Intelligent Transport System (ITS) in Thailand

Office of Transport and Traffic Policy and Planning (OTP)
Ministry of Transport
November 27, 2019
Seoul

Capacity Building Workshop on Utilizing Smart Transport Technologies to Mitigate Greenhouse Gas (GHG) Emissions from the Transport Sector
Outlines

- Introduction
- Long-term National Transport Development Strategic Plans
- ITS in Thailand
- Concept of Thailand ITS Development Master Plan
- ITS Development Goal/Challenges
- Priorities on decarbonizing transport system
1. Introduction: **Bangkok Metropolitans Region: BMR**

Population ~ 16 M  
Area ~ 7,762 KM$^2$

Avg. Trip Rate in BMR = 1.97 person-trip/day  
- Private Cars = 43.2%  
- Private Motorbikes = 25.5%  
- Public Transport = 20.2%  
- Others = 11.1%

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No. of Cars

<table>
<thead>
<tr>
<th>Year</th>
<th>BMR</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>24.51</td>
<td>9.01</td>
</tr>
<tr>
<td>2014</td>
<td>25.20</td>
<td>9.48</td>
</tr>
<tr>
<td>2015</td>
<td>25.68</td>
<td>9.87</td>
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<tr>
<td>2016</td>
<td>25.89</td>
<td>10.23</td>
</tr>
<tr>
<td>2017</td>
<td>26.40</td>
<td>10.66</td>
</tr>
</tbody>
</table>
1. Introduction:
2. Long-term National Transport Development Strategic Plans

20 Years Thailand Transport Systems Development Strategy (2018-2037)

- **Access** to transport services with affordability & equity
- Universal design & service design

- **Green & Safe Transport**
  - Green & Safe transport
  - Use of clean/alternative fuels

- **Innovation & Management**
  - Improved transport & logistics efficiency
  - Reduced transport & logistics costs
  - Development of domestic & international transport connectivity

- **Inclusivity**

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3. ITS in Thailand

**Current Issues**

- Traffic Jam/Accident/Pollution/Logistics Costs
- Isolated ITS Development
- Non-Integrated ITS Data
- Lack of ITS Standard

**ITS in Thailand**

- Area Traffic Control System (ATC)
- Commercial Vehicle Operations (CVO)
- Travel Information System (TIS)
- Advanced Public Transportation Systems (APTS)
- Automation Traffic Enforcement (ATE)
- Electronic Toll Collection (ETC)

**Outcomes**

- Effective Traffic Management
- Public Transportation Usage
- ITS Standard (Data Integration)
3. ITS in Thailand

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- Adaptive Traffic Control System
- Real Time Traffic Information/on VMS
- Thailand Road Accident Management System
- National Multimodal Transport Integration Center (NMTIC)
- Easy Pass/M Pass for Express Way
- CCTV and Red Light for Enforcement
- License Plate Detection for Enforcement

- GPS Tracking Control Center
- Weigh-in-Motion
- Truck Data Center
- Truck Terminal Management
- Gate Control System

- Public Bus Tracking System
- Common Ticket for Public Transport

- **National Level**
  - **Smart Transportation**
  - Thailand Informative Transportation - Traffic and Transport Info System Development
  - Thailand Integrated Transportation - Traffic and Transport Data Integration
  - Thailand Smart Transportation - Basic AV Model in other cities

- **Metropolis Level (BMR)**
  - **Smart Metropolis**
  - Informative Metropolis - Traffic and Transport Info Development
  - Integrated Metropolis - Integrated Command Center
  - Smart Metropolis - Be readiness for AV in BMR

- **City Level**
  - **Smart City Development Roadmap**
    - Year 2018: 7 provinces
    - Bangkok, Phuket, Chiang Mai, Khon Kaen, Chonburi, Rayong and Chachoengsao
Smart City Development Roadmap

- 2018: 10 cities, 7 provinces
  - Phuket
  - Chiang Mai
  - Khorat
  - Banlung
  - Chonburi
  - Rayong
  - Chachoengsao

- 2019: 30 cities, 24 provinces
  - Bangkok
  - Chiang Rai
  - Phitsanulok
  - Nong Khai
  - Nakhon Ratchasima
  - Mukdahan
  - Ubon Ratchathani
  - Udon Thani
  - Yala

- 2020: 60 cities, 30 provinces
  - Krabi
  - Surat Thani
  - Songkhla
  - Nakhon Sawan
  - Surat Thani
  - Surat Thani
  - Nakhon Phanom
  - Chaiyaphum
  - Ubon Ratchathani

- 2022: 100 cities, 76 provinces + Bangkok
  - 3 Thai cities in the world smart city ranking
4. Concept of Thailand ITS Master Plan

**VISION**

Thailand Smart Transportation by Driving Information and ITS Management

**MISSION**

“To develop traffic information system and ITS management for transport strategy support aiming Thailand Smart Transport”

**Phase 1 (3 years):**
Thailand Informative Transportation
Internal country trip is informative and active which is information for trip planning.

**Phase 2 (5 years):**
Thailand Integrated Transportation
Transport in Bangkok and metropolis area are integrated with ITS such as toll collection, traffic management & interactive connection between travelers, service providers and infrastructure.

