Implementing Transit-Oriented Development- an International Perspective

UMI 2017- Hyderabad
SHIFT TO AN URBANIZED WORLD

- 3% in 1800
- 14% in 1900
- 30% in 1950
- 50% in 2000
- 75% in 2050
• Globally, 800 million per decade

• India’s urban population will double to 800 million by 2050

Source: UN Habitat; UN World Urbanization Prospects 2014 Revision; Image: Harvey Barrison
2015-2030 – unprecedented urban growth especially in S. Asia & Africa
Medium-sized cities will grow the most

Note: N = 1,692 urban agglomerations (populations ≥ 300,000 inhabitants).
Sources: United Nations (2014); World Bank country classification.
More of the poor will live in cities

Source: Ravallion et al., 2007c: 8. Note: Example trend based on data from India.
Urbanization will NOT be accompanied by economic growth everywhere.
Globally, urban infrastructure will more than double in the next 15 years.
The fastest-growing cities will have the least public resources

Source: Authors’ compilation from various sources. Note: Budget data represent years 2010 to 2016.
Urban Expansion in Indian Cities

- Rapid growth in satellite towns of Delhi (Gurgaon, Noida, Grt Noida, Faridabad etc)
- Mumbai, little movement in peripheries, but witnessing inner city redevelopment
- Pune capitalising on Mumbai’s slow down, attracting new economies like IT/ITES

Source: Generated by WRI India using data from Bhuvan NRSC
High Cost of Sprawl

**Suburban City’s Annual Cost, per Household**

- Parks & Recreation: $139
- Fire Department: $406
- Transportation: $171
- Culture / Economy: $36
- Sidewalks & Curbs: $194
- Roads: $380
- Transfers to Provinces eg. School Boards: $435
- Storm & Waste Water: $612
- Water: $187
- **Total: $3,462**

**Urban City’s Annual Cost, per Household**

- Parks & Recreation: $99
- Governance: $297
- Libraries: $73
- School Bussing: $87
- Transportation: $91
- Culture / Economy: $18
- Sidewalks & Curbs: $37
- Storm & Waste Water: $147
- Water: $43
- **Total: $1,416**
Additional Costs of Urban Sprawl

- **Lost Time**
- **Increased Infrastructure Costs**
- **Poor Health**
- **Loss of Public Space**
Impact on the Urban Poor

Urban Sprawl and automobile-dependency have a number of adverse effects on the urban poor:

• Sprawling cities remain largely inaccessible to the urban poor

• Urban poor are often concentrated on periphery of city, sometimes in informal settlements

• Difficult to access economic opportunities located in city center

URBAN SPRAWL IS COSTLY

$1 trillion

Urban sprawl costs the United States alone per year
Global climate change targets are not possible without the transformation of cities.

23% of global GHG emissions are from transport.

70% of GHG emissions come from cities.
BACKGROUND

POINT OF DEPARTURE
**ATLANTA**

Population: **2.5 million**  
Urban area: **4,280 km²**  
Transport carbon emissions: **7.5 tonnes**  
CO₂ per person

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<th>ATLANTA</th>
<th>BARCELONA</th>
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<td>Population:</td>
<td>2.5 million</td>
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<td>Urban area:</td>
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<td>Transport carbon emissions:</td>
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<td>0.7 tonnes CO$_2$ per person</td>
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A NEW URBAN PARADIGM: COMPACT, CONNECTED, COORDINATED AND RESILIENT

$3 trillion savings on infrastructure 2015-2030
6% in GDP savings in cities

Source: New Climate Economy; Image: Flickr/Chris Wilkinson
COMPACT CITIES HAVE FASTER GROWING ECONOMIES

STRATEGY

TRANSIT-ORIENTED DEVELOPMENT (TOD)
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• **Walkable**: Proper integration of non-motorized modes of transit

• **Mixed-use**: Planned mix of commercial and residential buildings

• **Mixed-income**: Inclusive TOD through affordable housing

• **High-density**: More housing units near transit stations to increase transit ridership

