Environmental Sustainable Transport
Towards
Low Carbon Society: THAILAND

The 5th Regional EST Forum
August 23rd, 2010

Presented by: Mr. Chamroon Tangpaisalkit
Inspector General
Ministry of Transport
Bangkok situation
Bangkok’s Land Use (Urban Sprawl)
Travel Pattern of people in Bangkok

- **Car**: 56% of trips, 9.5 million trips/day
- **Bus**: 35% of trips, 6 million trips/day
- **Mass Transit**: 4% of trips, 0.45 million trips/day
- **Sky Train**: 0.45 million trips/day
- **Subway**: 0.18 million trips/day
- **Total**: 17 million trips/day

**Map** showing traffic and transit systems in Bangkok.
### Current pattern

<table>
<thead>
<tr>
<th></th>
<th>BTS</th>
<th>BMCL</th>
<th>รวม</th>
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<tbody>
<tr>
<td>จำนวน</td>
<td>6.5</td>
<td>0.5</td>
<td>10</td>
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</tbody>
</table>

- 37% รถไฟฟ้า
- 58% รถเมล์
- 3% รถynthia

### Expected pattern: year 2029

(full network, 495 km: 12 lines)

<table>
<thead>
<tr>
<th></th>
<th>รถเมล์</th>
<th>รถไฟฟ้า</th>
<th>รถynthia</th>
<th>รวม</th>
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<td>2.21</td>
<td>2.04</td>
<td>8.5</td>
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</table>

- 12% รถเมล์
- 13% รถไฟฟ้า
- 25% อื่นๆ
- 50% รถynthia

**Single CBD**

**Travel Pattern of people in Bangkok**
Why transport should be taken seriously?

- Transport consumes a quarter of the world’s energy,
- accounts for some 25 percent of total CO2 emissions,
- 80 percent of which can be attributed to road transport.

- Transport is almost entirely dependent on oil / fossil fuels
- Transport sector used over 20% of total energy consumption in 2005
- Emissions of particulate matter (PM) and related exposure – health impacts
- High CO, HC, and NOx emissions
Quality of Life

The CO$_2$ PROBLEM IS A TRANSPORT PROBLEM, PREDOMINANTELY CARS AROUND URBAN AREAS
Environmentally Sustainable Transport

Towards Thailand

Political Will and Strong Governance
Key Elements more than Money and Technology
To be Environmental Sustainable Transport

- **Avoid** – Saving Carbon Through Urban Development
  - Land Use and urban development plan
  - Internalizing costs at an early stage of development
  - Shifting the balance away from high-carbon transport

- **Switch**: Co-benefits of Transport, Development
  - Bus Rapid Transit and other improvements to transport system
  - Careful transition from smaller to larger, better managed transit vehicles
  - Congestion pricing and other strategies to reduce externalities

- **Improve by Operations, Technology**: Carbon costs Count
  - Lower fuel use/km with improved traffic flow
  - Higher vehicle occupancy
  - Efficient vehicles, low carbon fuels – Mostly national initiatives

- **Finance**: Local Authorities, MDBs
  - Demonstrations
  - Measurement and evaluation techniques

Source: Lee Schipper, 2009
Avoid – Shift – Improve Concept

**Improve**

Use Renewable Energy such as Bio Fuel

**Shift**

Divert to Mass Transit

**Reduce traffic/driving distance (avoid)**

Source: Dr. FuKuda, 2009
Avoid – Shift – Improve Concept

Expected City

- Use only one point as a pedestrian location
  in traffic control
  \(
  \text{No} \quad \text{!!}
  \)

- Use the network to connect the pedestrian location
  in traffic control
  \(
  \text{Yes} \quad \text{!!!}
  \)
Shift

Avoid – Shift – Improve

Integrated Multimodal Transport
Network of MRT: ~350 km. (approval by the Cabinet: March 18, 2008).
Expected ridership: 5 millions/day
Full network under Mass Rapid Transit Master Plan in Bangkok Metropolitan Region (2010 – 2029): 12 routes totaling 495 km.
Clean Development Mechanism (CDM) in transport sector

ACM0016

- NM0266: Methodology for Rail Based Urban Mass Rapid Transit Systems (MRTS)
- NM0258: Methodology for Bus Lanes

- In Oct. 2009 both are approved as:
  Approved consolidated baseline and monitoring methodology

ACM0016
“Baseline Methodology for Mass Rapid Transit Projects”
Mass Rapid Transit Systems (MRTS)

• MRTS are collective urban or suburban passenger services operating at high levels of performance, especially with regard to travel times and passenger carrying capacity.

