

# International Conference on Eco Industrial Parks At Hyderabad

A Presentation on  
**SITE MASTER PLANNING – EXAMPLES FROM INDIA**

By  
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- ◆ Industrial Estates of India prior to late 1990s
- ◆ Changing scenario of Site Master Planning in India since late 1990s - due to increasing emphasis on environment
- ◆ Emerging approach for Site Master Planning in India
- ◆ Case Study (APSEZ)



# What constitutes Site Master Planning

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- ◆ Long range plans which
  - ◆ integrate infrastructure requirements
  - ◆ for existing and future landuse - continuum model
  - ◆ with environmental sustainability
- ◆ Typical Industrial Park Project
  - ◆ Site Identification and Assessment
  - ◆ Field Surveys and Investigations
  - ◆ Market Study and Demand Assessment – Users
  - ◆ Spatial Planning
  - ◆ Infrastructure Planning - Engineering & Design
  - ◆ Cost Estimation
  - ◆ Techno- Economic Viability
  - ◆ Environmental and Social Impact Assessment
  - ◆ Bid Process Management for procurement of Developer(s)
  - ◆ Project Execution Start-Up



# Scenario prior to late 1990s

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- ◆ Industrial Estate development driven by State Govt - owned 'Industrial Development Corporations' which were set up primarily during the 1960s & 1970s
- ◆ Focus on making serviced/unserviced land available for industrial investors
- ◆ Site selection generally not informed through a technical study
- ◆ Integrated infrastructure limited primarily to roads
- ◆ Largely no planning for environmental management – water, wastewater, solid waste, storm water, green buffers
- ◆ Site Master Planning largely influenced by applicable Town Planning norms – which has limited guidelines for industrial development
- ◆ Possible synergies between units not explored / capitalised
- ◆ No focus on risk assessment and disaster management

# Scenario in Andhra Pradesh

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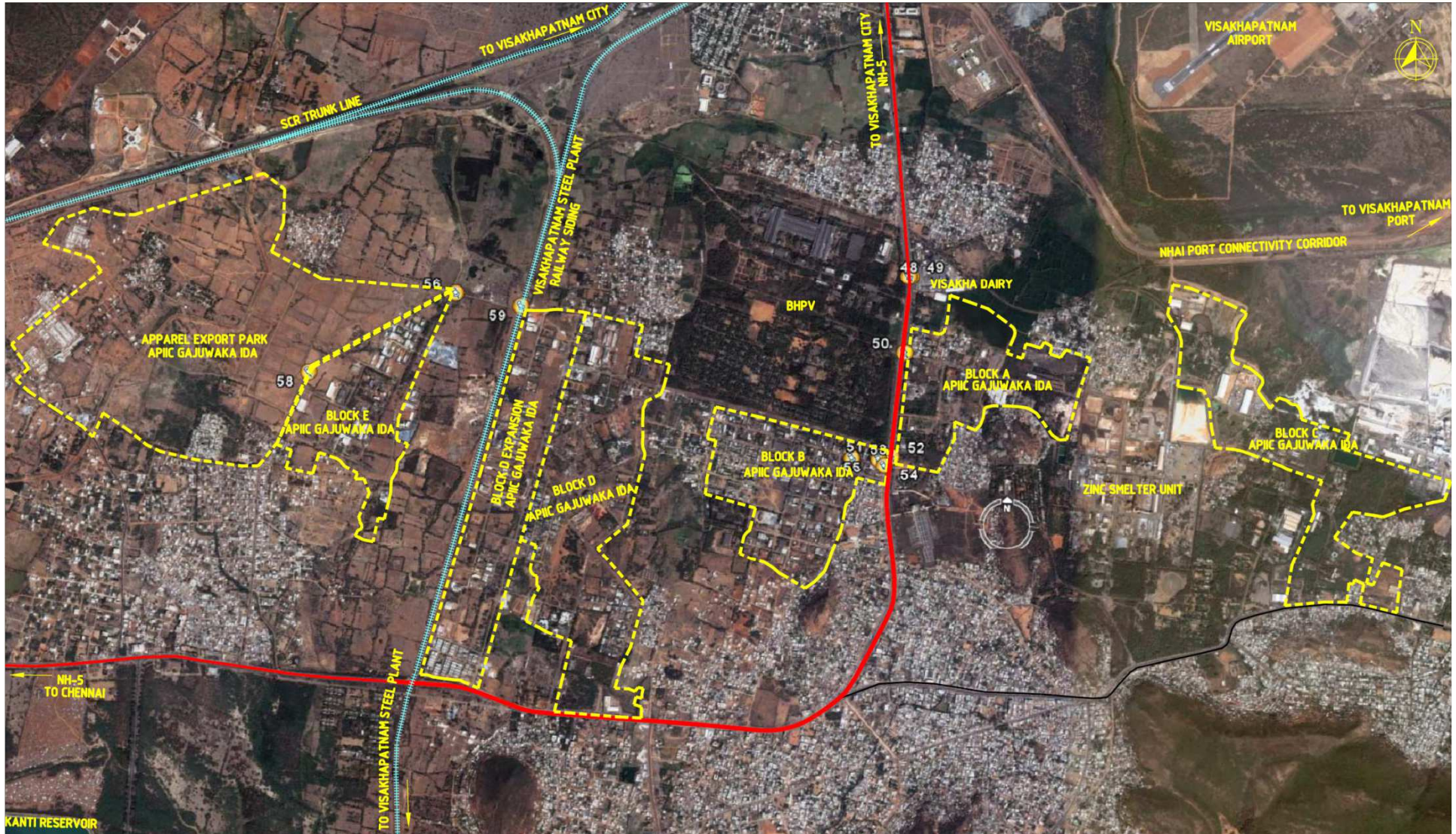


