Transport Policies and Planning in Sri Lanka

Amal S. Kumarage
Senior Professor,
Department of Transport & Logistics Management,
University of Moratuwa,

8th December 2011
Essence of Transport Policy Interventions

• Understand Current Demand for Mobility

• Provide for Supply of Transport to meet Current Demand

• Understanding Factors Impacting Future Demand for Mobility

• Plan & Provide for Transport Supply for future Demand
Essence of Transport Policy Interventions

- Understand Current Demand for Mobility
- Provide for Supply of Transport to meet Current Demand
- Understanding Factors Impacting Future Demand for Mobility
- Plan & Provide for Transport Supply for future Demand
Status Quo of Land Transport & Logistics Sector-2011

- Value of Turnover- 15% of GDP – Rs 1,000 bn
- Jobs – 1.5 million (85% informal)
- People Moved– 12+ mn motorized trips daily → 100 bn pkm/yr
- Freight Moved – 7 bn tonne km/yr
- Vehicle Fleet : Motorized Vehicles 3.2 mn operational
- Vehicle Movement: 27 billion vehicle kms operated/yr
- Accident Deaths : 2,400+ per annum (1 in 50 deaths)
- Pollution: estimated 5,000+ pre mature deaths (1 in 25)
Transport Activity and Modal shares: Sri Lanka (2011)

<table>
<thead>
<tr>
<th></th>
<th>Vehicle km (mn.)</th>
<th>%</th>
<th>Passenger km (mn.)</th>
<th>%</th>
<th>Ton km (mn.)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buses</td>
<td>1,379</td>
<td>5</td>
<td>55,177</td>
<td>55</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Railways</td>
<td>9</td>
<td>0</td>
<td>5,365</td>
<td>5</td>
<td>134.8</td>
<td>2</td>
</tr>
<tr>
<td>Private Vehicles</td>
<td>16,605</td>
<td>60</td>
<td>25,759</td>
<td>26</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Para-Transit</td>
<td>4,841</td>
<td>18</td>
<td>11,348</td>
<td>11</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Goods/Land Vehicles</td>
<td>4,819</td>
<td>17</td>
<td>2,585</td>
<td>3</td>
<td>6436</td>
<td>98</td>
</tr>
<tr>
<td>Water Transport</td>
<td>3</td>
<td>0</td>
<td></td>
<td>0</td>
<td>32</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>27,657</strong></td>
<td><strong>100</strong></td>
<td><strong>100,236</strong></td>
<td><strong>100</strong></td>
<td><strong>6,603</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Passenger Demand and Per Capita Income (1958-2007)

Figure A3.1: Passenger km and Per Capita Income (1958-2007)
Current Transport Sector Performance-2011

- Public Sector Expenditure – Rs 160 bn

- Private Expenditure
  - Commercially provided - Rs 260 bn
    - Trucks – Rs 150 bn
    - Buses – Rs 70 bn
    - Taxis/3W – Rs 40 bn
  - Privately provided – Rs 400 bn

- Private/Social Losses
  - Cost of Accidents : Rs 32 billion/py
  - Cost of Congestion: Rs 40 billion/py
  - Cost of Lost Time in Public Transport: Rs 30 billion/py
  - Cost of Losses in Supply Chain: Rs 100 billion (??)
Some questions ... Do we need to..

Minimize resource inputs in transport for the anticipated socioeconomic development & quality of life?

• Vehicle Ownership?
• Employment?
• Investment?

Make transport outputs efficient in terms of reducing internal losses?

• Reduce VOC/Energy
• Reduce Accidents
• Reduce Damages/Losses in Supply Chain

Minimize external losses in producing transport outcomes?

• Reduce Time Losses
• Improve Reliability
• Reduce Personal Energy Loss in Travel

Seminar on Energy Efficient and Environmentally Sustainable Transport System for Sri Lanka
Sri Lanka Sustainable Energy Authority
Essence of Transport Policy Interventions

- Understand Current Demand for Mobility
- Provide for Supply of Transport to meet Current Demand
- Understanding Factors Impacting Future Demand for Mobility
- Plan & Provide for Transport Supply for future Demand
Figure: Growth Passenger km by Mode (1958-2007)

Private Transport Providers

• Railways:
  • No Significant Investment/Management

• Highways
  • No Significant Investment/Management

• Bus Transport:
  • Ownership: SME
  • Investment: Rs 4 - 6 bn per annum
  • Management: SME
  • Revenue: Around Rs 55 bn.

• Trucking:
  • Ownership: SME
  • Investment: Rs 15 bn per annum
  • Management: SME
  • Revenue: Around Rs 150 bn Ownership: SME

• Three Wheelers:
  • Ownership: SME
  • Investment: Rs 2 bn per annum
  • Management: SME
  • Revenue: Around Rs 30 bn
Some questions ... Do we need to...

Re-position existing modes to achieve efficiency?

- Increase market share of some modes?
- Reduce external and internal losses?
- Modernize and Improve?

How can Private Sector do this better?

- Increase Investment in Existing Modes?
- Change Ownership Structures?
- Improve Management?

How can State Sector do this better?

