

# SUSTAINABLE URBAN FORM FOR INDIAN CITIES

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# RESEARCH STUDY

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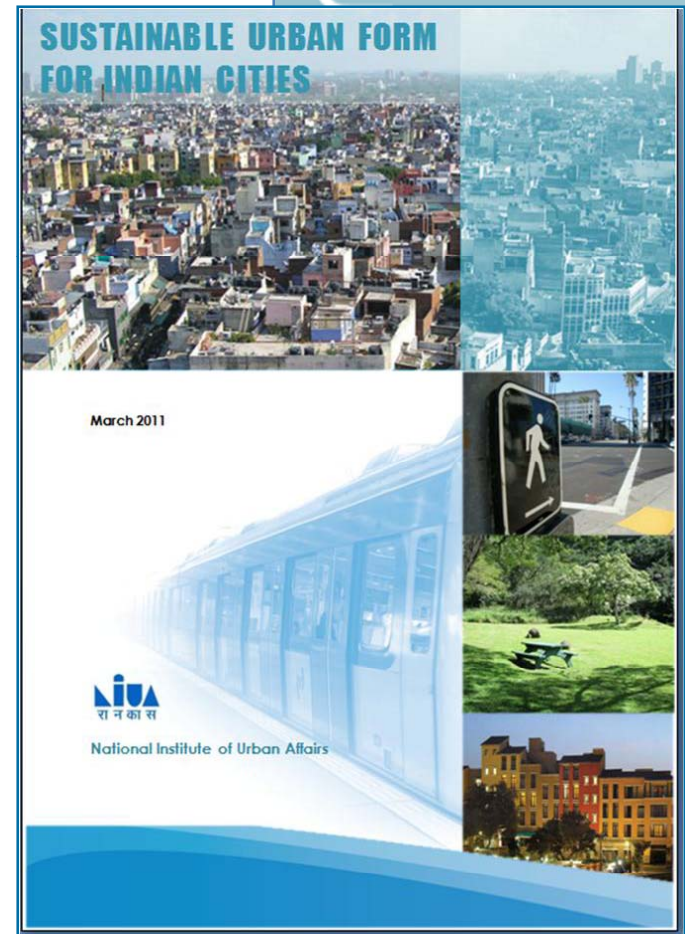
## Sustainable City Form in India

### Aim :

The study aims at achieving sustainable development in rapidly growing cities in India.

### Lead Partners:

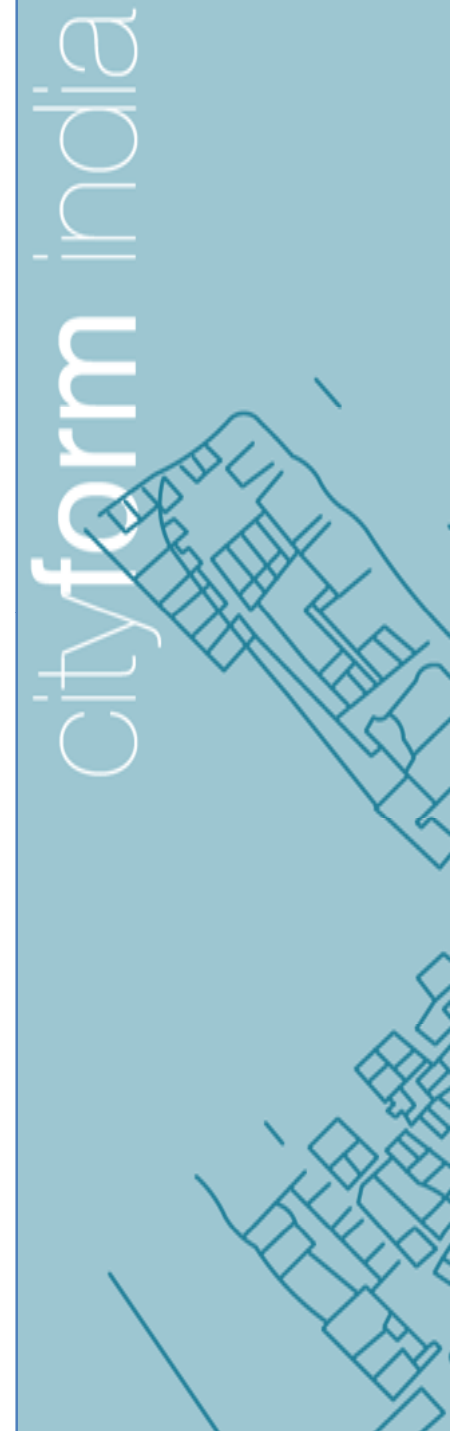
NIUA and Oxford Brookes University in association with CEPT University Ahmedabad, School of Planning and Architecture, Delhi.



