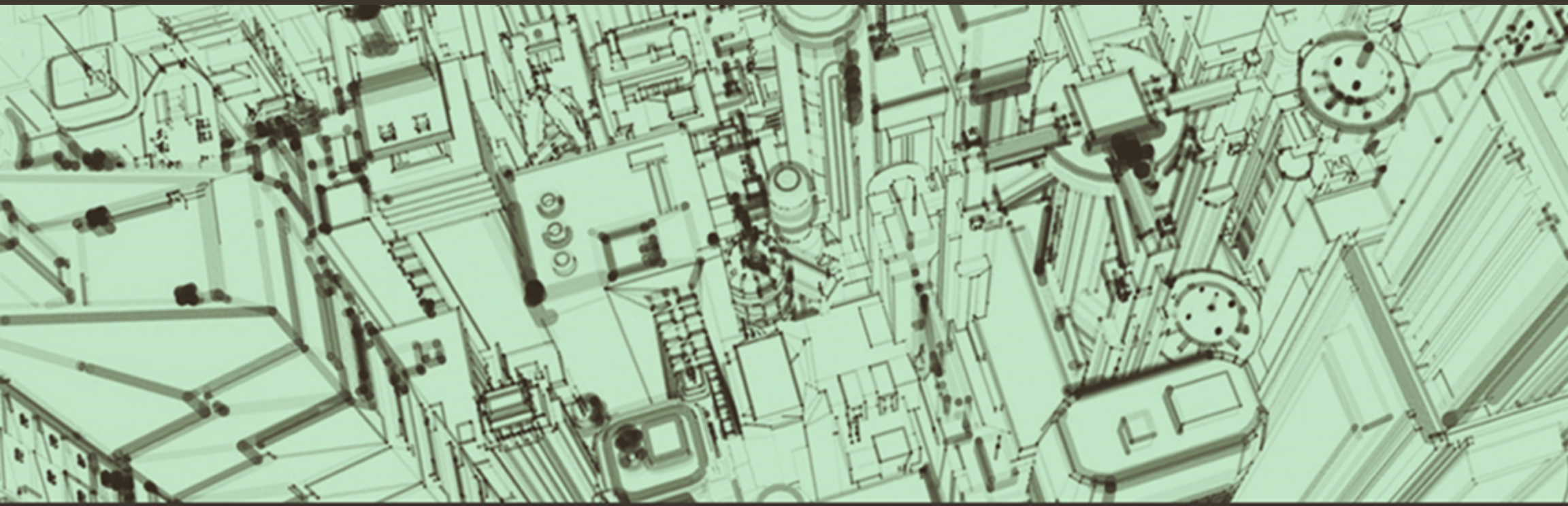
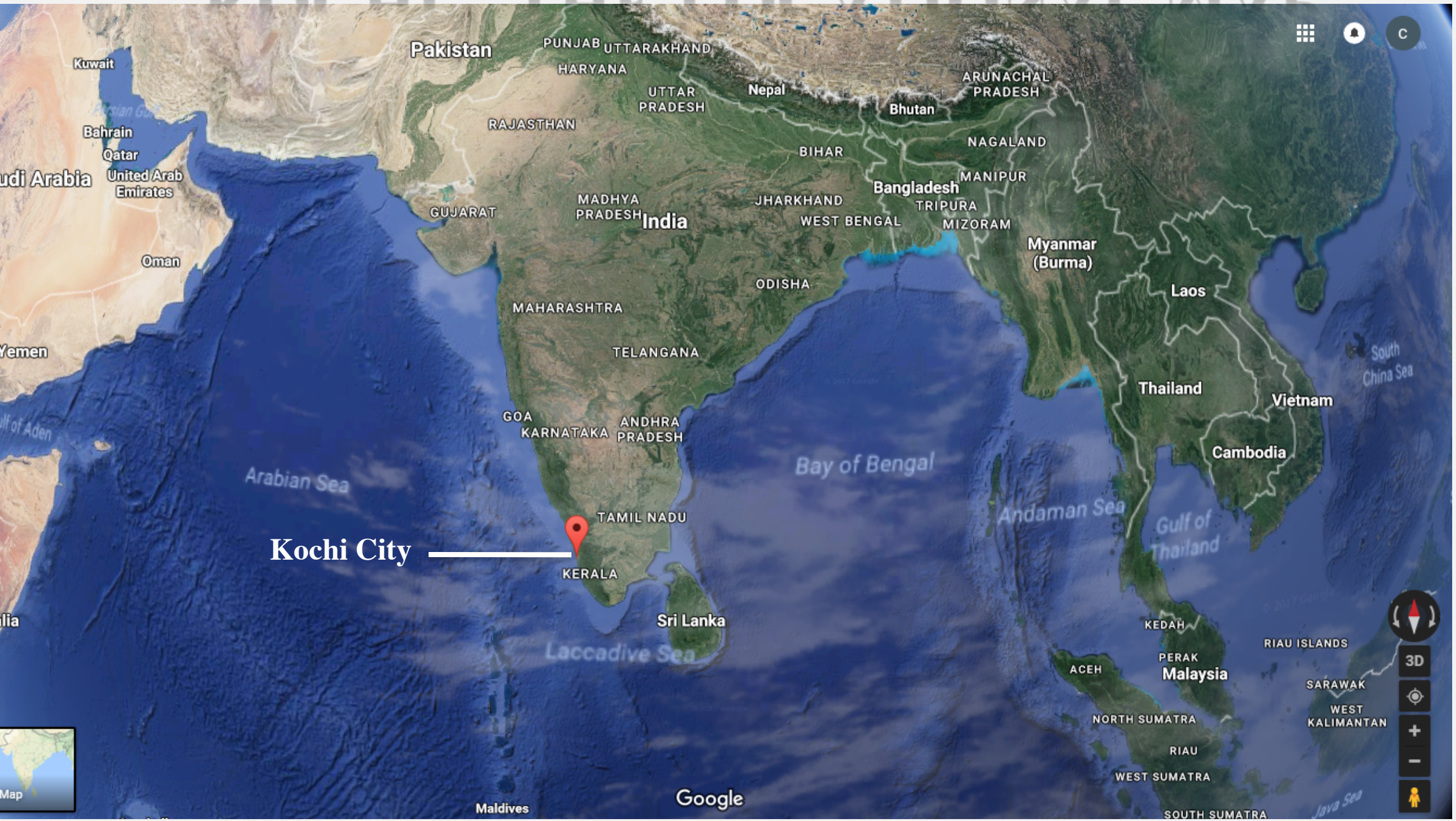


