Transforming Satellite cities

GIS course project

Aditya Vikram Srivastava

IMT2016004

Topics

SatelliteCity

Smart Cities — What do they comprise of / What drives them

Problem statement

Smart Satellite city — A design framework

Tambaram: a test example

Satellite cities

- Part of a large metropolis
- High literacy rate
- Separate development from the metropolitan
- Have a separate government body
- Self-sufficient economy

Smart City

Concept developed as a result of growing urbanisation.

Tackles challenges such as:

- Sustainability
- Digitisation
- Quality of life

Based on currently developing technologies like

- IoT
- Machine Learning

Smart City

- Research on development of smart cities have been done by various researchers

- What drives the development of a smart city:
  - Broadly divided into two sectors: Governance & Technology

Governance drivers

1. Sustainability
2. Mobility
3. Infrastructure
4. Safety

Technology drivers

1. Smart Energy grids
2. Logistics
3. Sensor technology
4. City based technological app

Problem Statement

How to transform satellite cities

Solution

Generalised framework for transforming a satellite city into smarter satellite city

Smart Satellite Cities

Framework

- 🏋️ SWOT analysis
- 👉 Understanding LU/LC
- 👥 Population Constituent
- 👥 Citizen Engagement and Social data collection
- ✔️ Common goal infrastructure measurement
- 🌳 Environmental & Inclusion aspects

Tambaram: a test

Background

- Located 27 km from center of Chennai
- Area = 22.5 km^2
- Falls under Chennai Urban agglomeration.
- Municipality form of government

Tambaram City	Total	Male	Female
City Population	174,787	89,060	85,727
Literates	145,037	76,428	68,609
Children (0-6)	17,535	8,869	8,666
Average Literacy (%)	92.23 %	95.31 %	89.03 %
Sexratio	963		
Child Sexratio	977		
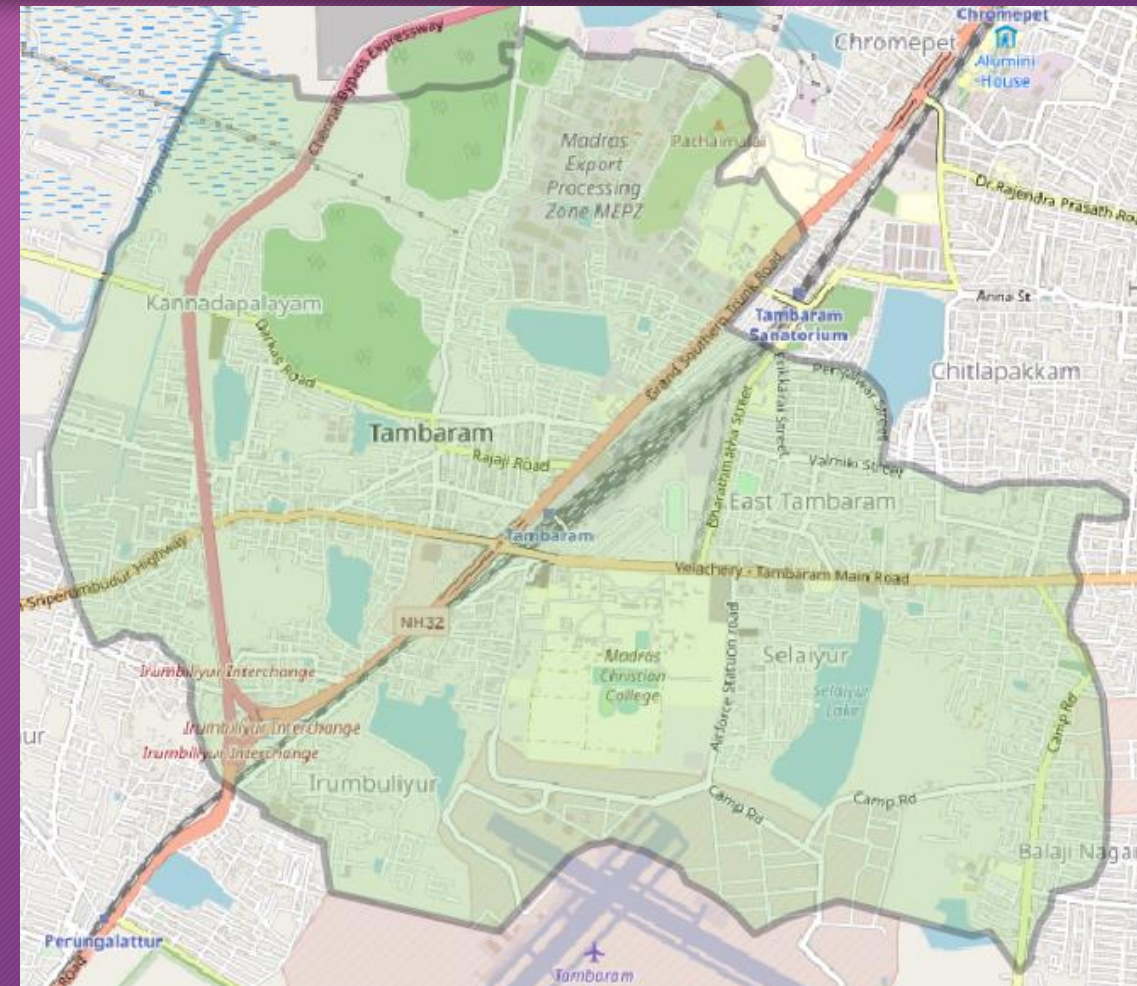
SWOT Analysis

