PLANNING FOR SUSTAINABLE PEDESTRIAN INFRASTRUCTURE

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Chairperson, Global Forum for Empowerment
With current population of 1.21 billion, India occupies 2\textsuperscript{nd} rank among the world’s most populated countries.
Rapid Urbanization across the world
Cities are likely to house 40 percent of India’s population by 2030

<table>
<thead>
<tr>
<th>Urban population</th>
<th>Million</th>
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<tbody>
<tr>
<td>1991</td>
<td>220</td>
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<tr>
<td>2001</td>
<td>289</td>
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<tr>
<td>2011</td>
<td>377</td>
</tr>
<tr>
<td>2030</td>
<td>598</td>
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<table>
<thead>
<tr>
<th>Total population</th>
<th>Million</th>
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<tr>
<td>1991</td>
<td>856</td>
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<td>2001</td>
<td>1,040</td>
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<td>2011</td>
<td>1,210</td>
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<td>2030</td>
<td>1,467</td>
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<table>
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<th>Urbanisation rate(^1)</th>
<th>Percent</th>
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<tbody>
<tr>
<td>1991</td>
<td>26</td>
</tr>
<tr>
<td>2001</td>
<td>28</td>
</tr>
<tr>
<td>2011</td>
<td>31</td>
</tr>
<tr>
<td>2030</td>
<td>40.7</td>
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The Causes of Urbanisation

- Industrialization
- Social Factors
- Employment Opportunities
- Moderniation

“...we're waiting for the city to come to us...”
Challenges of Urban Sprawl

• Congestion, crawling traffic, high pollution levels, vehicle centric infrastructure development have made cities unlivable.

• Policies and urban planning are increasing automobile dependence.
5.7 lakh vehicles enter city daily, same to no registered in a year

SURVEY CSE says results show that influx of vehicles contributing to Delhi’s pollution levels

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NEW DELHI: A cross-border traffic survey conducted by the Centre for Science and Environment (CSE) has found that the number of personal and passenger vehicles that enter Delhi daily is close to or more than the total number of vehicles that get registered in Delhi in a year.

The vehicles surveyed included cars, SUVs, two-wheelers, taxis and buses but excluded trucks and light commercial vehicles.

CSE had commissioned a survey to a private firm to count real time traffic at nine entry points into Delhi in June last year. Video recording of the spots was done and all the vehicles were counted category-wise.

In the first round, CSE analysed only the truck numbers. In the second, both personal and passenger vehicles were counted.

The number of total vehicles that entered Delhi from these nine locations. According to the Municipal Corporation of Delhi, these nine entry points are responsible for more than 70% of all incoming truck traffic.

Though CSE has considered a similar ratio for personal and two-wheeler modes for extrapolating total entry from all the 124 entry points, this can be an underestimation, a statement issued by CSE said.

The survey at nine entry points showed that around 3.07 lakh cars and 1.27 lakh two-wheelers entered Delhi daily.

“If this is taken as 70% of the total traffic from all 124 entry points, than the total number of cars, SUVs and two-wheelers from all entry points can be as much as 5.66 lakh. The Economic Survey of Delhi for the year 2014-15 shows 5.68 lakh total vehicles were registered in the city that year. The total number of vehicles that enter Delhi daily is almost equal to the number that is registered in the city,” the statement said.

“Delhi’s battle against pollution, congestion and energy puzzling can get increasingly more difficult if its own explosive motorisation gets aggravated by the huge daily influx of vehicles from outside. An equal numbers of vehicles are going out of Delhi daily contributing to pollution in the NCR towns as well. This new analysis reconfirms that ineffective public policy on public transport connectivity is increasing dependence on personal vehicles, leading to enormous pollution and ill-health in Delhi-NCR,” said CSE’s executive director, Anumita Roychowdhury.
As cities grow in size, transport emissions increase.
Potential of Non-Motorized Transport