# KOCHI

*Planning for a liveable city ...*

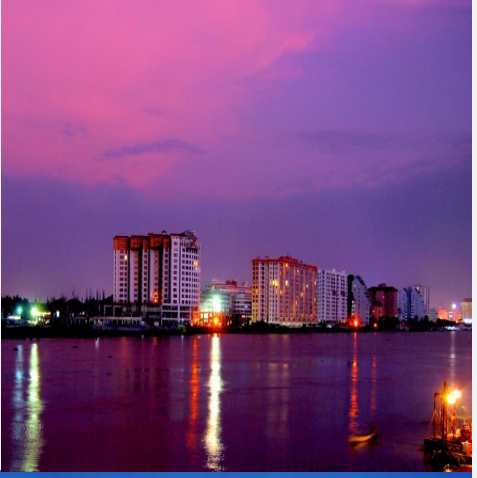
*& for a sustainable future*

# KOCHI – THE LOCATIONAL MAP



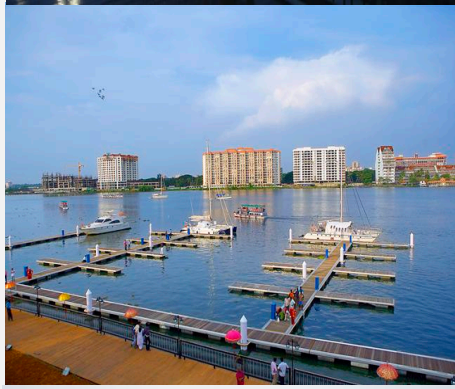
# CITY PROFILE

- **Topography - 1.5 m above MSL ;**
- **Urban Agglomeration -Population :– 12,52,000;**
- **Area: 330 sq.km;**
- **Central city - Population – 6,55,697, Area:- 94.88 sq.km ,**
- **Located between $76^0$ 14’ and $76^0$ 21’ East longitude and $9^0$ 52’ and $10^0$ 1’ North Latitude.**



# KOCHI

- Commercial Capital of the State of Kerala , in South India
- Has a strong deep water economy
- 2nd most important port city on the western coast of India
- Emerging hub port to become gateway to South East Asia.
- “Water Based City” retaining the environmental characteristics of the network of canals and backwaters.
- Has 48km of waterfront with development potential for commerce and tourism .
- Convergence of all modes of transport.
- High quality educational and medical facilities.
- City which is an IT Hub with optical fiber connectivity
- Heritage City with development aspirations and pressures
- A tourist destination.



**VISION - ‘An economically productive, effective and egalitarian metropolis which will provide to all sections of society the desired level of services and attract worldwide attention as a preferred destination for Health care, Heritage, Tourism, IT and Port based services’.**

# GROWTH TRIGGERS

- International Container Transhipment Terminal
- LNG Terminal
- Bunkering Terminal
- Ship repair facilities
- IT & ITES centres, IT Smart City
- Special economic zones
- Backwater and Heritage Tourism potential
- Metro Rail
- Water Metro Project
- Smart Cities Project

**MISSION** – ***To serve the citizens through quality service, innovation and leadership for today and future.***

# URBAN CHALLENGES

- Climate Change
- Sea-Level rise
- Blocked canals and waterways leading to floods
- Growth in number of vehicles @ 70 % per decade compared to the population growth @ 9 % per decade
- Congested roads
- Poorly managed public transport
- Water pollution
- Waste Management
- Lack of proper sewerage system
- Depleting conventional energy sources.

