6.2.3 KANCHI KUDIL

Kanchi Kudil, an ancient traditional house located at Sangeetha Vidwan Nainaar Pillai Street. It has architecture of times, couryards, a food court, tradional crafts and soft string instruments. It offers a sight of life of an agricultural family in asmall town-the master's room, room for women and children, room forthe gods, verandahs and and the backyard with agricultural implements.

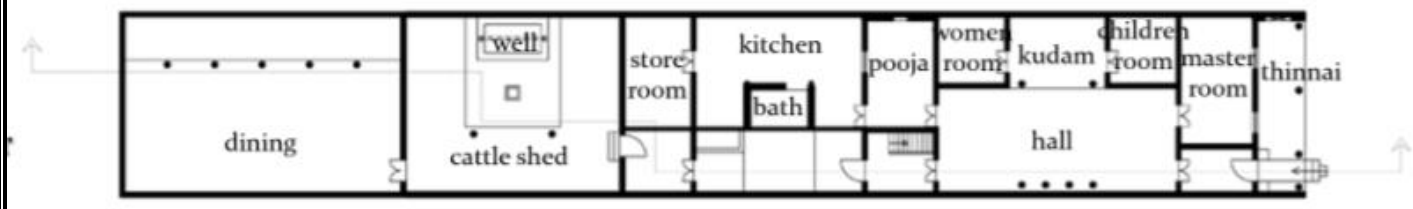


Fig 28

Fig 29

Fig 30

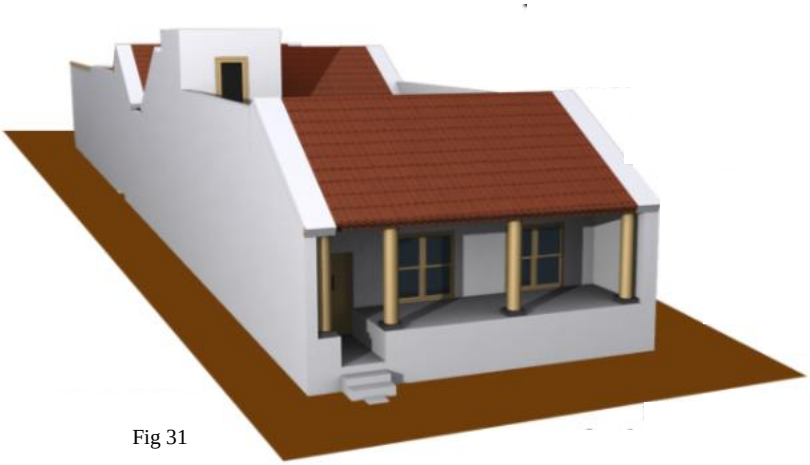


Fig 31

CHAPTER 7

7.0 REAEARCH FINDINGS

7.1 VISUAL SURVEY

Fig 32

Fig 32

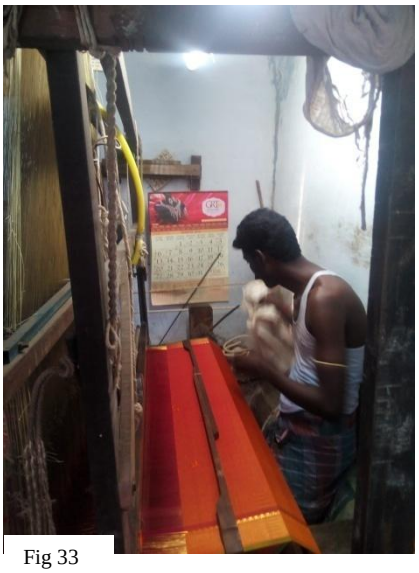


Fig 33

Fig 34

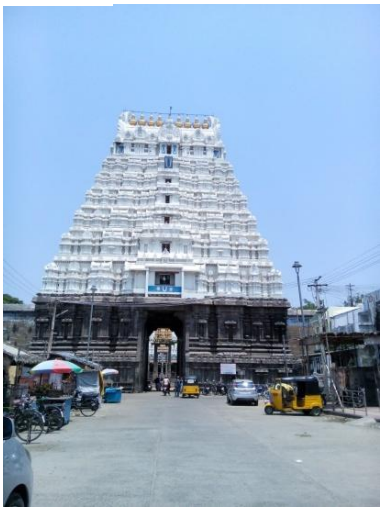


Fig 35

Fig 36

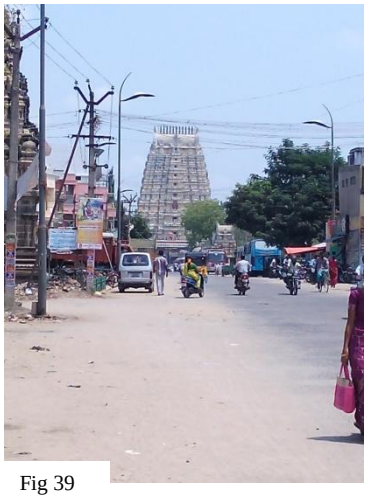


Fig 39

Fig 37

Fig 38

Fig 40

Fig 41

Fig 42

7.2 FIELD SURVEY

An interview with different people around the town was taken. Questions on their view on the city, as users what they think can be improved, infrastructure needs etc. A total sum of hundred people was surveyed.

About 68% said they would like more infrastructure like multiplexes, malls etc; 82% were concerned with the parking facilities in and around the temple area along with various parts of the city. 45% believed educational opportunities and infrastructure could be better.

The weavers had a period of 3-4 months during the raining season when they are not able to work because of the weather. Dyeing areas have a lot of water drainage problems and that leads to further inconvenience.

7.3 SIGNIFICANCES

7.3.1 SOCIO ECONOMIC

Resident attitude towards socio- economic impacts of a specific destination must be included in analyzing economic contribution, as resident's attitude may help the policymakers to formulate policies involving local community participation ushering economic benefits.

Both in the north and south of the Vindyas, temple towns are characterized by either Shaivite or Vaishnavite culture. Kancheepuram does not fit into such categorizations because at different points in history, rulers of both the sects controlled the ancient city.

This means that Kancheepuram does not have a singular epicenter, but different centers of social gathering dawned by vibrant cultural and economic interactions. Kancheepuram is studded with expansive temples like the Varadharaja Perumal Temple and the Ekambareshwar Temple which are pilgrimages for both the Hindu sects.

7.3.2 CULTURAL

The cultural and economic epicenter of a temple town is the temple complex, which apart from containing the sanctum sanatorium comprises of large lawns, cultural centers meant for performances in classical music and dance and rest area for travelers.

What stands out in southern temple architecture and temple town planning is the presences of temple ponds. These ponds serve as a system of rainwater harvesting in a region which is devoid of any perennial river.

The water from these temple ponds are used only for temple purposes and for the use of upper caste families that reside in the town. Dalits are strictly prohibited from evening entering the temple pond premises.

7.3.3 OTHER SIGNIFICANCE

Apart from being the spiritual core of past southern kingdoms, Kancheepuram is synonymous for its world famous silk sarees.

Silk, in Indian tradition is considered the purest form of clothing and thus worn in marriages and other auspicious public gatherings. Contemporary use of Kancheepuram silk sarees includes social meetings, parties and anything conceivable under the horizon. Despite the change in the outlook of the saree itself, the tradition of weaving has hardly changed and is stuck in time. Even today, the art of weaving is passed down to generations. One can easily get lost in the small by lanes of Kancheepuram, where these sarees are woven by traditional techniques.

CHAPTER 8

8.0 CASE STUDY: CHIDAMBARAM

8.1 INTRODUCTION

The legacy of cities and towns along the river Cauvery, the Ganges in Southern India, is ancient. These historical remnants, sacred and royal centres with a wider network of subsidiary agglomerations, constituted of temple towns and settlements built by the Cholas and later maintained and nourished by the Vijayanagara kings, Marathas and the Naiks. Different hierarchical orders, in terms of religious myths and power, established a sustainable unity amongst the urbane centres within this cultivated landscape.

With the changing world view of the port cities and industrial towns, these cities and towns have undergone a major transformation, thus becoming a loose collection of fragmented settlements and landscapes.

Chidambaram -"a land of temples and ecological paradise".

Chidambaram is a small town which cozily sits in the fertile basin of River Cauvery .It is meticulously planned small town, a tribute to Lord Shiva and is dominant with rich culture and traditions carried over from the ancient times. The town celebrates a splendid architectural contribution from various periods and beholds the pride of owning up to the presence of the Natarajan Temple.

It is a town which is repository of spiritual wealth, art and architecture. The town and temple are represented as a treasury for various dance forms and their origin.

8.2 REGIONAL SETTING

Chidambaram is located in the Kollidam (also called Coleroon) river valley. Kollidam is the northern distributary of the River Cauvery as it flows through the Delta of Thanjavur. It splits from the main branch of the Cauvery at the island of Srirangam and flows eastward into the Bay of Bengal. So Kollidam is a main branch of Cauvery. Chidambaram is also characterized by a system of tanks.

It is located in Tamil Nadu and geographically situated 97'44" East Longitude and 11'24" North Latitude and has an average elevation of 3 m. It is a Municiaplity and the Taluk headquarters of the district of Cuddalore. It is located at a distance of 250 km South of Chennai and well connected by major district roads with the adjoining towns such as Cuddalore and Pondicherry at a distance of 20 km and 43 km respectively. It is connected by road with Sirkali in the South at a distance of 20 km and with Bhuvanagiri towards North-west direction at a distance of 8 km. The town has rail links with Chennai and Trichy towards South-west.

Chidambaram is located on a plain of alluvial soil, continued from Thanjavur Cauvery delta and rich in agricultural lands. The climate is Tropical and hot. Rainfall is highest during northeast monsoon and during periods of cyclonic storms in Bay of Bengal.

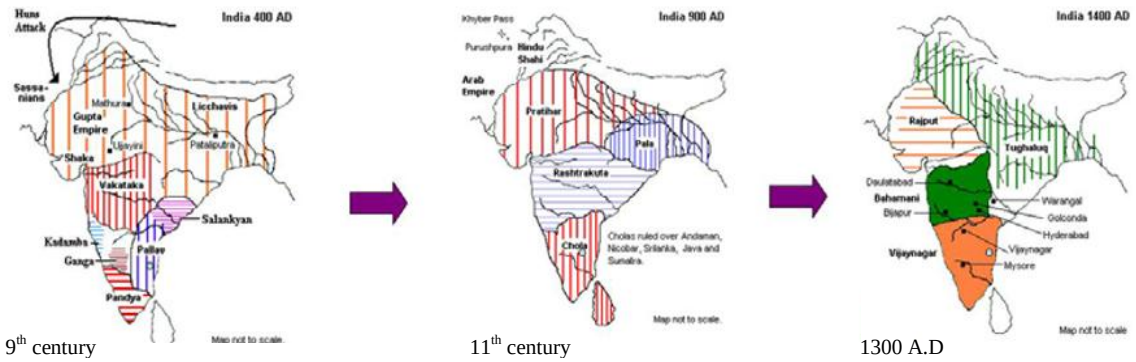
8.3 HISTORY AND HERITAGE BACKGROUND

This city's history is linked to that of South Arcot which was ruled by the Pallava kings till the 9th century AD. Chidambaram was a 'Thaniyur' during the Choler period, with its own governing body. During the Vijaya Nagara period, it was ruled by Nayak chieftains of Tanjore. In the 18th century, it was converted into a garrison by the French who occupied Chidambaram.

In the 10th century AD, the region came under Chola rule. They made Chidambaram the royal temple during 10th and 13th centuries AD. There was a migration of Saivites from Kashmir to Chidambaram during this time. The sanskritized the Shaivism of Chidambaram and there began a clash between Saivites and Vaishnavites in Chidambaram, which ended with the destruction of the Vishnu shrine by the Chola ruler Kulothunga II in 11th century AD. The bronze Nataraja was installed in Chidambaram during this period. Several patsalas (vedic schools) and libraries were set up for vedic instruction

The British defeated the French in the late 18th century and made Chidambaram a Grade III Municipality with a revenue collector at Tanjore. After Indian Independence, Chidambaram became a Grade I Municipality and Taluk Headquarters of Cuddalore District of Tamil Nadu. It remains today a major religious tourist destination

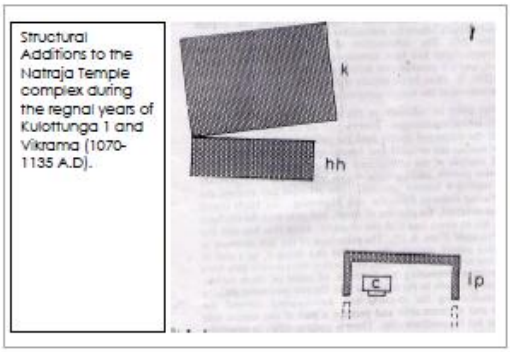
After Independence, Chidambaram became a Municipality in the Cuddalore district of Tamil Nadu. The Neyveli lignite plant commissioned in 1953 did not have much influence on the economic landscape of Chidambaram. Chidambaram is featured in the tourism map of Tamil Nadu as the 'Land of Nataraja' and remains a major religious tourist destination.