**Phase 3 (10 years):**
Thailand Smart Transportation
Integrated and interactive system. Transport in major Country of Thailand turns to autonomous era.
## 4. Thailand ITS Master Plan: Guideline for Master Plan Performance

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Phase 1</th>
<th>Phase 2</th>
<th>Phase 3</th>
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<tbody>
<tr>
<td></td>
<td>Thailand Informative Transportation 2018-2020 (3 Yrs)</td>
<td>Thailand Integrated Transportation 2021-2022 (2 Yrs)</td>
<td>Thailand Smart Transportation 2023-2027 (5 Yrs)</td>
</tr>
<tr>
<td>1. Smart Transportation Data</td>
<td>• Informative Data Collection</td>
<td>• Smart Data Integration</td>
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<td>2. Smart Traffic Mobility</td>
<td>• Integrated Command Center</td>
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<td></td>
<td>• Informative Journey Planning</td>
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<td>3. Smart Public Transport</td>
<td>• Assistive Public Transport</td>
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<td></td>
<td>• One Stop Service</td>
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<td></td>
<td>• Mobility as a Service</td>
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<td>4. Smart Transport Safety</td>
<td>• Smart Enforcement</td>
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<td></td>
<td></td>
<td>• Smart Vehicle</td>
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<td>5. Smart Logistic Transport</td>
<td>• Interactive Gateway</td>
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<td></td>
<td></td>
<td>• Smart Freight Information</td>
<td></td>
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<tr>
<td>6. Smart Transport Environment</td>
<td>• ITS Committee Establishment</td>
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<td></td>
<td></td>
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<td>• ITS Integrate Center Establishment</td>
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4. Concept of Bangkok and Metropolis Area ITS Master Plan

**VISION**
Intelligent traffic and transport to enhance the metropolis to smart metropolis

**MISSION**
“To develop ITS for managing travel demand to be balance”

**Phase 1 (3 years) : Informative Metropolis**
- Gather information system which covers all the area and publishing information for Trip Planning
- Update law and regulation for autonomous vehicles

**Phase 2 (5 years) : Integrate Metropolis**
- Initiate mobility as a service from public sector
- Pilot project for autonomous vehicles around Government Center Commemorating 80th Birthday Anniversary and Phaholyothin Transportation Center

**Phase 3 (10 Years) : Smart Metropolis**
- Initiate TDM system such as Road pricing and parking fee
- Install fully automatic public bus service provided
- Be readiness for autonomous vehicle around Bangkok Metropolitan
## 4. Guideline for Bangkok Metropolitan Regions ITS Master Plan Performance

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<thead>
<tr>
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<tbody>
<tr>
<td>1. Assistive Public Transportation</td>
<td>• Informative Public Transport</td>
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<td></td>
<td>• Smart Public Transport Service</td>
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<tr>
<td>2. Interactive Demand Management</td>
<td>• Smart Demand Reduction</td>
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<td></td>
<td></td>
<td></td>
<td>• Mobility as a Service Enhancement</td>
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<td>3. Automotive Traffic Management</td>
<td>• Integrated and Automated Traffic Control</td>
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<td></td>
<td>• Informative Journal Planning</td>
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<tr>
<td>4. Intensive Transport Safety</td>
<td>• Smart Enforcement</td>
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<td></td>
<td></td>
<td></td>
<td>• Smart Vehicle</td>
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<tr>
<td>5. Integrative Mobility Center</td>
<td>• Data Integrated Center</td>
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<td></td>
<td></td>
<td></td>
<td>• Operation Integrated Center</td>
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5. ITS Development Goal/ Challenges in Thailand

- Public Transport Information
- Common Ticket (e-payment)
- Intelligent Bus Stops
- Mobility as a Service
5. ITS Development Goal/ Challenges in Thailand
“Thailand intends to reduce its greenhouse gas emission by 20 percent from the projected business as-usual (BAU) level by 2030. The level of contribution could increase up to 25 percent, subject to adequate and enhanced (support) through a balanced and ambitious global agreement [...]”

**Target**

20% from BAU by 2030 = 111 MtCO₂

*Thailand’s Nationally Determines Contribution Actions: NDCs*
5. Priorities on decarbonising transport system: **NDC in Transport Sector**
5. Priorities on decarbonising transport system: NDC in Transport Sector

<table>
<thead>
<tr>
<th>GHG emissions (CO₂) in care of BAU (MtCO₂e)</th>
<th>2548 (2005)</th>
<th>2563 (2020)</th>
<th>2573 (2030)</th>
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<tbody>
<tr>
<td>Thailand</td>
<td>273.41</td>
<td>407.70</td>
<td>555.00</td>
</tr>
<tr>
<td>Transport Sector</td>
<td>57.52</td>
<td>77.98</td>
<td>109.99</td>
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<tr>
<td>Potential to reduce GHG (CO₂) in Transport Sector (MtCO₂e)</td>
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<td></td>
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<tr>
<td>Group 1 (Existing Project and Plans) : 17 Projects</td>
<td>-</td>
<td>(4.42)</td>
<td>(18.67)</td>
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<tr>
<td>Group 2 (Recommended Projects and Plans) : 6 Projects</td>
<td>-</td>
<td>(4.46)</td>
<td>(16.74)</td>
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<tr>
<td>Group 3 (Added Projected and Plans) : 9 Projects</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Total</td>
<td>-</td>
<td>(8.89)</td>
<td>(35.42)</td>
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<tr>
<td>Thailand (Plans)</td>
<td>273.41</td>
<td>398.81</td>
<td>519.58</td>
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</table>
5. Priorities on decarbonising transport system: NDC in Transport Sector

Group 1 (Existing Project and Plans)
Reduce GHG 18.67 MtCO₂e

Group 2 (Recommended Projects and Plans)
Reduce GHG 16.74 MtCO₂e

35.42 MtCO₂e
Thank You

www.otp.go.th
Ruengdej.man@otp.go.th
Tel. +66 2 215 1515