Perspectives for integrating housing location considerations and transport planning as a means to face social exclusion in Indian cities

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the informal sector is providing most of the new employment and housing in environments that have come to be known as informal settlements, where more than half of the population in many cities and towns of developing countries are currently living and working (UNHABITAT 2003)

A large number of dwellers of informal settlements are poor and earn their living from informal sector, located within or outside their settlements, and often, extending the services to the rest of the city (UNHABITAT 2003).
• Accessibility to employment is the right of every citizen and providing this to all is one of the most important criteria of urban planning.

• Urban poor face the problems of access in terms of long travel times in unsafe and inconvenient environment.

• Many of the urban poor retain a fair level of access, in spite of their disadvantaged mobility, by residing close to employment and other income generating opportunities, even if it means living in precarious sites that are rife with problems of security of tenure (Barter 2002).
21st Century Urbanisation in India

Slum - an urban phenomena

- Under Section-3 of the Slum Area Improvement and Clearance Act, 1956, slums have been defined as mainly those residential areas where dwellings are in any respect unfit for human habitation by reasons of dilapidation, overcrowding, faulty arrangements and designs of such buildings, narrowness or faulty arrangement of streets, lack of ventilation, light, sanitation facilities or any combination of these factors which are detrimental to safety, health and morals.

- As per UN Habitat a slum is characterized by lack of durable housing, insufficient living area, lack of access to clean water, inadequate sanitation and insecure tenure.

- The slum population in India has increased during 2001-11.
Percentage of slum population in Indian States

2011
# Population distribution in different city sizes, India

<table>
<thead>
<tr>
<th>Category</th>
<th>Groups</th>
<th>Population (million)</th>
<th>Total no. of cities</th>
<th>Percentage Population</th>
<th>Total population</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Small</td>
<td>0.1 – 0.5</td>
<td>372</td>
<td>28%</td>
<td>73,930,414</td>
</tr>
<tr>
<td>2</td>
<td>Medium</td>
<td>0.5 – 1.0</td>
<td>43</td>
<td>11%</td>
<td>30,235,593</td>
</tr>
<tr>
<td>3</td>
<td>Medium</td>
<td>1.0 – 2.0</td>
<td>34</td>
<td>18%</td>
<td>46,686,245</td>
</tr>
<tr>
<td>4</td>
<td>Large</td>
<td>2.0 – 4.0</td>
<td>10</td>
<td>9%</td>
<td>24,265,267</td>
</tr>
<tr>
<td>5</td>
<td>Large</td>
<td>4.0 – 8.0</td>
<td>4</td>
<td>9%</td>
<td>23,736,923</td>
</tr>
<tr>
<td>6</td>
<td>Mega</td>
<td>&gt; 8.0</td>
<td>5</td>
<td>25%</td>
<td>66,037,071</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td>468</td>
<td></td>
<td>264,891,513</td>
</tr>
</tbody>
</table>
## Informal settlements in selected Indian cities

<table>
<thead>
<tr>
<th>Million Plus Cities</th>
<th>Percentage of slum households (informal / low income) of total urban households (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greater Mumbai</td>
<td>41.3</td>
</tr>
<tr>
<td>Kolkata</td>
<td>29.6</td>
</tr>
<tr>
<td>Chennai</td>
<td>28.5</td>
</tr>
<tr>
<td>Delhi</td>
<td>14.6</td>
</tr>
<tr>
<td>Bengaluru</td>
<td>8.5</td>
</tr>
</tbody>
</table>

Source: Census of India, GoI (2011)
Informal settlement in Chennai
informal settlement in Mumbai
Informal settlement in Delhi
Location of Delhi Slums
Slum locations
Mumbai
Contiguous development of low-density, high income and high-density, low-income colonies (enclosed within red boundary) in southern part of Delhi
Informal settlements density vs planned density
Location of informal settlements
self planned - ○ vs expert planned - ●

Informal settlements relocated by planners in Delhi 2001-2006 15-20 kms away from the original location
Resettlement delinked with access to employment

2. Continual banishment of Poor to Outskirts of the City needs to STOP.
1950s - Housing for LIGs

Needs of slums, rehabilitation and resettlement (1970s)

