Regional Overview of Sustainable Urban Transport Systems in Asia

Madan B. Regmi, DEng
Transport Division
UNESCAP, Bangkok
Outline

- SDGs and Transport
- State of Urban Transport in Asia
- Strategies to Improve Urban Transport
- Concluding Remarks
1. SDGs and Transport

2030 Agenda for Sustainable Development

UN Sustainable Development Goals

1. No Poverty
2. Zero Hunger
3. Good Health and Well-being
4. Quality Education
5. Gender Equality
6. Clean Water and Sanitation
7. Affordable and Clean Energy
8. Decent Work and Economic Growth
9. Industry, Innovation and Infrastructure
10. Reduced Inequalities
11. Sustainable Cities and Communities
12. Responsible Consumption and Production
13. Climate Action
14. Life Below Water
15. Life on Land
16. Peace, Justice and Strong Institutions
17. Partnerships for the Goals

United Nations ESCAP
Economic and Social Commission for Asia and the Pacific
Sustainable Development Goals & Transport

- **Road safety**: By 2020, halve the number of global deaths and injuries from road traffic accidents (Target 3.6)
- **Transport systems**: By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons (Target 11.2)
- **Energy efficiency**: By 2030, double the global rate of improvement in energy efficiency (Target 7.3)
- **Infrastructure**: By 2030, develop quality, reliable, sustainable and resilient infrastructure, including regional and trans-border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all (Target 9.1)
Fossil fuel: Rationalize inefficient fossil-fuel subsidies that encourage wasteful consumption by removing market distortions, (Target 12.c)

Additionally, transport is an enabler for achievement of other sectors’ targets, such as:
- Rural access and investment (target 2.1 and 2.a),
- Air pollution (target 3.9),
- Access to safe drinking water (target 6.1),
- Sustainable cities (target 11.6),
- Reduction of food loss (target 12.3) and
- Climate change adaptation and mitigation (target 13.1).
New Urban Agenda

HABITAT III, 17-20 October 2016 in Quito, Ecuador

- Improve road safety and integrate it into sustainable mobility and transport infrastructure planning and design (para 113)
- Promote access for all-safe, affordable, sustainable urban mobility (para 114)
  - Public transport and non-motorized modes
  - Transit Oriented Development
  - Coordinated transport and land use planning
  - Urban freight and logistics concept
- Develop mechanisms and frameworks – based on sustainable national urban transport and mobility policies (115 and 116)
- Develop sustainable urban and metropolitan transport and mobility plans (117)
- Ensure coherence with and integration of local and national level urban policies, national transport policy
- Ensure greater coordination of implementation of national and cities' urban infrastructure plans

Source: Adopted 20 Oct 2016
Regional Action Programme on Sustainable Transport Connectivity (2017-2021)

- Adopted by the Ministerial Conference on Transport, December 2016, Moscow
  - Regional transport infrastructure connectivity
  - Regional transport operational connectivity
  - Strengthening of transport connectivity between Asia and Europe
  - Transport connectivity for LDCs, LLDCs and SIDS
  - Rural connectivity to wider networks
  - Sustainable urban transport
  - Improving road safety
2. State of Urban Transport in the Region

Pattern of Urban Development

- More than 2 billion Urban residents- 55% of world’s urban population
- 23 of world’s 37 megacities are in Asia
- 90% of world’s urban expansion in developing countries- growing urban sprawls & slums
- Rapidly growing small & medium sized cities/towns
- Cities account for more that 2/3 of energy use and GHG emissions
- Cost of Air pollution, congestion, road crashes: 5-10% of GDP
- Car centered developments & lack of affordable public transport
- Secondary and small sized cities- opportunities to plan and implement sustainable urban transport policies
Urban and Rural Populations in Asia and Pacific
Vehicles per 1000 people in Asia

Source: International Organization of Motor Vehicle Manufacturers, 2015
Traffic congestion

Source: Tomtom Traffic Index 2016
Urban Transport in Asian cities

- Cities with good example of public transport: Tokyo, Singapore, Seoul, Hong Kong, China
- Mass transit system: Bangkok, Beijing, Delhi, Jakarta, Kuala Lumpur, Moscow, Tehran, etc.
- Bus Rapid Transit: Many cities in China and India
  - 43 Asian cities, 1593 route Km, 9.3 mil passengers/day
  - Tehran highest capacity-2 m, Jakarta longest route-207 km
- Cities of LDCs, LLDCs
  - Mass transit: Almaty, Baku, Tashkent and Yerevan
  - Public mass transport in still developing stage
- Non-Motorized Transport: A significant population depends on walking & bicycling
- Bus service, para-transit, private vehicles
- Variance in the use of intelligent transport systems
Rail based MRT in Asian Cities

![Graph showing the total rail length (km) of different cities in Asia, with Shanghai having the longest rail length, followed by Tokyo, Seoul, Moscow, and others.](image)
Public transport mode share in Asian cities