STRENGTHS

1. Under Chennai urban agglomeration
2. Working class population (60%+)
3. Utility infrastructure

WEAKNESS

1. Inadequate commercial, recreational facilities
2. Limited economy generating domains
3. Inadequate mobility facility

THREATS

- Water scarcity
- Pollution
- Education opportunities

OPPORTUNITY

- Improve on commercial aspects of town
- Leverage on environmental sustainability

LULC analysis

- Major land use is planned for Residential (primary and mixed)

- Low commercial areas

- Industrial area located north of the city, towards Chennai

- Institutional cover is adequate.

- No recreational space has been allotted or in future plans.
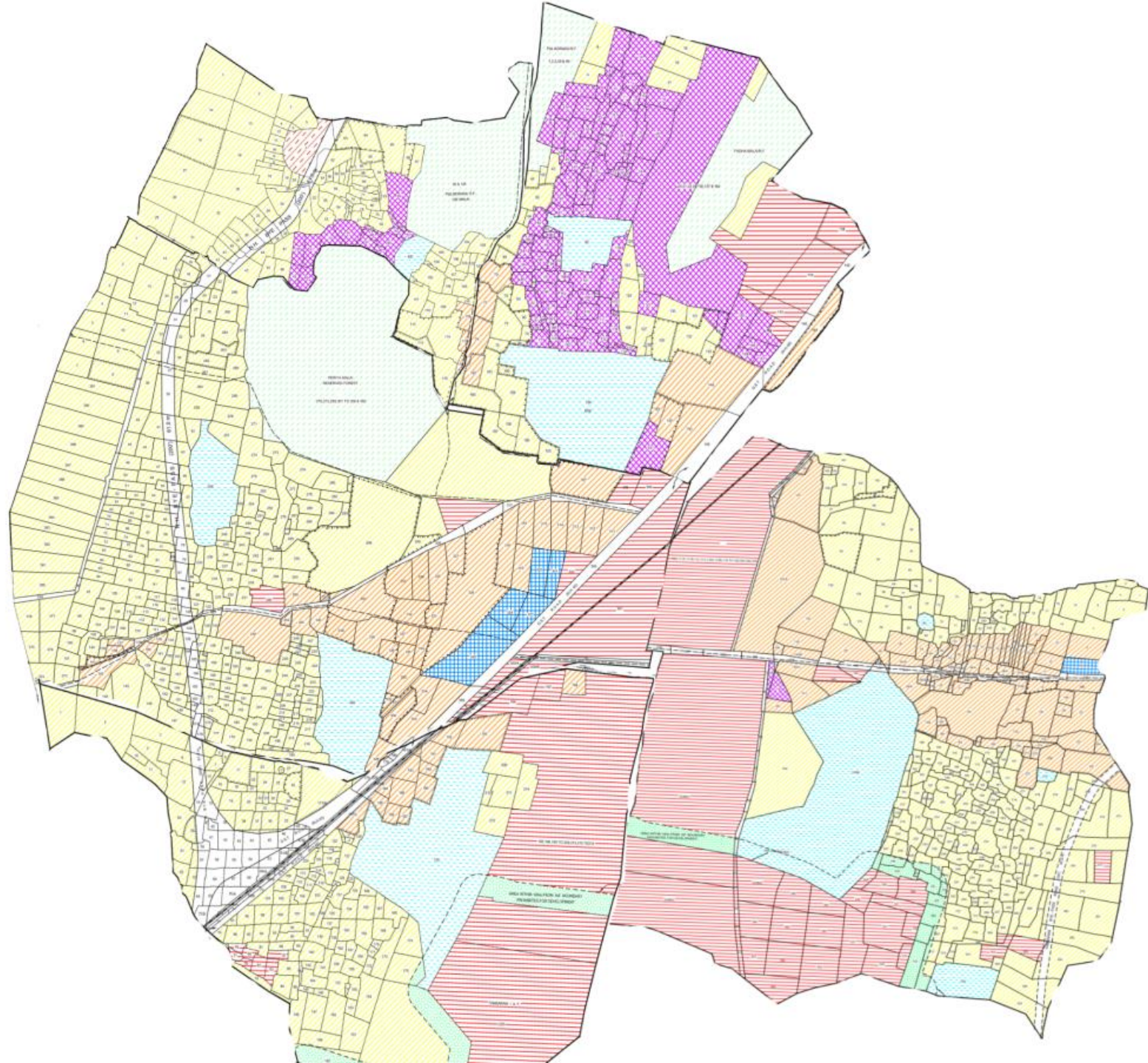
Population analysis