- ◆ APIIC is the premier organisation for development of industrial areas
- ◆ APIIC since 1973, developed over 270 industrial areas spreading over an extent of about 32,932 acres.
- ◆ Majority of estates developed in 1970s and 80s when environment management was not integrated into the development of industrial estates
- ◆ Private developers in Industrial Parks – a recent entrant in the last decade





# Example of Site Developed in 1970s & 1980s: Industrial Park in Visakhapatnam





## Contd.. Site Developed in 1970s & 1980s

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- ◆ Located in coastal industrial belt of Visakhapatnam within Visakhapatnam Metropolitan Region; Area – 974 acres
- ◆ 7 blocks with 2 blocks towards the east of NH5 and 5 blocks towards the west of NH5 - Blocks developed in phases through 1970s and 1980s – no integrated Master Plan
- ◆ Connectivity
  - ◆ Site abuts NH5 – Golden Quadrilateral
  - ◆ 5.5 km to the south of Visakhapatnam Airport
  - ◆ Site abuts South Central Railway trunk line
- ◆ Major industries in vicinity: Visakhapatnam Steel Plant, BHPV, Zinc Smelter Plant, HPCL, Shipyard, etc
- ◆ 514 units in the estate; ~40% of units are sick/closed units
- ◆ Units are primarily small scale 'general engineering' units (fabrication etc) - ancillary units to Visakhapatnam Steel Plant, BHPV, HPCL etc.
- ◆ Scope for **brownfield** redevelopment

## Contd.. Site Developed in 1970s & 1980s

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- ◆ Road Network
  - ◆ Well laid with wide roads; ROWs have enough width to accommodate storm water drains, avenue plantation & footpaths wherever it is not provided & currently required
- ◆ Water Supply
  - ◆ APIIC had developed a water supply system - not operated due to lack of demand from units
  - ◆ Only 3 units depend on GVMC water supply – rest depend on groundwater
  - ◆ Currently several units are demanding a water supply system
- ◆ Storm Water Drainage
  - ◆ Only 50% covered by a storm water drainage system - storm water outlet system not completed – leading to water logging problems during monsoons
- ◆ Solid Waste Management & Wastewater Management
  - ◆ None – recent efforts for an organised system for solid waste mgmt
- ◆ Green Areas / Green Belt
  - ◆ Areas allotted for green belt / greenery largely not maintained.
- ◆ Other Common Utilities & Services - None