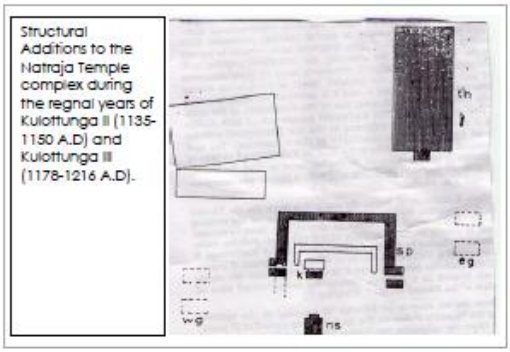
9th century 11th century 1300 A.D

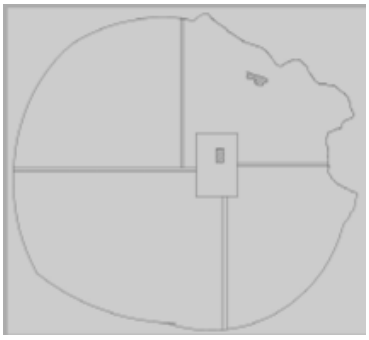
Fig 43 (*Source: Reasearch by Students of R.V.C)*

8.4 GROWTH AND MORPHOLOGICAL TRANSFORMATION

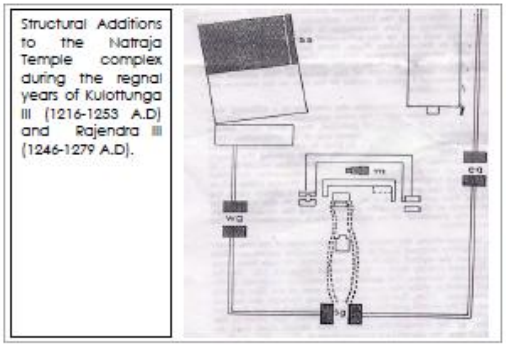


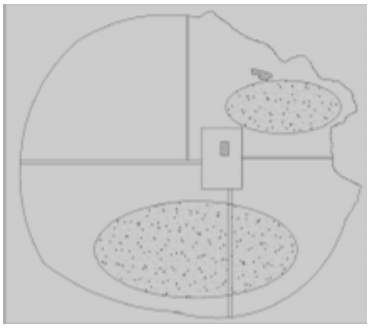
The Evolution of Chidambaram started with the early Pallava period. The site had the cit-sabha of Natraja Temple and Tilai Amman Temple.



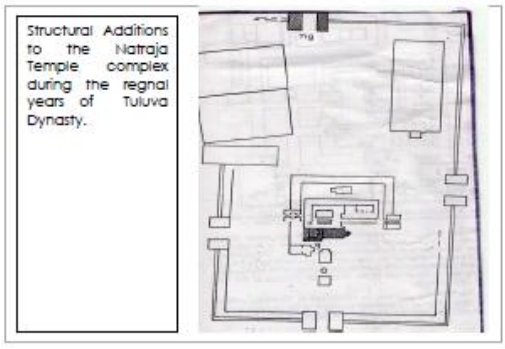


The Evolution of Chidambaram continued with the development of four Car Streets around the Natraja temple.





The Evolution of Chidambaram further continued with development of settlements around the southern and eastern corner during the early Cholas period.



The Evolution of Chidambaram continued with the development of Tanks in and around the settlement.

Fig 44 (*Source: Reasearch by Students of R.V.C)*

8.5 GEOGRAPHICAL FEATURES

8.5.1 AREA

Chidambaram covers an area of 4.8 km^2 and had a population of 62,153 as of 2011. Roadways are the major means of transportation with a total of 64.12 km of district roads including one national highway passing through the town. It is connected by road with Sirkali in the South at a distance of 20 km and with Bhuvanagiri towards North-west direction at a distance of 8 km. The town has rail links with Chennai and Trichy towards South-west.

8.5.2 CLIMATE

The temperature ranges from a maximum of 32.7 °C (90.9 °F) to a minimum of 24 °C (75 °F). Like the rest of the state, April to June are the hottest months and December to January are the coldest.

8.5.3 RAINFALL

Chidambaram receives an average of 10 mm (0.39 in) annually, which is lesser than the state average of 1,008 mm (39.7 in). The south west monsoon, with an onset in june and lasting up to august, brings scanty rainfall. Bulk of the rainfall is received during the north east monsoon in the months of October, November and December. The average number of rainy days ranges from 35-40 every year.

8.5.4 TOPOGRAPHY

The topography is almost plain with forests around the town, with no major geological formation. There are no notable mineral resources available in and around the town.

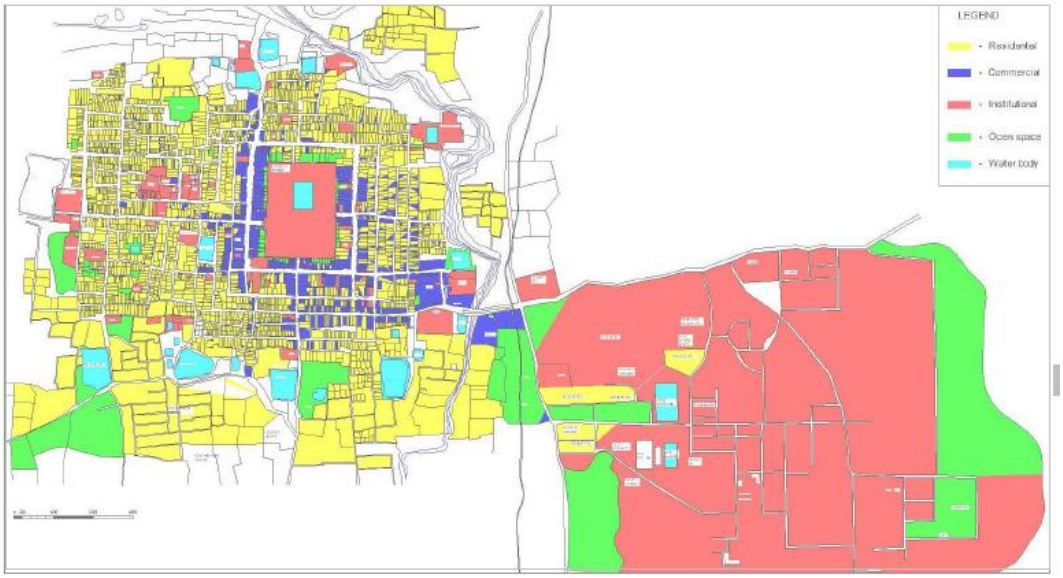
8.5.5 SOIL

The soil types are alluvial and red that is conducive for crops like paddy, pulses and chilli peppers.

8.6 MORPHOLOGICAL DIMENSIONS

8.6.1 BUILDING FABRIC

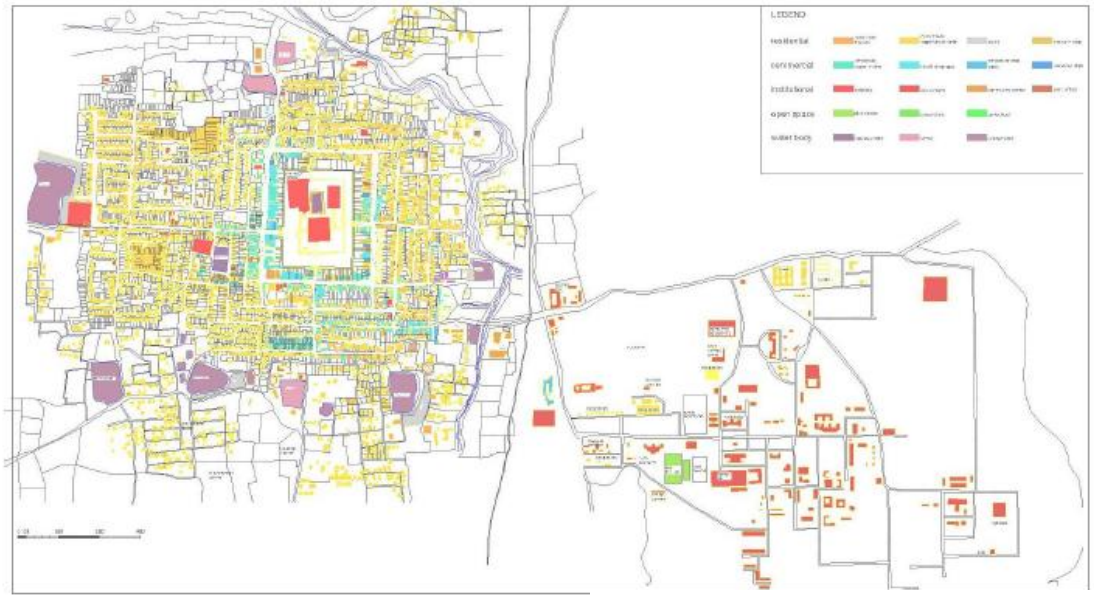
8.6.1.1 LANDUSE



Map. 14 (*Source: Reasearch by Students of R.V.C)*

INFERENCE: The settlements in the town are generally on the basis of community and occupation. The newer development and residential layouts are towards the south east of the town. The commercial activities are dominant towards the eastern side of the town and also along the road leading to the university and the main bus station.

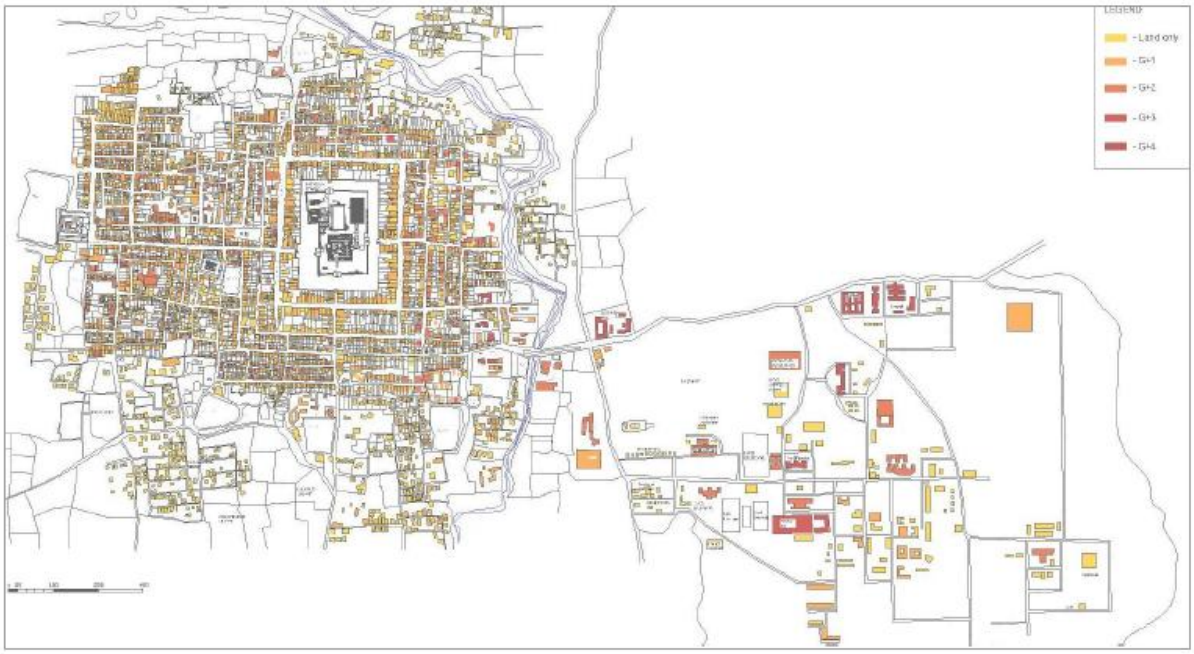
8.6.1.2 BUILDING USE



Map. 15 (*Source: Reasearch by Students of R.V.C)*

INFERENCE: The older fabric of Maths, Chatrams, and Patashalas are undergoing transformation. The built fabric is undergoing a lot of transformations of changing building use to banks, schools etc

8.6.1.3 BUILDING HEIGHT



INFERENCE: In Chidambaram town the temple is the most dominant structure at the centre and the height of the building around the temple are restricted to only G+2 by the town planning dept of Chidambaram.

Map. 16 (*Source: Reasearch by Students of R.V.C)*

8.6.1.4 FIGURE GROUND

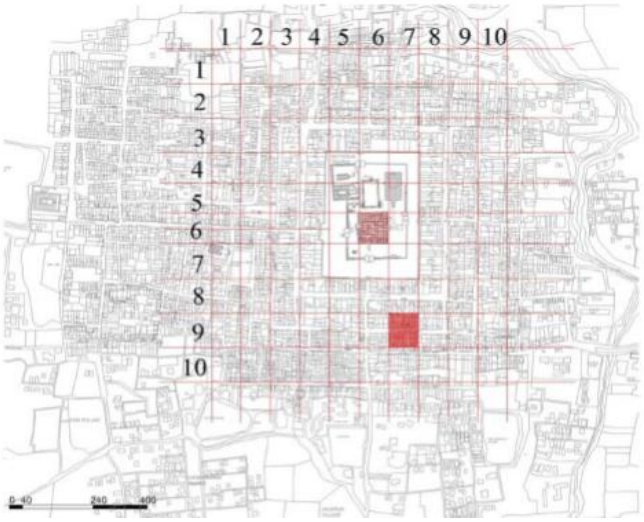
INFERENCE: Chidambaram town has a planned grid, the temple being at the centre represents a large open central space of the town. Around the temple they built is very compact and the roads are concentric as compared to the outskirts, where it becomes more sparse.

Map. 17 (*Source: Reasearch by Students of R.V.C)*

8.7 INFERENCE

GRID ANALYSIS: The town can similarly be divided into a grid of squares and each square can in turn be divided into a number of units up to the minutest unit Pada or koshta, a microcosm of the macrocosm. The principle of one to whole and whole to one is ideally observed in a systematic manner as seen in the bhadramandala.

In the case of the city of Chidambaram, a Grid of 10X10 units can be obtained. The Nataraja Temple complex has an overall grid of 3X4 units, of which each unit has 10X10 units in turn. The Grid unit for the Temple complex is 1/10th of the Inner Prakraram, while that for residences it is the size of a room, of which a column could become the Pada.



Map. 18 (*Source: Reasearch by Students of R.V.C)*

URBAN TISSUE: Three types of tissues are found in terms of orientation. They are:

Type 1: along N-S direction,

Type 2: along E-W direction and

Type 3: square blocks.