- Highly dense residential infrastructure
- Large population is literate.
- 45k households
- 17k people are in the age group 0-6
- 73k workers
- 62k workers are in secondary and tertiary sector, rest in various other fields
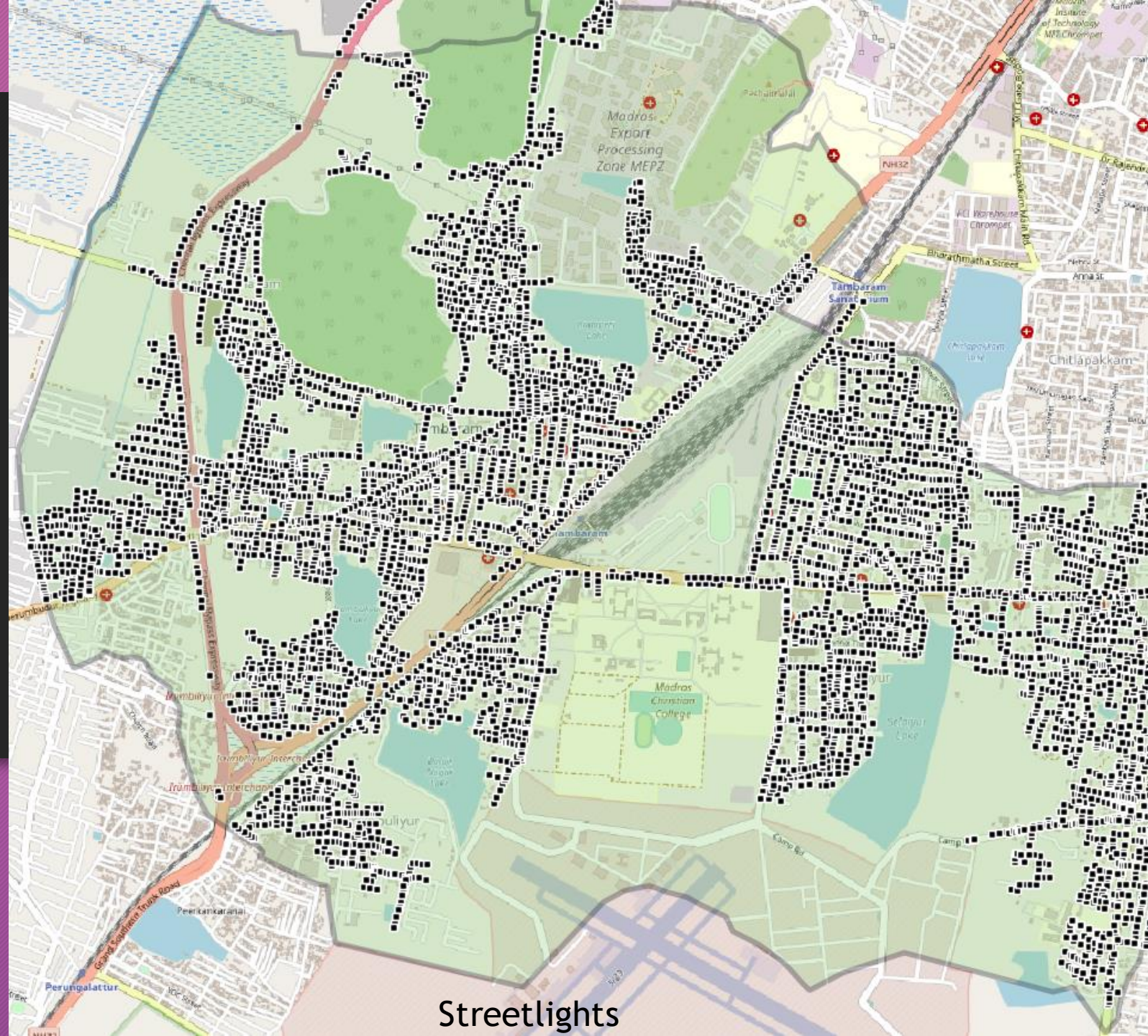- 102k people are house bound, 70k women and 32k men

