Sustainable Urban Transport Index: Measuring Sustainability of Urban Mobility

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ESCAP, Bangkok
Outline

• State of urban mobility in Asia
• Measuring sustainability of urban mobility
• Sustainable Urban Transport Index
• Experience of Asian cities
• Concluding remarks
State of public transport in Asia

• Many Asian cities operate a combination of different forms and modes of urban public transport systems (Metro, subway, urban rails, Bus Rapid Transit, Bus, para transit, river ferry and boats).
• Focus is on high-capacity transit
• Need for a public transport network and need to use a combination of transport modes
• Integration of land use and public transport planning:
  • Land use and transport planning
  • Physical integration of modes - seamless transfer stations
  • Service integration
  • Fare integration with combined ticketing
• In Asia, some cities like Seoul, Singapore, Hong Kong, China, Tokyo operate a good integrated-public transport system – with smooth transfer among modes.
Sustainability of urban mobility

- SDG Target 11.2 states: By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, (it is measured on accessibility)

- The Paris Agreement is focused on the national climate actions and emissions reduction efforts to limit the increase in global average temperatures. transport sector emissions mitigation strategies of Asian countries:
  - Promotion of public bus transport
  - Alternative energy sources
  - Electric mobility

- There is much focus on emissions reduction when we discuss sustainability of mobility - Avoid, Shift and Improve Framework

- There are various approaches to assess sustainability of urban mobility.

- ESCAP Sustainable Urban Transport Index (SUTI) with 10 key indicators to assess the state of urban public transport in a city.
### Objectives

**Sustainable Urban Transport Index (SUTI)**

Summarize, track and compare the performance of Asian cities with regard to sustainable urban transport and the related Sustainable Development Goals (SDG’s)

<table>
<thead>
<tr>
<th>Evaluate the status of urban transportation system in cities</th>
<th>Compare their performance on sustainable urban transport systems and policies with peers</th>
<th>Identify additional policies and strategies required to improve the urban transportation systems and services</th>
<th>Assess the progress of transport contribution towards achievement of SDGs</th>
</tr>
</thead>
</table>

SUTI has been successfully applied in 25 Asian cities and progressing in other cities.
# Sustainable Urban Transport Index (SUTI)

<table>
<thead>
<tr>
<th>No</th>
<th>Indicators</th>
<th>Measurement units</th>
<th>Weights</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>MIN</td>
</tr>
<tr>
<td>1</td>
<td>Extent to which transport plans cover public transport, intermodal</td>
<td>0 - 16 scale</td>
<td>0.1</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>facilities and infrastructure for active modes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Modal share of active and public transport in commuting</td>
<td>Trips/mode share</td>
<td>0.1</td>
<td>10</td>
</tr>
<tr>
<td>3</td>
<td>Convenient access to public transport service</td>
<td>% of population</td>
<td>0.1</td>
<td>20</td>
</tr>
<tr>
<td>4</td>
<td>Public transport quality and reliability</td>
<td>% satisfied</td>
<td>0.1</td>
<td>30</td>
</tr>
<tr>
<td>5</td>
<td>Traffic fatalities per 100,000 inhabitants</td>
<td>No of fatalities</td>
<td>0.1</td>
<td>10</td>
</tr>
<tr>
<td>6</td>
<td>Affordability — travel costs as part of income</td>
<td>% of income</td>
<td>0.1</td>
<td>35</td>
</tr>
<tr>
<td>7</td>
<td>Operational costs of the public transport system</td>
<td>Cost recovery ratio</td>
<td>0.1</td>
<td>22</td>
</tr>
<tr>
<td>8</td>
<td>Investment in public transportation systems</td>
<td>% of total</td>
<td>0.1</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>investment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Air quality (pm10)</td>
<td>µg/m³</td>
<td>0.1</td>
<td>150</td>
</tr>
<tr>
<td>10</td>
<td>Greenhouse gas emissions from transport</td>
<td>CO2 Eq. Tons</td>
<td>0.1</td>
<td>2.75</td>
</tr>
</tbody>
</table>

**SUM**

1.00
SUTI-Resources, Guidelines & Excel Sheet

SUTI web site:
https://www.unescap.org/kp/2021/sustainable-urban-transport-index-suti