In type 1, all structures have E/W entries. In type 2, structures are altered too prevent entry from South. Type 3 is used as filler in the urban tissue. The orientation influenced the coverage of built on the plot. South facing sites are usually used for institutions.

The most preferred entry was from East and North. The south facing plots have altered entries in order to facilitate doors on East or West.

CHAPTER 9

9.0 CASE STUDY: KAZAN, RUSSIA

9.1 INTRODUCTION

Kazan Smart City is a groundbreaking urban development project designed to spur the growth of investment into high technology, medicine, education, and tourism. The project is being developed using the latest advancements in urban planning and engineering.
Kazan Smart City will transform the Republic of Tatarstan's capital of Kazan into a full-fledged international business hub with ideal conditions for working and living.
A greenfield development project, Kazan Smart City is the first example of holistic urban planning according to smart city principles in all of Russia.

Population: ~58,800
Live-in population: 48,800
Non-permanent residence: 10,000
Projected annual tourist arrival: 337,000 per annum
Jobs created: ~ 39,000
Residential Units: 16,620
Total Building GFA: 7 mln. sq.m.

9.2 REGIONAL SETTING

Kazan Smart City enjoys a strategic location in Kazan, the third capital of Russia and adjoins to Kazan International Airport. Kazan Smart City lies on the forefront of two related trends, emerging markets growth and the emergence of international, smart cities. As one of the most economically developed regions within Russia's large, fast-growing emerging economy, the Republic of Tatarstan and its capital of Kazan are in an ideal position to capitalize on these changes and on the shifts of the global economy. Kazan Smart City's central location and business-friendly environment will help position the region as a new centre of excellence, not only in Russian but also within the texture of the global economy. In doing so, Kazan Smart City will strengthen Tatarstan's position globally, establishing itself as a global centre for international business and knowledge development.

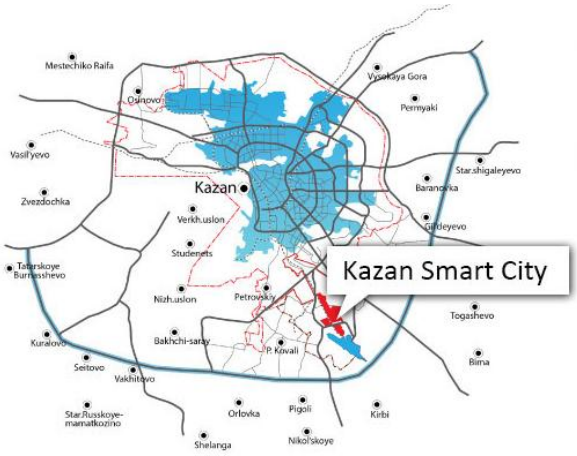


Fig 45 (*Source: http://kazansmartcity.com/)*

9.3 GEOGRAPHICAL FEATURES

9.3.1 AREA

The emergence of Kazan Smart City is part of the overall development of the Greater Kazan area, the most economically diverse region within the Republic of Tatarstan with a total land area of 7,075 sq km. Kazan Smart City lies just beyond the southern border of the City of Kazan, 15 kilometres from the city centre and adjoins to Kazan International Airport. The development of Kazan Smart City is happening in conjunction with several other mega development projects in the Greater Kazan area, among them the expansion of Kazan International Airport, the development of Kazan Administration Centre, Innopolis, and the Sviyazhsk multimodal interregional logistic centre.

9.3.2 CLIMATE

Kazan has a humid continental climate with long, cold winters (colder than Moscow), and warm, often dry summers. As a result of its far inland position, summers are extremely warm for its latitude and winters are quite cold compared to areas further west in Europe.

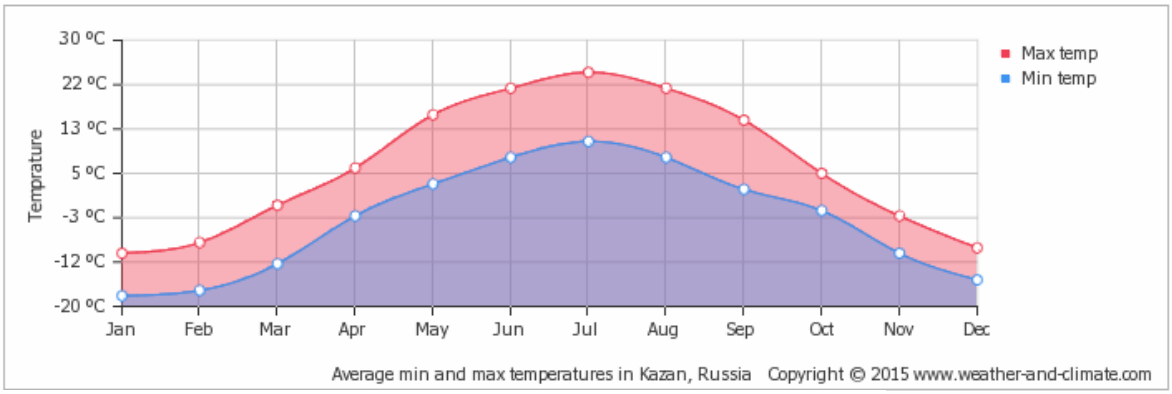


Fig 46 (*Source: www.weather-and-climate.com)*

9.3.3 RAINFALL

There is a great deal of rainfall in Kazan, even in the driest month. The average temperature in Kazan is 3.

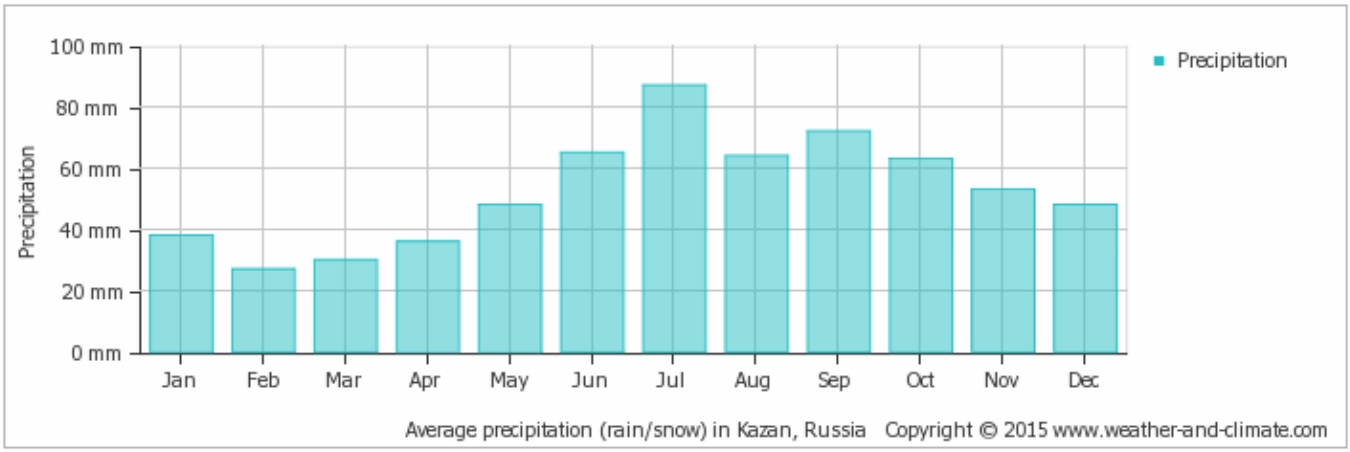


Fig 47 (*Source: www.weather-and-climate.com)*

9.4 MASTER PLAN

Map. 19 (*Source: http://kazansmartcity.com/)*

The development of Greater Kazan is being supported by two large infrastructure development projects. First, a ring road is being built around the perimeter of Greater Kazan, linking into existing infrastructure and improving mobility within the region. Second, a $30 billion federal railway development program will link Kazan to Moscow by a high-speed train, cutting down the travel time by rail between the two cities from 14 hours to just 3.5 hours by 2018.

9.5 INFRASTRUCTURE

9.5.1 EDUCATION

This sector will fuel the economy of Kazan Smart City and the Greater Kazan area with highly-skilled specialists matriculating from world-class research and educational facilities in the Knowledge and Education Precinct. The heart of this precinct will be the Multivaristy campus, which will aggregate together departments from leading global universities, providing a unique educational atmosphere with no parallel in Russia. The cluster will also feature an international school, a medical and research centre, and an intellectual property development research centre.

9.5.2 TOURISM

With its close proximity to Kazan International Airport, the Volga river, federal highway M-7 and the trans-Siberian railway, Kazan Smart City will add important synergies to the thriving tourism sector of Kazan and Tatarstan, helping in particularly to develop business tourism, medical tourism, educational tourism, and urban tourism.

Kazan Smart City will feature a range of tourist attractions, among them the International Exhibition and Convention Centre, an art museum, show rooms, and parks. It will also benefit from its close proximity to the City of Kazan, one of the most beautiful and vibrant cities in Russia boasting among over things the Kazan Kremlin, a UNESCO World Heritage Site. These attractions will fuel the tourism cluster of Kazan Smart City, with hotels, tour operators, restaurants, and a host of other services.

9.5.3 MEDICAL

Kazan Smart City's medical cluster will cultivate an ecosystem of cutting-edge medicine and innovation in the private sector through internationally-operated teaching hospitals, diagnostic and research centres, a medical techno park, and medical equipment and biomedical manufacturing.

The medical cluster will focus on establishing a centre of excellence in education, research, manufacturing, and care. The establishment of this medical cluster comes as the Russian Federation has launched a strategic initiative to encourage the localization of the production of medical products within the country, providing an excellent platform for foreign companies that need to meet these requirements.

9.5.4 HIGH TECHNOLOGY

One hundred and two hectares of Kazan Smart City are part of the Special Economic Zone Innopolis and will serve as the heart of Kazan Smart City's high technology cluster.
In addition to the tax preferences offered to Kazan Smart City residents, residents of the Special Economic Zone will receive additional federal tax preferences on corporate tax and personal income tax.

The goal of the Special Economic Zone is to attract investment from multinational companies in high technology, human capital intensive production. With its close proximity to Kazan International Airport, a free customs zone, and a range of tax preferences, this Special Economic Zone will be an important catalyst in the development of Kazan Smart City.

9.6 DESIGN PRINCIPLES

9.6.1 ECO-URBANISM

- Urban development will coexist with natural environment
- Natural vegetation will be preserved
- Assurance of high environmental quality embedded into blueprint of planning

Fig 48 (*Source: www.weather-and-climate.com*)

9.6.2 SMART GROWTH

- Kazan Smart City will adopt smart growth principle
- Development designed with varying intensities
- Encouragement of mixed-use development that will be integrated with transportation

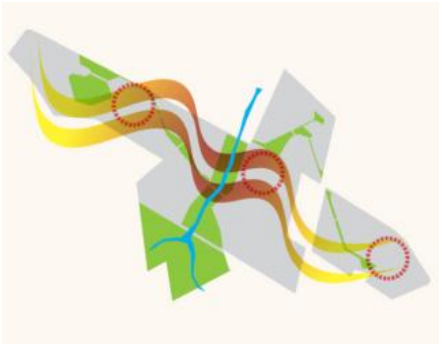


Fig 49 (*Source: www.weather-and-climate.com*)

9.6.3 SMART LOCATION

- Kazan Smart City is a catalytic development creating high impacts to the regional and local economy
- Creation of clusters of economic activity that will benefit local business as well as provide opportunities for the emergence of new economies

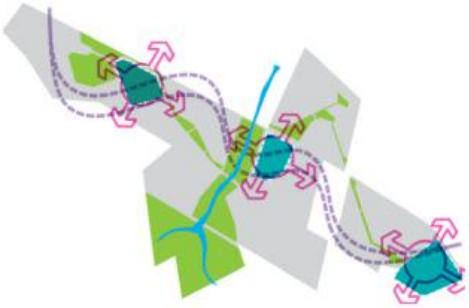


Fig 50 (*Source: www.weather-and-climate.com*)

9.6.4 LOW CARBON

- Emphasis on design solutions that will reduce carbon emissions
- Environment, transportation, infrastructure, and buildings all designed to reduce carbon emission

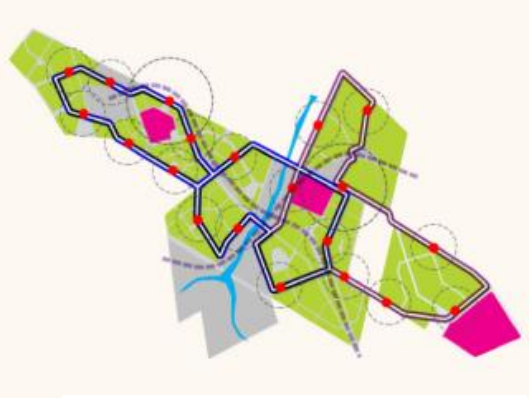


Fig 51 (*Source: www.weather-and-climate.com*)

9.6.5 INCLUSIVE AND IDENTITY

- Kazan Smart City will provide for inclusivity, with employment opportunities, choice of housing, access to education and community facilities
- Strong emphasis on local identity

Fig 52 (*Source: www.weather-and-climate.com)*

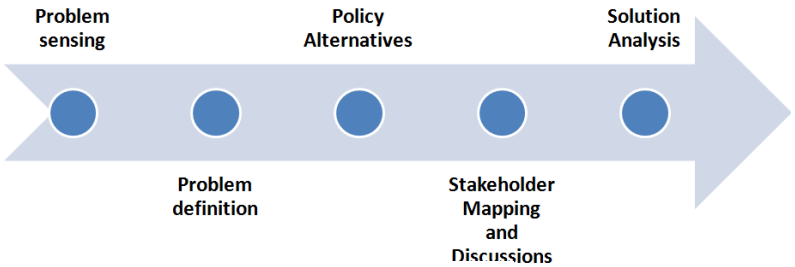
9.6 INFERENCE

This may be a new city that is being designed and developed from scratch but there are many things that can be referred from this project. This project also shows us that smart city does not just mean being technologically advanced but also making the space sustainable, livable and eco friendly.