Inferences →

- Results in cross-commuting with the metropolis
- Values indicative of large number of settlement of nuclear families
- Majority of women are literate but homebound.
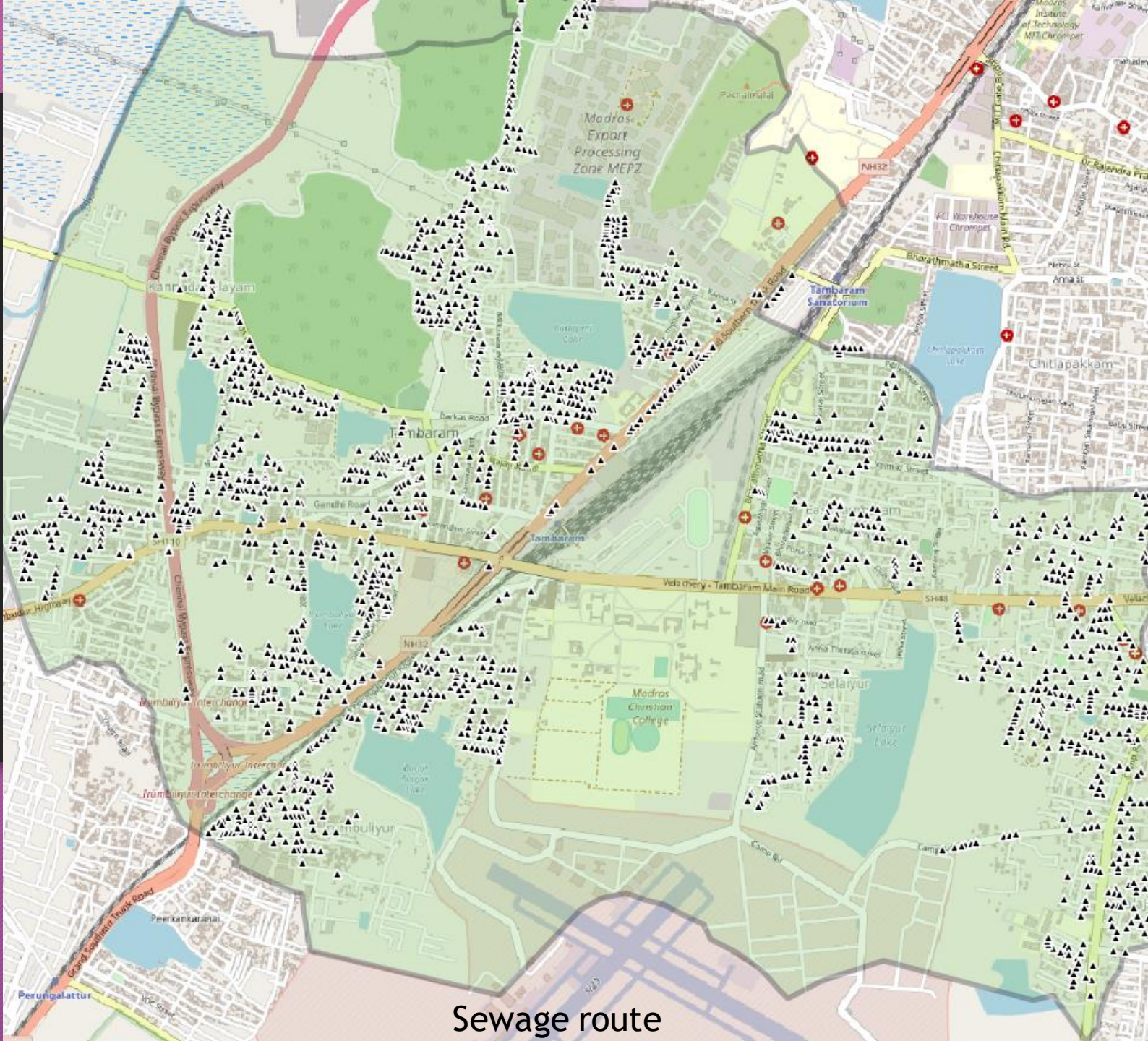- 10% are young children.

