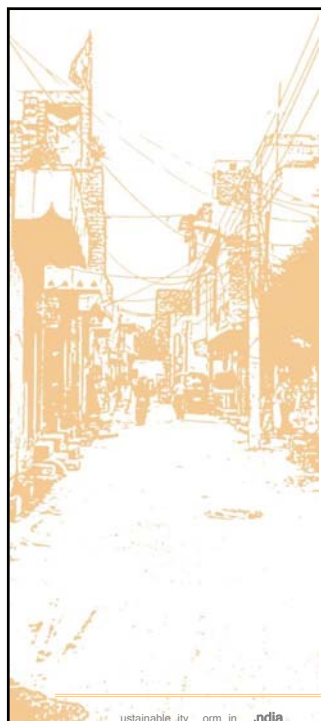


Sustainable City Form In India

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Ms. Arpita Dayal, Research Associate

National Institute of Urban Affairs,
New Delhi, India
October 2009



DISCUSSION

What is sustainable urban form?

How can sustainable urban form be achieved?

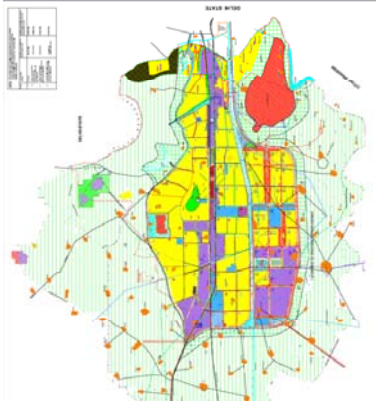
The Sustainable city form project

Faridabad - a study

sustainable city form in india October

The problem with unsustainable cities

Zoning of different land uses...



Source: MCF, Faridabad

...longer **distances** to work, shop and recreate

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The problem with unsustainable cities

Urban **sprawl**...


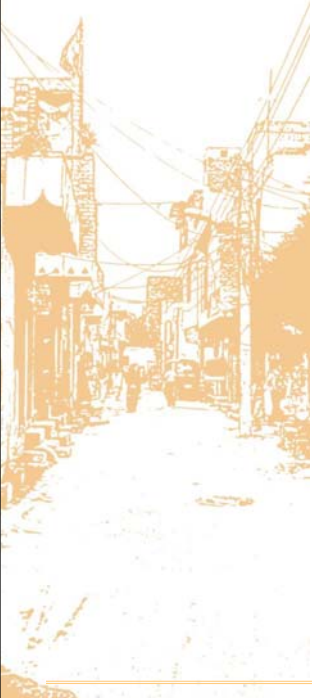


...Urban disparities

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The problem with unsustainable cities

Planning issues...





...poor quality housing, car dominant cities, reduction in urban green spaces

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The problem with unsustainable cities

Rapid urbanization ...





... poor civic infrastructure, decay of small cities and slow industrialization

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The problem with unsustainable cities

Hence unsustainable level of resource use...





...Increase in ecological footprint...

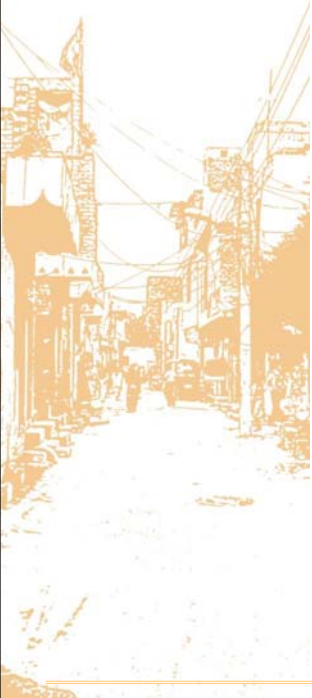
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The problem with unsustainable cities

...and inequitable lifestyle



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Sustainability and urban form

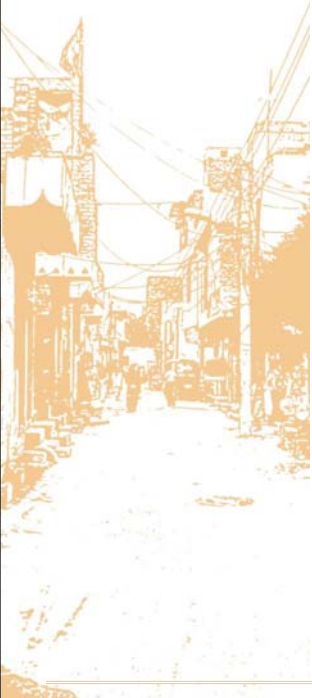
Urban form is a strong determinant of the ecological footprint of a city and compact and sprawling urban forms can directly impact the city's environmental future.