• **Access to Mass Transit**: Residents must have access to reliable transit

• **Access to Opportunities**: Jobs, services, housing, recreation, public space

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Like many cities in Europe, the city center of Florence, Italy, is dense and walkable.
The Case for TOD

Hong Kong
Residents

London
New York

Hong Kong Jobs

Bangalore: 60% jobs within 60 mins

Image Source: LSE Cities.
ADAPTATION of
TRANSIT ORIENTED DEVELOPMENT

INTERNATIONAL PRACTICES
Objectives for TOD

**ECONOMIC**
- Guide urban growth and new real estate development
- Spur economic growth
- Support local economic development and revitalization

**SOCIAL**
- Enhance equity along the corridor
- Increase accessibility and mobility for low-income households
- Reduce road accidents

**ENVIRONMENTAL**
- Reduce energy consumption and GHG emissions
- Reduce air pollution
- Preserve green space
TOD as a ECONOMIC model to improve productivity

High Density Mixed Use around Transit Stops (Greenfield)

Rosslyn-Ballston corridor
2.5 miles, 5 metro stations.

Mixed Land Use—
Commercial: Office, retail, hotels
Residential: Single-family, townhouse, condos, high-rise

26% of the county population lives in the Metro corridor.

Metro corridor takes up 8% of county land.

The North American Model: High Density, Mixed Use around Transit (focused on better productivity)
TOD as a LIVABILITY and ACCESSIBILITY model to improve QoL
Regional transport system
Green fingers
Decentralised concentration along transport corridors
Pedestrian and bicycling priority

The European Model: Mid Density, Mixed Use around public spaces connected with Transit, Biking and Pedestrian facilities (focused on better livability).
Curitiba, Brazil

TOD as means to INTEGRATE LAND USE AND TRANSPORT to improve connectivity

Integrated land use and transit
Mixed land use
Inclusion of affordable housing
Protect historic city center
Contain urban sprawl

Passengers per day on the BRT system 2.7 million

The South American Model: High Density corridors connecting parts of the city (focus on Integrate land use and transport).
The Asian Model: Co-development model to begin with, focused on leveraging real estate around transit to create funds for development.
SCALES OF TOD

INTERNATIONAL PRACTICES
Scales of TOD: Regional/City Level

Boston, Massachusetts' Fairmount Indigo Railway Corridor
Boston, Massachusetts' planned Fairmount Indigo Railway Corridor
TOD corridors serve as the backbone of the city, shaping its network and spatial structure

- Promote communities’ long-term goals
- Offer a variety of land uses
- Provide community destinations
- Incorporate community input

The city of Ahmedabad, India’s BRT system

The station area around a bus rapid transit stop in Bogotá, Colombia

TOD CASE EXAMPLES

INTERNATIONAL PRACTICES
A PLAN FOR SURABAYA, INDONESIA

1. Establishing continuous heritage trail between different historic districts along the corridor

2. Setback regulations to ensure new form does not overwhelm or dominate the heritage asset

3. Maintain the continuity of the trail by implementing heritage trail wayfinding signage or plates at most 100m apart

4. Communication of historic places, sites and precincts through collateral that ‘tells the story’.

5. Promoting hawker stands along the heritage trail

6. Boulevard trees providing natural shading for walks along the trail

7. Establishing Kampungs passages as part of the heritage trail

ADDRESSING LAND

INTERNATIONAL PRACTICES
Land: the foundational building block for TOD

Land is often the most valuable asset a city possesses to leverage TOD.

Many funding and financing tools can be used to harness land assets.

Given the variety of land-ownership regimes, diverse tools and cooperation between entities is key to assemble land for TOD Corridor projects.
Land related tools

Tools for Land Assembly

Voluntary

Tool 1: Land Readjustment
Tool 2: Urban Development
Tool 3: Land Sharing

Involuntary

Tool 1: Eminent Domain
Tool 2: The Right of Preemption

Land readjustment scheme

Ahmedabad Town Planning Scheme + Land Pooling

FINANCING TOD

INTERNATIONAL PRACTICES
The Business Model Framework

What to invest in?