# URBAN FORM COMPONENTS AND KEY FINDINGS

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- **Density**
  - Number of people living in a defined area
- **Land Use**
  - Total of arrangements, activities and inputs that people undertake in a certain land cover type
- **Accessibility**
  - Ability of users to access key services
- **Layout**
  - Spatial arrangement and configuration of elements at the street scale



# Density

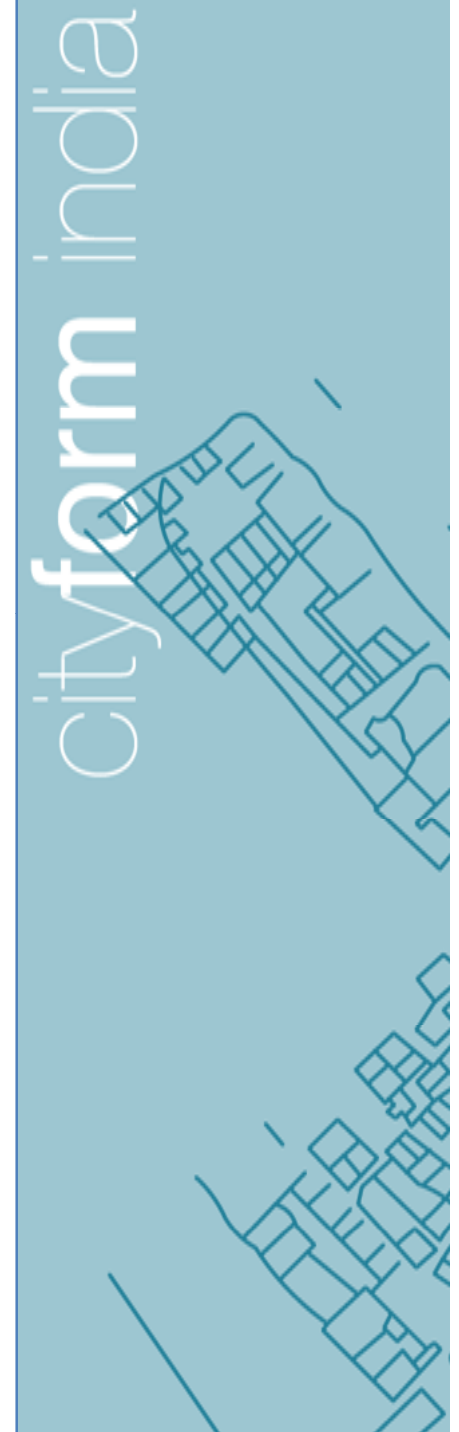
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- **Integral component of urban planning**
- **Mostly ignored in India**
  - Has led to further sprawls
- **No 'one size fits all' where density is concerned**
  - Indian cities need to see what fits their requirement
- **Socio-economic characteristics** of density have **an important role to play** in India
- **Master Plans do not incorporate density** as a tool for development, large programs like JNNURM are promoting densification of inner core
  - Resulting policy gaps needs to be addressed