CHAPTER 10

10.0 POLICIES

10.2 POLICY APPROACH



Flow chart 6 (*Source: Discussion with students of policy making)*

10.3 POLICY IMPLICATIONS

Largely, the proposal revolves around two centers of attraction- the temples and the silk weavers/ sari makers. Thus, any proposal to redevelop a town like Kancheepuram has to focus on both of these interest centers to efficiently leverage the uniqueness of the town, not only making it a smart pilgrimage center, but also a melting pot of art, culture and traditional handicraft.

Temple as the primary focus: As already established, Kancheepuram is a pilgrimage for the two major sects in Hinduism- Shaivaites and Vaishnavites. Apart from the silk weaving businesses, the town's local economy is largely driven by these pilgrims. The focus here thus is to provide facilities that make their visit hassle-free.

The first focus area thus is intra-town connectivity especially between temples. For this, mini bus services can be explored along with the option of electric buggies that can ferry people from one temple to another.

For most of the pilgrims who visit Kancheepuram, parking is a colossal issue. This coupled with the congested pathways to the temple make it very difficult for older pilgrims. A drive through system or drop and park can be explored for the first problem.

As far as decongestion goes, dedicated market areas near every temple needs to earmarked and planned to easy maneuverability.

Temple ponds have become a contemporary tourist attraction and leveraging this can add to the value of the town itself.

Culture and Art: Kancheepuram has been historically known as melting pot of various cultural and performing art activities. The purpose of a cultural centre is to have artists from various parts of the country and showcase their art form. This adds as another tourist and cultural attraction to the humble town of Kancheepuram.

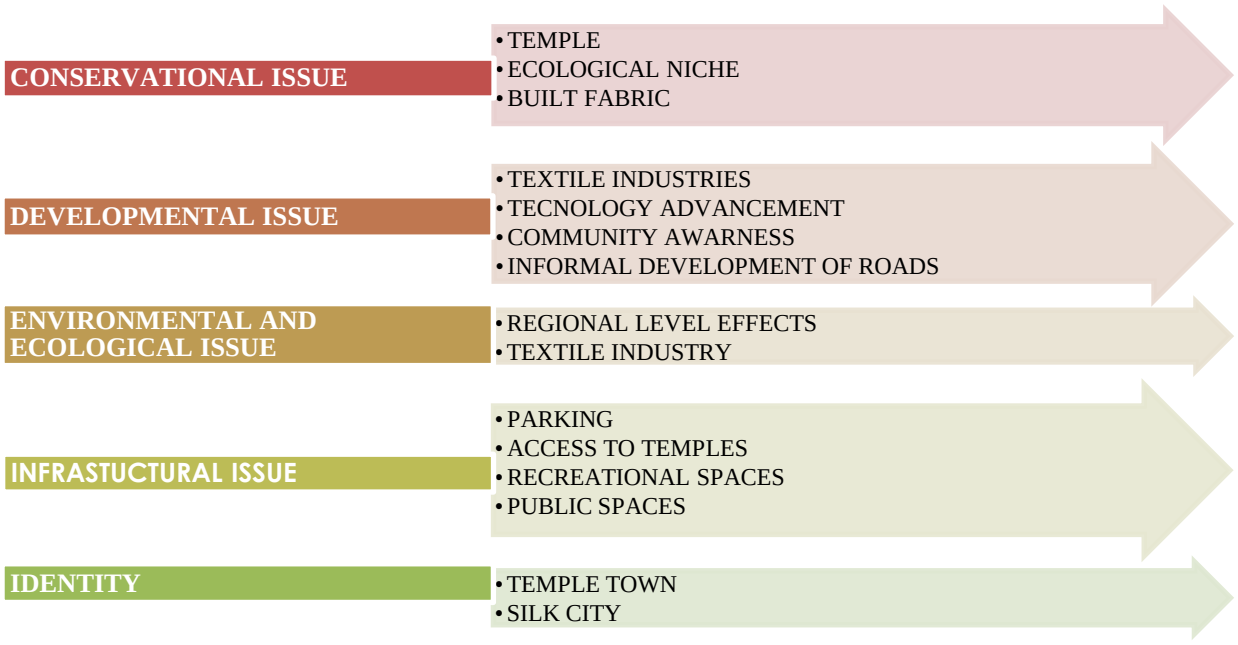
Silk Designing Centre: This is where the modern and the traditional meet. A state of the art designing centre for silk weavers aims at bringing together world class designers are work with the skillful silk weavers. This centre attempts to put Kancheepuram silk of the global map.

CHAPTER 11

11.0 ISSUES

As Kancheepuram being part of textile/ weaving region of South India has many potentials and assets like land, labor capital and organization. The eco foot print of Kancheepuram spreads to the regional scale. Urbanization process thus has (effected) triggered various changes with respect to morphological, infrastructural, technological and organizational capabilities of the town.

The temple town had evolved to be a locally significant religious precinct is at present tending to be isolated from the larger network of temples in South India.



Flow chart 7

11.1 CONSERVATIONAL

TEMPLE:

- Trend in shifting priestly community (Iyyer community) has reduced the associative value of precinct as it predominantly occupies by temporarily appointed priest from other region.
- Due to the shift in priestly community, the houses which are left vacant are converted as godowns.
- Temple vicinity area encroached by hawkers, residences etc.
- Approach areas in a chaos because of improper vehicular and pedestrian circulation.

BUILT FABRIC:

- Transformation of traditional typologies mainly due to its subdivision due to increased housing demand as its textile industry is impetus for urbanization.
- Increase in traffic has resulted in breaking down of built fabric and new construction is insensitive to traditional character.

- Decline of the textile industry has bought about a decline in the areas of weaver's community. Younger prefer to switch occupations

11.2 DEVELOPMENTAL

- Declining handloom industry, rising demand for power loom products is making Kancheepuram a sleeping town.
- The migration of younger generation for education and job opportunities.
- Technological and organizational capabilities have reduced tremendously.
- Poor advancement in technological aspects.
- Roads being of various widths, some even less that requirement makes it inconvenient for circulation and for locating of a place.
- Public awareness on lots of issues existing in the town.

11.3 ENVIRONMENTAL/ ECOLOGICAL

- Polluted tanks leading to disappearance.
- Dyeing industry contaminating the ground water/water bodies.
- Solid / sewage waste disposal resulted in high hyacinth growth.
- Encouraging encroachment of land reclamation.
- Pollution
    - Regional level
    - City level

10.4 INFRASTRUCTURAL:

- Lack of public spaces reduces community interaction
- Lack of recreational spaces
- Approach to temples is either being encroached or has become a traffic congestion niche.
- Lack of parking space causes encroachment in the roads thereby reducing the available width of the road.

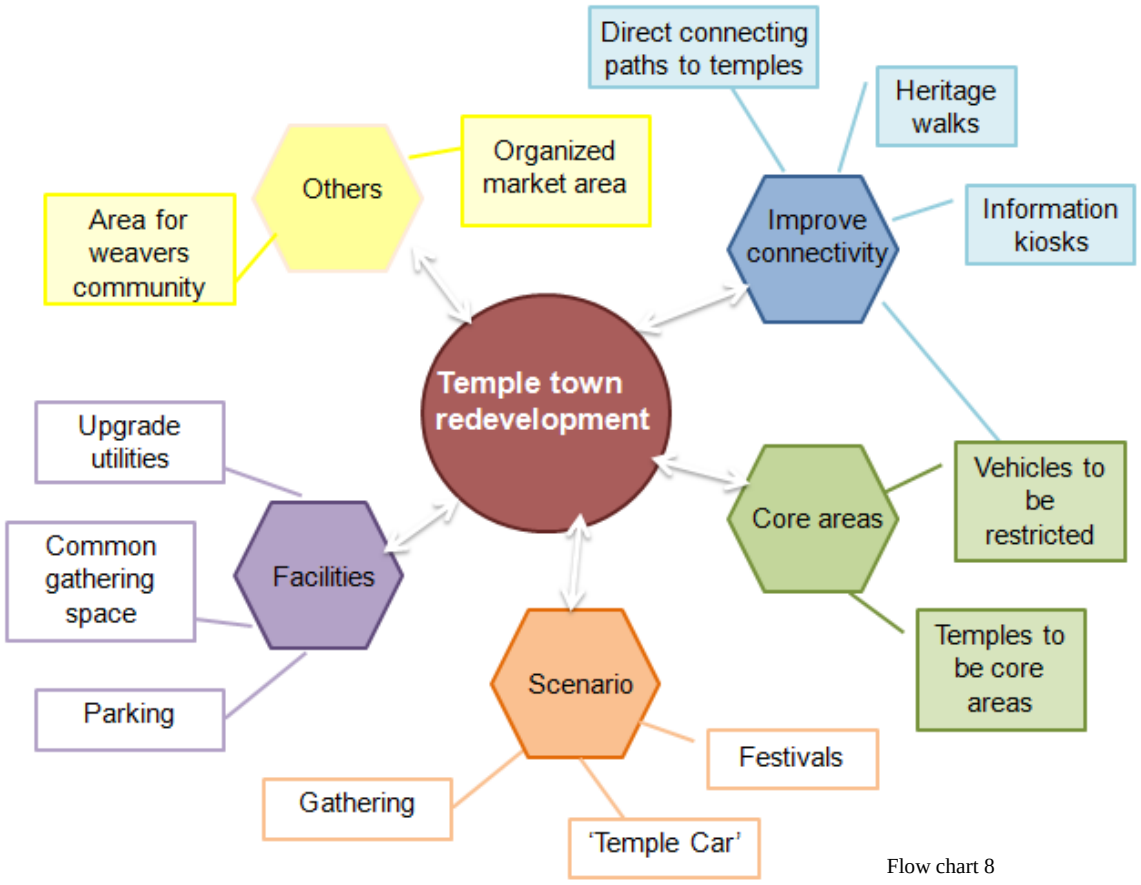
10.5 IDENTITY:

- Decline of silk industries resulting in losing its identity as the silk city.
- Conserving its identity as temple town.