- Walkers & cyclists remain invisible in the maze of motorized traffic that chokes our roads.
- 40-50% of daily trips in many of our cities have distances <5 kms.
- Unfortunately, due to unfriendly walking conditions/lack of dedicated lanes, the walking/NMT trips within this distance range are being replaced by motorized trips.
Share of public transport has dropped from 60% in beginning of this decade to 43% of all motorized trips in Delhi!!
Discouraging Factors

- Lack of last mile connectivity.
- Lack of pedestrian infrastructure.
- Reliability.
- Over-crowding / comfort issues.
- Inaccessibility.
- Absence of integrated multi-modal transport.
Overcrowding renders public transport unusable hence preference for cars and motor bikes.
Over Crowding in Delhi Metro
Liveable Cities = Equitable Access to Opportunities and Public Resources such as Transport, Employment, Education, Leisure, Housing etc. for all.
HOW TO MAKE A CITY MORE LIVABLE

- Shared spaces for social activities
Understand Peoples Point of View

We Are Social!

We Are The People
My perspective: shared public space between houses
- Meet people
- Transport
- Mobility
- Live your life
- Faces on the street

Observe from the ground
with:

BENCHES

TOILETTS

SHADOW

PLANNING PROCESS

PARADIGM SHIFT

PROACTIVE WAY

SHARE VALUE

CHANGE ROLES
Components of Livability

The five major components of livability need to be incorporated in the planning process which are:

✓ Social well being
✓ Economic vitality
✓ Accessible Public Infrastructure availability
✓ Environmental quality
✓ Inclusion

• There should be a fine balance among these five components and it should be monitored regularly.
The path to livable cities

• Walkability and cycling has to be reintroduced in communities for healthy lifestyle.

• Build citywide network of dedicated cycle lanes and safe, uniform pedestrian sidewalks that connect neighborhoods.
Re-inventing the idea of mobility....

- Reliable, affordable & integrated multi-modal public transport backed by extensive network of sidewalks is the key for sustainable and livable cities.

- Accessible Public Transportation in a Livable City must accommodate:
  - ✔ demographic changes influencing the demand for public transportation
  - ✔ Aging but active seniors,
  - ✔ Population with varied disabilities (impaired vision, mobility, hearing)
  - ✔ Young population
  - ✔ Working population commuting to work

“Freedom is not the right to own a car but access to a range of choices in how to get around the city.”
Traffic Patterns In India

• Traffic Patterns in countries like India are complex
• A large number of low income road users
• High proportion of vulnerable road users sharing the road with motorized vehicles
• High population density in urban areas with mixed land use
• Weak enforcement of traffic rules and regulations
• Close to a third of all accidents in the city involve two-wheelers.
Road Crashes

• As per WHO road traffic crashes cause over 1.2 million deaths and over 25 million severe injuries globally.
• In 2020 such injuries are expected to rank third in terms of global burden of disease.
• The social cost has been evaluated at 3.2% of GDP a loss that inhibits economic and social development.
45% Road Mishaps involve Pedestrians in Delhi

- Of the 1,629 fatal accidents reported 1,123 were cyclists and pedestrians
- Pedestrians most vulnerable due to faulty road design
- Dodging speeding vehicles and struggling with high sidewalks
- No right of way to pedestrians
- We lose about 15 lives per hour as per WHO
Factors having Direct Bearing on Road Safety

- Infrastructural
- Mixed Modes of transportation
- Lack of safe accessible barrier-free pedestrian infrastructure
- Enforcement
- Response Time
- Emergency Management
- Interdepartmental Unwillingness to share resources
Scenario in India

- India has one of the highest per capita traffic fatalities in the world.

- Making Road Traffic Crashes a major public health concern.
How walkable are our cities?

- The national average walkability index of India is 0.52 with Chandigarh having the highest rank at 0.9.

- This is in sharp contrast to cities like London that score 1.5 to 1.7 due to their active policies that encourage pedestrian movement.

- Cities have marginalized the needs of pedestrians and given priority to the needs of automobile users.

- The pedestrian pathways either don’t exist or are often usurped by vendors, hawkers, billboards, electric poles etc.
Mobility Patterns

• 32% of all commuted trips in Delhi are walking trips.
• Public transport including chartered buses accounts for 42% of all trips.
• 11% are slow modes of transport such as cycles and rickshaws.
• 5% by cars and 12% by motorised two-wheelers
Sidewalks – a crucial link

- Mobility & safety of the people in our cities is severely compromised due to inaccessible sidewalks.