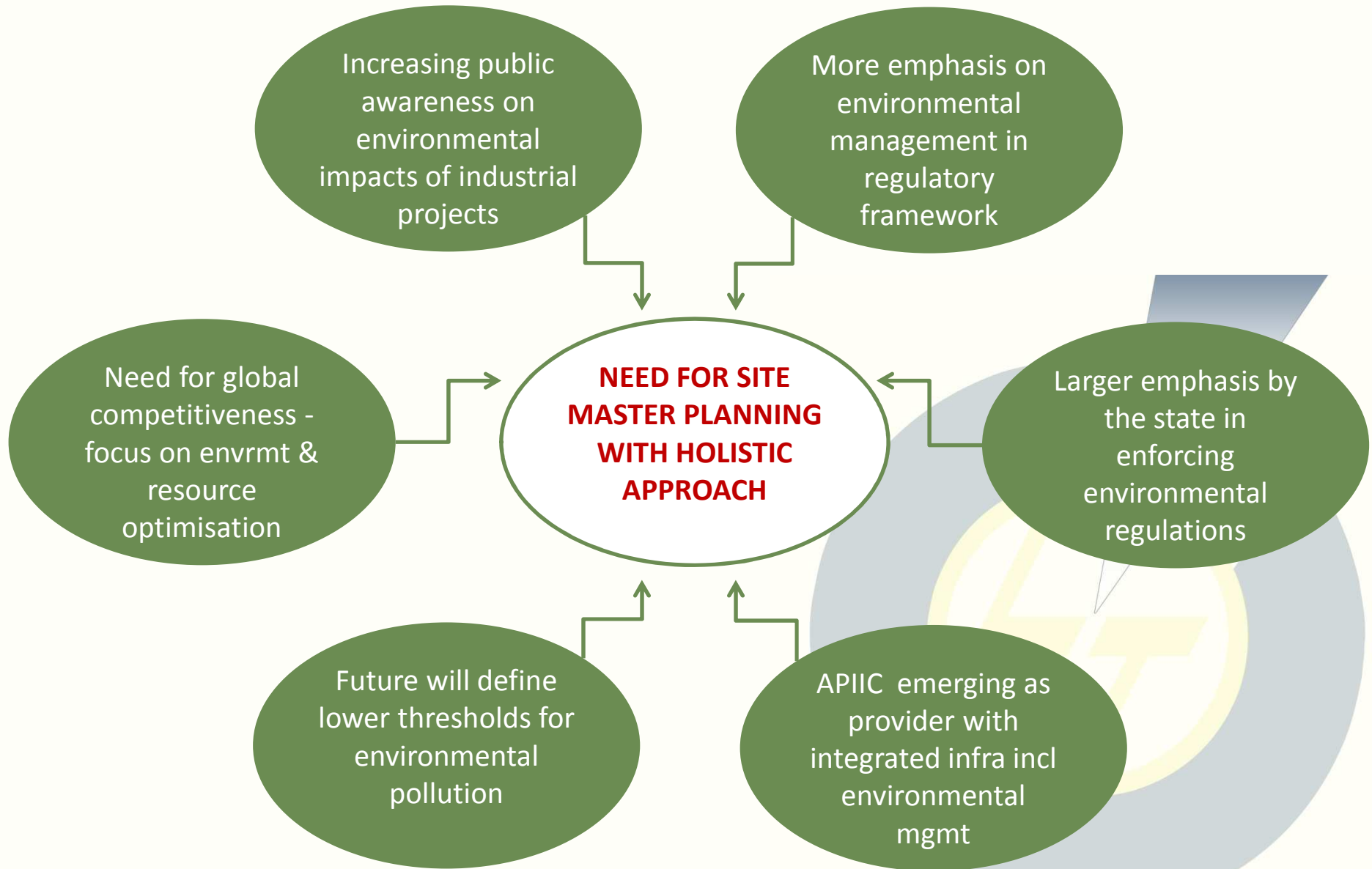


# Contd.. Site Developed in 1970s & 1980s



*Pictures taken in October 2006*

# Changing Scenario

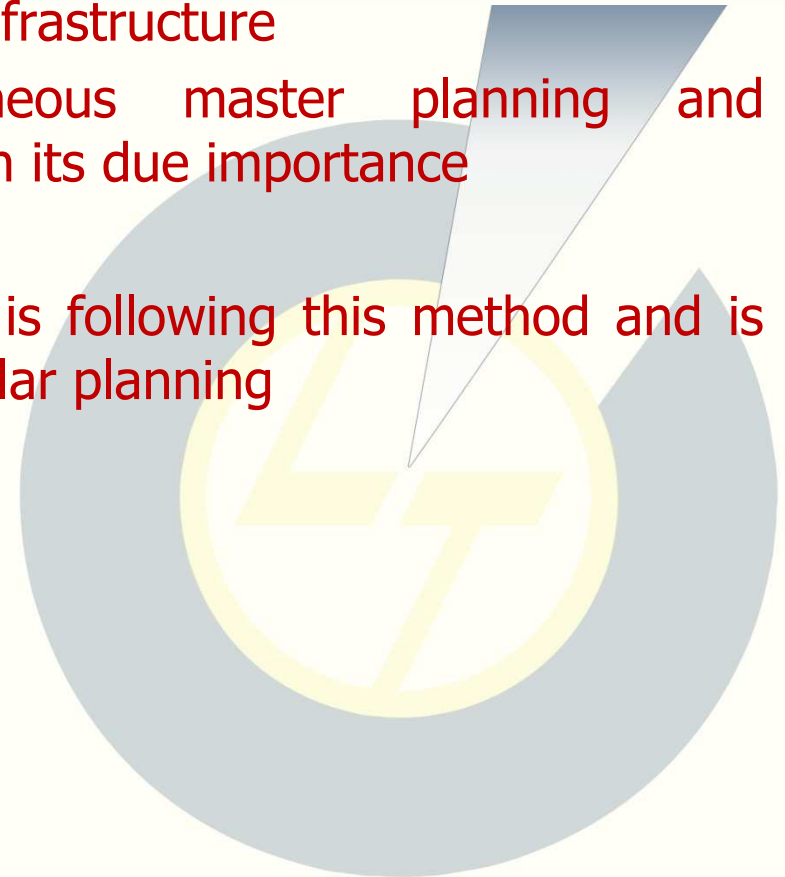


# Environmental Regulations

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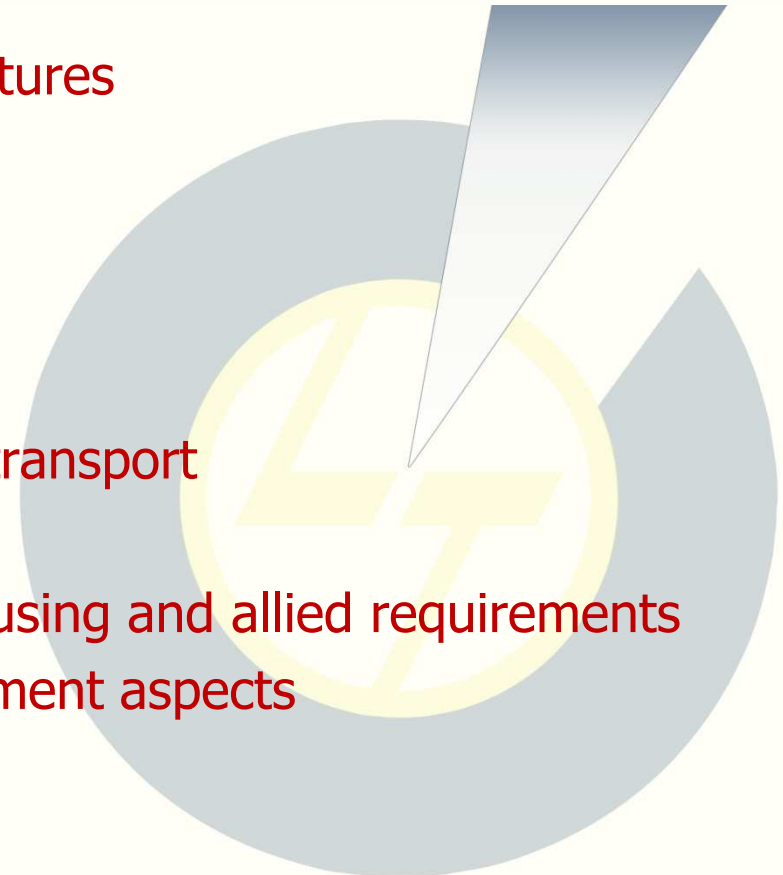


