Shift Happens....

Cities Facing Transport: Time for System Change?

Presented on Sept 23-24, 2008
2007: A key human milestone?

- Most people in cities
- 2000-2025: Urban Population to double
- 2025: 61% in cities

<table>
<thead>
<tr>
<th>Urban Population</th>
<th>Urban Population in %</th>
<th>Urban Population Growth Rate in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>World</td>
<td>39</td>
<td>47</td>
</tr>
<tr>
<td>Africa</td>
<td>27</td>
<td>38</td>
</tr>
<tr>
<td>Europe</td>
<td>69</td>
<td>75</td>
</tr>
<tr>
<td>North America</td>
<td>74</td>
<td>77</td>
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<tr>
<td>Central America</td>
<td>60</td>
<td>67</td>
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<td>South America</td>
<td>68</td>
<td>80</td>
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<tr>
<td>Asia</td>
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<td>38</td>
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<tr>
<td>Oceania</td>
<td>71</td>
<td>70</td>
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<tr>
<td>Developing Countries</td>
<td>29</td>
<td>41</td>
</tr>
<tr>
<td>Developed Countries</td>
<td>71</td>
<td>76</td>
</tr>
</tbody>
</table>

Most in developing world

• 2015: 358 "million cities": 153 in Asia
• 27 “mega-cities”, 10m+: 18 in Asia
# Mega Cities: 1995 and 2015

<table>
<thead>
<tr>
<th>Urban Agglomeration</th>
<th>Population (thousands)</th>
<th>Annual Growth Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Africa</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lagos</td>
<td>10,287</td>
<td>24,437</td>
</tr>
<tr>
<td>Cairo</td>
<td>9,656</td>
<td>14,494</td>
</tr>
<tr>
<td><strong>Asia</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tokyo</td>
<td>26,836</td>
<td>28,701</td>
</tr>
<tr>
<td>Bombay</td>
<td>15,093</td>
<td>27,373</td>
</tr>
<tr>
<td>Shanghai</td>
<td>15,082</td>
<td>23,382</td>
</tr>
<tr>
<td>Jakarta</td>
<td>11,500</td>
<td>21,170</td>
</tr>
<tr>
<td>Karachi</td>
<td>9,863</td>
<td>20,616</td>
</tr>
<tr>
<td>Beijing</td>
<td>12,362</td>
<td>19,423</td>
</tr>
<tr>
<td>Dacca</td>
<td>7,832</td>
<td>18,964</td>
</tr>
<tr>
<td>Calcutta</td>
<td>11,673</td>
<td>17,621</td>
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<tr>
<td>Delhi</td>
<td>9,882</td>
<td>17,553</td>
</tr>
<tr>
<td>Tianjin</td>
<td>10,687</td>
<td>16,998</td>
</tr>
<tr>
<td>Metro Manila</td>
<td>9,280</td>
<td>14,711</td>
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<tr>
<td>Seoul</td>
<td>11,641</td>
<td>13,139</td>
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<tr>
<td>Istanbul</td>
<td>9,316</td>
<td>12,345</td>
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<tr>
<td>Lahore</td>
<td>5,085</td>
<td>10,767</td>
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<td>Hyderabad</td>
<td>5,343</td>
<td>10,663</td>
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<tr>
<td>Osaka</td>
<td>10,601</td>
<td>10,601</td>
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<tr>
<td>Bangkok</td>
<td>6,566</td>
<td>10,557</td>
</tr>
<tr>
<td>Teheran</td>
<td>6,830</td>
<td>10,211</td>
</tr>
<tr>
<td><strong>South America</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sao Paulo</td>
<td>16,417</td>
<td>20,783</td>
</tr>
<tr>
<td>Mexico City</td>
<td>15,643</td>
<td>18,786</td>
</tr>
<tr>
<td>Buenos Aires</td>
<td>10,990</td>
<td>12,376</td>
</tr>
<tr>
<td>Rio de Janeiro</td>
<td>9,888</td>
<td>11,554</td>
</tr>
<tr>
<td>Lima</td>
<td>7,452</td>
<td>10,526</td>
</tr>
<tr>
<td><strong>North America</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New York</td>
<td>16,329</td>
<td>17,636</td>
</tr>
<tr>
<td>Los Angeles</td>
<td>12,410</td>
<td>14,274</td>
</tr>
</tbody>
</table>

Urban Future 21 (2000): Three Kinds of City

- **TYPE 1**: The City coping with informal hypergrowth
- **TYPE 2**: The City managing dynamic growth
- **TYPE 3**: The Mature City coping with ageing
Then and Now...