## Key Issues *of* Kochi

- ***Transportation***
- ***Energy***
- ***Solid Waste Management***

# TRANSPORT

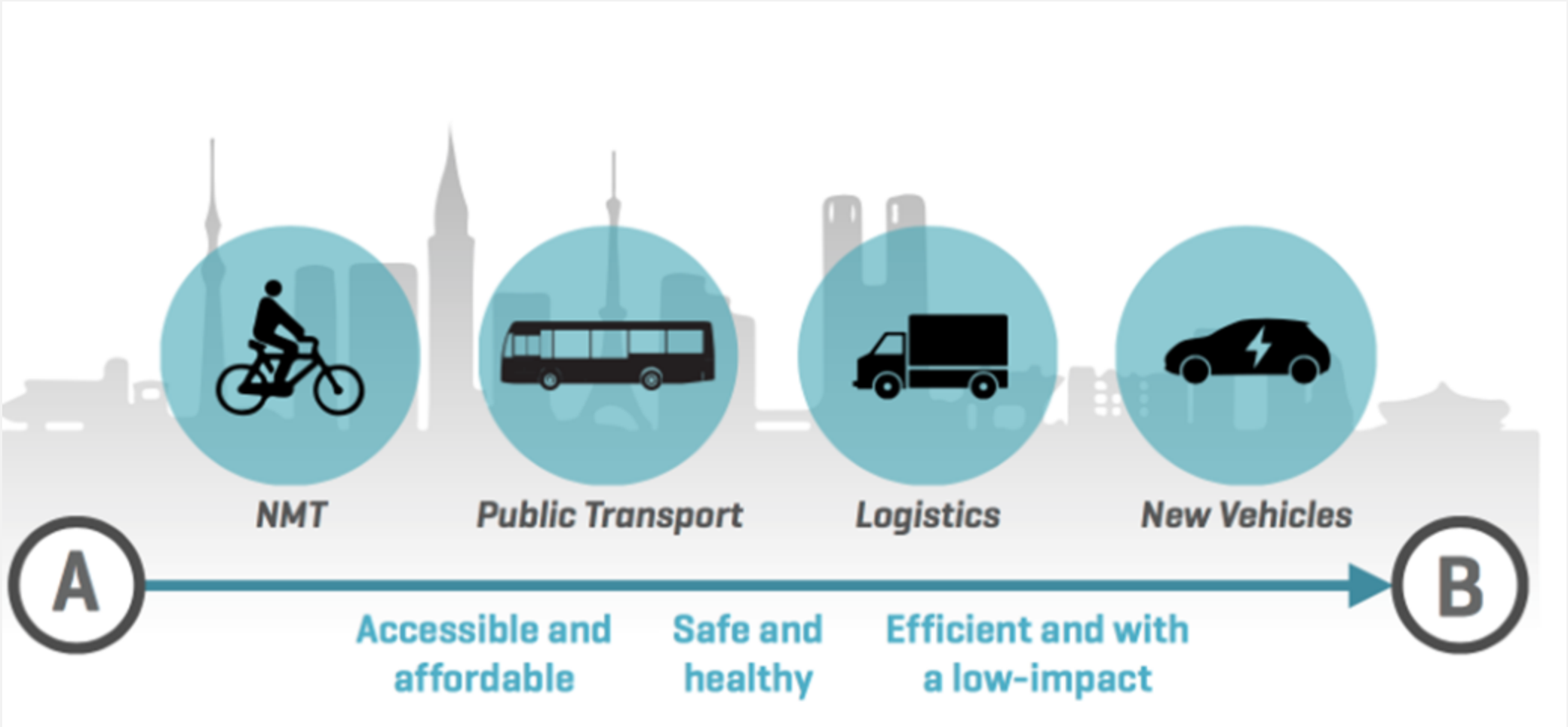
## MAIN PROBLEMS IN THE TRANSPORTATION SECTOR

- Poor road geometric
- Uncontrolled Ribbon development along road side.
- Bottlenecks created by narrow bridges, Rail crossings, Poor road drainage.
- Lack of sufficient links between the radial and ring road.
- Lack of proper road linking the ring roads on the regional periphery which can bye pass the urban region.