- During pre 2006 - Environmental regulations were inadequate to address the environmental management requirements
- Post 2006 MoEF notification - environmental management awareness has increased manyfold
- Higher level of environmental management scrutiny improved the implementation of better environmental infrastructure
- Issues like importance of simultaneous master planning and environmental planning is now being given its due importance
- In the current project for APSEZ, APIIC is following this method and is expected to do much better than the regular planning



## ◆ Holistic approach to Site Master Planning

- ◆ Long term vision with focus on international competitiveness
- ◆ Focus on integrated infrastructure – with emphasis on environmental management utilities
- ◆ Optimal utilisation of available land
- ◆ Conservation of important natural features
- ◆ Optimal use of natural resources
- ◆ Explore synergies of co-existence
- ◆ Use of renewable energy sources
- ◆ Energy conservation measures
- ◆ Traffic management including public transport
- ◆ Disaster management
- ◆ Inclusion of social infrastructure – housing and allied requirements
- ◆ Integration of operation and management aspects



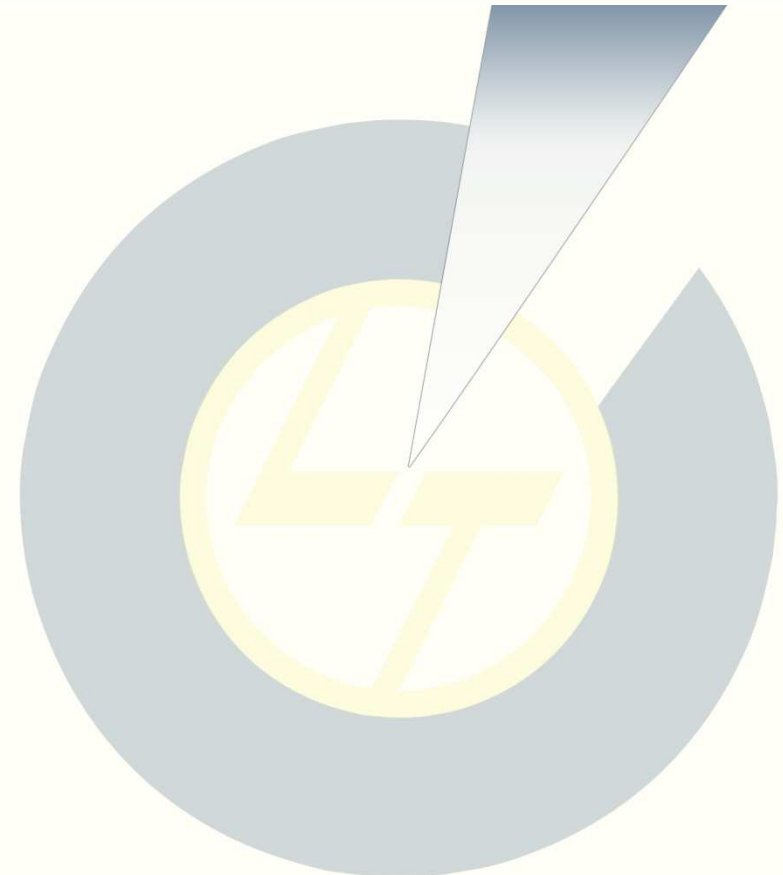


# Challenges Faced

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- ◆ Sites often not located within any Master Plan area – therefore no zoning guidelines – requires a master planning approach which is both inward and outward
- ◆ Surrounding habitations
- ◆ Irregular site boundaries
- ◆ Landuse control around the site

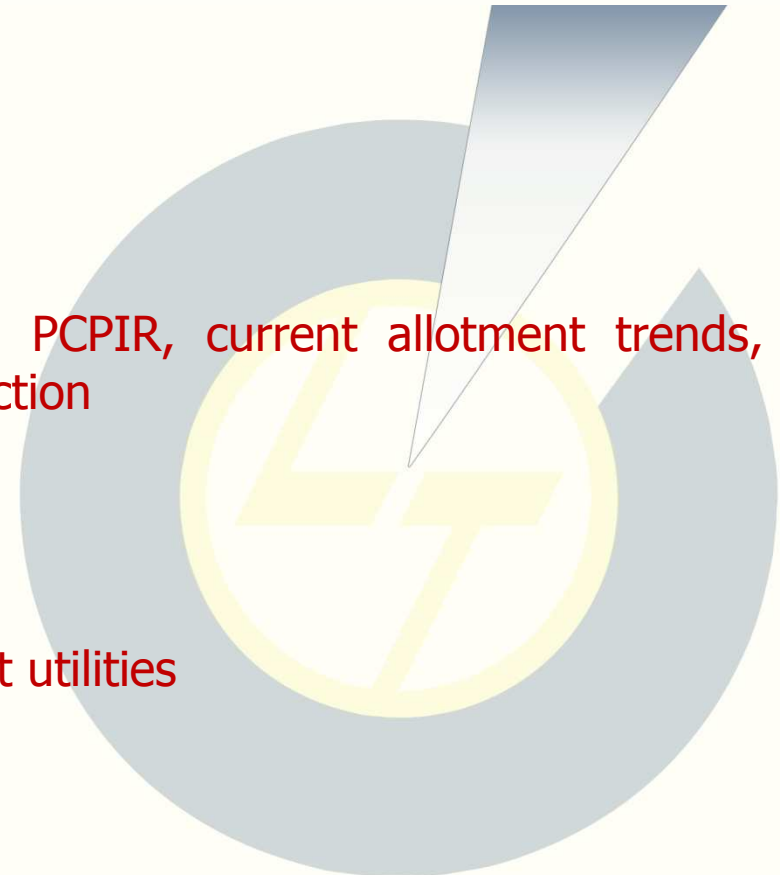


### ◆ Challenges

- ◆ Site already partly developed
- ◆ Allotments in progress
- ◆ Irregular site boundary
- ◆ Surrounding settlements
- ◆ HT lines
- ◆ Traffic routing issues