## Density (2)

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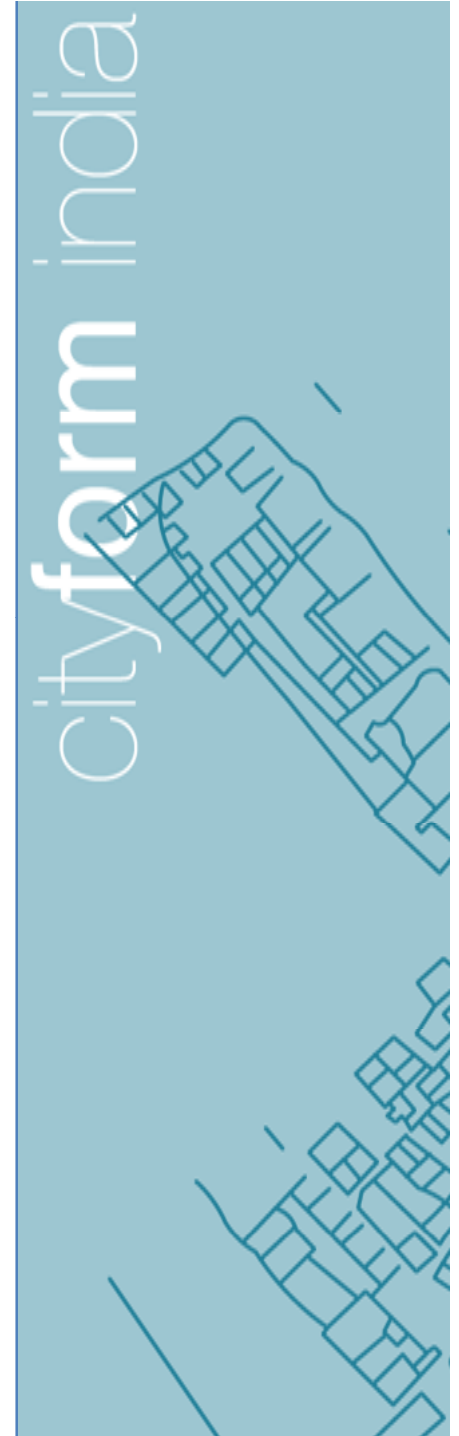
- **QoL improves as density increases till a tipping point;** after that QoL starts dipping
- **Moderate to high density neighbourhoods** are more likely to have **better access to services** and facilities; they are also more likely to **feel more secure**.
- Density patterns have a strong **linkage to income distribution**.
  - Higher income category populations prefer to stay away from city centre in low to moderate density areas
  - Lower income category prefer to stay near city centre



# Land Use

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- **Effective land use planning** in India suffers from incongruous regulatory structures and critiques of Master Plan preparation
- **More research/evaluation required**
  - To determine which services and facilities are to be provided at what scale
- **Many cities in India moving towards mixed use**
  - increases sustainability and growth of neighbourhoods
  - informal developments can be adequately checked



## Land Use (2)

- **Promoting mixed land use** through controlled development allows **greater economic sustainability** of neighbourhoods
  - BUT mixed use should be supplemented by ease of access and ease of parking
- **Larger cities could consider** providing **services/ facilities vertically** rather than horizontally
- Each city unique but a common basic principles on **land use mix** can be prepared



# Accessibility and Transport

- **Guidelines available on what should be accessible to residents**

- But no norms on HOW accessible these should be
- Where these norms are available, oversight and monitoring weak: importance of governance
- A central policy guidance on these issues critical





## Accessibility (2)

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- Increasing realization that **transport links** are almost a **precursor to land development**
- Need for **integrated land use and transportation planning**
- Neighbourhoods designed for **high and middle-income households should be located close to regional access points** (e.g. major arterials, highways, etc.)
  - Away from the city centre



# Layout and Open Space Dynamics

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- **Streets well-connected to services and facilities supporting pedestrian access are more frequently accessed**
  - Greater concentration of multiple uses here
  - True at neighbourhood, zonal and city level
  - Needs to be integrated with emerging concepts of mixed land use, zoning plans, etc.



## LAYOUT (2)

- Layout greatly **influenced by land use and density patterns**
- **Cultural dimensions** have an important role in designing sustainable layouts
  - One size fits all approach not sustainable
- Private **green spaces** contribute to a **sense of greater perceived ownership**
  - Neighbourhoods with high private greens had greater proportion of owners residing



