SUSTAINABLE URBAN FORM FOR INDIAN CITIES

9 January 2012

Satmohini Ray
Senior Research Fellow
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

- **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

- 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)

- 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

• **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)

- 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

- **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

- 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

• 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)

• **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:

1. Regulatory and Institutional Aspects
2. City and Regional Planning Aspects
3. Neighbourhood Planning Aspects
RECOMMENDATIONS: Regulatory and Institutional

• 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

• 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

Regional strategic vision
(10 years)

Structure Plan and Land Use
(3-5 Years)

City Sturm Fee Plan
5 Years

Integrated Risk Management Plan
15 Years

Development Control

Energy Efficient Guidelines/
Green Building Code, etc.

City investment Development Plan
(5 Years)

City E-Governance Plan

Multi Modal transport Plan

Environment Plan
(including energy audit, etc.)

City Utilities Plan
(Sanitation, water etc.)

Local Area Planning

Community Engagement

Civil society organisation consultation

Private sector consultation

City Monitoring and Feedback mechanism
(annual)

Engagement with State Departments
Recommendations: Micro-level Interventions

- **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

• **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
www.niua.org