# MITIGATION MEASURES - TRANSPORTATION

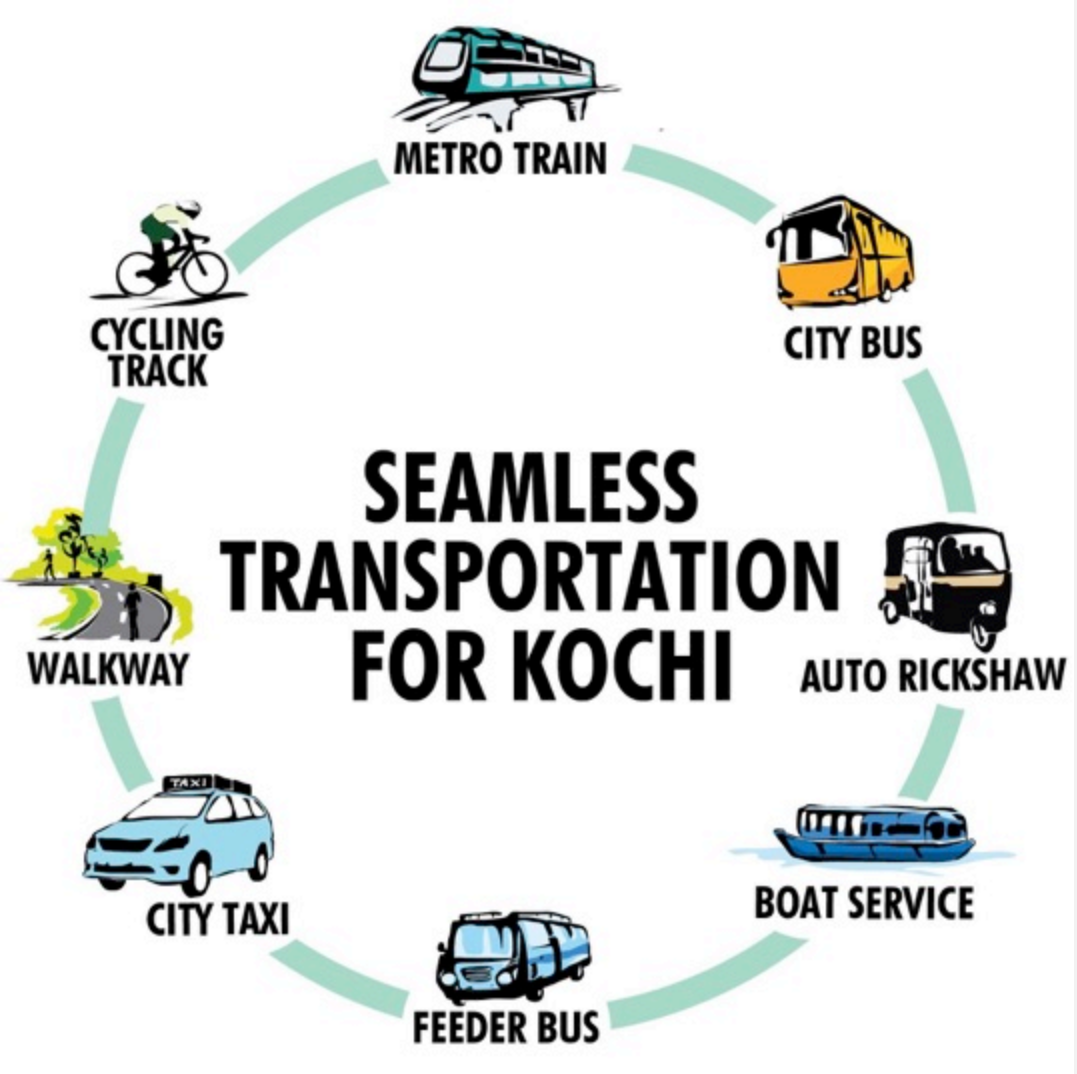
- Traffic circulation plan for CBD area
- Identification of scope for improving congested junctions
- Parking proposals and pedestrian plans
- Rerouting plan for public transport system
- Proposals for relocation of bus and truck terminals
- Proposals for bypasses, links and missing links
- Formulation of transportation development schemes
- Interchange points between MRTS/ future rail networks
- Phasing of the schemes along with project costing
- Formation of a Metro Politan Transport Authority (MTA)

# URBAN MOBILITY & SUSTAINABILITY



# LET'S INTEGRATE !

## ONE NETWORK, ONE TIMETABLE, ONE FARE



# KOCHI METRO RAIL

- Fastest constructed metro rail
- Total 26 km proposed
- 16 km  functional
- Kochi1 Card to be used across all modes of transport