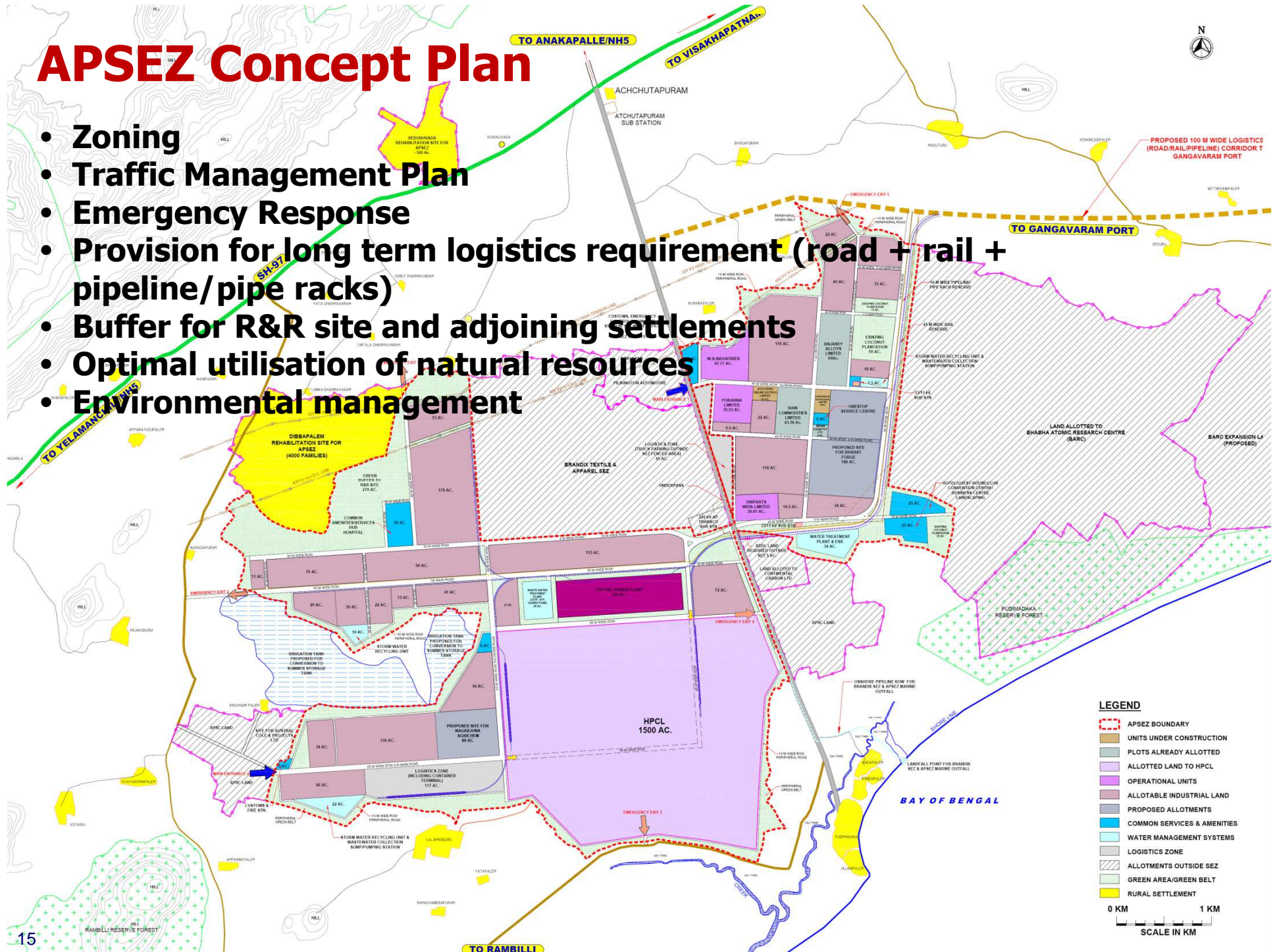
### ◆ Approach

- ◆ Defined vision – eco industrial concept
- ◆ Zoning based on project setting within PCPIR, current allotment trends, adjoining landuse compatibility, wind direction
- ◆ Explore synergies
- ◆ Use of non conventional energy sources
- ◆ Disaster management
- ◆ Integration of environmental management utilities
- ◆ Operations and management concept