- Sidewalks are the important linkage needed for effective transfers between different modes of public transport.

- Sidewalks form the backbone of the transportation network.
Lack of pedestrian facilities force people to walk on roads
High Kerbs are big discouragement to pedestrians; Bus Q shelters have no access through kerb cuts
Drainage /sewer along side the roads are encroaching the pathways
Sidewalks blocked by bollards!
Wrong placement of directional signage poles, renders the sidewalks unusable by people with reduced mobility.
The sidewalks do not provide continuity due to absence of table top crossings.
Steps preceding the ramp
A tactile guiding surface leading into a tree!
Placing warning blocks instead of guiding blocks
Road Kerb and Round about Markings
Road Kerb and Round about Markings at Kolkata
Round Abouts
Enforcement
Jay Walking
Motorised Wheelchair Users
Various agencies providing guidelines on accessible infrastructure:

- Chief Commissioner of Persons with Disabilities (CCPD)
- Rehabilitation Council of India (RCI)
- Unified Traffic and Transportation Infrastructure (Planning & Engineering) Centre (UTTIPEC)
- Central Public Works Department (CPWD)
- Ministry of Urban Development (MUD)
- Chief Commissioner of Persons with Disabilities (CCPD)
Funds allocated in the 12\textsuperscript{th} Five Year Plan:

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<tr>
<th>Area</th>
<th>Proposed Outlay</th>
<th>Tenure</th>
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<tbody>
<tr>
<td>Public Transport</td>
<td>One Trillion USD</td>
<td>Five Year Plan (2012-17)</td>
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<tr>
<td>Public Transport Infrastructure</td>
<td>Rs. 992312.00 lakhs</td>
<td>Five Year Plan (2012-17)</td>
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<tr>
<td>Public Transport Infrastructure</td>
<td>Rs. 179457.00 lakhs</td>
<td>Annual Plan (2012-13)</td>
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Despite the policies, guidelines and funds allocated to make public infrastructure accessible……

Still why is there a gap in the implementation!
Reasons

• Procedural systems not tweaked to meet the new requirements
• Non involvement of various stakeholders
• Lack of Co ordination amongst the implementing agencies
• Enforcement
• Lack of awareness at the last level of implementation chain (i.e. contactors, supervisors, laborers etc.)
• Lack of Monitoring during the execution stage
• Accountability
• Non enforcement of accountability
International Best Practices: Pedestrian Access

Dropped Kerb on Center Median

Accessible Sidewalk
International Best Practices-Correct Way of Placing Tactile Blocks

Tactile Blocks in Singapore

Black rubberised tactile blocks

All level differences to be paved with warning blocks
Proper kerb cuts on all sides of the intersection at Washington

Zebra crossing markings on all four roads of the intersection in Washington

Proper kerb cuts and zebra crossing allows wheelchair user to negotiate the roads independently

Zebra crossing and kerb cuts on a smaller intersection at Washington
Kerb Ramps

Kerb cut laid as per the specifications

Kerb cut on the sidewalk at Washington
Table Top Crossings
Properly aligned street infrastructure
Zebra Crossing prevent people from crossing the road diagonally
Call to Action: Need to enhance the walkability quotient of the cities

- Develop barrier free uniform and accessible pedestrian infrastructure

- Organised street infrastructure

- Need to provide extra care to develop pedestrian infrastructure as this is most often overlooked despite being a critical aspect of the trip chain

- Road Safety Programs to be introduced in school curriculum
Conclusion

- All smart city initiatives must have a pedestrian and NMT master plan
- Urgent need to make roads people oriented
- Accessible continuous pedestrian pathways
- Traffic calming methods to be deployed
- Introduce cycle/NMT lanes
- Introduce more mass public transport systems like BRTs
- Road Safety Programs to be introduced right from school
- Educate people
Let us all reclaim our right to walk