- 2005: São Paulo, Mexico City, Caracas, Bogotá

*Housing: then* formal slums (permanent construction, subdivided, overcrowded)

*Housing: now* informal slums: self-built, unserviced

*Transport: then* extensive Metro system, just built

*Transport: now* rudimentary Metro network, being extended
London 1905: East End slum
São Paulo 2005: Heliopolis, Paraisopolis
London 1905: 6.8 million
São Paulo 2005: 18 million
Informal Settlements: Mexico City, Rio de Janeiro
Transport: The Story Unfolds

- *Pacific Asian cities:*
  - High-density development, top-quality metros
- *Latin American cities:*
  - Innovative bus systems
  - Singapore and Curitiba: two model cities, look alike: integrated land use and transportation
Transport: Pacific Asian Cities

- High-density development
- Top-quality metros
- High-density housing
Integrating Transport and Land Use: Singapore, Curitiba

- Singapore and Curitiba: two model cities
- Look alike: integrated land use and transportation
- Same goal, similar achievement - yet very different means
The Latin American Breakthrough: Busway Cities

- Metro systems less developed – especially 30 years ago (recent extensions)
- Money lacking
- So, “make a virtue of necessity”
- Curitiba: “Bus Metro”
- Widely hailed, now imitated
- Bogotá, São Paulo, etc
- Brazilian engineers: took the lead
- The key: integrated bus service/land use
Bus Transit Pioneer: Curitiba

- Innovative bus systems
- Express, Orbital, Local
- High capacities
- High-speed transfer stations
- Integrated land use: high-density corridors

Photos: Lars Friberg
Busway Capacity: Curitiba

Table 1. Capacity of bus operations in Curitiba

<table>
<thead>
<tr>
<th>Bus Configuration</th>
<th>Capacity (passenger/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conventional bus on average street (80 passengers)</td>
<td>1,000</td>
</tr>
<tr>
<td>Conventional bus on bus way (150 passengers)</td>
<td>1,800</td>
</tr>
<tr>
<td>Double (Articulated) bus on bus way (150 passengers)</td>
<td>2,500</td>
</tr>
<tr>
<td>Direct route with boarding tubes (110 passengers)</td>
<td>3,200</td>
</tr>
<tr>
<td>Biarticulated bus on bus way with boarding tubes (270 passengers)</td>
<td>4,000</td>
</tr>
</tbody>
</table>

Note: These figures are a simplification of operational data, taking into account the capacity of the vehicles and their respective commercial running time.

Source: URBS, Urbanização de Curitiba

Illustrations: Lars Friberg
Transport Infrastructure Costs: Buses cheaper

Source: Golub 2004
Transport: Big Choices

- Bus-based cities do work
- Can deliver good service, high volumes, at low cost
- But can they do so everywhere?
- Especially: to the periphery?
- Will the transport problem get worse?
- No: because of the new phenomenon:
  - *The Mega-City-Region*
The New Feature: Mega-City-Regions

• 2020: 2/3 ASEAN population in 5 MCRs:
  • Bangkok (30m)
  • Kuala Lumpur-Klang (6m)
  • Singapore Triangle (10m)
  • Java (100m)
  • Manila (30m)
• East Asia: even bigger:
  • Tokyo-Nagoya-Kyoto-Osaka-Kobe (60m)
  • Hong Kong-Shenzhen-Guangzhou (120m)
  • Shanghai-Nanjing (83m)
Mega-City Regions in Latin America

- Decentralisation/Recentralisation (“Concentrated deconcentration”)
- Mexico City: more than half population outside Distrito Federal
- São Paulo: city 10m, metro 19.8m
- Buenos Aires: 12m, but only 3.5m in Capital Federal
- Bogotá: population grew 40%, but travel distances stayed same!

Source: UN-Habitat, *The State of the World’s Cities*
Mega-City-Region Problem: Fragmented Governance

- Mexico City: 28 municipalities
- São Paulo: 39 districts/municipalities
- Rio de Janeiro: 13 municipalities
- Buenos Aires: 20 municipalities, varying autonomy
- Curitiba: 25 municipalities

Curitiba and its Region

- 25 municipalities; City: 61% population, falling
- 500,000 below poverty line
- 89,000 substandard units in 903 areas
- Only 58% sewered; only 35% sewerage treated
- COMEC: plans, no action, no powers

Source: Macedo 2004

Figure 8 Growth of resident population in the Municipality of Curitiba and the Metropolitan Region (RMC), 1970–2000. IBGE, 1997; IBGE, 2002; graph by author.
The Need for Metro Governance

- Growth of Mega-City-Regions
- *The Solution* – re-balance homes, jobs, transport
- *But also the Problem*: needs effective planning, powers, action…
- …at a Metro scale
- Otherwise: the risk:
- Rich cities, poor peripheries
- *Could get worse!*
- *Must make better!*
Type 3: The Mature City coping with ageing

- North America, Europe, Japan and parts of East Asia, and Australasia
  - Population: stable or declining
  - Challenges: ageing, household fissioning
  - Slow economic growth
  - Social polarization
- But: resources to tackle environmental problems
- The pattern: dispersion and reconcentration: growth of smaller cities, challenge to core cities
The Mature City: Problems (1) Polarization

- Basic economic problem: *mostly solved*
- Advanced service cities
- But: *deindustrialization* - leaves many stranded
The Mature City: Problems (2): Aging

- Lower innovative potential
- How can cities stay flexible
- Lifelong learning?
- New associations of old people — substitutes for traditional families?
- How to overcome the “burden of dependency”?