# LAYOUT AND OPEN SPACE DYNAMICS

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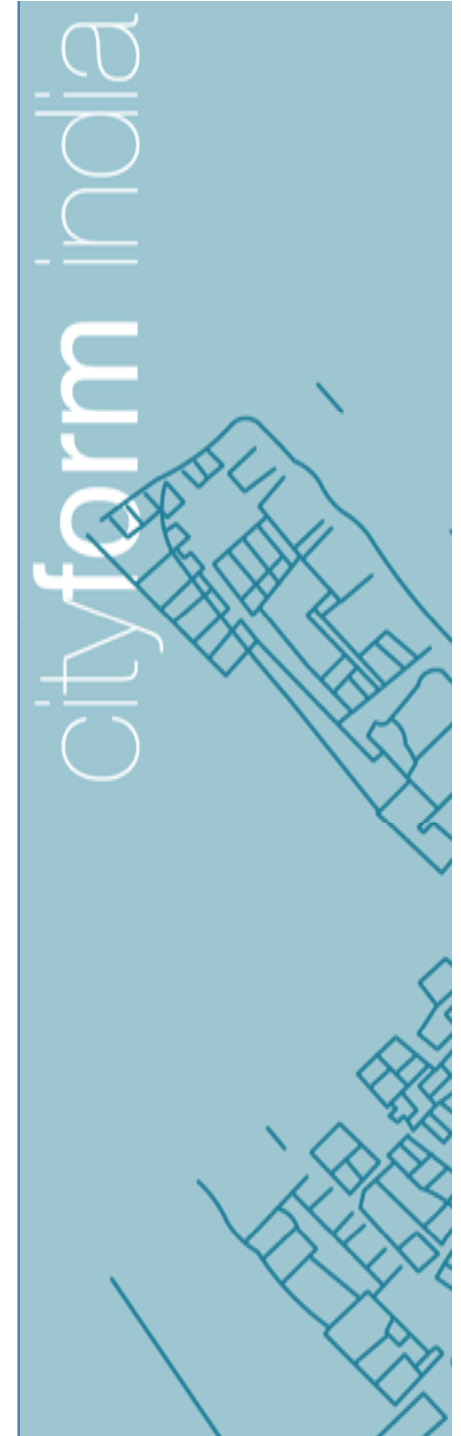
- **Access to public green space varies by socioeconomic group**
  - Low- to middle-income groups prefer public greens
  - Middle- to high-income groups prefer private greens
- The **maintenance** and supervision of green spaces (and other public spaces also) are **more important than design** for usage
- Management of shared greens/open spaces in very high and very low density neighbourhoods is problematic
  - Design of such neighbourhoods should keep this aspect in mind



# GAPS IN EFFECTIVE SUSTAINABLE DEVELOPMENT IN INDIA

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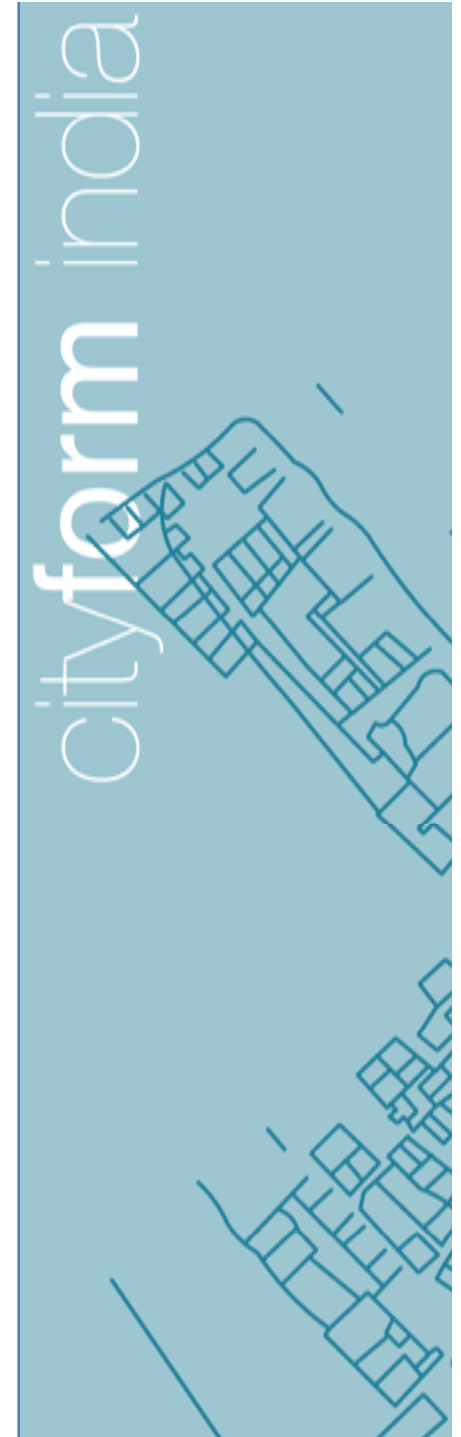
- **Ambiguous policy, regulatory and institutional environment**
  - perception of regulation as a ‘limiting tool’ rather than as a ‘development’ tool
  - Need to give attention to identifying investment and livelihoods opportunities
  - Should be largely equitable
- **Non-inclusive Planning Approach**
  - Straight-jacketed Master Plan approach
  - Fails to get political ownership
  - CDPs limited by a short vision period: no coordination with the Master Plan exercise/document