CHAPTER 12

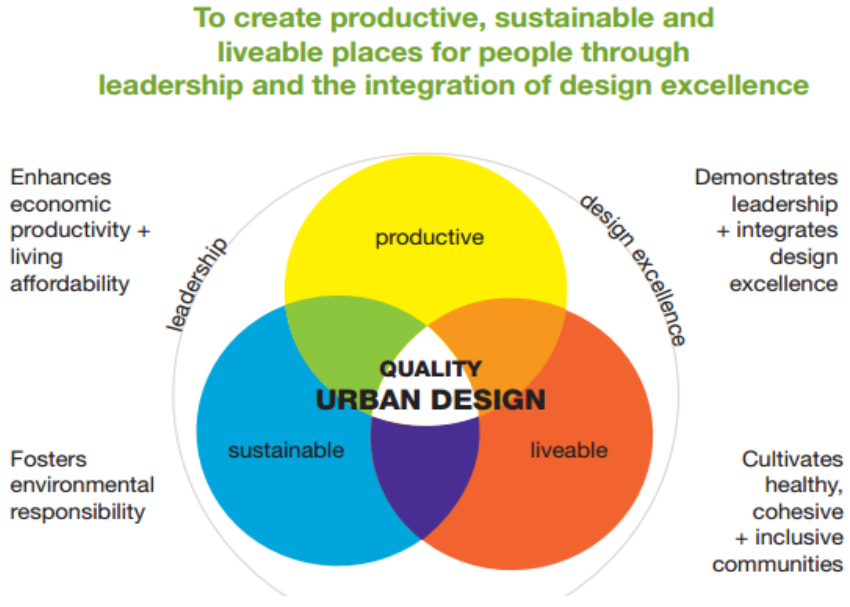
12.0 URBAN DESIGN PROPOSALS

12.1 DESIGN PARAMETERS



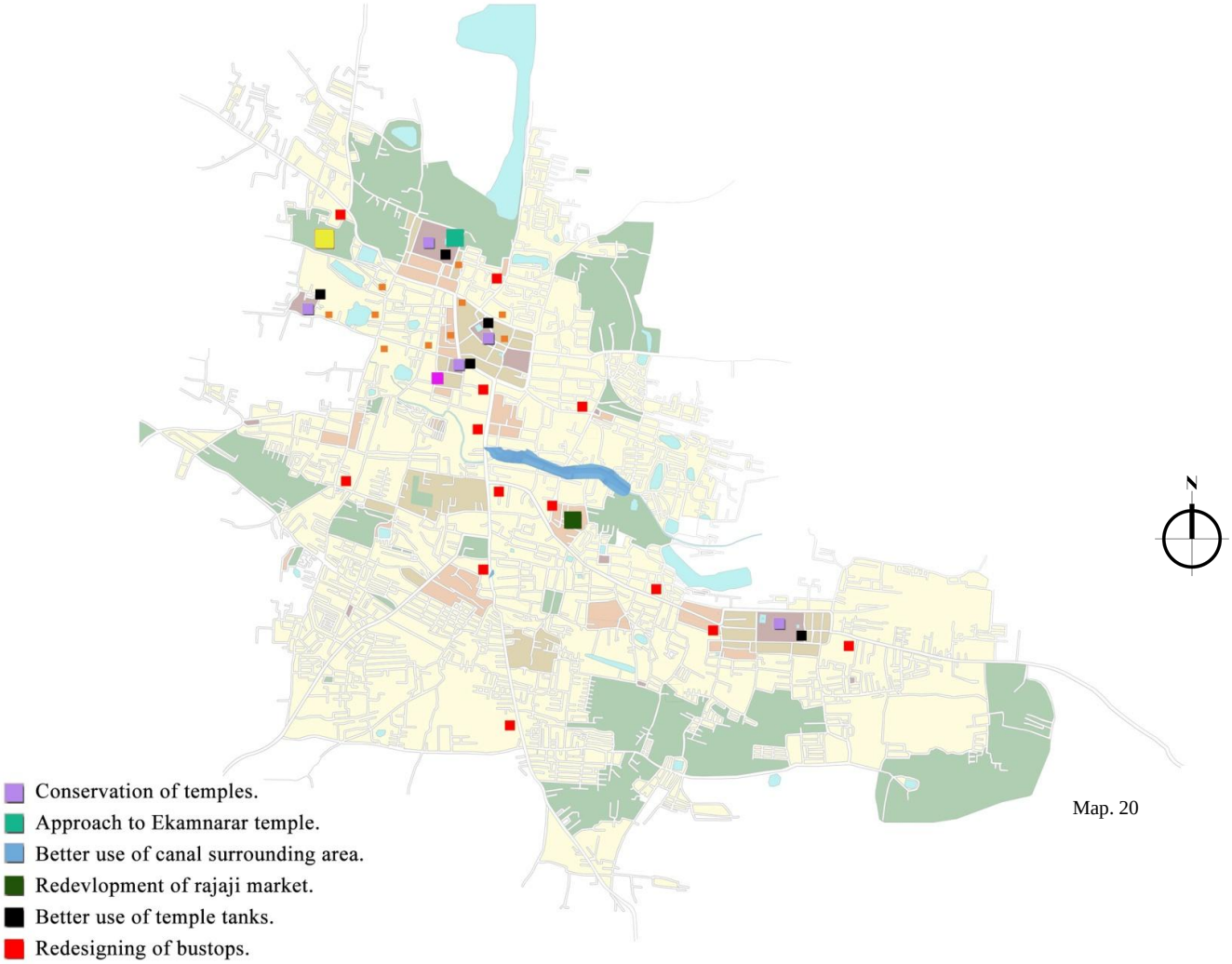
Flow chart 8

12.2 DESIGN APPROACH



Flow chart 9 (*Source: Research paper on Quality Urban Design*

12.3 DESIGN PROPOSALS



Map. 20

12.3.1 CONSERVATION OF HERITAGE/TEMPLE AREAS

- Establishing significance (OUV, Levels of importance within a given site, group of monuments, context, etc.)
- Laying out conservation approach in relation to the Value established for monument / site.
- Conservation to be treated as multi-dimensional dynamic process (it should be process and not product oriented)
- The following methods can be followed:

1. Maintenance
2. Respect for documentary evidence
3. Respect for original fabric
4. Reversibility
5. Respect for the building's history
6. Respect for historic material
7. Legibility
8. Respect for the original location
9. Role of indigenous craftsmanship
10. Multi-disciplinary approach to conservation

12.3.2 HERITAGE WALK

Connecting the temples by pedestrian means and by e-autos/rickshaws will create an heritage walk that can by accompanied with organised hawkers on one side and kiosks, information centres etc on the other side of the paved walking area.

This will also include a footbridge over a water body on one part of the walk. This proposed Heritage Walk will connect about seven major temples of the city.

Fig 54

Kiosks along the Walk

A foot bridge over the water body along with creating a public space around the water body

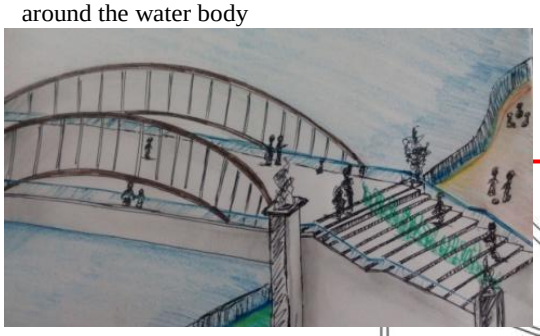


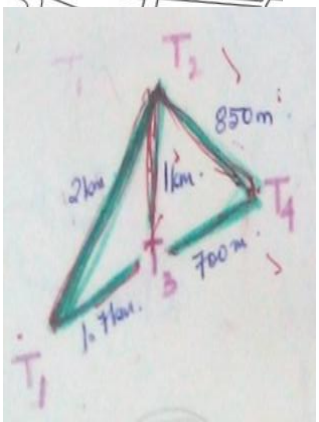
Fig 53

Road in this area is irregular in width hence widening and maintaining a standard width

Map. 21

Fig 55

Temporary hawker's zone on one side of the Walk with permanent buildings on the other side which include information centres, rest houses, traditional food centres etc



An approximate distance between temples

Fig 56

12.3.3 WEAVING INDUSTRY

12.3.3.1 CENTRALISED AREA

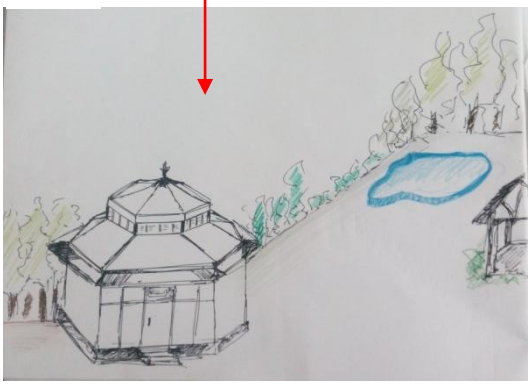
The weaving industry has been declining with much newer materials occupying the market. Government has taken initiatives to revive this industry by proposing various policies, better funding etc which will soon start to implement.

But the main problem the weavers feel is that during the rainy months they are not able to work due to weather conditions which make the silk threads wet and sticky making them unmanageable. Though presently most of the weavers are living along with their community in the same area, providing them with a centralized area with air-conditioning facilities would keep them employed during the rainy months and increase the community interaction which in turn can be a reason for coming up with solutions for encouraging the industry.

Apart from that, providing a common platform can increase the exchange of ideas in making other items with silk like kurtas, bags etc and with combined effort the revival of the industry can be more than just an effort put in.

Map. 22

Fig 57



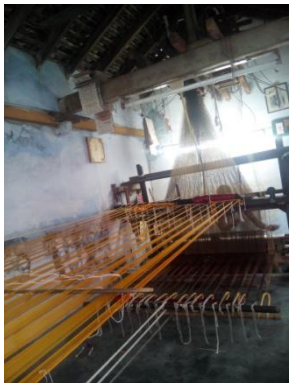


Fig 58

Fig 59

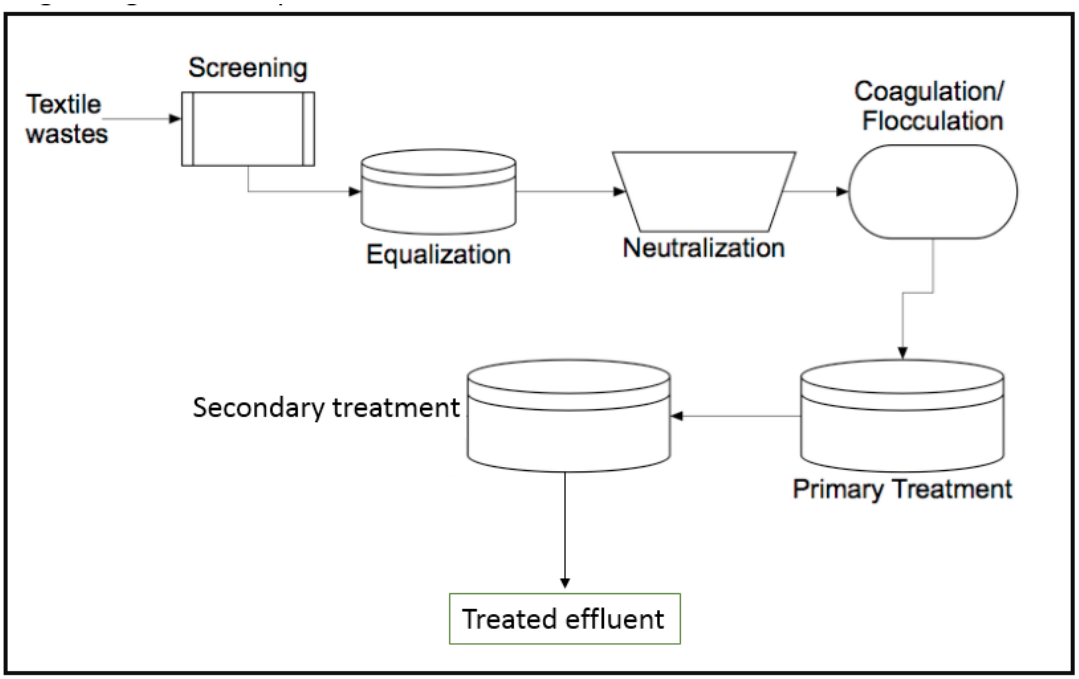
Fig 60

Fig 61

12.3.3.2 WASTE WATER TREATMENT

The contamination of natural waters has become one of the biggest problems in modern society. Of the industries with high-polluting power, the textile dyeing industry, responsible for dyeing various types of fibre, stands out. Independent of the characteristics of the dyes chosen, the final operation of all dyeing process involves washing in baths to remove excesses of the original or hydrolyzed dyes not fixed to the fibre and in these baths it is estimated that approximately 10-50% of the dyes used in the dyeing process are lost, and end up in the effluent contaminating the environment with about one million tons of these compounds.

The textile sector waste has received considerable attention in recent years, since it can generate large volumes of effluents that, if not correctly treated before being disposed into water resources, can be a problem. Effluents from the textile industry are extremely complex, since they contain a large variety of dyes, additives and derivatives that change seasonally, increasing the challenge to find effective, feasible treatments. The ingestion of water contaminated with textile dyes can cause serious damage to the health of humans and of other living organisms, due to the toxicity, highlighting mutagenic in its components. Therefore treatments that are more efficient and economical than those currently available are required.



Flow chart 10 (*Source: pdf on texile industry waste water management)*

There are several techniques for the treatment of effluents, such as incineration, biological treatment, absorption onto solid matrices, etc. However, these techniques have their drawbacks, such as the formation of dioxins and furans, caused by incomplete combustion during incineration; long periods for biological treatment to have an effect, as also the adsorptive process, that is based on the phase transfer of contaminants without actually destroying them. The use of filtration membranes and/or separation and biological methods in addition to incineration processes involving adsorption onto solid matrices, has also being adopted by the textile industry and is receiving considerable attention.

12.3.3.4 PARKING

Parking has always been an issue. Lack of space for parking has resulted in street parking which in turn has lead traffic congestion. Being a city that had started to develop in anchient time, where parking requirement was nil, the provision for such requirement was was not given. And hence with the development this became an issue.

The best solution is to allocate such streets that are wide enough to accommodate parking facility and movement of vehicles for parking within every 1km sq range along with valet parking and smart parking. These will facilitate the users by exactly knowing if there is a parking space available in their required area. Valet parking will reduce their time and tension of finding a spot.

Smart Parking would enable the following

- Accurately predict and sense spot/vehicle occupancy in real-time.
- Guides residents and visitors to available parking.
- Optimize Parking Space Usage
- Simplifies the parking experience and adds value for parking stakeholders, such as drivers and merchants
- Help traffic in the city flow more freely leveraging IoT technology.
- Enables intelligent decisions using data, including real–time status applications and historical analytics reports
- Smart Parking plays a major role in creating better urban environment by reducing the emission of CO2 and other pollutants
- Smart Parking enables better and real time monitoring and managing of available parking space, resulting in significant revenue generation
- Provides tools to optimize workforce management.

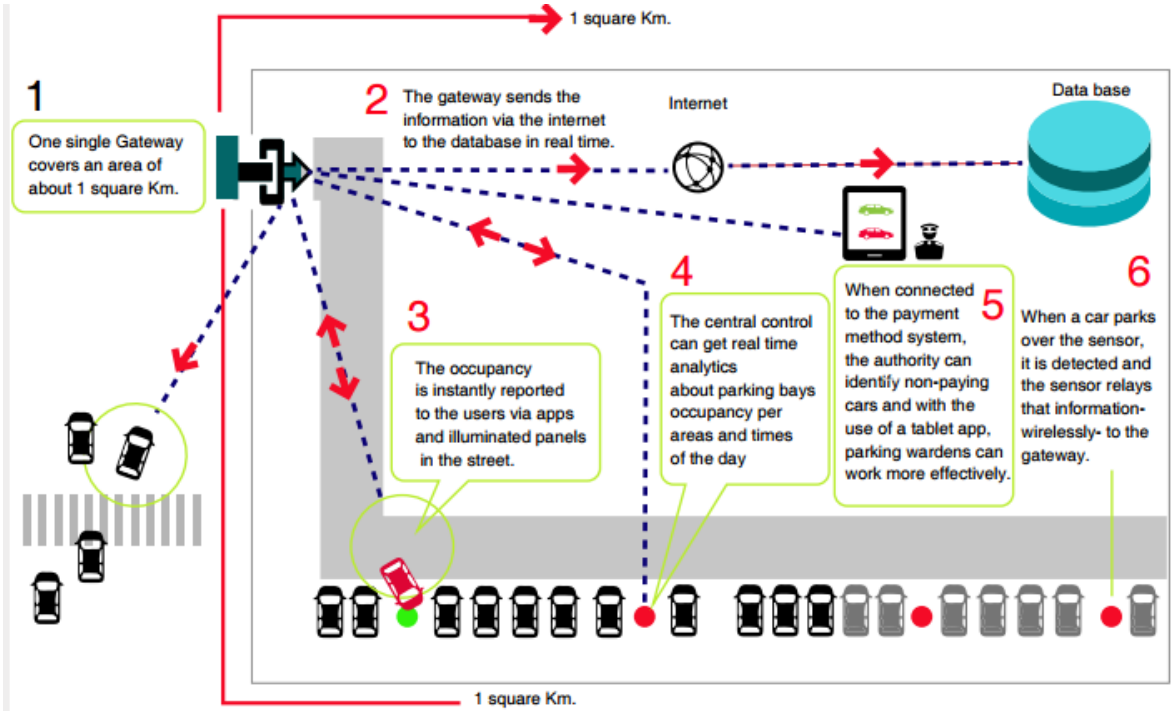


Fig 62 (*Source: http://www.happiestminds.com/whitepapers/smart-parking.pdf)*

12.3.3.5 HAWKER ZONE

For generations, street vending has provided vibrancy, colour and a market outlet in Indian cities. However, as the 21st century progresses, the dynamic growth of city populations, the scale of physical development, and globalising economies create new challenges for street vendors, who face changing political, economic and social contexts and increasing competition for space.