- Privatize or PPP for new Investments?
- Joint Ventures in Management with/without Investment?
- Professional and Commercial Orientation?
Essence of Transport Policy Interventions

- Understand Current Demand for Mobility
- Provide for Supply of Transport to meet Current Demand
- Understanding Factors Impacting Future Demand for Mobility
- Plan & Provide for Transport Supply for future Demand
Source: Shaefer, Andreas, Long-Term Trends in Global Passenger Mobility, UK, 2008
Urban Transport Issues

- Centralized Commercial Development
  - Congestion at peak hours
  - Residential Area

- Satellite City Centre
  - Centralized Commercial Development
  - Improved Public Transport
  - Commercial Development at Suburban Centers

Amal Kumarage (C) Copyright 2006
## Factor Determining Sustainable Vehicle Ownership Levels

<table>
<thead>
<tr>
<th>Pop Density</th>
<th>Population Density (persons/ha)</th>
<th>Roads (m/person)</th>
<th>Share of Public Transport</th>
<th>Car Ownership Saturation (per 1000 p)</th>
<th>Restrictions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>&lt; 25</td>
<td>&gt; 4</td>
<td>&lt; 5%</td>
<td>600-700</td>
<td>Little or no restriction on ownership</td>
</tr>
<tr>
<td>Moderate</td>
<td>25-75</td>
<td>1-4</td>
<td>15-35%</td>
<td>300-400</td>
<td>Some traffic and parking restrictions</td>
</tr>
<tr>
<td>High</td>
<td>&gt; 75</td>
<td>&lt; 1</td>
<td>50-80%</td>
<td>200-300</td>
<td>Traffic and ownership restrictions</td>
</tr>
</tbody>
</table>
Car Ownership Vs Income

Per Capita Income (US $)

Car Ownership Rate

C1: High Growth
C2: Moderate to High
C3: Low to Moderate
C4: Low

U.S.A.
Australia,
Canada,
New Zealand,
Belgium,
Denmark,
Finland,
France,
Germany,
Japan,
Switzerland,
Sweden
Singapore,
Hong Kong
Some questions ... Do we need to...

Allow for Unconstrained Vehicle Ownership & Use

- Totally align to Consumer Behaviour?
- Can we use market price mechanisms such as congestion pricing?
- Use utility factors in promoting attractive modes?

How can Public Transport be promoted?

- Modernize exiting modes?
- New modes attractive to higher income users?
- More Investment?

Should we promote NMT?

- Urban re-structuring?
- Social Acceptance & Promotion?
- Infrastructure?
Essence of Transport Policy Interventions

- Understand Current Demand for Mobility
- Provide for Supply of Transport to meet Current Demand
- Understanding Factors Impacting Future Demand for Mobility
- Plan & Provide for Transport Supply for future Demand
Seminar on Energy Efficient and Environmentally Sustainable Transport System for Sri Lanka
Sri Lanka Sustainable Energy Authority
Urban Transport: Proposed BRT Network

- Proposed network
  - Kadawatha to Fort
  - Battaramulla to Fort
  - Network Integration Link: Orugodawatta to Borella junction

- Route Length 28km
- Estimated cost Rs. 403 Million per km.
- Total cost Rs. 11.3 Billion
- EIRR 24%
- NPV Rs 8,410 Mn ( @ 12% discount rate)
  (Evaluation period 20yrs)

-BRT systems have emerged as a cost-effective alternative with very good results in developing countries, including China, Indonesia and Latin American countries.
City Liner

LRT

Railway Electrification
A Future Bus..(ICT Perspective)
## Transport Sector Investments: PIP 2011-2016

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Government</td>
<td>Private</td>
<td>Total</td>
<td>Government</td>
<td>Private</td>
<td>Total</td>
<td></td>
</tr>
<tr>
<td><strong>Roses</strong></td>
<td>108,200</td>
<td>118,800</td>
<td>122,100</td>
<td>129,100</td>
<td>133,300</td>
<td>137,000</td>
<td>736,300</td>
</tr>
<tr>
<td>% GDP</td>
<td>1.8%</td>
<td>1.7%</td>
<td>1.6%</td>
<td>1.5%</td>
<td>1.4%</td>
<td>1.3%</td>
<td></td>
</tr>
<tr>
<td><strong>Ports</strong></td>
<td>32,400</td>
<td>38,200</td>
<td>53,000</td>
<td>64,500</td>
<td>70,500</td>
<td>77,000</td>
<td>190,100</td>
</tr>
<tr>
<td>% GDP</td>
<td>0.5%</td>
<td>0.6%</td>
<td>0.7%</td>
<td>0.7%</td>
<td>0.7%</td>
<td>0.7%</td>
<td></td>
</tr>
<tr>
<td><strong>Aviation</strong></td>
<td>8,670</td>
<td>12,500</td>
<td>17,500</td>
<td>24,500</td>
<td>33,500</td>
<td>43,500</td>
<td>97,600</td>
</tr>
<tr>
<td>% GDP</td>
<td>0.1%</td>
<td>0.2%</td>
<td>0.2%</td>
<td>0.3%</td>
<td>0.3%</td>
<td>0.4%</td>
<td></td>
</tr>
<tr>
<td><strong>Land Transport</strong></td>
<td>60,215</td>
<td>75,000</td>
<td>98,500</td>
<td>143,000</td>
<td>142,500</td>
<td>137,000</td>
<td>407,015</td>
</tr>
<tr>
<td>% GDP</td>
<td>1.0%</td>
<td>1.1%</td>
<td>1.3%</td>
<td>1.7%</td>
<td>1.5%</td>
<td>1.3%</td>
<td></td>
</tr>
</tbody>
</table>

### Total

<table>
<thead>
<tr>
<th></th>
<th>Government</th>
<th>Private</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreign</td>
<td>117,321</td>
<td>143,300</td>
<td>948,721</td>
</tr>
<tr>
<td>Domestic</td>
<td>92,164</td>
<td>101,200</td>
<td>482,294</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>209,485</td>
<td>244,500</td>
<td>1,431,015</td>
</tr>
</tbody>
</table>

| GDP         | 6,081,559  | 6,853,651 | 7,710,357  | 8,660,272 | 9,712,828 | 10,878,368 | 49,897,035 |
| % GDP       | 3.4%       | 3.6%      | 3.8%       | 4.2%      | 3.9%      | 3.6%       | 2.9%        | 0.9%        |