# Gaps in Effective Sustainable Development in India (2)

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- **Linking the green and the brown agenda**
  - Urban planning is a ‘easy’ tool to achieve linkages
  - But this is missing in Indian planning systems
  - Need to focus on how human and economic opportunities sustainably align with issues of energy, land degradation and resources
  - Requires looking at building regulations, zoning, byelaws, etc.
- **Lack of integration of utilities and spatial planning**
  - Integrated spatial-utility plans
  - Complemented by enabling governance structures



# RECOMMENDATIONS:

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- Regulatory and Institutional Aspects

2

- City and Regional Planning Aspects

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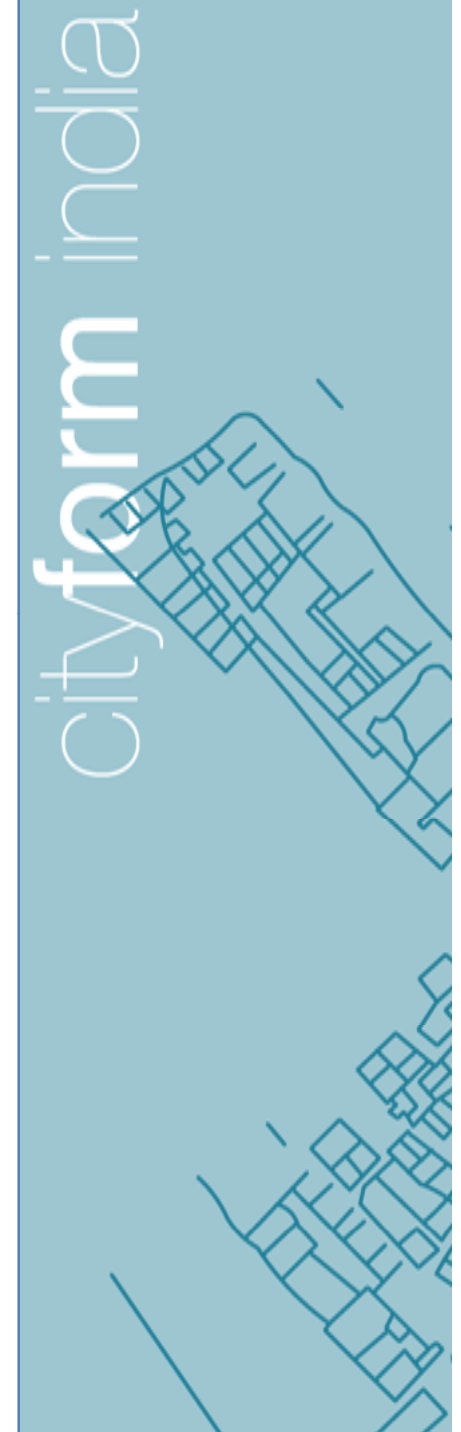
- Neighbourhood Planning Aspects



# RECOMMENDATIONS: Regulatory and Institutional

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- **Coordinated spatial planning & investment planning**
- Need for **transparent land management** and acquisition model
- **Amendment of development regulations** (density, floor area ratio, height, land use, building codes)
- **Strengthen enforcement:** role of community
- **Move to inclusive governance** and planning
- **Clear demarcation of roles** of stakeholders
- **Ensure political buy-in and leadership**