How to mobilize investment capital?

How to structure implementation?

How to pay for it?
Three types of delivery mechanisms used for a TOD investment:

- **Contracts**: contracts that determine how the revenues and costs arising from the investment components are distributed
- **Legal entities & structures**: Legal entities dedicated to the implementation of a TOD investment
- **Institutional frameworks**: Laws and institutional arrangements that set enabling conditions for TOD investments to take place
Colombia: Service Charges

- **Service charges**: revenues obtained from charges applied to the use of transit services and from charges related to real estate assets
  - Farebox revenues
  - Real estate leasing
  - Betterment levies
Land value increments: revenues gained through land value capture, a technique in which a public authority harnesses increased land value derived from public action or investment

- Land value capture can be carried out through such public delivery mechanisms as: Upzoning, Land readjustment, Special assessment tax, Land sale at post-rail prices
Sale of air rights: transfer or sale of development rights through the auctioning of development rights. In Sao Paulo, the difference between the basic FAR and the maximum FAR is sold through the auctioning. Authorities can also provide density bonuses (FAR increase beyond the zoning code.
TOD GOVERNANCE

INTERNATIONAL PRACTICES
TOD IMPLEMENTATION PROJECT CYCLE

Image Source: WRI.
Portland – TOD Governance

State of Oregon

Regional Agencies

Metro
(Metropolitan planning agency)

Tri-Met
(Regional transit agency)

Funding between agencies

Urban Growth Boundary (UGB), 1979
Transportation Planning Rule, 1991 followed by “2040 Growth Concept”
Transportation & Growth Management Program, 1993
TOD Tax Exemption, 1995

Regional Growth Management, 1994
TOD Implementation Program, 1998

Regional Growth Management, 1994
TOD Implementation Program, 1998

Westside Station-Area Planning, 1993–1997
Joint Development, 1997

Metropolitan Transportation Improvement Program

TOD Tax and Fee Exemptions
INCLUSIVE TOD

INTERNATIONAL PRACTICES
Housing Production: Land Acquisition, Diverse Zoning for Affordable Housing

- Public land dedication and write-downs
- Joint public-private developments
- Land banking
- Land readjustment
- Overlay zones - diverse zoning, including rentals

Social urbanism connected low-income neighborhoods, regularized informal settlements, and provided high quality services and public facilities such as libraries around improved transport facilities such as escalators and cable cars.

Connecting housing to opportunities: Medellin, Colombia

ADAPTING

TRANSIT ORIENTED DEVELOPMENT

LESSONS FROM THE FIELD
TOD: Lessons From the Field

Political economy

- Political leadership and vision for the city
- Appropriate institutional structures
- Community participation
- Intergovernmental and metropolitan collaboration
Planning and Regulation
• Holistic and integrated approach (LU+T)
• Supportive regulatory environment

Finance
• Leverage capital
• Use a combination of financing options
• Use public sector investment to encourage private sector investment
• Stakeholders must have shared vision
TOD: Lessons from the Field

Implementation

• Create democratic, transparent, and fair processes
• Create new spatial identities through placemaking strategies
• Allow for adjustments over long-term market cycles
• Limited transit network diminishes TOD appeal
• Limit gentrification through increased access to low-income housing
The opportunity
Game-changing solutions are out there

Managing Urban Expansion
Transit-oriented development

Improve Energy Efficiency
Smart, efficient buildings

Addressing congestion
Mass Transit, Bike sharing systems and other low impact modes

• But solutions need improving, scaling and adapting for maximum impact:
  – Extending the coverage of mobility, energy, and other services to underserved areas
  – Diversifying options for greater choice and accountability, and adapting to local context.

Source: UTTIPEC, DDA, WRI India
Photo credit: Anne Maassen
Thank You

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Director- Urban Development
World Resources Institute, India

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