German-Malaysian Project:
Approaches for Reduction of Air Pollutants, Sustainable
Urban Traffic Systems
- Kuala Lumpur as a case -

Rudolf Petersen, Germany
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Urban Planning and Development, Transportation
How to learn from 50 years of tradition in urban traffic congestion and air pollution?
Pollution Control Lesson Learnt in the US: Clean Technology is not enough

- More than 30 years of emission reduction by tightened standards in U.S. do not guarantee healthy ambient air
- Increasing car traffic and travel distances result from
  - unreasonable land-use
  - poor public transport
  - low gas prices
  - loss of urban livability
### Integrated Clean Air Strategy in Transport

*Experiences can be applied to ghg reduction*

<table>
<thead>
<tr>
<th>Control of Vehicle-km</th>
<th>Control of Emissions per Vehicle-km</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban Transport Planning</td>
<td>Inspection &amp; Maintenance Program</td>
</tr>
<tr>
<td>Priority for Public Transport Investment</td>
<td>Standards for New Vehicles</td>
</tr>
<tr>
<td>High-Density Development</td>
<td>Fuel Standards</td>
</tr>
<tr>
<td>Mixed-Use Development</td>
<td>High-Use Fleet Improvement Programs</td>
</tr>
<tr>
<td>ABC / Key-Site Development</td>
<td>Tax Incentives for Clean Vehicles/Fuels</td>
</tr>
<tr>
<td>Road Pricing, Fuel Taxes</td>
<td>Education of Drivers, Law Enforcement</td>
</tr>
</tbody>
</table>
Traffic Spiral

- Feedback system between
  - road construction,
  - sub-urbanisation
  - vehicle increase
- Results are
  - Fuel consumption
  - Air pollution
  - More congestion
- Int’l experience: Not sustainable
A Problem: Ring Roads

- Ring /circular roads initiate sub-urban development
- Relocation of businesses, housing
- Lower density of land-uses
- Car-oriented, higher distances

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100 Years of Sub-Urbanisation

Typical Urban Region 1900

Typical Urban Region 2000
Vision: Turn Back Sub-Urbanisation

Typical Urban Region 2000   -   Typical Urban Region 2100 ?

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Kuala Lumpur - Putrajaya: How can sustainability mobility be supported (= car dependency be reduced)

- Control new investments
- Classify areas according to transport access
- Example e.o. Dutch ABC Concept)
  - A: Locations around train / bus station (shopping centers, large office buildings etc.)
  - B: Good/average accessibility by PT (housing, work places, leisure facilities)
  - C: Outside near highway ramps (facilities with low numbers of visitors)
- Coordinate local/regional planning
KL: Why the car and not p.t.

- Rational reasons mentioned: Travel time and access
- Not mentioned: Differences between various buses types / rapid rail
- Not mentioned: Social status
- Public participation needed

Table 1: Factors that encourage the use of the car

<table>
<thead>
<tr>
<th>No.</th>
<th>Statement</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Less Travel time</td>
<td>44.1</td>
</tr>
<tr>
<td>2</td>
<td>Desirable Routes not covered by public transport</td>
<td>33.8</td>
</tr>
<tr>
<td>3</td>
<td>Comfortable</td>
<td>2.5</td>
</tr>
<tr>
<td>4</td>
<td>If its save</td>
<td>2.0</td>
</tr>
<tr>
<td>5</td>
<td>Infrequent public transport services</td>
<td>17.6</td>
</tr>
</tbody>
</table>

Table 2: Factors Discouraging car users from using public transport

<table>
<thead>
<tr>
<th>No.</th>
<th>Statement</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>High risk to road accident involving</td>
<td>17.0</td>
</tr>
<tr>
<td>2</td>
<td>High traffic congestion and delay</td>
<td>36.6</td>
</tr>
<tr>
<td>3</td>
<td>It is not cheap and no cost saving (fuel and tool)</td>
<td>14.4</td>
</tr>
<tr>
<td>4</td>
<td>It is no economical to maintain</td>
<td>10.9</td>
</tr>
<tr>
<td>5</td>
<td>Parking and maneuver problem</td>
<td>23.7</td>
</tr>
</tbody>
</table>

Table 3: Likelihood of car users switching to public transport.

<table>
<thead>
<tr>
<th>No</th>
<th>Statement</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Vehicles usually arrive on schedule</td>
<td>37.2</td>
</tr>
<tr>
<td>2</td>
<td>Fare is low</td>
<td>28.0</td>
</tr>
<tr>
<td>3</td>
<td>Vehicles are not too crowded</td>
<td>3.2</td>
</tr>
<tr>
<td>4</td>
<td>Vehicles are clean</td>
<td>2.0</td>
</tr>
<tr>
<td>5</td>
<td>The route is more accessible</td>
<td>29.6</td>
</tr>
</tbody>
</table>

Source: Kamba/Rahmat/Ismail Journal of Social Sciences 2007
What are the options?

Bus rapid transit

Light Rail Transit

Underground metro

Urban rail
KL: Public transit competing with private car use - Importance of system integration and land-use planning

- Strong co-ordination between pt services
- Joint tariffs between transit operators
- Urban development supporting p.t.
Land-use and transport closely related
Integrated concepts needed to reduce transport emissions

Urban Land-Use
- Mixed-use areas
- No disperse settlements
- Population density
- City center residents
- Urban architecture to attract walking
- High-use locations transit-orientated

Urban Transport System
- Balanced use of road area
- Priority for public transport and for NMT
- Transport management for sustainability goals
- Time losses for PT travelers are cost.
- All travels have to be paid by the traveler.
Thank you.

rudolf.petersen@rudolf-m-petersen.de
rudolf.petersen@wupperinst.org
See also: www.gtz.de and www.wupperinst.org