CODATU XVI Istanbul Conference

Mega Cities Planery Session
4 February 2015, Istanbul.

Haluk Gerçek, Professor, ITU (Turkey) – Moving around the ‘Endless City’: Urban Transport Policies in Istanbul.

Pan Haixiao, Professor, Tongji University (China) – What’s the Effective Urban Transport Policy in Shanghai?

Krishna Rao, Professor, Indian Institute of Technology Bombay (India) – An Urban Transportation Perspective of Mumbai, the Maximum City.
Moving around the ‘Endless City’: Urban Transport Policies in Istanbul.
CONTENT

• Basic Data
• Transport and Urban Sprawl
• Transportation System and Travel Pattern
• Facts and Trends
• Prospects
BASIC DATA ABOUT ISTANBUL

- Population: 14.4 M (18.5% of Turkey)
- Area: 5,343 km² (0.7% of Turkey)
- Number of municipal districts: 39
- Number of motor vehicles: 3.4 M (18% of Turkey)
- Number of automobiles: 2.3 M (23% of Turkey)
- Car ownership: 157 cars per 1000 inhabitants
- Vehicle ownership: 234 motor vehicles per 1000 inhabitants
- Rail Transit Network: 141.5 km
- GDP per capita: $15,674 (2011)
POPULATION GROWTH

Average Annual Growth Rates (AAGR, Istanbul):

1950-1970: 4.9%
1970-1990: 4.5%
1990-2000: 3.2%
2000-2013: 2.7%
BUILT-UP AREAS (1950 – 2002)
POPULATION DENSITY (2013)

99,000
Maximum Density per Km2

20,000
Central Area Density per Km2

2,767
Overall Average Density per Km2
JOBS DENSITY (2013)
RAPID INCREASE OF MOTOR VEHICLES (1980 – 2013, Istanbul)
NUMBER of MOTOR VEHICLES per 1000 PEOPLE (1980 – 2013, Istanbul)
PUBLIC TRANSPORT NETWORK
RAIL TRANSIT NETWORK (2013)

<table>
<thead>
<tr>
<th>Length (Km)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Metro</td>
<td>80,4</td>
</tr>
<tr>
<td>LRT</td>
<td>20,3</td>
</tr>
<tr>
<td>Tramway/Funicular</td>
<td>40,8</td>
</tr>
<tr>
<td>Total</td>
<td>141,5</td>
</tr>
</tbody>
</table>
# Trip Rates (1987 – 2012)

<table>
<thead>
<tr>
<th>Year</th>
<th>Walk Trip Rate</th>
<th>Motorized Trip Rate</th>
<th>Total Trip Rate</th>
<th>Walk Trip (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1987</td>
<td>0.57</td>
<td>0.87</td>
<td>1.44</td>
<td>39.6</td>
</tr>
<tr>
<td>1996</td>
<td>0.54</td>
<td>1.00</td>
<td>1.54</td>
<td>35.1</td>
</tr>
<tr>
<td>2006</td>
<td>0.87</td>
<td>0.87</td>
<td>1.74</td>
<td>50.0</td>
</tr>
<tr>
<td>2012</td>
<td>0.81</td>
<td>0.80</td>
<td>1.61</td>
<td>50.3</td>
</tr>
</tbody>
</table>

DAILY JOURNEYS (1987 – 2013)

MODAL SPLIT (1987 – 2012)

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Transport</td>
<td>60.1</td>
<td>59.9</td>
<td>47.4</td>
<td>49.7</td>
</tr>
<tr>
<td>School /Company Bus</td>
<td>10.4</td>
<td>11.5</td>
<td>21.5</td>
<td>19.7</td>
</tr>
<tr>
<td>Private Car + Taxi</td>
<td>29.5</td>
<td>28.6</td>
<td>31.1</td>
<td>30.6</td>
</tr>
<tr>
<td>Rail /PT (%)</td>
<td>6.3</td>
<td>6.0</td>
<td>9.7</td>
<td>9.5</td>
</tr>
</tbody>
</table>
PT Trips Desire Lines (2013)

5.7 Million Trips Daily

Private Car Trips Desire Lines (2013)