A form is sustainable if it enables the city to function within its natural and man made carrying capacities- is **user friendly** for its occupants and promotes social equity.

"Sustainable development is the development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

Our Common Future, also known as the Brundtland Report.

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Sustainability and urban form

70% of delivered energy is subject to influence of land use planning. (Barton,1990)

Sustainable development is...

Not just **compaction of form** but also

- Size of the city
- mix of uses within
- block size and type
- Structure of the city

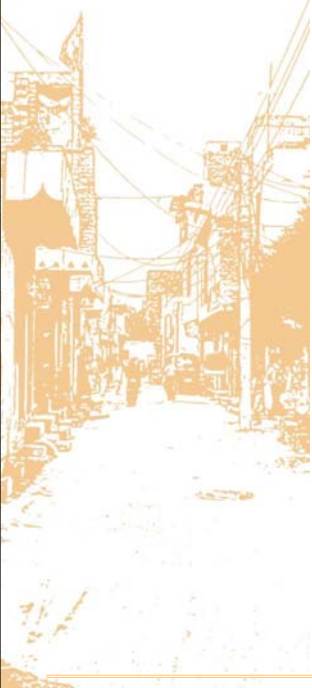
Not just **travel and fuel consumption** but also

- Ecology and wildlife
- Natural resources
- Social conditions
- Behavior of people
- Economic well being

Not just **building scale** but also

- House
- block
- Neighborhood
- District
- Region

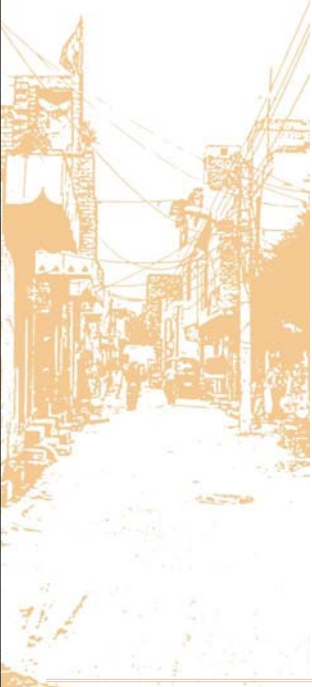
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urban form components

- Morphological parts of the urban area
- Urban size
- Shape
- Density and compactness
- Mixed use
- Urban block layout and size
- Housing type
- Open green space distribution

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October



urban form components

Density helps in controlling environmental damage :

- Reducing land use and protecting productive farm lands and forests.
- Clustering of infrastructure, civic amenities and public transportation
- Supports walk ability and cycling
- Creating more of valuable public open space

Hence higher densities within urban settlements reduces the cost per household for provision of infrastructure, thus providing opportunity for improved sustainability. Density can be tapered off as one goes away from this node.

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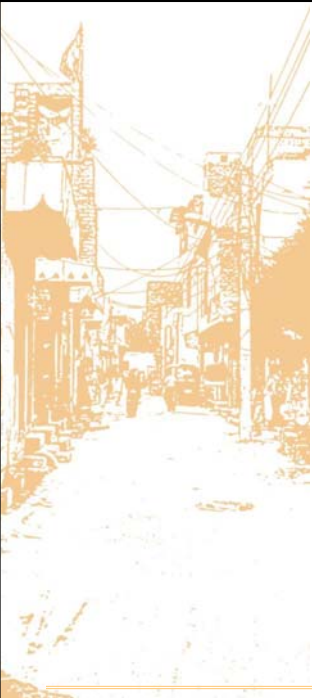


urban form components

Mixed use development encourages mixed income agglomeration and concentration of activities, promote clustering of infrastructure and transportation.