One outcome: a new wave of immigration?
The Mature City: Problems (3): Sustainable Quality

- Cities compete globally
- Environment/Quality of Life: A Key Factor
- *Dutch/German/Swiss Cities*: Compact, Public Transport/Bike/Walk Oriented
- *USA/Europe*: New Urbanism, Urban Renaissance
- *UK*: A Sustainable Mega-City Region
Sustainable Quality: European Cities

- Compact, Public Transport/Bike/Walk Oriented
- Pedestrianized CBDs
- Traffic Calming
- High-Quality Public Transport
- Integration: Heavy/Light Rail
- Restraining Traffic by Congestion Charging
Pedestrian Cities: Munich, Manchester
Calming Traffic: Berlin, Eschwege
Sustainable Transport: Freiburg, Karlsruhe
Integrated Transport: Grenoble
Integrated Transit: Zürich
Restraining Traffic: Singapore, Oslo, London
New Urbanism in US & Europe

- Return to Traditional Built Forms
- Higher Densities (How Dense?)
- UK: Urban Task Force
- Urban Renaissance: UK Examples
- Cultural/Sport Regeneration
- European Examples: Denser
New Urbanism: Mountain View, CA/Kentlands, MD
New Urbanism in Britain: Poundbury
Urban Renaissance: Birmingham
Urban Renaissance UK: New East Manchester
Urban Renaissance UK: Glasgow, Crown Street
Urban Renaissance Europe: Amsterdam, Java Island
Urban Renaissance: The Critical Question

- Outstanding successes…but…
- Geared to Yuppies?
- The argument: UK, 80% new households are one-person!
- But: they want space too
- And: cities are for families too!
- So: bring the families back
- What kind of housing?
Densities compared

Source: Rudlin and Falk, *Building the 21st century Home*
Planning for Sustainable Growth

• Paris: Restructuring the City
• Role of Transportation: crucial
• Amsterdam, Tokyo: New-Style Edge Cities
• London: Docklands/Thames Gateway
• USA (Calthorpe) /UK (Breheny/ Rookwood): Sustainable Transport Corridors
• UK: *Sustainable Communities* Strategy 2003
Regional Metros: Stockholm, Copenhagen
Paris Orbitale: Creating a New CBD
Paris: Orbitale: Creating a new CBD
Edge City, European Style: Amsterdam Zuidas
Docklands/Thames Gateway
Reversing London’s Growth
Thames Gateway Targets

THAMES GATEWAY MID-GROWTH SCENARIO
120,000 DWELLINGS

Key Developments - Additional Dwellingso Delivered by Strategic Transport Programmes

1. Ebbsfleet
   - CTRL, Fastrack
   - 15,000 Dwelling

2. Barking Reach
   - DLR Extension, East London Transit
   - 10,000 Dwelling

3. Woolwich
   - DLR Crossing, Greenwich Waterfront Transit
   - 5,000 Dwelling

4. Stratford City
   - CTRL and minor schemes
   - 5,000 Dwelling

5. Greenwich Peninsula
   - Greenwich Waterfront Transit
   - 5,000 Dwelling

TOTAL
   - 35,000 Dwelling

Crown Copyright Reserved 2003
New Urbanism, British Style: Greenwich Peninsula
Ideal Urban Forms?: UK, USA
Building Sustainable City Clusters

Figure 47. City of Mersia. Proposal for clustered development along existing and reopened rail lines, plus a Northampton-Wellingborough transport system incorporating the towns of Rugby, Northampton, Wellingborough, Kettering and Corby. Source: Peter Hall.

Figure 48. City of Italia. Proposal for development clusters along reopened rail routes of way, which could be rail or busway, centred on the cities of Cambridge, Huntingdon and Peterborough and incorporating the new settlements proposal for Cambridgeshire. Source: Peter Hall.

Figure 49. City of Kent. Proposal for major development clusters served by domestic services on the Channel Tunnel Rail Link, centred on Ashford and incorporating the regeneration and extension of the deprived port and seaways near Dungeness and the reinvestment of the Kent coalfields. Source: Peter Hall.
UK: Sustainable City Clusters

Areas of Outstanding Natural Beauty, Green Belt Land and the Growth Areas

- Milton Keynes & South Midlands
- London, Stansted, Cambridge
- Thames Gateway
- Ashford

Source: National Parks and Areas of Outstanding Natural Beauty designated by Countryside Agency, Green Belts by Local Plan

Figure 1: Milton Keynes & South Midlands Sub-Regional Strategy Spatial Diagram
So, in Conclusion...

- Has been Done!
- Is being Done!
- Can be Done!
- Needs: Money, Powers, Imagination, Determination!
- **Money**: public and private: how combine?
- **Powers**: Special Purpose Vehicles: UDCs, URCs
- **Learn from Best Practice**