# CITY BUS INTEGRATION

→ 1400 Buses – 1000 private and 400 State run

→ 69 buses per lakh population within the Greater Kochi Region

→ Notorious for over speeding

→ Safety at risk

→ Lack of terminal and depot space

→ Modal share of city bus transport is expected to increase from 45.2% in 2015 to 50.1% in 2017 and 52.3% in 2026

- Integration of private buses into a society
- The move is expected to improve organizational output as well as passenger reliability and comfort

# SUSTAINABLE ECO SYSTEM FOR TRANSPORT

# NON MOTORISED TRANSPORT- WALKWAYS & CYCLES

# ENERGY

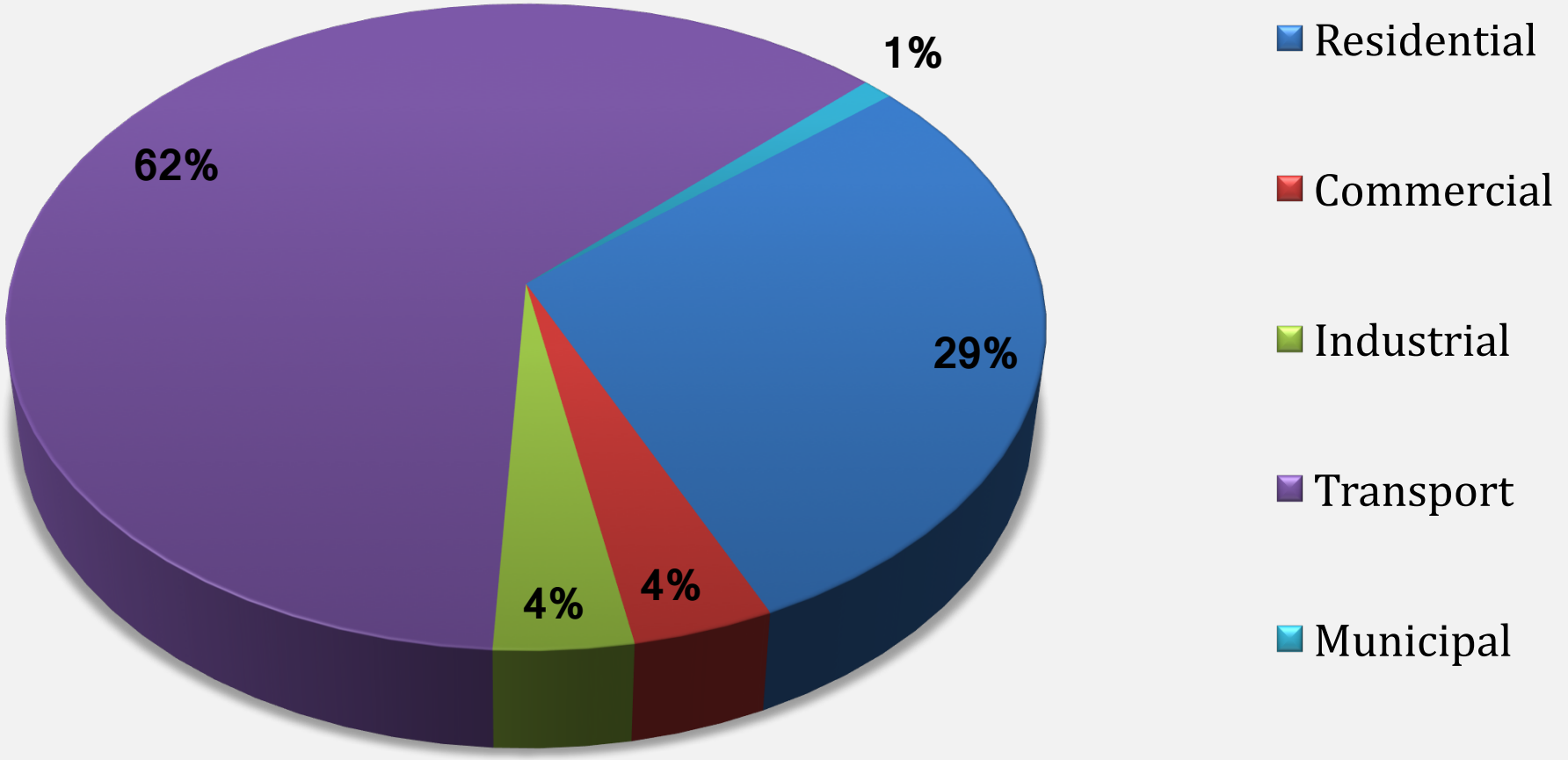
- **The state of Kerala depends on hydel resources as the sole means to produce power for itself.**
- **When the monsoon fails, water storage becomes scarce and power shortage drives the State to load-shedding and similar hardships.**