Public water sources
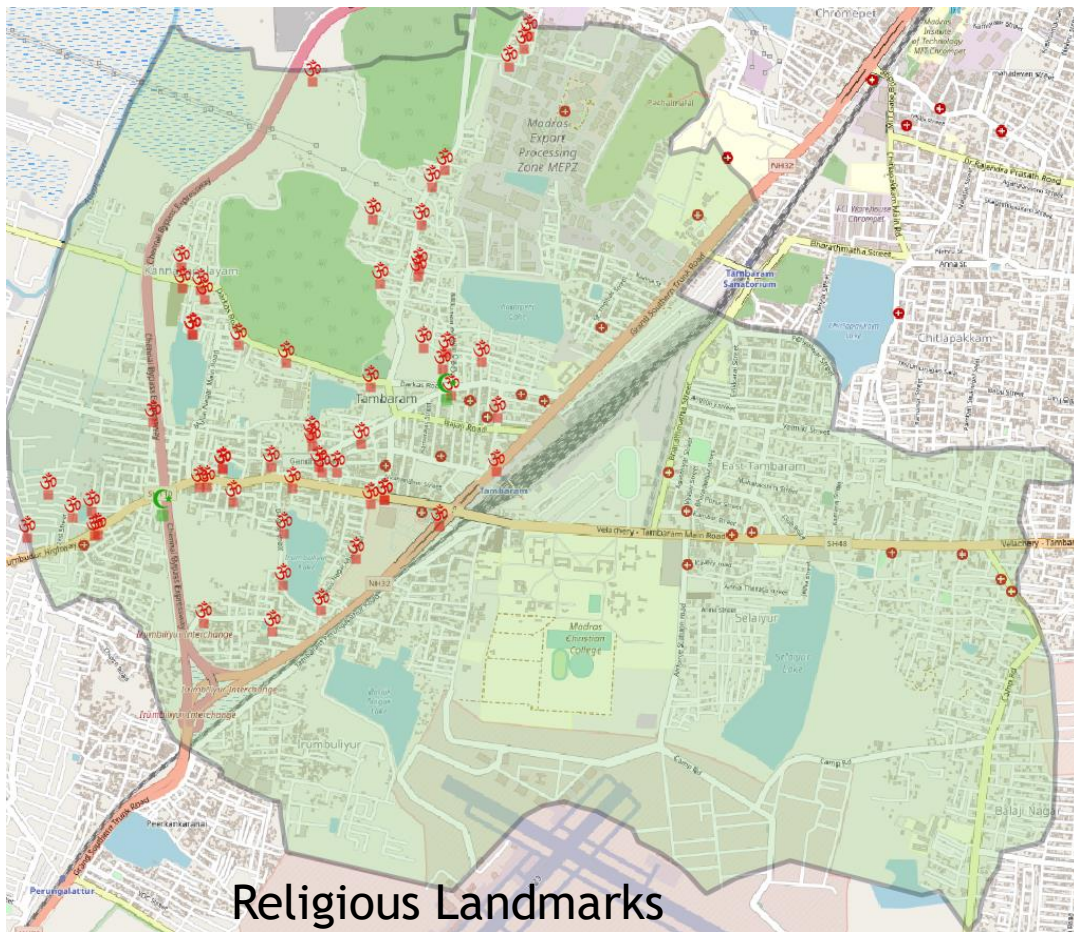
Personal water sources