Community development programs and NGOs involvement (1980s)
Housing banks for finance availability

Role of State from provider to enabler

Private sector participation encouraged (2000 onwards)

Slum improvement Policy Interventions 1950-2000
Policy Impact

- Land and housing Rent control act and urban land ceiling Act
  - Deteriorating housing stock

- Clearance and eviction
  - Remove slums from urban areas – no mention of resettlement of evicted households
  - New slums are formed

- Upgradation and redevelopment
  - Slum redevelopment and rehabilitation schemes - renewable lease provided to slum cooperatives, basic amenities and loan @12%, slums on cent govt. and pvt Land, not eligible
  - Commercial interests overriding other interests

Recent initiatives
- Rajiv Awas Yojana and Cluster development
- 2014 onwards SMART city???
Travel patterns, activity patterns and mode choice

Pedestrian streets vs streets covered by parked cars

Common social activities, 50% residents know 25% of the people living in their settlements
Increase in travel cost and travel time
• Rehabilitation of slums results in converting nmv trips to mv trips

• avg. distance to main road before relocation < .5 km.

• avg. distance to main road after relocation > 2 km

• Avg. distance to bus stop 200 m before relocation

• Avg. distance to bus stop 1 km after relocation

• Minimum distance to bus stop before 10m, after 1km
Low income population is pedestrian and PT users

Source: Transport Demand Forecast Study by RITES, 2008
POPULATION BY GENDER

Female 47%  Male 53%

NATURE OF EMPLOYMENT

formal 24%
informal 76%
Travel patterns of Urban poor
Delhi low income households (2011), Employed and Unemployed

Unemployed persons
Walk 87%
Bus 8%
Bicycle 2%

Employed persons
Walk 49%
Bus 23%
Bicycle 15%
Activities and travel patterns
## Travel characteristics

<table>
<thead>
<tr>
<th>Type of Employment</th>
<th>Average PT distance (Km)</th>
<th>Average PT travel time (Minute)</th>
<th>Average PT travel cost (INR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formal</td>
<td>14.4</td>
<td>70</td>
<td>28.3</td>
</tr>
<tr>
<td>Informal</td>
<td>9.7</td>
<td>62</td>
<td>12.3</td>
</tr>
<tr>
<td>Student</td>
<td>3.3</td>
<td>29</td>
<td>1.7</td>
</tr>
<tr>
<td>Total</td>
<td>7.1</td>
<td>47</td>
<td>8.9</td>
</tr>
</tbody>
</table>
## Travel distances

<table>
<thead>
<tr>
<th>Type of Employment</th>
<th>Percentage of employees by tour distance (km)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Formal</td>
<td>1.0%</td>
</tr>
<tr>
<td>Informal</td>
<td>5.7%</td>
</tr>
<tr>
<td>Student</td>
<td>14.8%</td>
</tr>
<tr>
<td>Total</td>
<td>21.6%</td>
</tr>
</tbody>
</table>
Characteristics of Informal settlements

- Self organized, organic growth, outside the formal process
- Lack of formal services (water, sewage, electricity)
- Poor quality housing

Density, Diversity, human scale

Location (access to employment)
Use of land “reclaimed” through eviction (Bhan et al. 2014)

- 24% vacant land
- 19% roads, parking
- 14% Parks and playgrounds
- 9% government infrastructure
- 7% new slums
Landuse – transport integration for ‘unplanned’ sector implies:

• **Density**: High rise buildings vs small houses (12-18sqm)

• **Structure**: Monocentric/polycentric vs street vendors

• **Diversity**: Mixed landuse vs informal markets

• **Local Design**: Short car trips vs walking/bicycling trips
Key questions

• Can subsidized transport improve accessibility?
  • Travel time is more important than mode of transport

• Destination of low income households is very often “planned formal” residential settlements of high and middle income households

• Proximity to work is more important for women for multitasking
Landuse-Transport integration for sustainable cities

- Link between livelihood-housing and mobility (location)
- Multiple use of space (diversity)
- Community living and use of public spaces

Mixed land use should include mixing of different income groups
Best option includes access by non motorized modes