• They can be based on elevated, surface level or underground roads or rail systems.

• E.g. subways/metros, Light Transit Rail (LTRs) including trams or suburban heavy duty rail systems, also road-based bus systems.

• Road-based MRTS are bus systems using bus-lanes, which can also be called Bus Rapid Transit (BRT) systems.
โครงการรถไฟฟ้าสายสีน้ำเงิน (เฉลิมรัชมงคล) ระยะทาง 20 กม. เปิดให้บริการแล้ว

ระยะทางทั้งสิ้น : 27 กิโลเมตร
โครงสร้างยกระดับ : 22 กิโลเมตร
โครงสร้างใต้ดิน : 5 กิโลเมตร

จำนวนสถานียกระดับ : 17 สถานี
จำนวนสถานีใต้ดิน : 5 สถานี

สถานีหลักสอง สถานีบางหว้า สถานีบางแค สถานีภาษีเจริญ สถานีเพชรเกษม สถานีบางไผ่ สถานีหัวล้าโพง สถานีอิสรภาพ สถานีสนามชัย สถานีท่าพระ สถานีบางซื่อ
### Bangkok Blue Line Extension, Thailand

**ACM0016**

<table>
<thead>
<tr>
<th>Years</th>
<th>Estimations of baseline emissions (tCO₂e)</th>
<th>Estimations of project activity emissions (tCO₂e)</th>
<th>Estimations of leakage (tCO₂e)</th>
<th>Estimations of overall emissions reductions (tCO₂e)</th>
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<td>42,080</td>
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<td><strong>Total</strong></td>
<td><strong>1,937,719</strong></td>
<td><strong>1,208,792</strong></td>
<td>0</td>
<td><strong>728,927</strong></td>
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</table>
Bus Rapid Transit or BRT is a new transit system in Bangkok.

- The first bus routes from Satorn to Ratchaprug covering 15 km.
- The whole network of BRT will be comprises 10 routes totaling 216 km.
Shift

Avoid – Shift – Improve Concept

Intercity rail connection
Change from single track to double track
Non-Motorized Transport: is one of travel choices,

- Bicycle lanes alongside motor lanes or running through public parks have been built.

- Bicycle parking spaces and other cycling facilities have been provided.
1. Vehicle Emission Standards

- **New Vehicles**
  - Followed EU standards, Implementing dates are 2 years after

- **In-use Vehicles**
  - The emission standards are used as reference standards for inspection and maintenance programme, consisting of Black Smoke, CO, HC, White Smoke, and Noise
Avoid – Shift – Improve Concept

Inspection and Maintenance Programme

- All vehicles are required to pass the in-use vehicle standards prior to the renewal of license.
- Preventive Maintenance helps reduce PM up to 65% and save fuel consumption up to 30%
- Roadside Inspection reduces emissions from in-use vehicles
Improve

Avoid – Shift – Improve Concept

Bio-diesel production to utilize in transport sector.
Avoid – Shift – Improve  Concept

Promotion of CNG and Low carbon fuel
In public transport (BMTA’s buses)

Conventional buses using diesel

NGV buses

* ปล่อย CO₂ น้อยกว่า
Conclusion

Promoting EST will generate:

- **Environmental benefits:**
  - Improvement in local air quality
  - Reduction of GHG gas emission

- **Socio-economic co-benefits:**
  - Direct return from energy saving
  - Avoiding the cost of traffic jam
  - Stimulate economic livelihood / competitiveness
  - Equitable mobility and safety
  - New business opportunities
  - New finance through urban Transport CDM project
  - Saving health costs (air pollution, accidents, etc)
Thank You

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