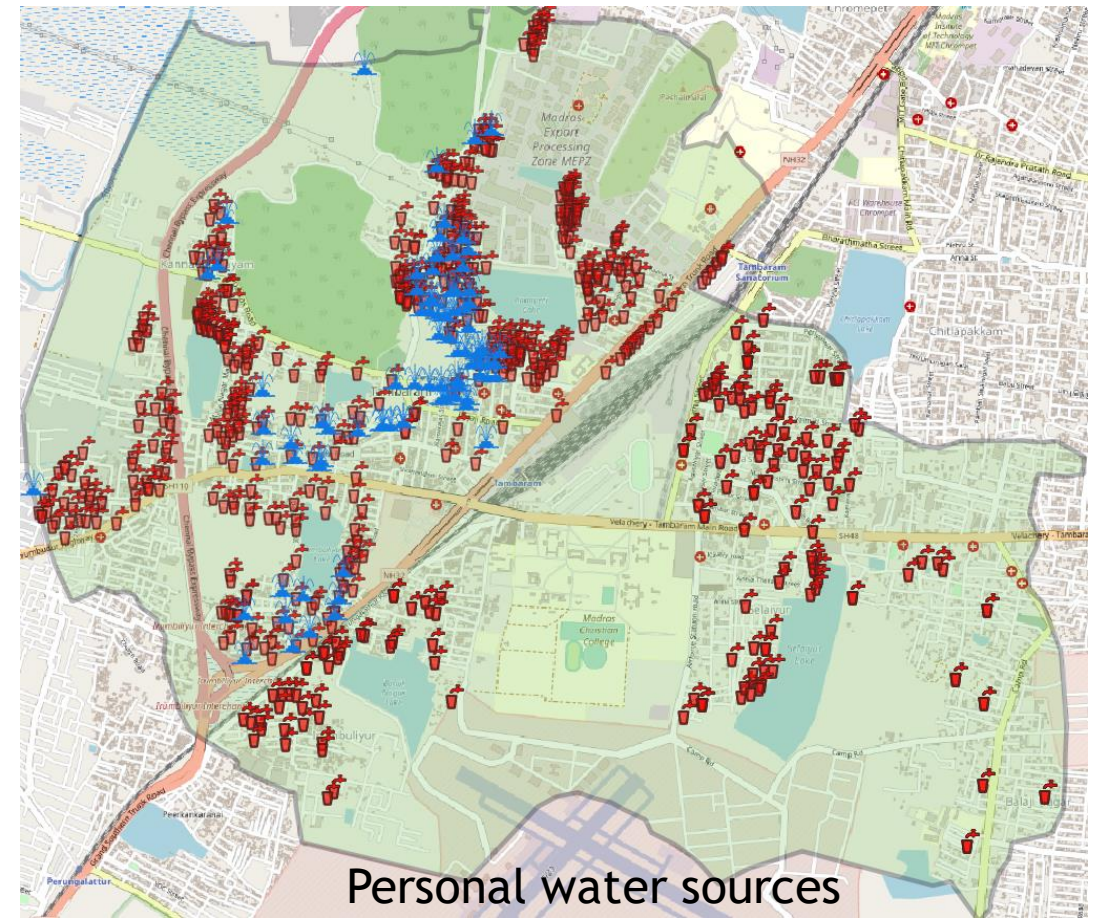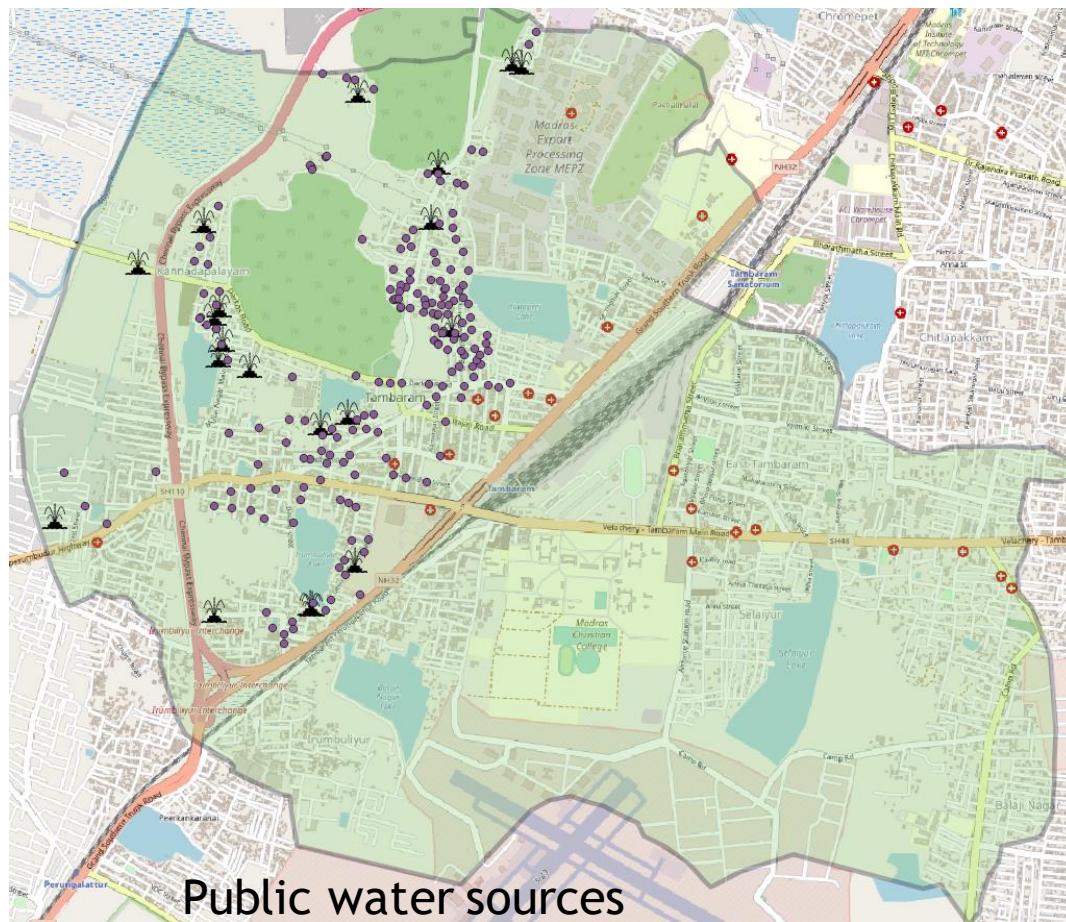
Basic Infrastructure