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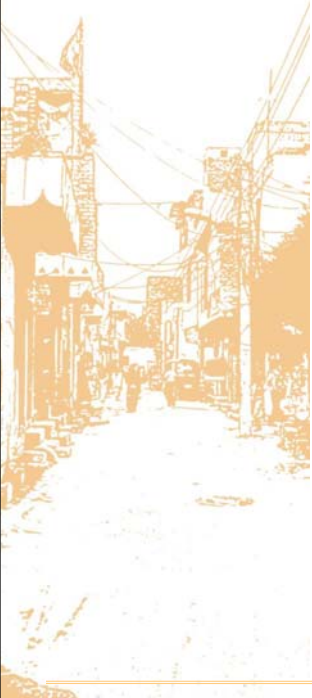
urban form components

FSI (Floor space index) which defines the ratio of buildable floor space index to plot area, permits an increase in no. of floors and hence higher density

Concept of **Public Ground Area**- the concept of public area outside the house for advantages of claiming ownership and sufficient plot sizes and hence higher densities



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RESEARCH PROPOSAL-
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 (OBU) in association with Centre for Environmental Planning and Technology (CEPT) University Ahmedabad, School of Planning and Architecture (SPA), Delhi.

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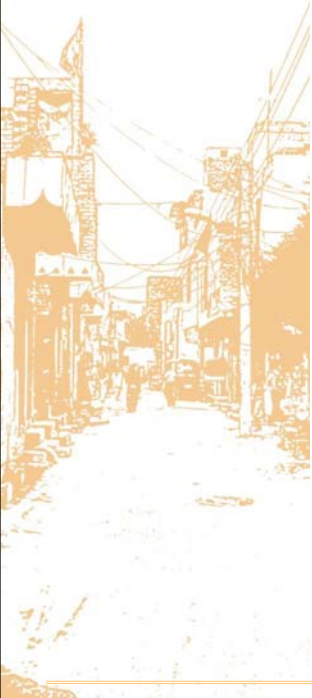
OBJECTIVES

- Investigate how urban form performs in terms of sustainability with special reference to India
- Identify gaps in knowledge relating to sustainable urban form, in Indian cities
- Examine how policy is interpreted and implemented at the local level
- Identify gaps in policy and practice relating to sustainable urban form in Indian cities

↓

Prepare a strategy/ roadmap identifying action points for stakeholders to attain sustainable city form

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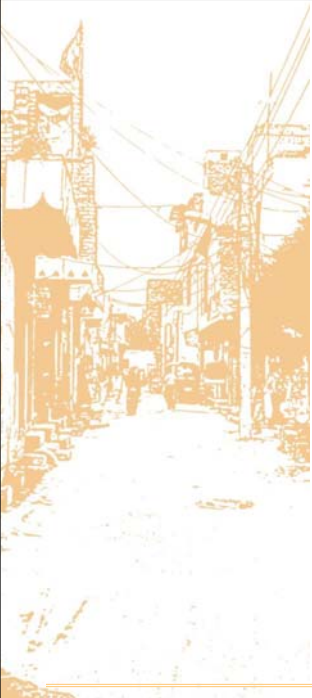


CASE STUDY SELECTION

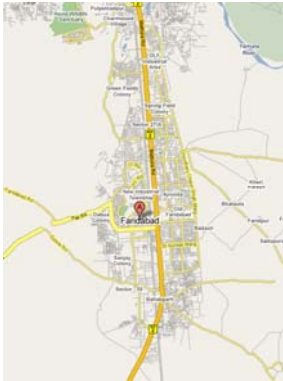
Faridabad is a central NCR town enjoying both commercial and economic importance. Good connectivity in the form of N.H.2 and the Delhi-Ballabgarh railway line has led to its growth as an urban centre. Proximity to Delhi has led to induced growth and development. However, it has grown into a large industrial city. It followed a full land acquisition model. The city has also seen a number of development projects being taken up in the last few years.

Rajkot is a good example following Town Planning Mechanism as the land development strategy. It is an organic city with a deep rooted and thriving history.