Today, modern street vending plays a vital role in the urban economy, as a source of jobs, revenue and 'value added' to the economy. Street vending provides a flexible link in economic supply chains, gives vitality to urban streets, and provides affordable goods for many urban residents

In Kancheepuram, the main hawker zones are near the temples, blocking the road and making it difficult for pedestrian movement. But in a better organized manner these can act as a boon to everyone and be beneficial to everyone.

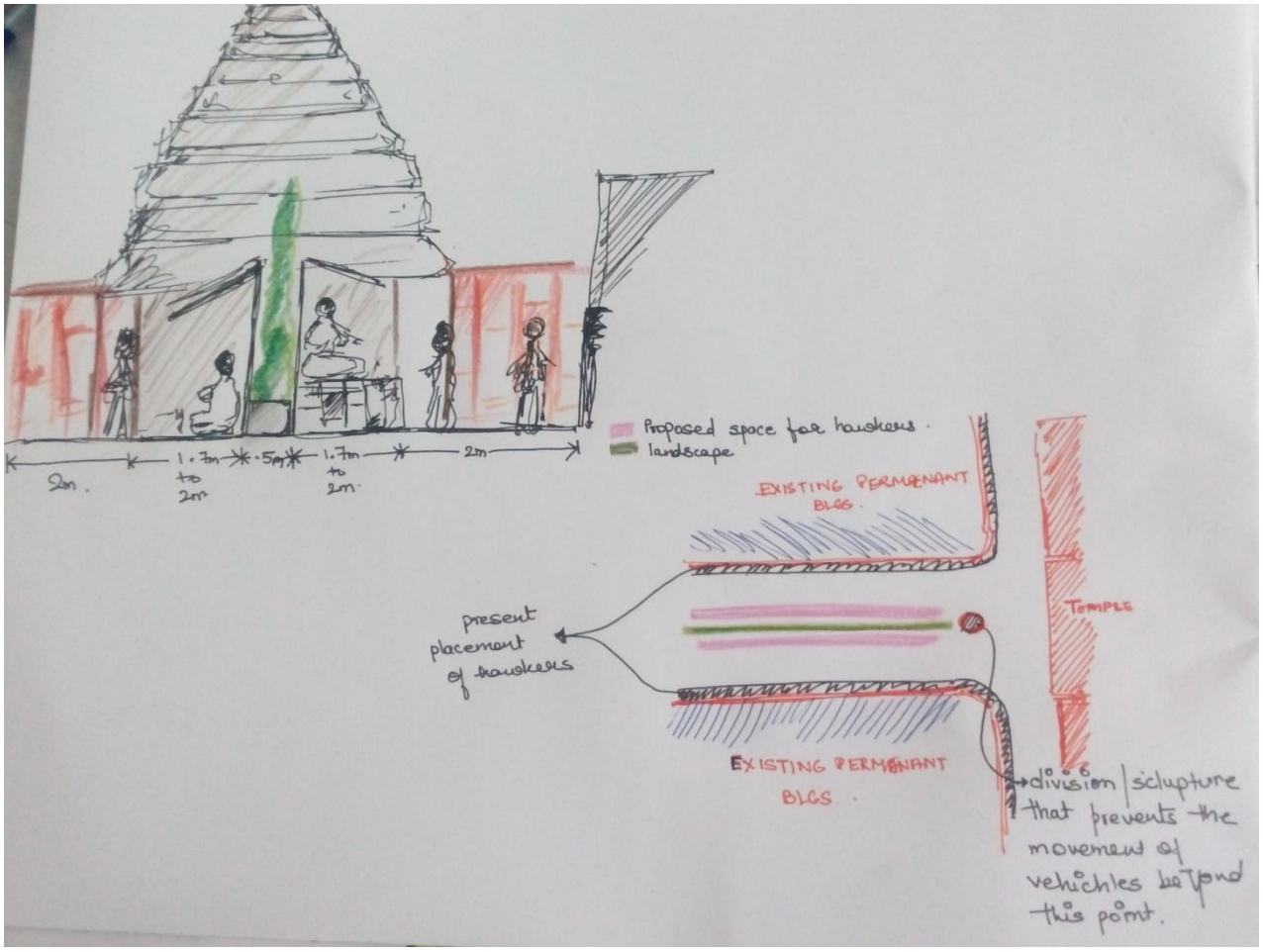


Fig 63

12.3.3.6 REDEVLOPMENT OF RAJAJI MARKET

Fig 64

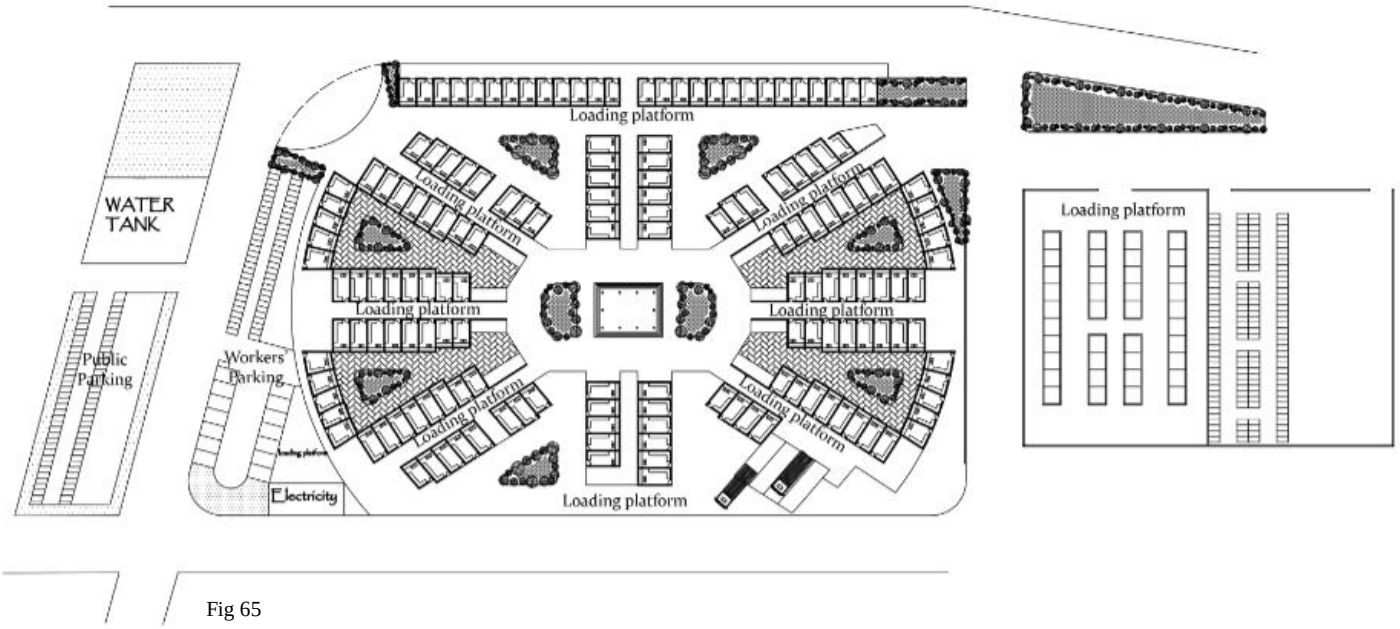


Fig 65

12.3.3.7 REJUVENATION OF TEMPLE TANKS

The temple tanks have been a part of the temple since the birth of the temples. Maintaining of these tanks and there conditions has always been an issue. Rejuvenation of tanks is necessary considering their present condition.

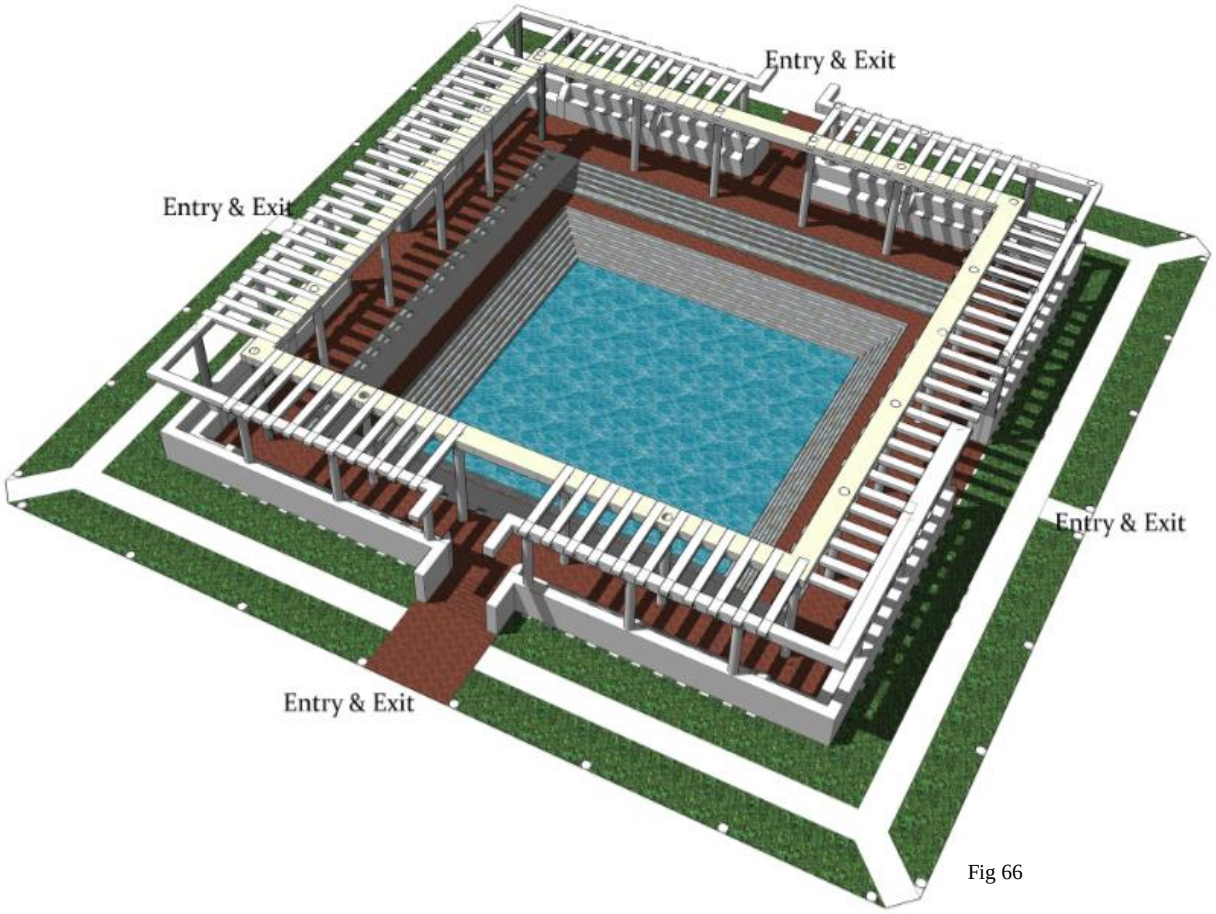


Fig 66

12.3.3.8 HEIGHT OF BUILDINGS AT THE VICINITY OF TEMPLES

The temple has always been the heart of the town. It still remains so in the present times. The buildings in the vicinity should not be equal to or exceed the height of the temple thereby causing to disrupt the skyline of the town.

Presently there are few buildings that are taller than the gopuram thereby restricting the view and blocking the sight of the gopuram. There has to be a restriction in the heights to maintain the skyline of the town.

