An Approach from Urban Structure Reform to Transport for A Sustainable City: The Sendai Metropolitan Area Approach

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What policy measure(s) should be implemented to solve the problem?
Policy Measures

- More roads
- Introduction of Rail Transits

- without ...............
The BTS Skytrain has been constructed.
BTS has been build, but……..
BTS has been build, but.......
Urban Growth of Bangkok
Land-Use/Transport Interactions

Traditional Approach

Land Use

Transport

Policy Measures only in the scope of Transportation

Current Requirements

Land Use

Transport

Environment
Background of the new approach

- **Change of Transport Mode for Commuting After Location**

<table>
<thead>
<tr>
<th>Transport Mode Assumed Before Location</th>
<th>Number of Respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Same</td>
<td>2,579</td>
<td>92</td>
</tr>
<tr>
<td>Different</td>
<td>220</td>
<td>8</td>
</tr>
</tbody>
</table>

- **Change of Transport Route for Commuting After Location**

<table>
<thead>
<tr>
<th>Transport Route Assumed Before Location</th>
<th>Number of Respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Same</td>
<td>2,369</td>
<td>94</td>
</tr>
<tr>
<td>Different</td>
<td>152</td>
<td>6</td>
</tr>
</tbody>
</table>
Transport mode and route of a person are determined when he/she makes location choice, and they can hardly be changed without relocation!
Purpose of the approach

➢ To propose feasible plan to integrate land use and transportation in Sendai MA

➢ To establish an organization to coordinate stakeholders with interest conflicts

➢ To provide the citizen with the information as a policy measure
Outline of the approach

Future Transport Networks

Transport Planning

Transport Plan with proposal for Urban Structure Reform

Land Use Planning & Implementation

Next Planning and Implementation Stage

Future Urban Structure Scenarios

Transport Planning

Middle Range

Future Urban Structure Target

Long Range

Transport and other Conditions

Establishment of a Council composed by Stakeholders

Revision of City Planning Area Master Plan (including Land Use regulations)

Implementation of Additional Policy Measures for Land Use and Transport
Outline of the approach

Future Transport Networks

Future Urban Structure Scenarios

Transport and other Conditions

Future Urban Structure Target

Transport Plan with proposal for Urban Structure Reform

Land Use Planning & Implementation

WCTRS Seminar on Green Urban Transport in China
11-13 September 2010
Outline of the approach

Future Transport Networks
Future Urban Structure Scenarios
1. Future Urban Structure Target
   - Middle Range
   - Long Range

Transport and other Conditions
Future Urban Structure Target
Transport Plan with proposal for Urban Structure Reform

Revision of City Planning Area Master Plan (including Land Use regulations)
Implementation of Additional Policy Measures for Land Use and Transport

Next Planning and Implementation Stage

Establishment of a Council composed by Stakeholders
Media
The Public

Land Use Analysis
Transport Considerations

Future Plan
The Sendai Metropolitan Area (Sendai MA)

About 1.6 million Population

Sendai City is centered
Suburbanization of Sendai MA

Sendai MA is suffering from Metabolic Syndrome caused by unhealthy life style.
Aiming at a better metropolitan area of Sendai

Enjoyable, Kind, Beautiful and Smart

Urban Development and Transport

Which would invite more smiles
Future Scenarios

Scenario 1: Present Trend
Scenario 2: Semi Controlled
Scenario 3: TOD
Sendai MA PT Survey

- Long-term Plan
  - No large-scale Projects

Only very limited and really feasible transport infrastructures are set as given condition.
Present Vicious Circle and Proposed Positive Circle

Previous City Structure Change and Transportation

- Car Usage
  - Increased Congestion
  - Declined Public Transportation
  - Deteriorating Transportation Environment
- Suburbanization
  - Hollowing City Center
  - Increasing transportation poor people
  - Global Warming

(Proposition) Guidelines for Future City Structure and Transportation

- Public Transport Usage
  - Improved Accessibility to Urban Activities
  - Reduction of Environmental Effects and Energy Consumption
  - Attractive City Center (Rich Cultural City)
  - Safe and Secure Lives
- Consolidated City Area on Public Transport Corridors

Establish Sustainable Metropolitan Area

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A plan is a rice cake drawn in a painting.
Making “a rice cake in a picture” “a real and sweat cake”.

Establishment of a Council on Urban Development and Transport

• Headed by Prefectural Government
  – Land Use and Transport Sections are both in a Division Implementation plans of Land Use and Transport

• Members
  – Municipalities
  – Ministry of Land, Infrastructure and Transport
  – Transport Operators
  – NGOs
  – University Professors
Municipalities

Surrounding Municipalities

Sendai

Trade off
Incompatible
Viable Districts for Future

Accessibility

Land Use Regulation

Availability of Public Transport

Geographical Continuity and Pattern

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Unviable Districts?

Rating the Districts

Recent Development or Historical area?

Reported in a major local newspaper
Policy Implemented

• Vision for Sendai MA

Revision of City Planning Area Master Plan (including Land Use regulations)

Transport side approach determined the Legal Land Use Plan

An Innovation in Japan
Revision of City Planning Area Master Plan (including Land Use regulations)
The Council will continue...

- Coordinating organization between Transport and Land Use in Sendai MA
  - Person Trip Survey by 10 years
  - Revision of City Planning Area Master Plan by 10 years
  - 5 years gap

- Incorporating more policy instruments
  - Pull and Push
  - More floor area ratio around the stations
  - Road Pricing
  - Fare
  - IC Card
Examples of Recent Activities

- **University Transport**
  
  with reduced season tickets, Universities and Sendai city have initiated to guide students and staff to live along public transit.

- **Surrounding municipalities**
  
  To obtain their consensus, The council has started to demonstrate the future financial burden, if they don’t accept the proposal.
Concluding Remarks

- Integration of land use and transport is easy to be refereed in a plan/report but hard to be activated in reality.
- Institutional set-up is most important to coordinate stake holders.
- Land use side approach is most important and essential in transport planning and implementation, although it takes a time.
- The Sendai Metropolitan Area Approach is one of the models to make a plan actually implemented.
Thank you very much