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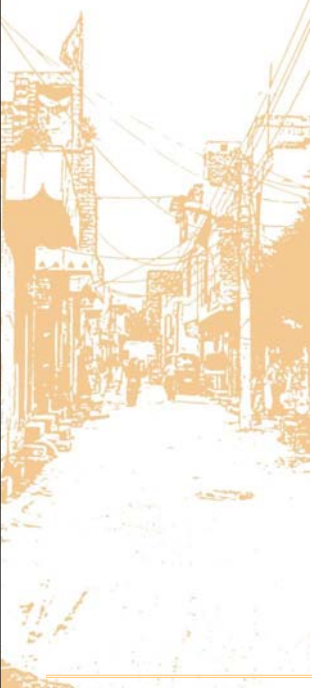


CASE STUDY - FARIDABAD




Location	32 km south of Delhi, Haryana
Total area	207.88 Sq Km (20,788 Ha)
No of wards	25
Main economic activities	Industrial town
Total population	1,055,938 (2001)
Density	6129 persons/sq km
Gross residential density	10.5 household/ha

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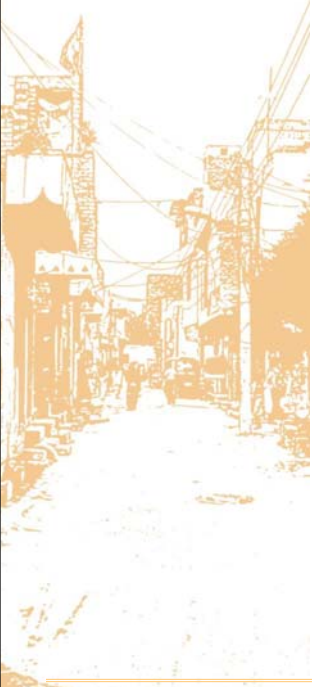


CASE STUDY - RAJKOT



Location	250km West of Ahmedabad, Gujrat
Total area	104.86 sq km (10, 486 ha)
No of ward	23
Total population	1,002,000
Density	9556 persons/sq km
Gross residential density	18.7 household/ha

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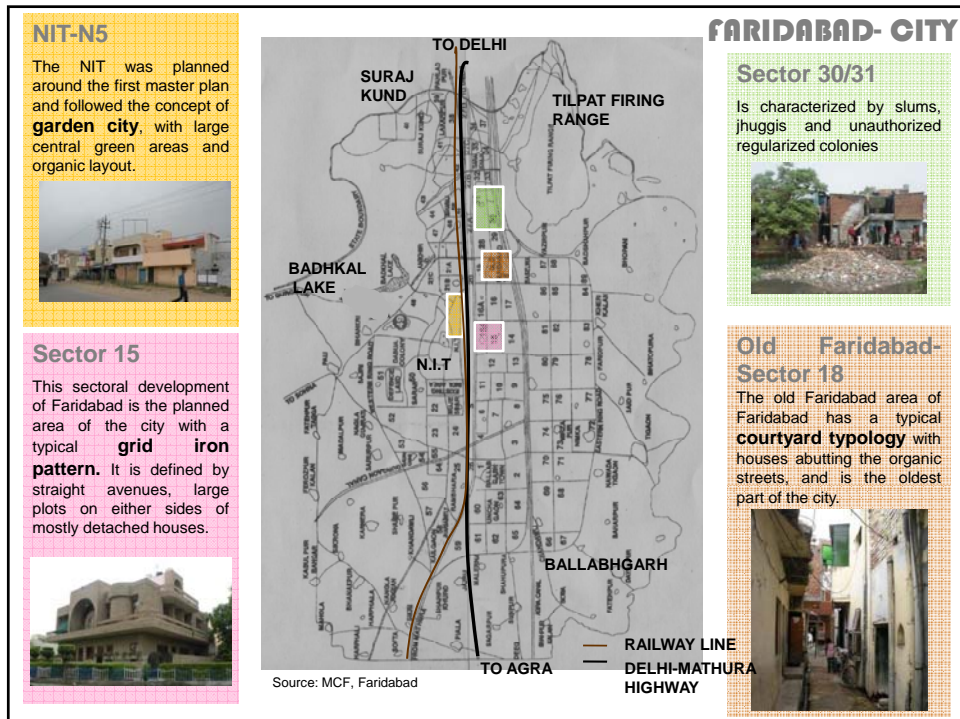
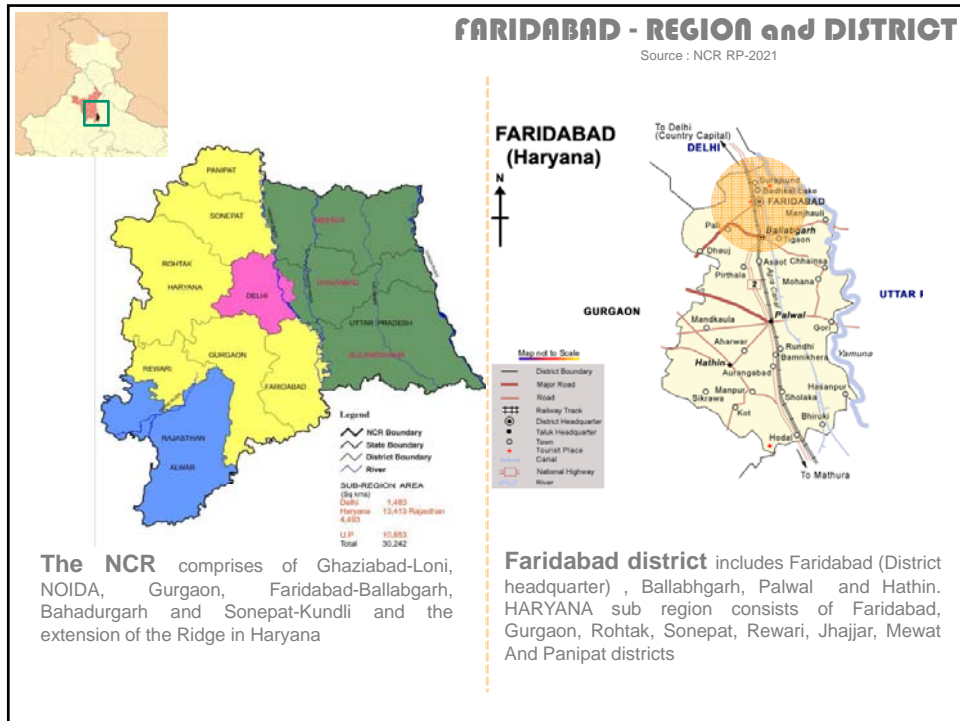