- ***There is a need to explore alternative source of energy.***

## Energy Austerity !!!

# KOCHI -ENERGY PROFILE

**Pattern of Energy Consumption in Kochi**

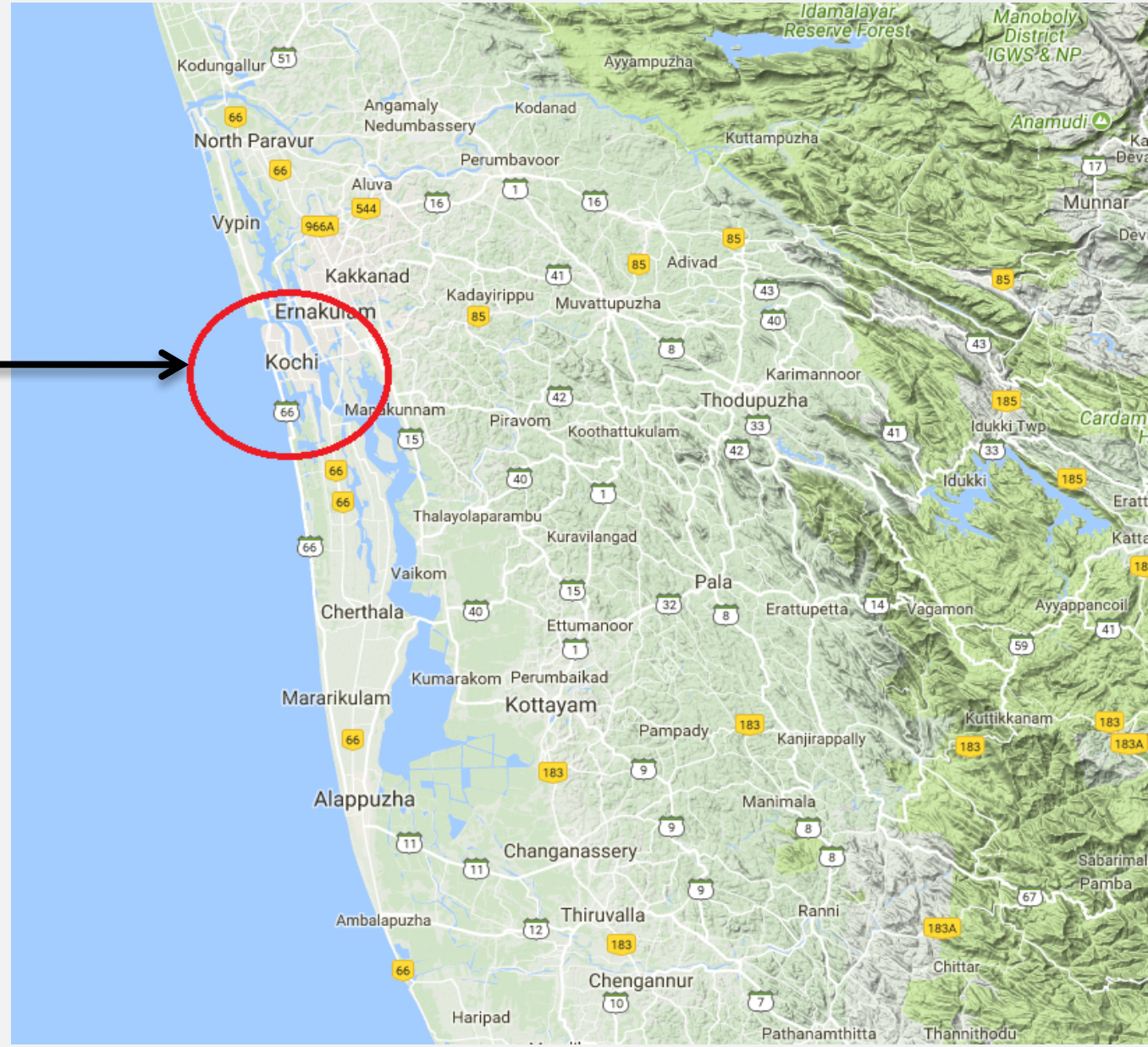


# EXPLORING ALTERNATIVE SOURCE OF ENERGY

**Kochi lies**

**between 9.48° N and 10.50° N latitudes**
**&**
**between 76.5° E and 76.58° E longitudes**

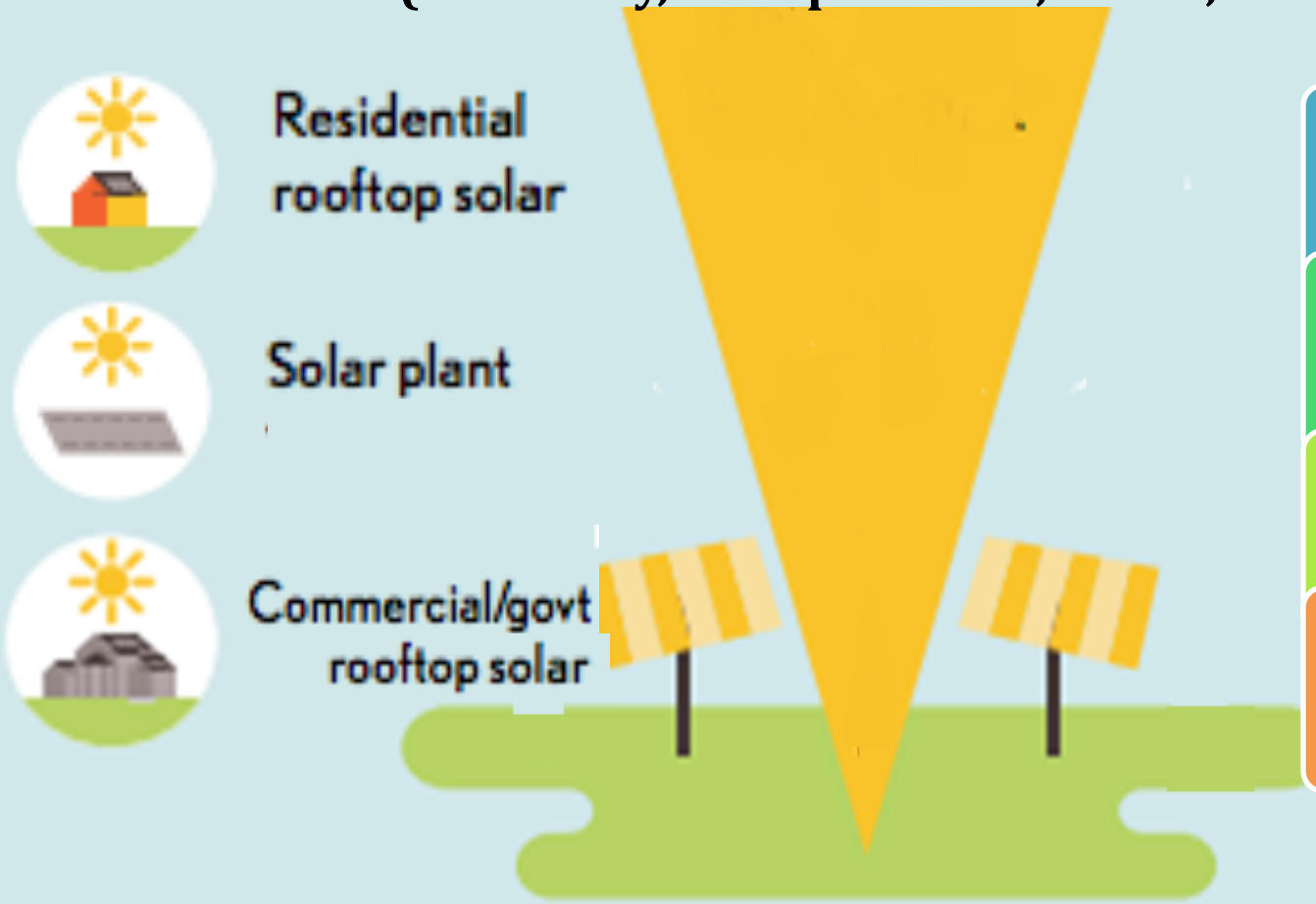
**- Receives good amount of solar radiation**
***( an annual average of 5.30kWh/ m2/day )***



# 100% KOCHI

## Transition to 100%renewable energy for all purpose

**(electricity, transportation, home, industry)**




- Kochi Solar City Project
- Solar Smart
- Solar Connect
- Solar Home Lighting System

# SOLID WASTE MANAGEMENT

→ Solid waste management a major issue for city!!

→ Present solid waste treatment plant at Brahmapuram ( located 16.6 km from the centre of the city), with a capacity of 250 Ton per day.