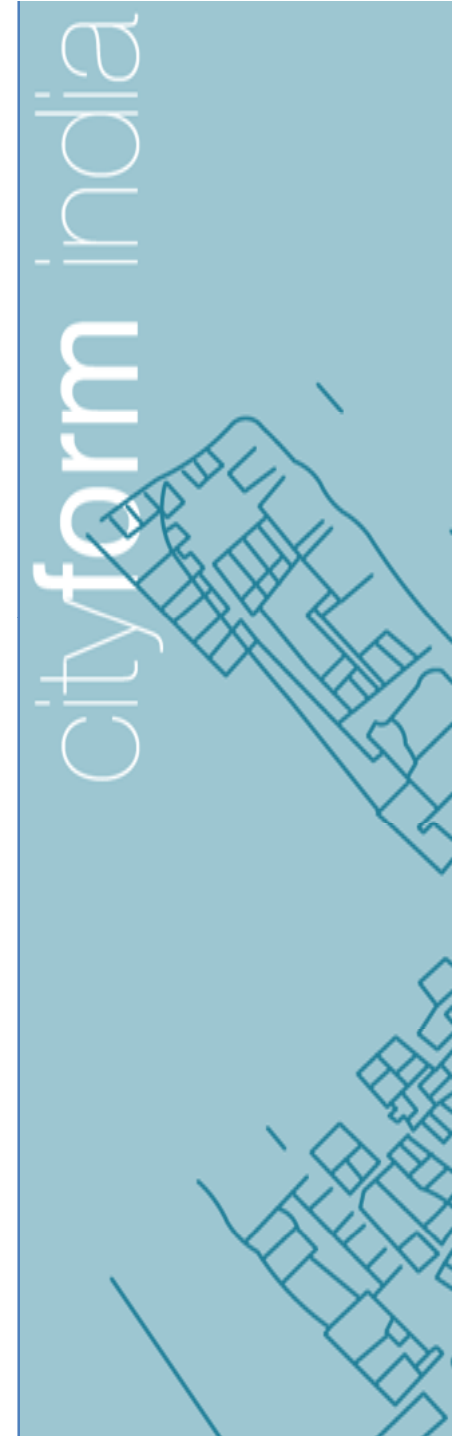




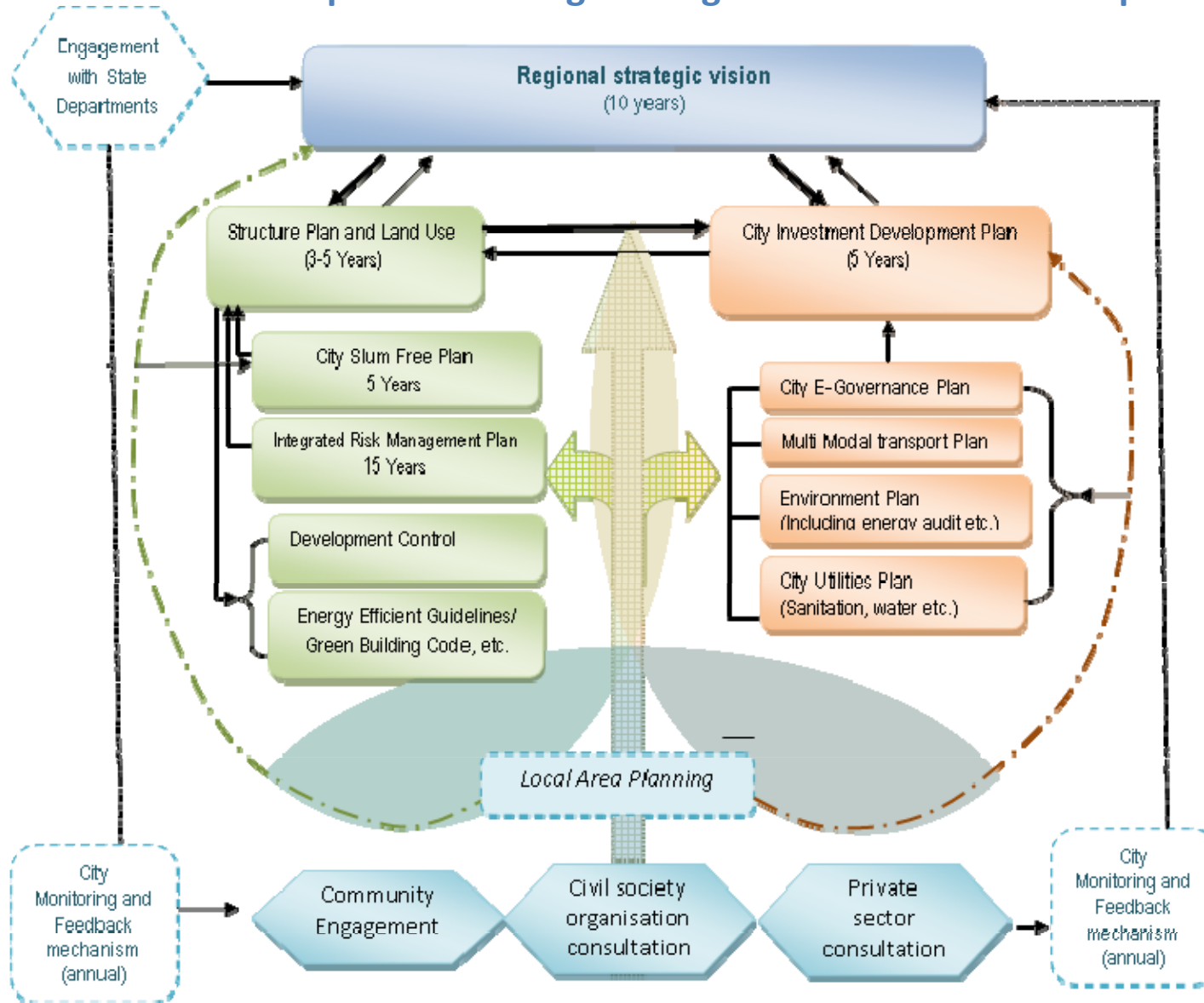
# RECOMMENDATIONS: City and Regional Planning

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- Strengthen **linkage between city planning and multi-sectoral development**
- Adopt an **integrated planning approach**
  - Set a common **regional or city vision** (15-20 years))
  - **City spatial plan** and city investment plan (5-10 yeas)