Basic Infrastructure

Streetlights

Basic Infrastructure

Sewage route

Religious Landmarks

Bus stops and PO
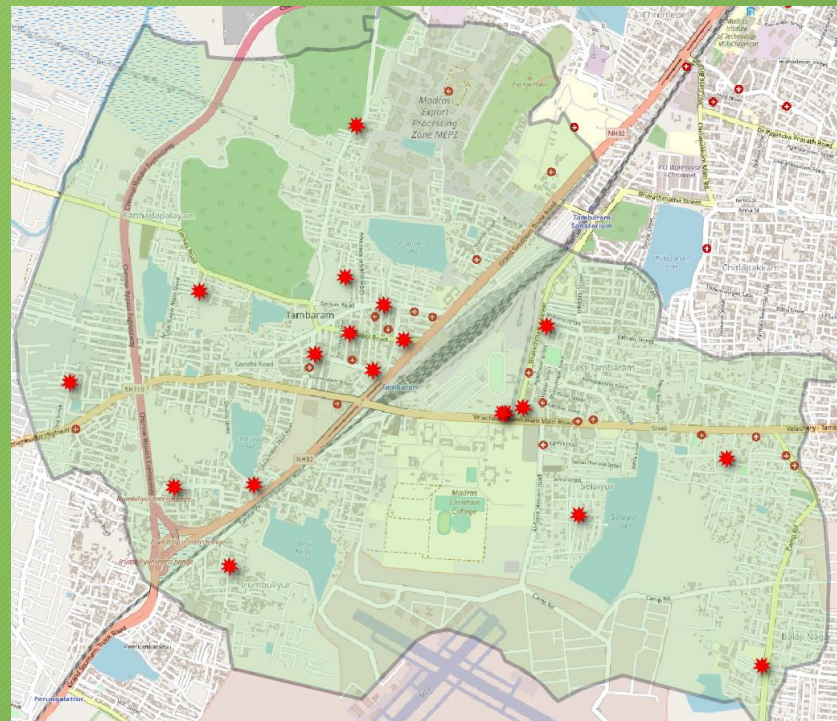
Basic Infrastructure

Suggestions

Infrastructure suggested

- MultiStorey Parking
- Integrated Command and Control center
- Sulabh toilets