→ Not functioning to its full capacity :

- Machines have developed technical snag
- Cracks have developed in the floor of almost all buildings in the plant.
- Signs of settlement of foundation.
- 'Not in my backyard'attitude of the people.

→ Need for an alternative

**WASTE TO ENERGY PLANT**

# WASTE TO ENERGY PLANT

→ New plant will have capacity to process 800 tones of waste daily.

→ Waste is heated at 900-1,000 degree Celsius to produce energy (pollution free) [GASIFICATION]

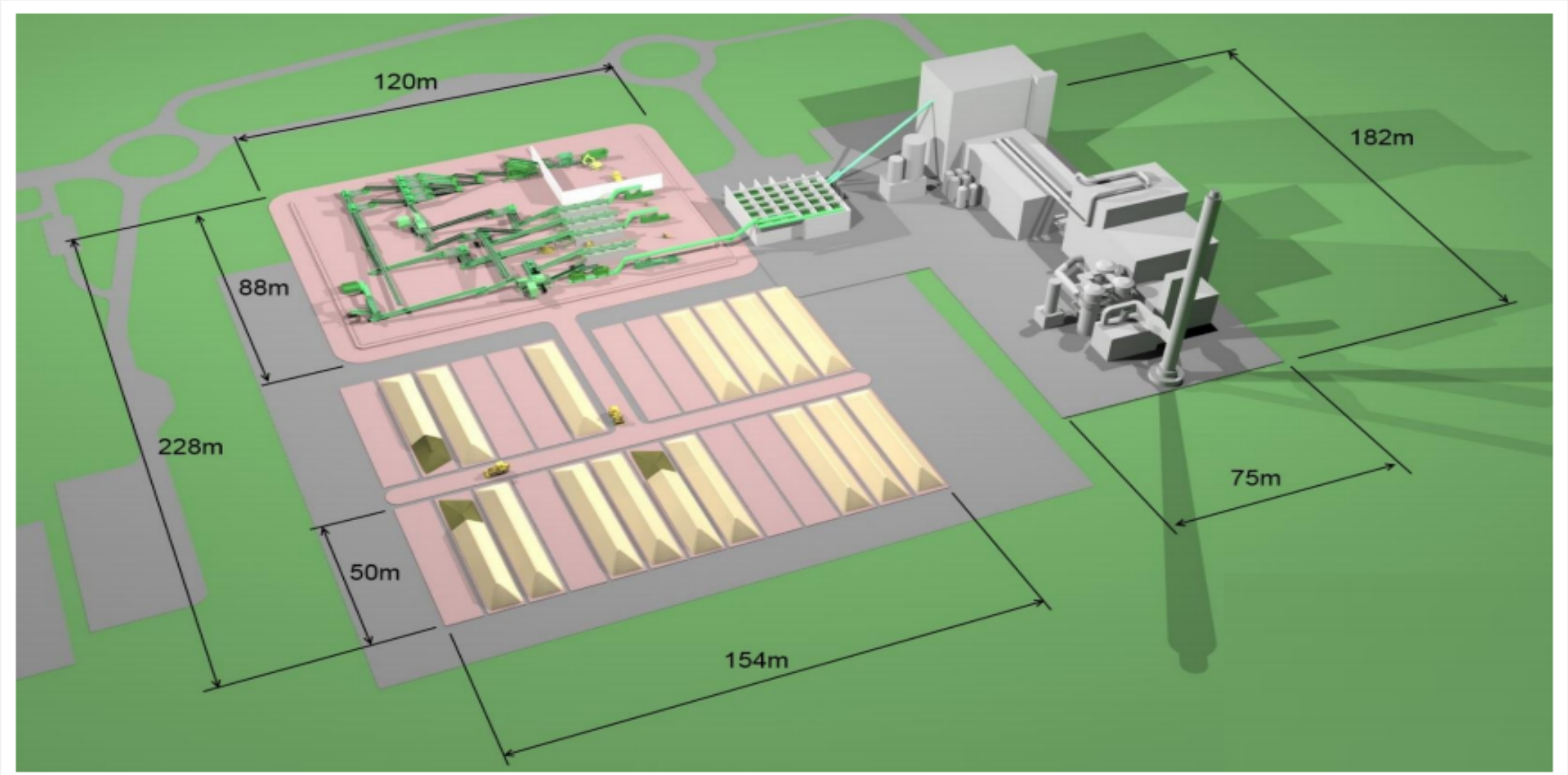
→ As many as 8 MW energy can be generated by the plant.

→ Technology uses minimal energy with effective drying through eco-friendly patented natural process.

→ Power generated from the MSW will be purchased by Kerala State Electricity Board (KSEB)

The project fully supported by the Kochi Municipal Corporation, State Government and the Government of India.