CASE STUDY APPROACH-FARIDABAD

The study of Faridabad has been divided into three steps, the **first** being collection of data, studies and information from secondary sources. The **second** involves field work to identify the character of the city structure, including social, physical, environmental, transport and economic aspects affecting the morphology. The **third** step is based on analysis of the knowledge base to derive at issues and emerging guidelines towards sustainability.

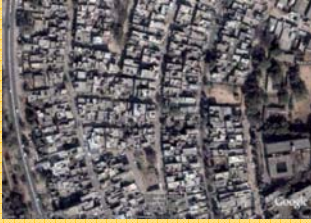
- Examination of the region around Faridabad to understand its overall linkage, interdependence and role within its surroundings.
- Subsequently zoom into the city, to understand the morphology of the city at the local level and identify relevant issues.
- Analysis of the physical form and city structure to provide clues towards issues related to sustainability.

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FARIDABAD – neighborhood level study

NIT-N5




No. of households of selected area- 3672
Courtyard and mixed use type with attached row houses, medium density with green open space in the center of each block

Sector 30/31




No. of households of selected area-2910
Irregular pattern of development with piecemeal development along streets

Sector 15

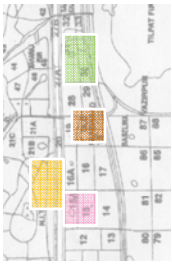


No. of households of selected area- 1821
Mostly Detached houses and builder flats, Sector development with planned grid iron pattern of streets and a large central green space in each sector

Old Faridabad- Sector 18




No. of households of selected area – 1398
Organic pattern and medium density with mostly courtyard type of houses



Source: Google Earth

Potential outcomes and Conclusions



- **Identification of issue-based strategic intervention areas** (based on issues of mixed land use, density, FSI, Transport-Landuse linkage, open space distribution etc) and recommendations for the future growth of these areas
- **A meaningful strategy for design of new cities and redevelopment of existing cities.**
- **Contribution to the decision and policy-makers in terms of data base and analytical understandings.**

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