Monograph Series- Assessment of Urban Transport Systems

Data Collection Guideline

SUTI Excel Sheet
### Data entry and normalization

2021 cities:
- Manila
- Jakarta
- Phnom Penh
- Islamabad
- Mashhad

#### Table: Data entry

<table>
<thead>
<tr>
<th>#</th>
<th>Indicators</th>
<th>Natural units</th>
<th>Weights</th>
<th>Range MIN</th>
<th>Range MAX</th>
<th>VALUE</th>
<th>YEAR</th>
<th>COMMENTS ABOUT DATA SOURCES OR ISSUES RELEVANT FOR INTERPRETATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Extent to which transport plans cover public transport, intermodal facilities and infrastructure for active modes</td>
<td>0 - 15 scale</td>
<td>0.1</td>
<td>0</td>
<td>15</td>
<td>7</td>
<td>2017</td>
<td>Score is based on 'Prime Minister’s Decision No. 568/QD-TTg: Approval for transportation development planning of Ho Chi Minh city by 2020, with a vision after 2030.'</td>
</tr>
<tr>
<td>2</td>
<td>Modal share of active and public transport in commuting</td>
<td>% of trips</td>
<td>0.1</td>
<td>10</td>
<td>90</td>
<td>28.52</td>
<td>2017</td>
<td>Data is based on an update of travel survey, Ho Chi Minh DOT reports, 2017.</td>
</tr>
<tr>
<td>3</td>
<td>Convenient access to public transport service</td>
<td>% of population</td>
<td>0.1</td>
<td>20</td>
<td>100</td>
<td>75.77</td>
<td>2017</td>
<td>Based on Hami DOT reports, 2017.</td>
</tr>
<tr>
<td>4</td>
<td>Public transport quality and reliability</td>
<td>% satisfied</td>
<td>0.1</td>
<td>30</td>
<td>95</td>
<td>41.77</td>
<td>2017</td>
<td>Based on research &quot;Survey of people satisfaction indicator on public services in 2017.&quot;</td>
</tr>
<tr>
<td>5</td>
<td>Traffic fatalities per 100,000 inhabitants</td>
<td># fatalities</td>
<td>0.1</td>
<td>35</td>
<td>0</td>
<td>8</td>
<td>2017</td>
<td>Based on official police reports, 2017.</td>
</tr>
<tr>
<td>6</td>
<td>Affordability – travel costs as share of income</td>
<td>% of income</td>
<td>0.1</td>
<td>35</td>
<td>3.5</td>
<td>5.71</td>
<td>2017</td>
<td>Based on bus ticket fare level and average income of citizen.</td>
</tr>
<tr>
<td>7</td>
<td>Operational costs of the public transport system</td>
<td>Cost recovery ratio</td>
<td>0.1</td>
<td>22</td>
<td>175</td>
<td>22.1</td>
<td>2017</td>
<td>The data are for the 13 companies offering public bus service in the city.</td>
</tr>
<tr>
<td>8</td>
<td>Investment in public transportation systems</td>
<td>% of total investment</td>
<td>0.1</td>
<td>0</td>
<td>50</td>
<td>15.5</td>
<td>2017</td>
<td>Based on average transport investments by the city for the five years 2013-2017.</td>
</tr>
<tr>
<td>9</td>
<td>Air quality (pm10)</td>
<td>pg/m3</td>
<td>0.1</td>
<td>75</td>
<td>10</td>
<td>29.96</td>
<td>2017</td>
<td>Data for four monitoring stations managed by Vietnam Environment Administration. The values are averaged by estimate of population exposed per city area (station 1 = 23.88%; station 2 = 76.12%).</td>
</tr>
<tr>
<td>10</td>
<td>Greenhouse gas emissions from transport</td>
<td>Tons/cap</td>
<td>0.1</td>
<td>2.75</td>
<td>0</td>
<td>0.38</td>
<td>2017</td>
<td>Based on estimate of traffic volumes (car, bus, motorcycles) on city road network for 2016, and average national emission factors per traffic mode.</td>
</tr>
</tbody>
</table>

**Note:** Must Sum To 1
Dhaka

Jakarta

100.00
80.00
60.00
40.00
20.00
0.00

Extent to which transport plans cover facilities for active...
Greenhouse gas emissions from transport
Traffic fatalities per 100,000 inhabitants
Affordability – travel costs as part of...
Operational costs of the public transport system
Investment in public transportation systems
Air quality (pm10)
Convenient access to public transport service
Modal share of active and public transport...
Public transport quality and...
Investment in public transportation...
Air quality (pm10)

Economic and Social Commission for Asia and the Pacific
Findings of Assessment of urban mobility in Asian cities

• Assessed mobility of 25 Cities in 16 countries
• Urban transport master plan was in place in most cities- with scope of improvement
  • Much focus on planning- implementation?
  • Mode integration, intermodal transfer stations
  • NMT- Pedestrian walkways, bicycle tracks
• Varying level of accessibility, covering 38 to 98 per cent of the population
• The mode share of public transport and active mobility ranged from 13.5 to 87 per cent
• Public transport fares were affordable
• The farebox recovery ratio was low and operation of public transport was heavily subsidized
• Investment in public transport in cities was low
• Cities have very high levels of particulate matter concentration, PM10
• Fatalities from road crashes ranged from 2 to 15 per 100,000 people.
• The percentage of users satisfied with the quality and reliability of public transport services ranged from 30 to 89 per cent
Concluding remarks

- Network of public transport systems - accessibility
- Integrated urban and public transport planning
- Integration of physical, service and fare - electronic payments
- Low-cost mobility options: Non-motorized transport
- SUTI: Evidence based decisions to improve key indicators and sustainability
- Context of COVID-19: Rethinking mobility solutions - health and wellbeing of commuters & prioritize active mobility
- Social dimension - barrier free accesses, inclusiveness and gender dimension
- SUTI can be customized to local context - Africa, Latin America
Regional Workshop on Sustainable, Inclusive and Resilient Urban Passenger Transport: Preparing for Post-Pandemic Mobility in Asia

Virtual, 28-29 October 2021, 13.00-17.00 (GMT +7)

With the COVID-19 pandemic, trust in public transport has declined and more people are switching from public transport to personal vehicles. But the pandemic has also made us reflect on the fundamental principles to guide urban transport policies in the future.

Join our distinguished experts and government representatives to discuss strategies to enhance the quality of urban passenger transport services in the post-COVID-19 era.

Register HERE
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regmi.unescap@un.org