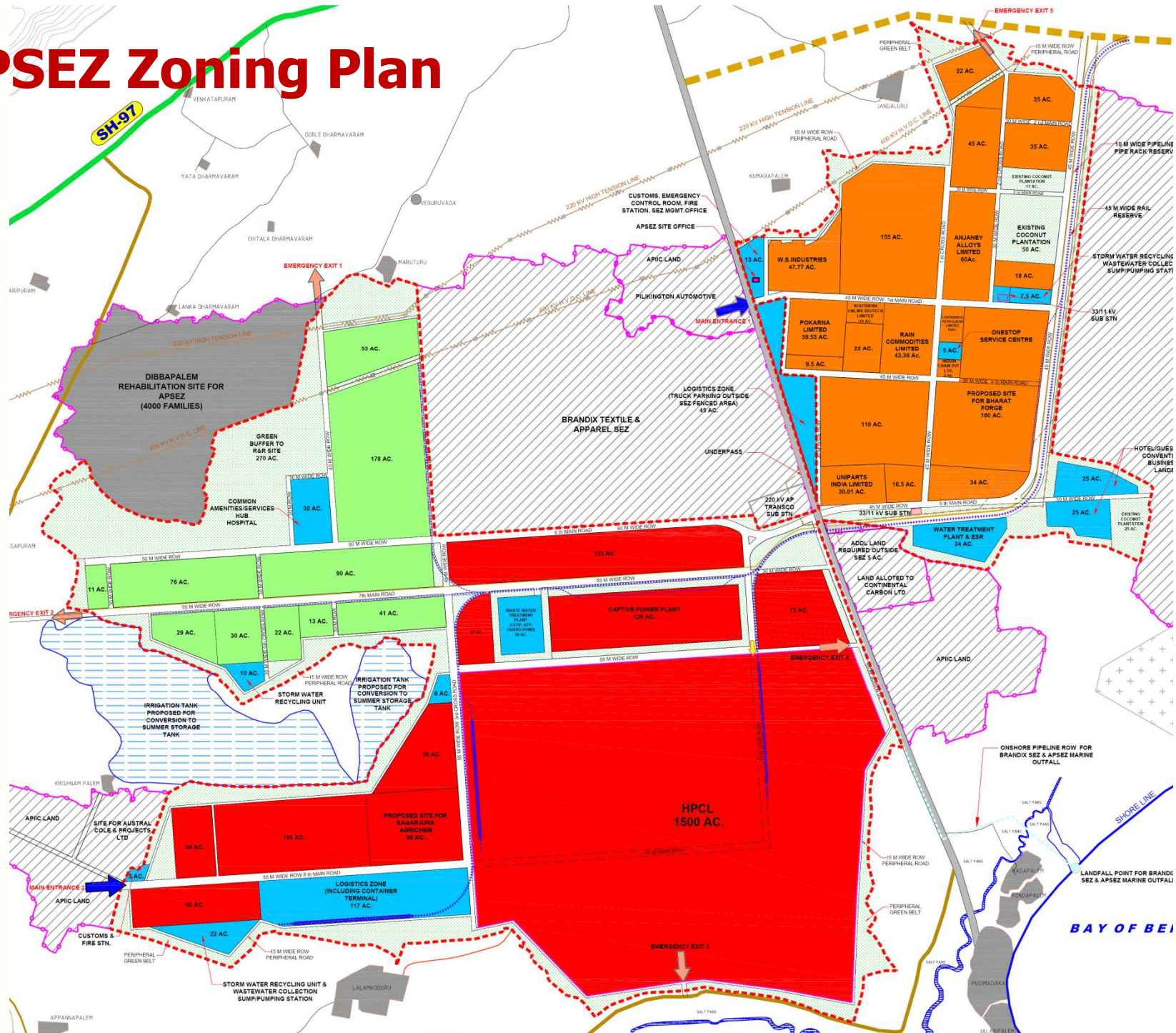
# APSEZ Concept Plan

- Zoning
- Traffic Management Plan
- Emergency Response
- Provision for long term logistics requirement (road + rail + pipeline/pipe racks)
- Buffer for R&R site and adjoining settlements
- Optimal utilisation of natural resources
- Environmental management