3 Million Trips Daily
TRAVEL TIME (min.) (1987 – 2012)

<table>
<thead>
<tr>
<th>Year</th>
<th>Motorized Trips</th>
<th>Total Trips</th>
</tr>
</thead>
<tbody>
<tr>
<td>1987</td>
<td>52,8</td>
<td>38,0</td>
</tr>
<tr>
<td>1996</td>
<td>40,7</td>
<td>34,3</td>
</tr>
<tr>
<td>2006</td>
<td>48,9</td>
<td>32,2</td>
</tr>
<tr>
<td>2012</td>
<td>45,4</td>
<td>29,3</td>
</tr>
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</table>

**Bosphorus Crossing**

<table>
<thead>
<tr>
<th>Mode</th>
<th>2006</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private Car</td>
<td>73,6</td>
<td>74,1</td>
</tr>
<tr>
<td>Public Transport</td>
<td>91,6</td>
<td>84,6</td>
</tr>
<tr>
<td>Average</td>
<td>85,9</td>
<td>82,0</td>
</tr>
</tbody>
</table>

Access to Piers Within 15 min. by PT (2013)

Population: 3.15 million (21.5 %)
Jobs: 1.2 million (27.8 %)
GREENHOUSE GAS EMISSIONS IN TURKEY (Million Tons CO2 Equivalent)

GREENHOUSE GAS EMISSIONS IN ISTANBUL (2010, Tons CO2 Equivalent)

<table>
<thead>
<tr>
<th>Transport Mode</th>
<th>Emissions (Tons CO2 Equivalent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road</td>
<td>10,008,732</td>
</tr>
<tr>
<td>Rail</td>
<td>76,248</td>
</tr>
<tr>
<td>Water-borne navigation</td>
<td>2,130,383</td>
</tr>
<tr>
<td>Aviation</td>
<td>1,093,994</td>
</tr>
<tr>
<td><strong>Total Transport</strong></td>
<td><strong>13,309,357</strong></td>
</tr>
<tr>
<td><strong>All Sectors Total</strong></td>
<td><strong>43,826,098</strong></td>
</tr>
</tbody>
</table>

*Source: 2010 GHG Inventory of Istanbul Metropolitan Area, IMM.*
FACTS AND TRENDS

- Extensive investment in rail transit.
- BRT
- ITS (Smart card, information systems for travellers and PT operators).
PROBLEMS

• Uncontrolled growth and urban sprawl.
• Traffic congestion at untolerable levels.
• Lack of integration of land-use, transportation, environmental and economic development plans.
• Lack of transparent & accountable decision-making process (Top – down decision making based on projects).
• Lack of public awareness.
FUTURE RAIL TRANSIT NETWORK

Source: IMM, 2014.

Road Tunnel (Eurasia Tunnel)

Marmaray Project

76.3 km, 40 stations (3 underground)
13.6 km tunnel (1.4 km immersed tube tunnel)
BUILT-UP AREAS, FORESTS, WATER RESERVOIRS

Legend
- Water Reservoir Areas
- Highway
- Settlement Areas
- Forest Areas
- Beach to be protected
- Agricultural Areas
- Lakes

METROPOLITAN PLAN (2009)

Proposed Polycentric Urban System in the Metropolitan Area

3rd BOSPHORUS BRIDGE and NORTHERN MARMARARA MOTORWAY
SOLUTIONS for SUSTAINABLE TRANSPORT

• Increase public awareness and foster a sense of individual and collective responsibility through education and campaigns (Mind shift).

• Engage stakeholders in planning and decision making (Public participation, buttom-up decision making).

• Integrate land-use, transportation and environmental planning (Mixed-use, smart growth, compact, connected, coordinated city). Preserve the city’s delicate and historic neighborhood.

• Give more emphasis on demand-side measures (TDM). Major infrastructure projects eventually create their “induced traffic”. We can not built sufficient new infrastructure to overcome congestion (Road Diet).

•
SOLUTIONS for SUSTAINABLE TRANSPORT

- Put accessibility in the center of planning. Improve and integrate public transport modes. Develop reserved routes for PT.
- Improve non-motorized transport (walking and biking). Maintain and create choices for mobility.
- Rethink and shrink the car. Reduce and rationalize the use of cars, more specifically in the city centers by TDM. (Congestion pricing, parking pricing and management, traffic calming, regulatory measures).
SOLUTIONS for SUSTAINABLE TRANSPORT

• Set targets for climate change (Cut CO2 emissions by 50% by 2030).

• Consider a package of solutions. Prepare policy, technology, and financing road maps.
Thank you...

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