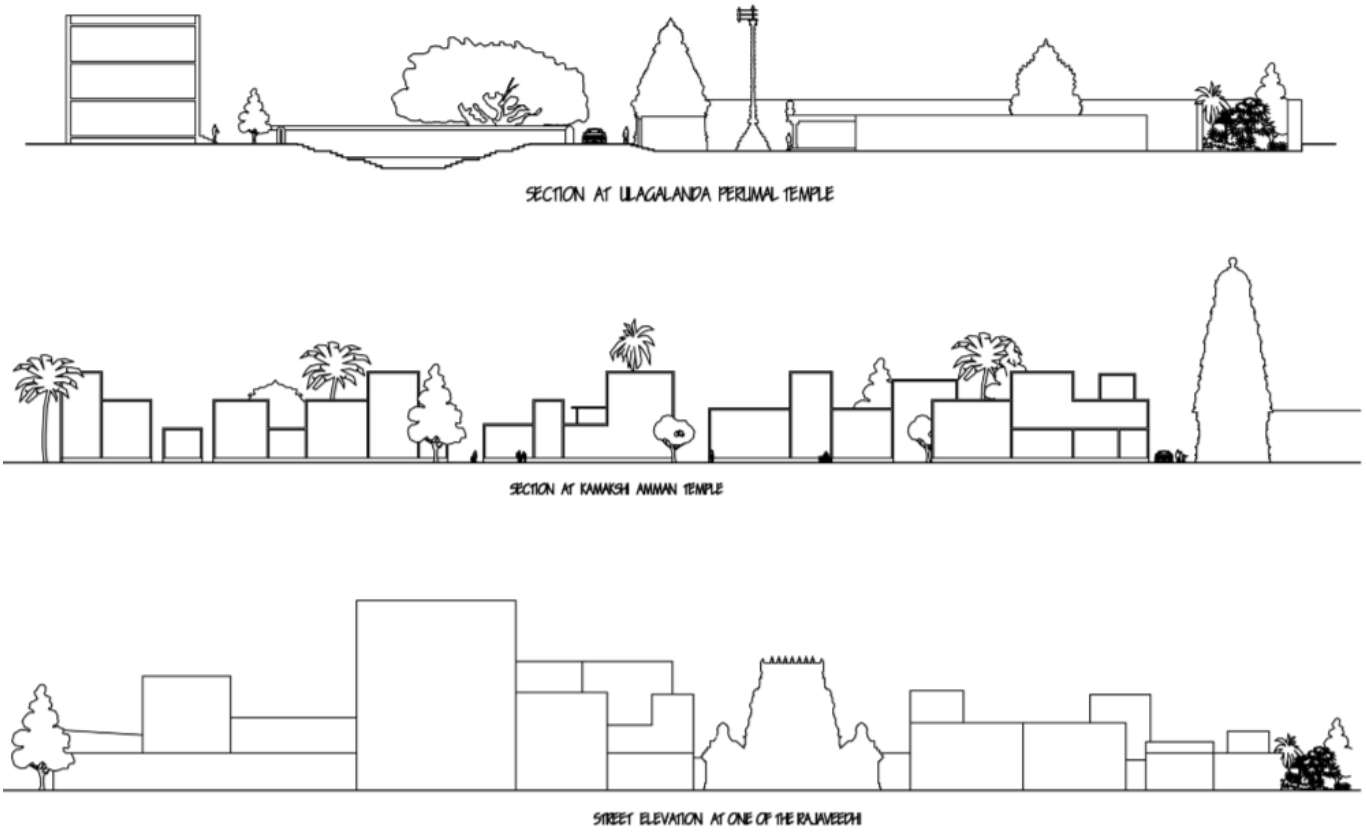


Fig 67

12.3.3.9 REDESIGNING BUS STOPS

There are no proper designated bus stops in the town. The buses stop in an area where it is presumed to be a stop. Plus it encroaches the roads there by causing congestion.

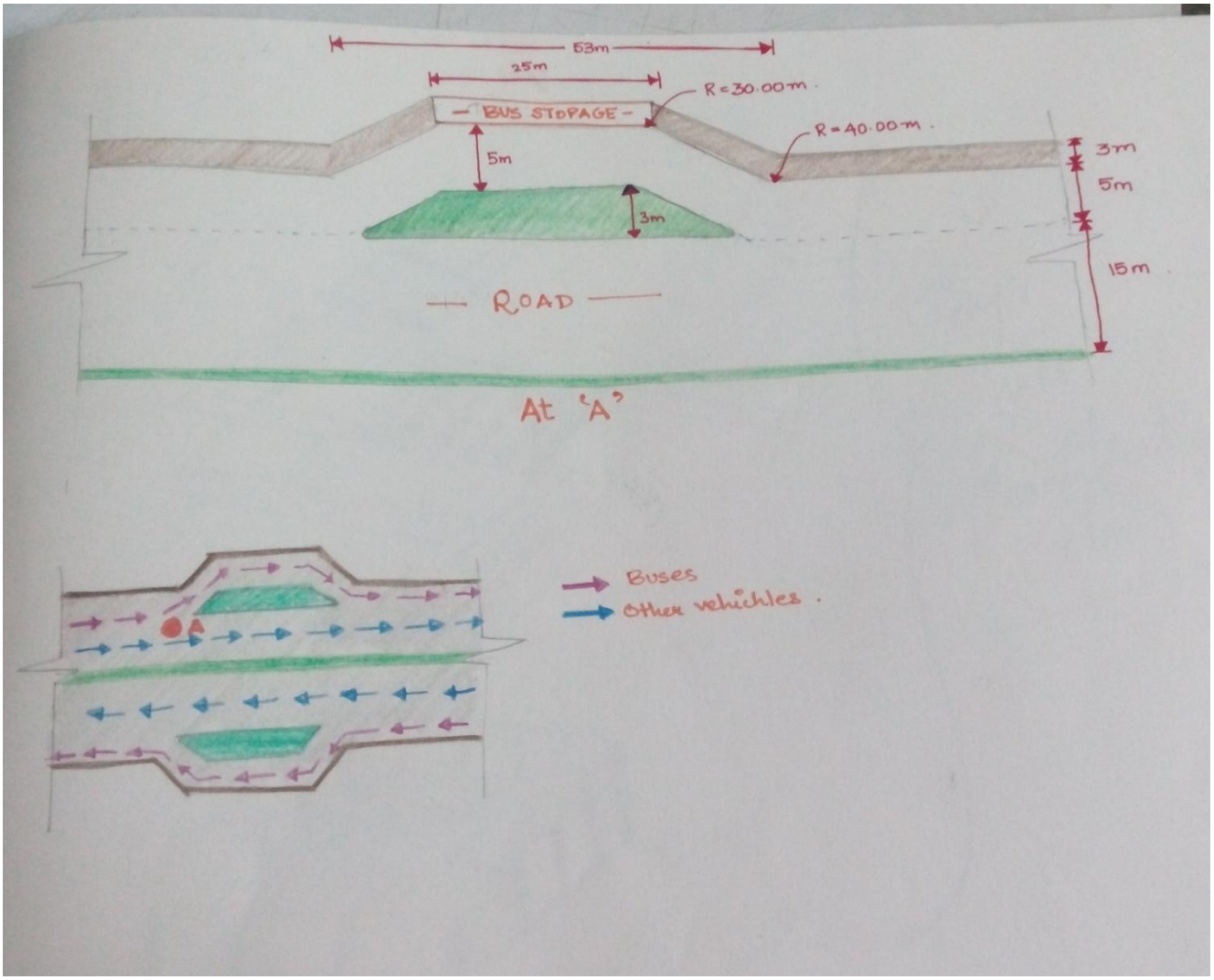


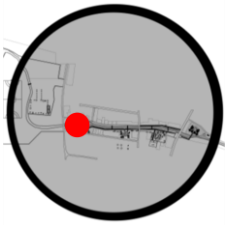
Fig 68

12.3.3.10 MAJALNEER KALVAI

This proposal is basically redevelopment of the areas around the canal that are presently in a bad condition.

Fig 69

12.3.3.10 MAJALNEER KALVAI



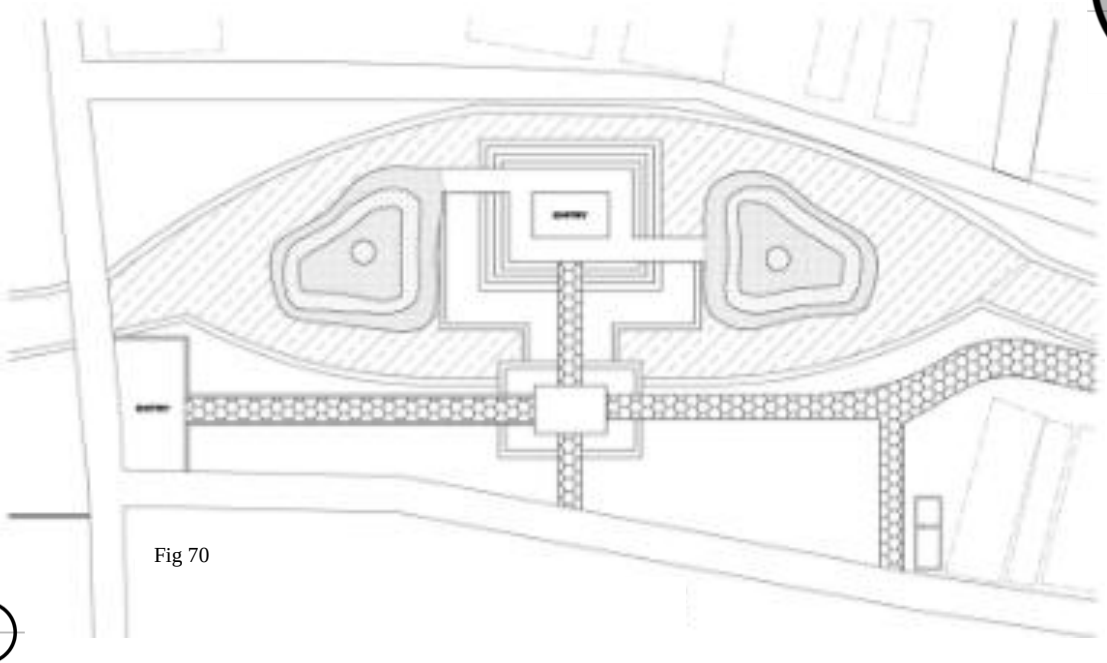


Fig 70

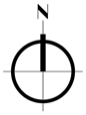
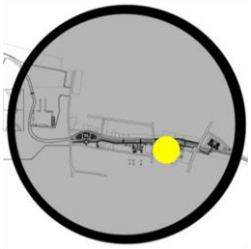