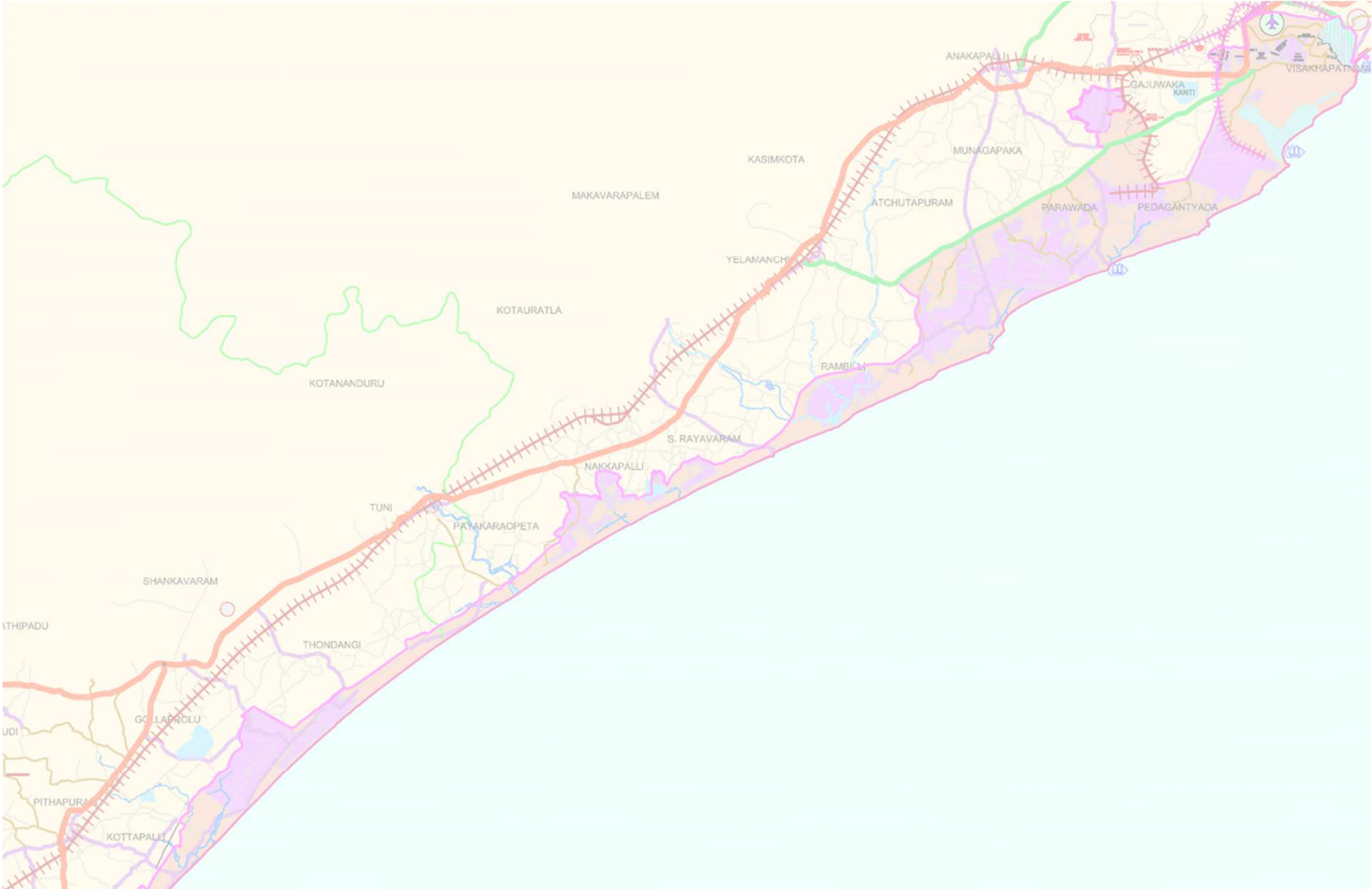




# APSEZ Zoning Plan

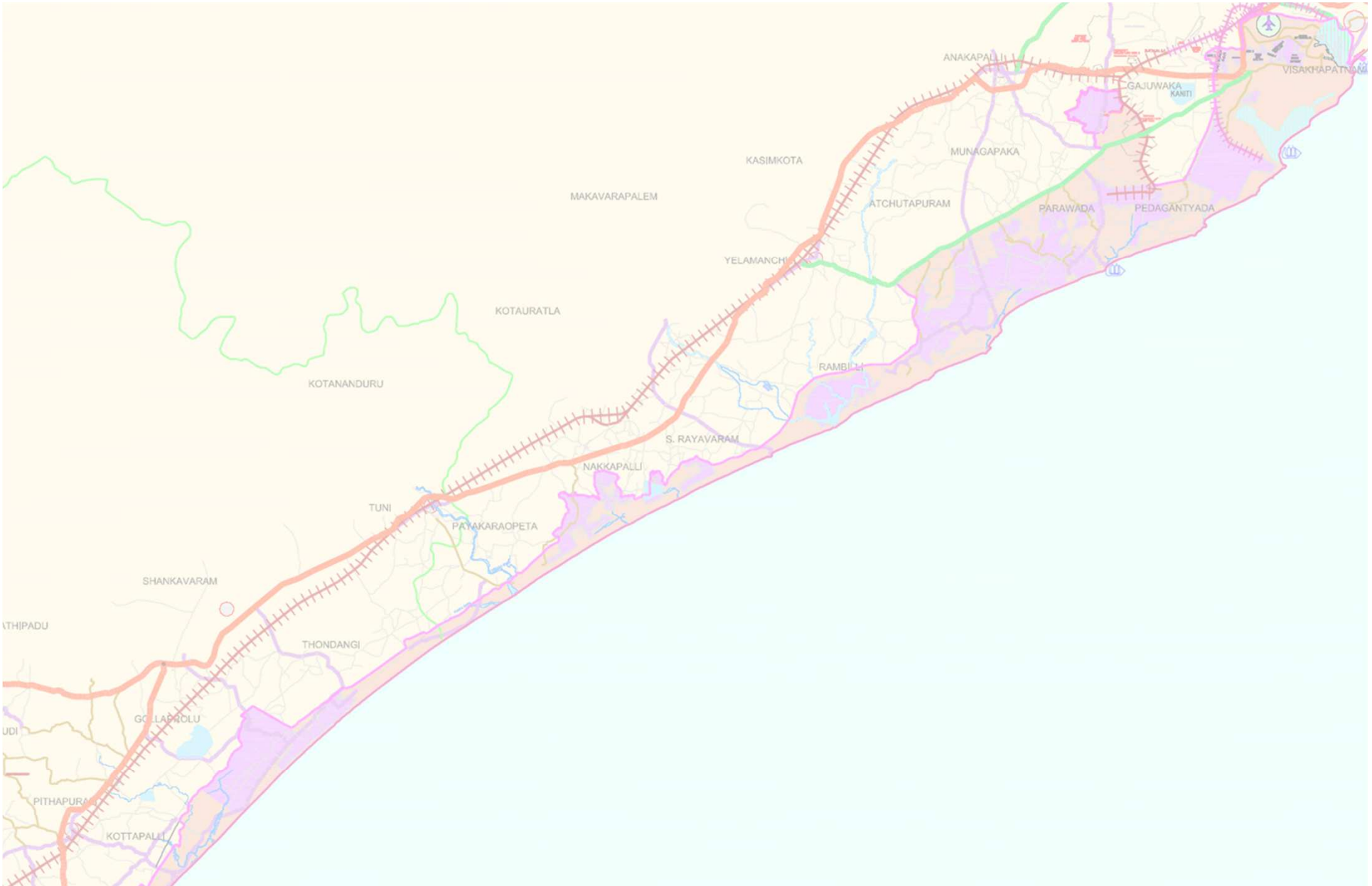






**THANK YOU...**

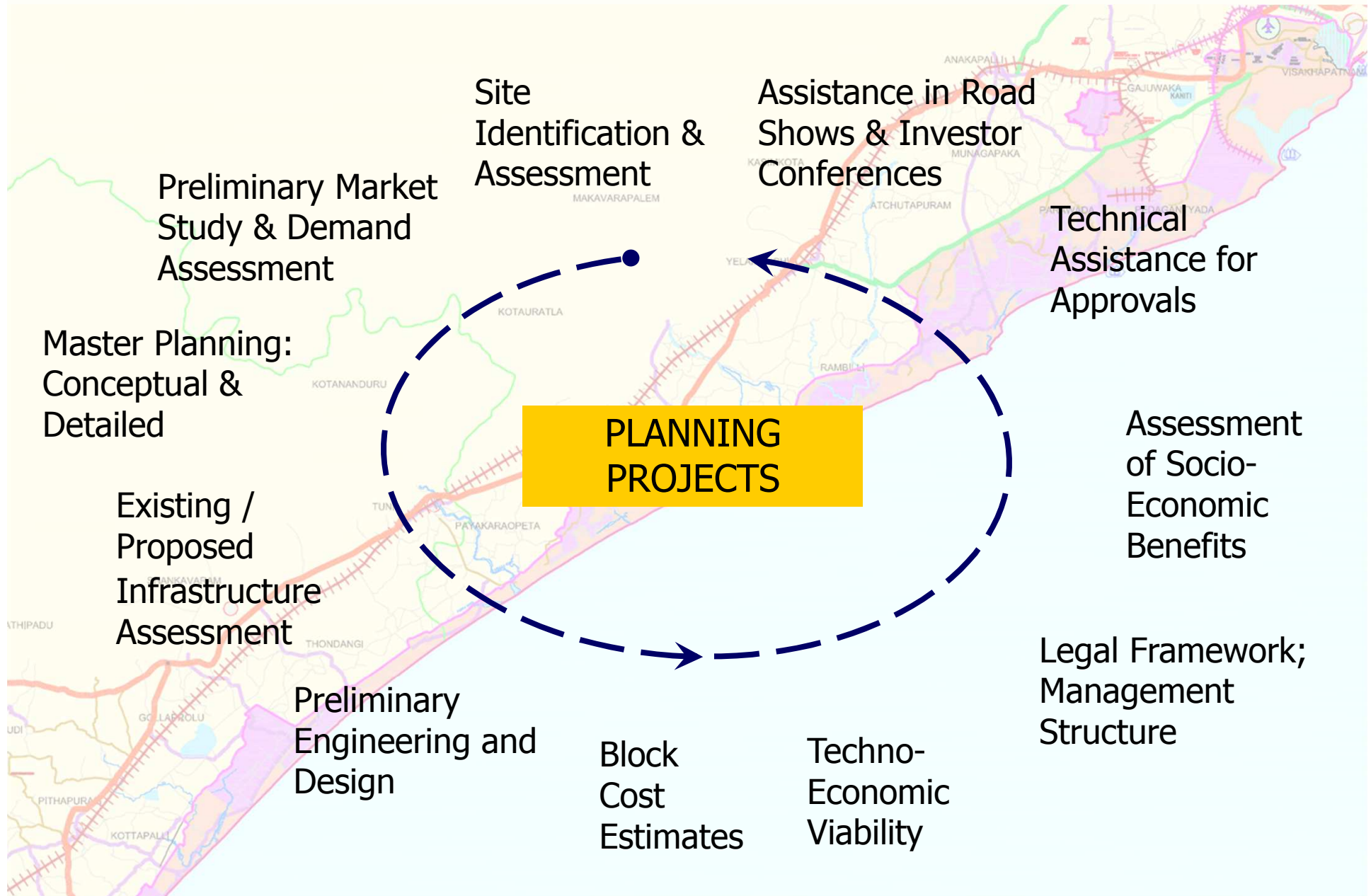




# Brief of L&T-RAMBØLL in Master Planning Field



# Planning Field: Our Services



# Planning Field: Recent projects



## ◆ REGIONAL PLANNING

(SPECIAL INVESTMENT REGIONS with Processing & Non-Processing Areas)

- Site identification / **Delineation** of region
- Identification of **sites** suitable for processing & non-processing activities
- Assessment of existing **infrastructure** - linkages, power, water, wastewater, solid waste, social infrastructure, etc
- **Target** sector identification
- Preparation of **Master Plan**
- Identify spatial **modules** for development in phases - based on market demand
- Identification of **new linkages** requirement - air, sea, road, rail
- Propose regional-level **infrastructure** requirements for Master Plan implementation including environmental management utilities
- Block **Cost** Estimates (funding agency-wise: Centre, State, PSP)
- Identification of enabling **Legal Framework** for implementation of project
- **Management Structure** for planning, development & management of region
- Assess **Socio-Economic** Benefits





# Relevant Experience - Planning Projects



- ▲ **Special Investment Regions**
  - ◆ PCPIR (3)
  - ◆ MIR (1)
  - ◆ Industrial Growth Corridor (2)
- ◆ **Special Economic Zones (SEZs)**
  - ◆ Multi-product
  - ◆ Sector Specific: Textile, Engineering Goods, Automobile / Auto components
- **Industrial Parks, Industrial Growth Centres**
  - ◆ General, Multi-product
  - ◆ Green Industrial Park
  - ◆ Sector Specific: Pharma, Leather