United Nations ESCAP
Economic and Social Commission for Asia and the Pacific
# Capital costs of development of different mass transit systems

<table>
<thead>
<tr>
<th>City</th>
<th>Type of system</th>
<th>Length, Km</th>
<th>Cost per km (mil $/km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Janamarg, Ahmedabad</td>
<td>BRT</td>
<td>82</td>
<td>2.4</td>
</tr>
<tr>
<td>Kuala Lumpur (PUTRA)</td>
<td>Elevated rail</td>
<td>29</td>
<td>50.0</td>
</tr>
<tr>
<td>Kuala Lumpur Monorail</td>
<td>Monorail</td>
<td>8.6</td>
<td>38.1</td>
</tr>
<tr>
<td>Bangkok (BTS)</td>
<td>Elevated rail</td>
<td>23.7</td>
<td>72.5</td>
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<tr>
<td>Beijing Metro</td>
<td>Metro rail</td>
<td>113</td>
<td>62.0</td>
</tr>
<tr>
<td>Shanghai Metro</td>
<td>Metro rail</td>
<td>87.2</td>
<td>62.0</td>
</tr>
<tr>
<td>Bangkok MRTA</td>
<td>Metro rail</td>
<td>20</td>
<td>142.9</td>
</tr>
<tr>
<td>Hong Kong Subway</td>
<td>Metro rail</td>
<td>82</td>
<td>220</td>
</tr>
</tbody>
</table>

*Source: Wright and Hook, 2007 and D. Hidalgo and A. Carrigan, 2010*
Assessment of Urban Transport Systems

- To **measure** urban transport and progress towards Sustainable Development Goals (SDGs) in Asian cities
- To help **summarize, compare and track** the performance of urban transport in cities
- To **facilitate** discussion to develop plans and policies to improve urban transport

**Simple Approach:**
- Not too many indicators
- Not complex calculations,
- Simple, based on existing methodology, policies

Monograph Series on Sustainable and Inclusive Transport: Assessment of Urban Transport Systems
# 10 SUTI Indicators

<table>
<thead>
<tr>
<th>No</th>
<th>Indicators</th>
<th>Measurement units</th>
<th>Weight</th>
<th>Range</th>
<th>MIN</th>
<th>MAX</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Extent to which transport plans cover public transport, intermodal facilities</td>
<td>0 - 16 scale</td>
<td>0.1</td>
<td>0</td>
<td>16</td>
<td></td>
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<tr>
<td></td>
<td>for active modes</td>
<td></td>
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<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>
<td>90</td>
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<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>
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<tr>
<td>4</td>
<td>Public transport quality and reliability</td>
<td>% satisfied</td>
<td>0.1</td>
<td>30</td>
<td>95</td>
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<td>5</td>
<td>Traffic fatalities per 100,000 inhabitants</td>
<td>No of fatalities</td>
<td>0.1</td>
<td>35</td>
<td>0</td>
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<td>6</td>
<td>Affordability – travel costs as part of income</td>
<td>% of income</td>
<td>0.1</td>
<td>35</td>
<td>3.5</td>
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<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>
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<td>8</td>
<td>Investment in public transportation systems</td>
<td>% of total</td>
<td>0.1</td>
<td>0</td>
<td>50</td>
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<td></td>
<td></td>
<td>investment</td>
<td></td>
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<tr>
<td>9</td>
<td>Air quality (pm10)</td>
<td>μg/m3</td>
<td>0.1</td>
<td>150</td>
<td>10</td>
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<td>10</td>
<td>Greenhouse gas emissions from transport</td>
<td>CO2 Eq. Tons</td>
<td>0.1</td>
<td>2.75</td>
<td>0</td>
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<td>SUM</td>
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<td>1.00</td>
<td>1.00</td>
<td></td>
<td>17</td>
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</tbody>
</table>
3. Strategies to Improve Urban Transport

- Integrated land use and urban transport planning
  - Improvement of public transportation
  - Intermodal transfer stations- optimum use of all modes
  - NMT- Pedestrian walkways, bicycle tracks

- Social inclusion- Affordability and coverage
  - Extend reach of public transport to vulnerable groups, communities

- Improve quality and reliability of service
Possible Policy Elements

- Road safety improvement
  - Regional goals targets and indicators
- Funding and operational costs
- Travel demand management
  - ICT, Compact city planning
  - Fare Integration, common ticketing
  - Parking policy, check private motor population
- Air quality and GHG
  - Clean Vehicle Technologies (energy, clean fuels)
  - Electric Mobility
  - Congestion management-Road pricing, car free areas/days
4. Concluding Remarks

- Need to enhance sustainability & safety of urban transport
- Develop and implement policies and strategies to improve urban transport systems
- Many successful examples in Asia
- SUTI helps to monitor progress across ten indicators and compare with peers cities
- SUTI application in other cities
- UNESCAP ready to support and collaborate
Thank you

regmi.unescap@un.org