  - Prepare a set of **supporting city infrastructure plans** drawn from above (5 years)
- **Integrate land use planning and public transportation systems** – move towards transit-oriented development and smart growth
- **Adopt a structural planning approach** – Master Plan approach is not adequate



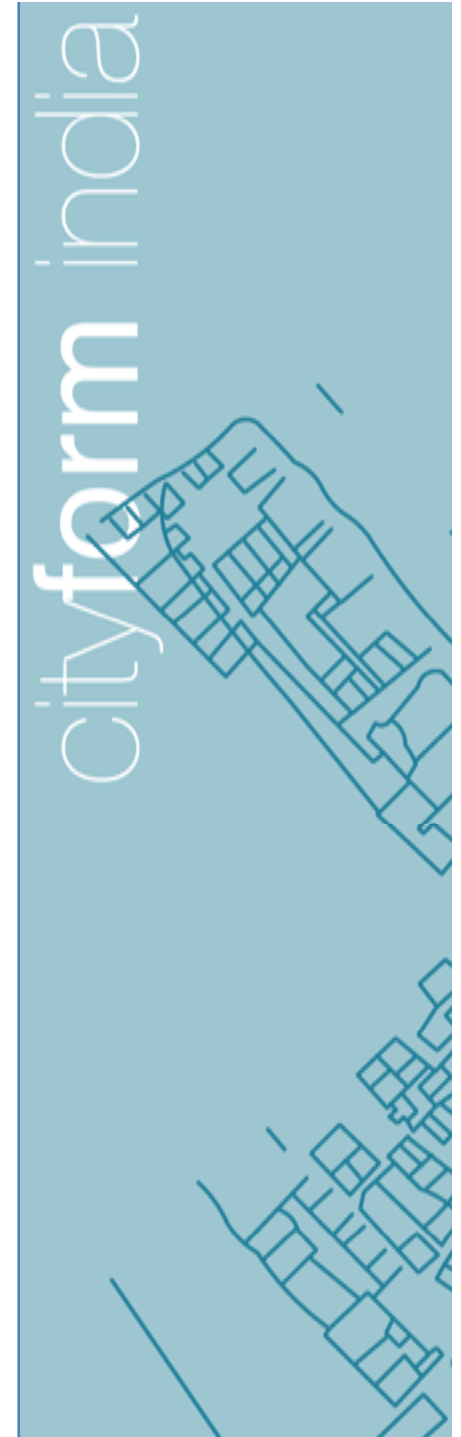
## Proposed Planning Paradigm and Inter-Relationship