# PROPOSED WASTE TO ENERGY PLANT

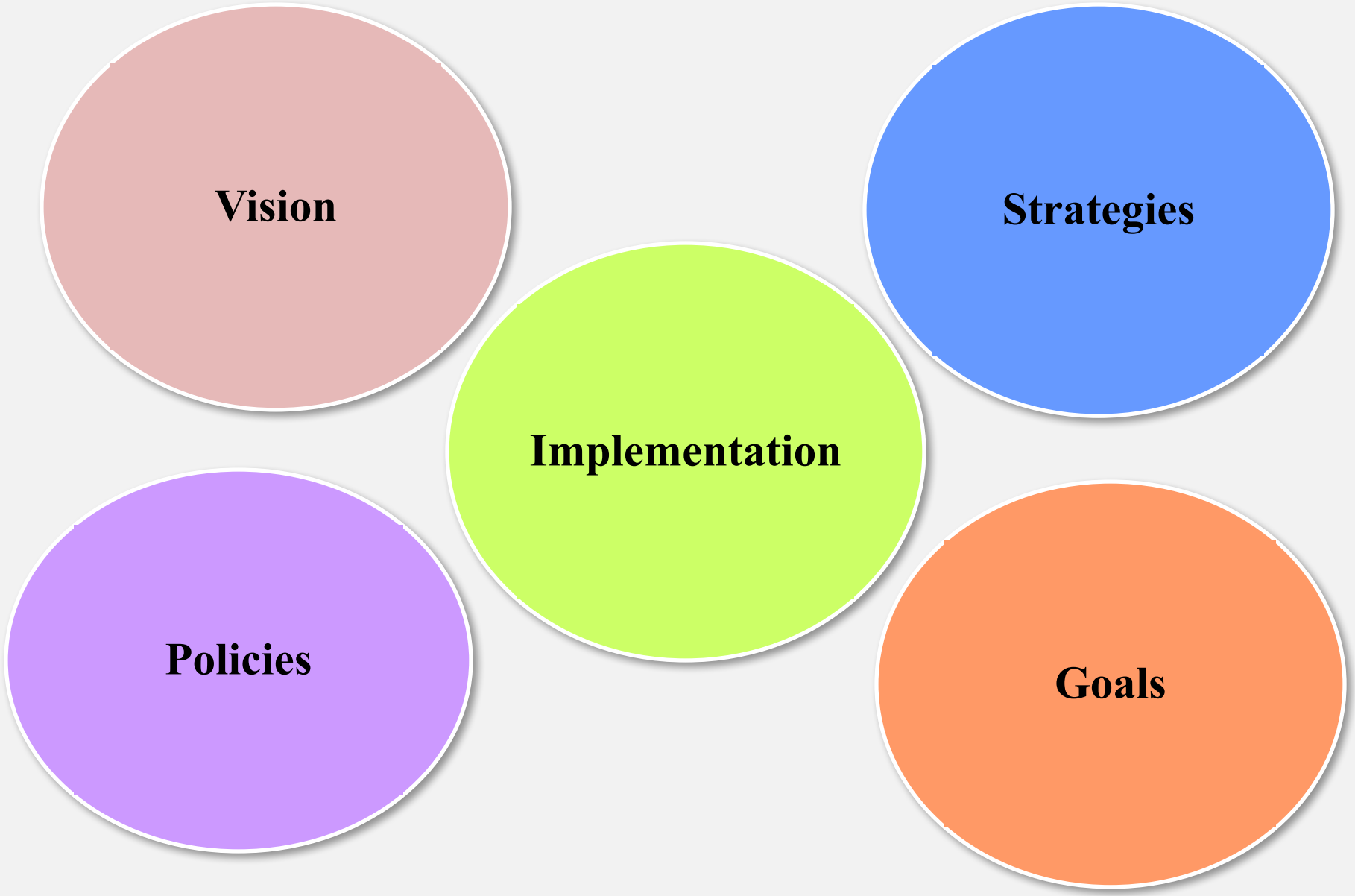



RAPID URBANIZATION
ADAPT
THRIVE
EMBED
DEVELOPMENT
SUSTAINABLE DEVELOPMENT

# RELATED INITIATIVES TAKEN BY KOCHI

- Comprehensive Master Plan
- City Sanitation Plan
- Water Policy
- Restoring city's canal and drainage system
- Strict guidelines and building rules
- Coastal zone regulation act
- Effective waste disposal infrastructure
- Awareness Creation
- Promoting investment in renewable energy technologies

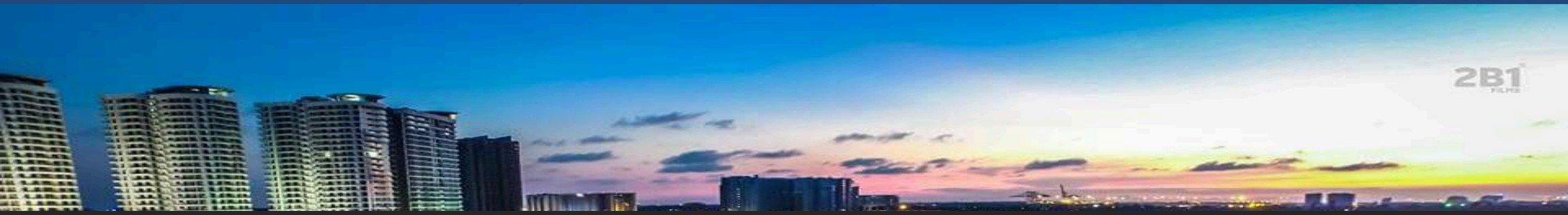
# In Kochi, we are incorporating Sustainability in our……..



# OUR MISSION

- To have effective strategy and projects for climate change impact mitigation
- To have transportation facility of International standards
- To have waste to energy plant.
- For the completion of urban infrastructure improvement programmes in a time bound manner
- To make Kochi a place assuring benefits of development to all sections of society
- To make the city an ideal  place of good quality of life for the people

# THANK YOU



**Dr. Rajan Chedambath**
**Director**
**Centre for Heritage, Environment and Development**