- Sewage treatment plant
- Non motorised tracks
- Recreational and commercial area in undeveloped parts
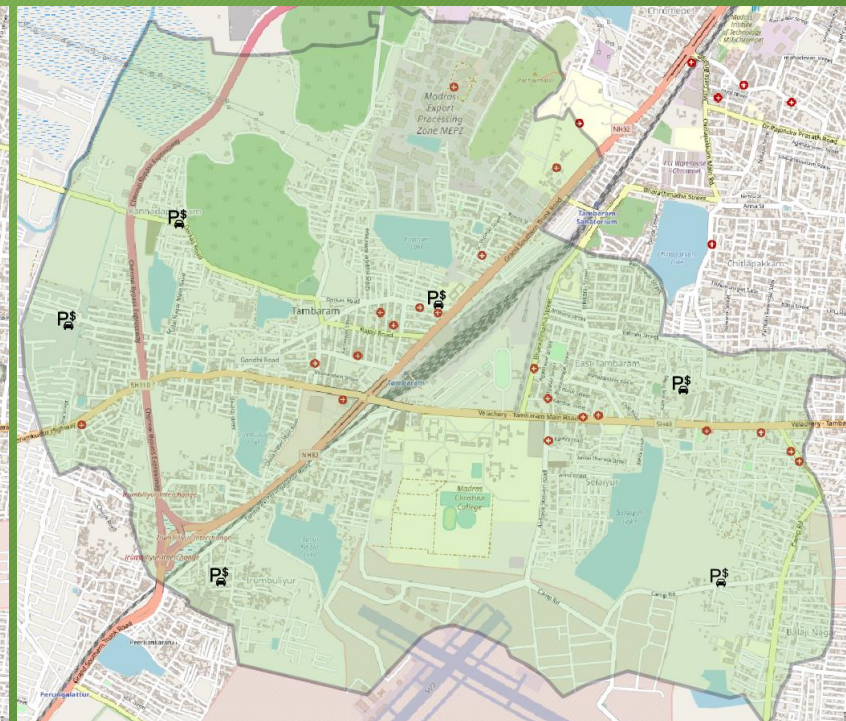- Solar paneling over roofs
- Smart energy grid

Infrastructure suggested
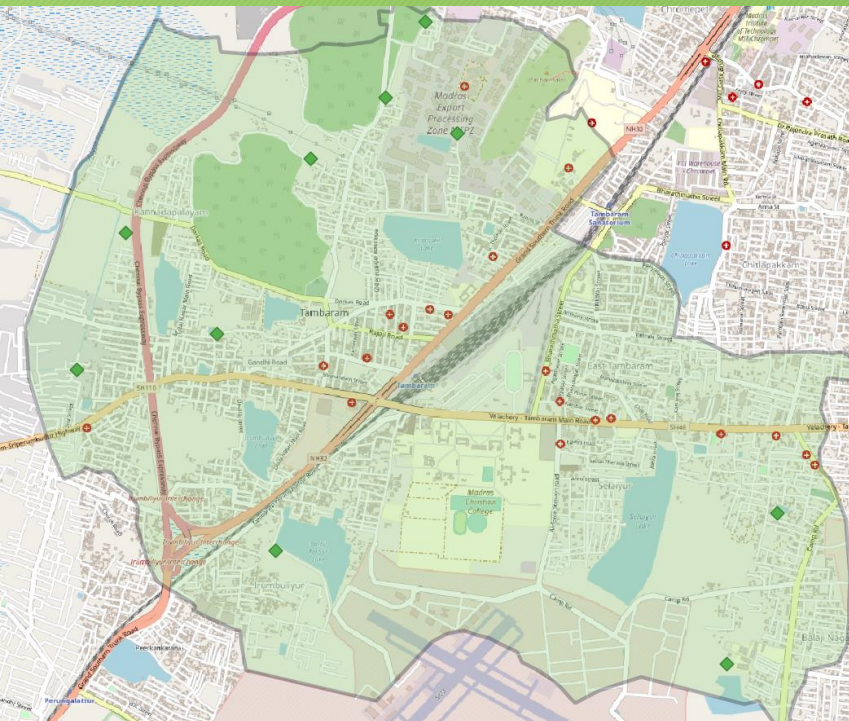
STPs

Sulabh

MultiLevel Parking

THANK YOU