Fig 71



12.3.3.10 MAJALNEER KALVAI

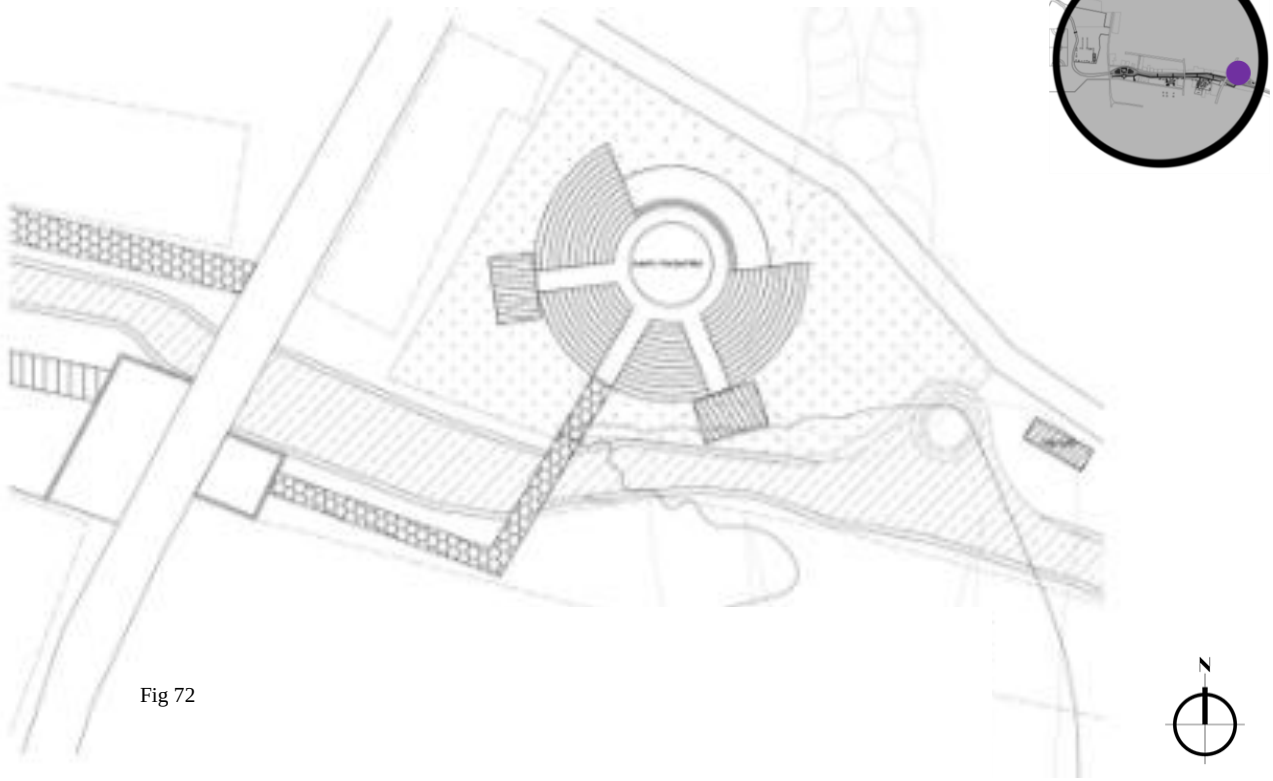


Fig 72

12.3.3.11 EKAMBARAR TEMPLE APPROACH

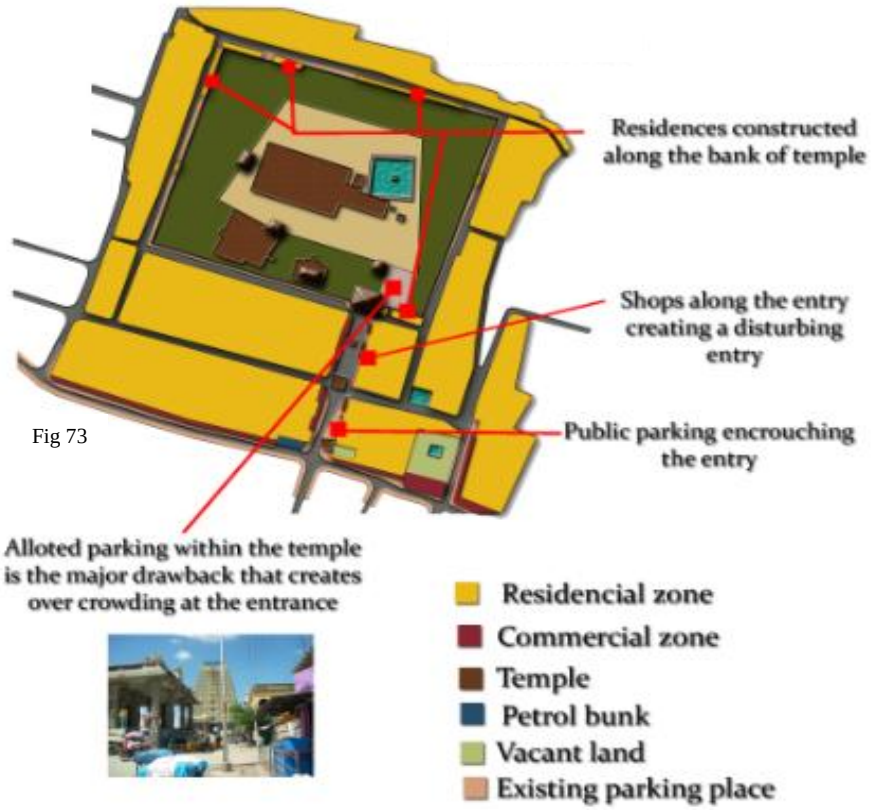


Fig 73

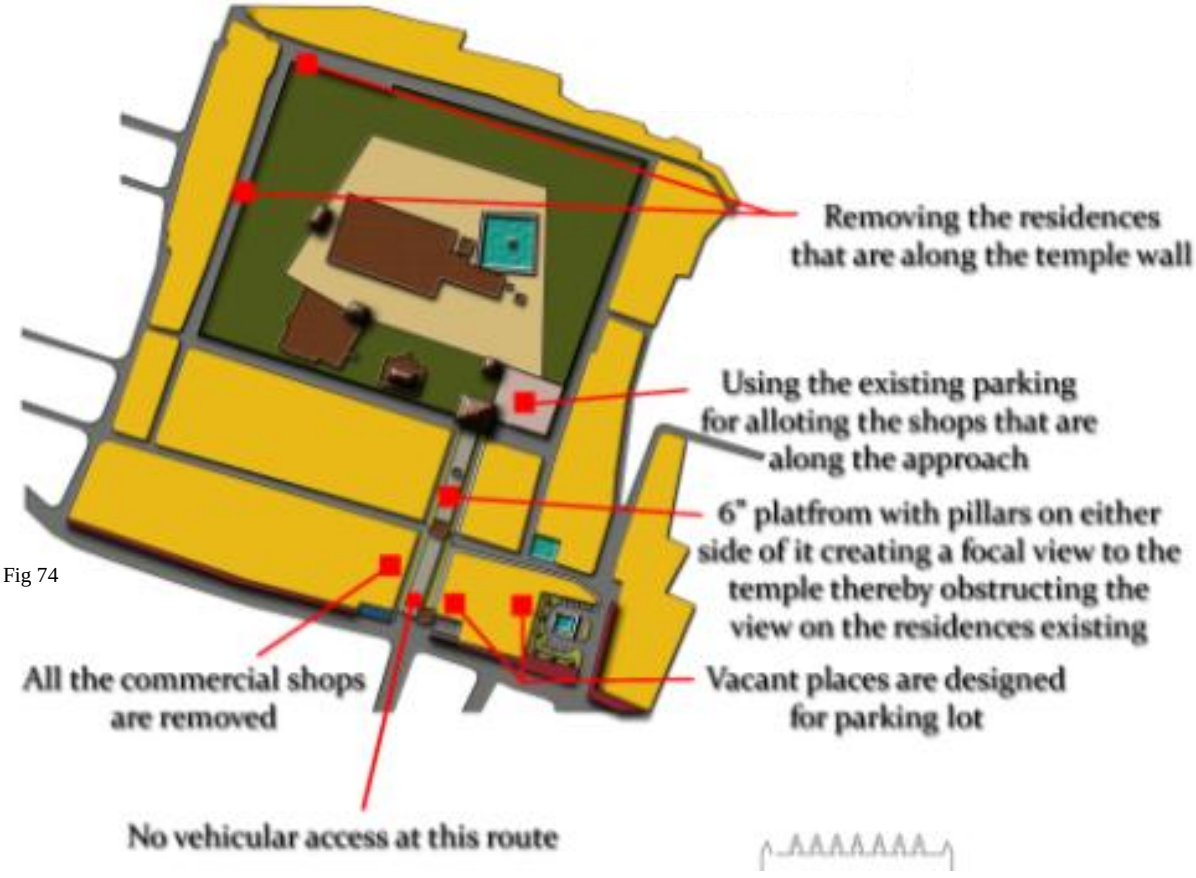


Fig 74

12.3.3.12 EDUCATIONAL HUB

An educational hub like Kota can increase the revenue of the town as well as making it a educational centre can take it to the developing phase since introducing of industries may become a contrasting character to the present character of the town**.**

A silk weaving learning centre that has courses on producing various designs can also be there as it will help boosting the weaving industry. The designing and transferring the designs to usable form in the sarees requires certain course learning.

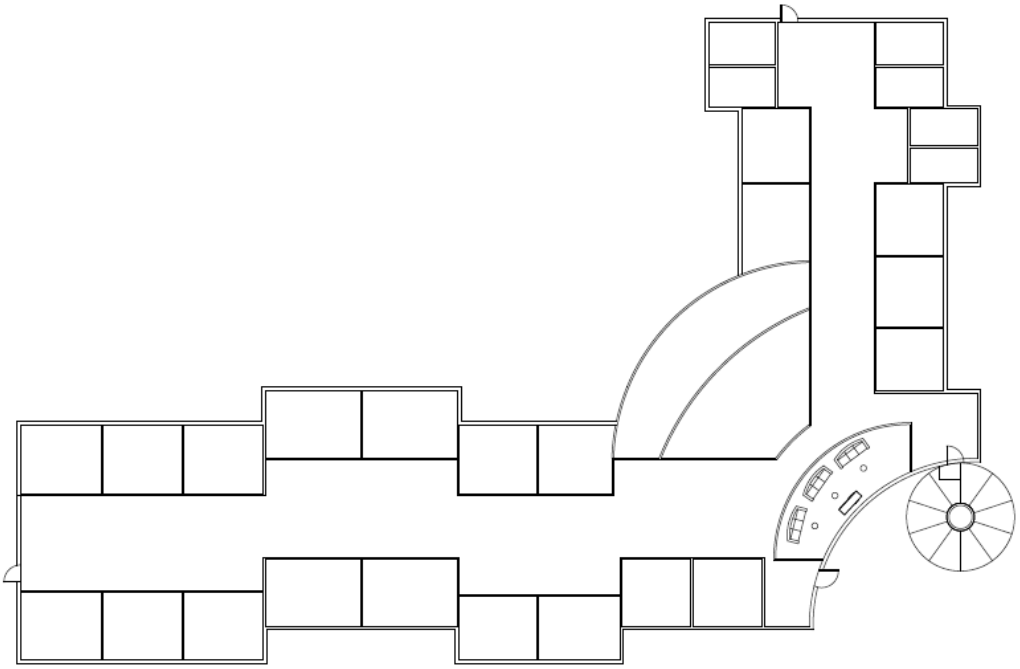


Fig 75

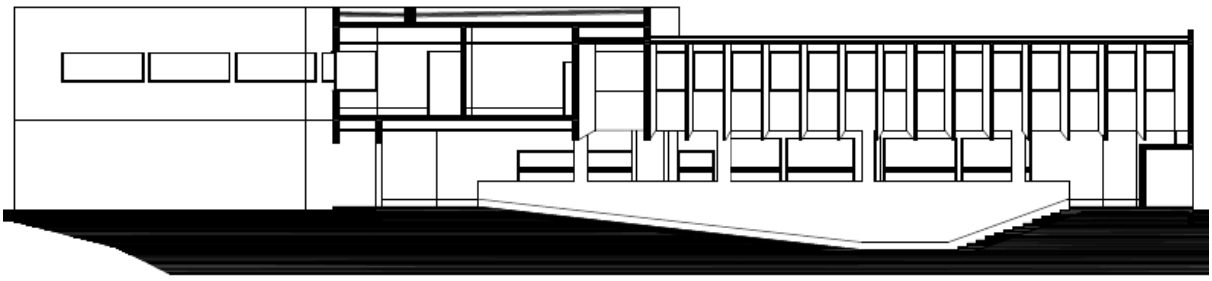


Fig 76

12.3.3.13 CULTURAL CENTRE

South India or as a matter of fact India is known for its cultural background. There are many forms of art, dance and music that are still prevalent in the country.

A centre for learning these would not only be a boon to the town but also increase the importance of our culture and help in stopping it from being forgotten.

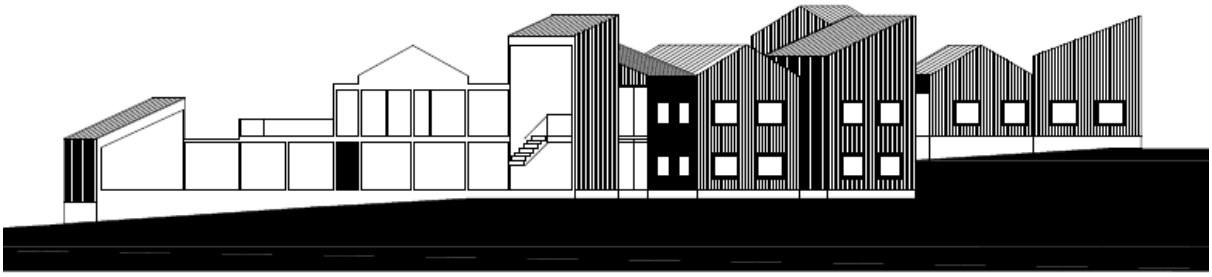


Fig 77

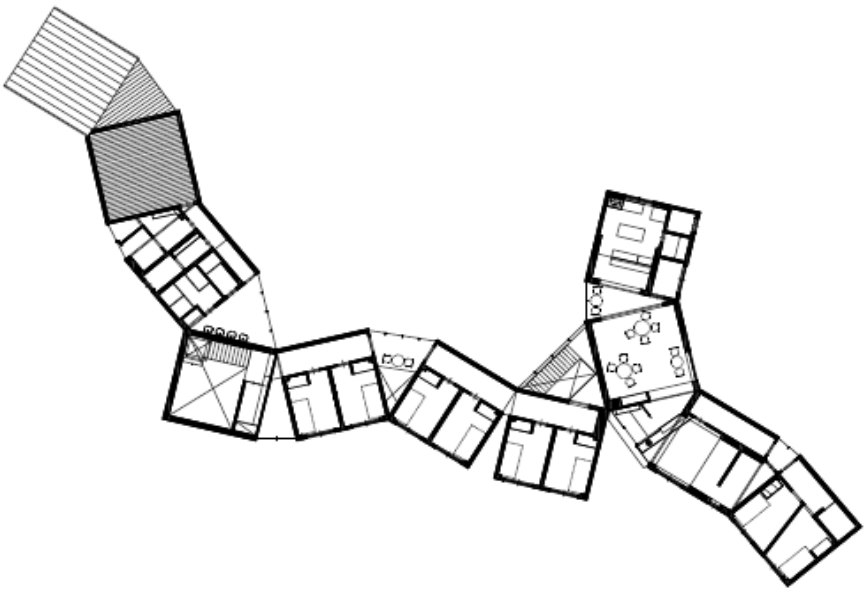


Fig 78

12.3.3.14 ARTS CENTRE

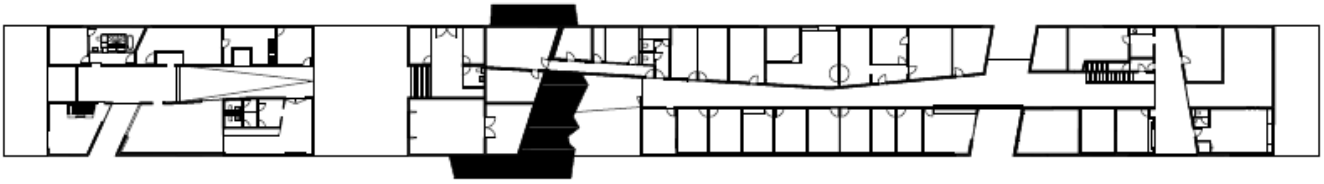


Fig 79

Fig 80

CHAPTER 13

13.0 CONCLUSION

The town being an old heritage is still has a lot of potential for development. With proper policies and design this town can be converted into a much better habitable place.

The urban design objectives and issues, urban design considerations for key issues and sustainability design principles and criteria were identified and proposals suggested. There was general concurrence with the urban design issues identified, although different priorities were accorded to the various criteria and considerations. The key design and vision was to increase tourism along with the other issues which have been met in the proposals.

During site visit, interaction with the locals helped to view the town's issues from the user's perspective and what as users they face on a daily basis. There point of view on heritage and culture too was of great help.

Technologically backward compared to other cities yet sustaining in the current trend is the speciality of the town. The rich heritage, when properly planned and deigned can pave way to the modernity is such a way that our culture and heritage are still intact yet the modernity is present blending in with the existing culture.

Few undiscussed matters due to the limitation of time are that from a geographical perspective, highly interesting critical look should be taken at how the privatization of cultural heritage will be given form in the near future, and what its consequences will be. Will the management of the monuments in question be municipalities or to private agencies. The revival of the weaving industry largely depends on the government and its policies. Decline of one our riches resources would be a big disadvantage for us in the future. Another issue worth mentioning is the interesting and highly topical field of study dealing with the relation between population increase, outgoing migration increase and built cultural heritage. With the land requirement increasing and lack of land encroaching of the heritages areas like temple is also increasing. Planners and Designers should come up with a solution to this when the government proposed smart city conversion takes place.

As indicated, intangible heritage can also serve as a strong carrier of urban identities. With this, it could sometimes even differentiate cities from each other to a stronger degree than built heritage is able to do. As one of the locals said: "Identity can be first and foremost be found in humans, not so much in buildings." In order to develop a more comprehensive overview of heritage as an urban identity character, it would be necessary to involve the people and include their perspective.

In the end, it can be said that whatever issues and problems the town may face, it will overcome and sustain for next generations to have the rich culture and tradition that we have now.

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