# Recommendations: Micro-level Interventions

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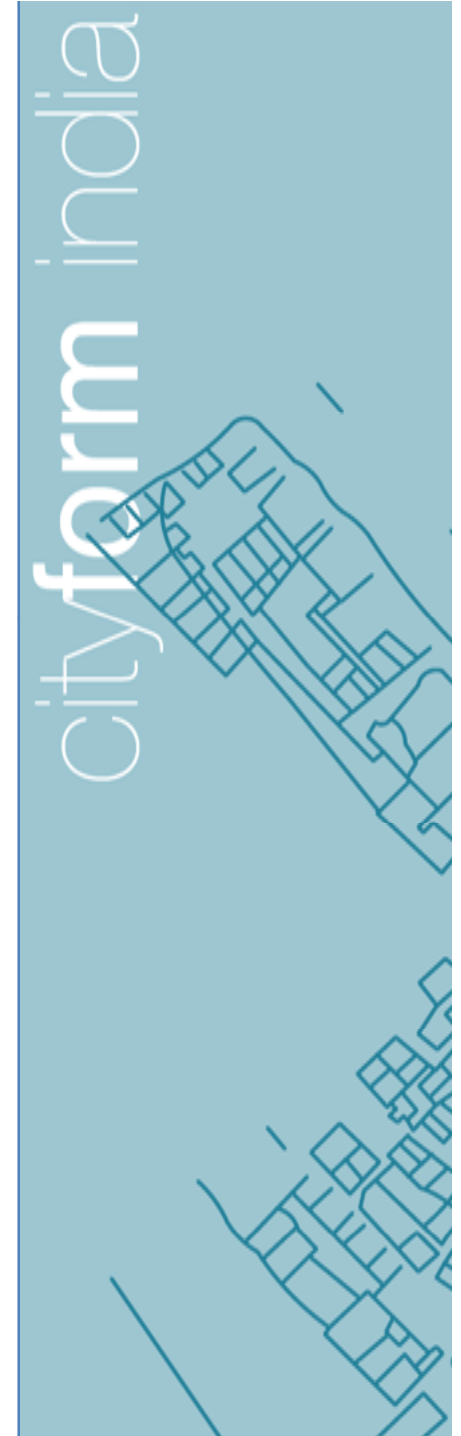
- **Density**
  - **Medium to high density:** economic, social and energy costs kept in mind;
  - **Urban blocks** (1-2 sq.km. area) of about 4 to 7-storey with density around 4000-8000 people per sq.km at neighbourhood level
- **Land use**
  - **Promote mixed use** (and mixed income use) including exploring vertical options
- **Accessibility**
  - **Focus on pedestrian and cycle movement** within neighbourhoods supported by linked public space
  - **Strong (public) transport access** on edges



# Recommendations: Micro-level Interventions

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- **Layout**
  - **Conical massing promoted**
    - High density high rise in the centre tapering out towards the edges: city + nn level
  - **Provide play areas and public spaces** next to taller buildings to ensure natural sun protection
  - **Horizontal and vertical randomisation of buildings coupled with low coverage** (higher FAR)
- **Green and Brown agenda**
  - Numerous proposals: **pre-fabrication, green roofing, solar panelling, ECBC, unpaved areas development, insulation, etc.**



*City Form study outputs will provide inputs to activities of National Mission of Sustainable Habitat.*

**THANK YOU**

[www.city-form.org](http://www.city-form.org)

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