Intermodal Passenger Transport in Japan
“Road authorities’ approach to delivering integrated transport services to customers
- Our experience and lessons learned – “

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Outline

1. Background
   ✓ Modal share of passenger transport
   ✓ Demographics

2. Road authorities approaches

3. Lessons learned and future direction
1. Background – Modal Share (passenger transport)

Predominant mode:

Metropolitan areas: Public transport

Rural areas: Automobile

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Fig. Comparison of Modal Share in Cities (Based on Trip)

Resource:
- German cities) Technische Universität Dresden, Sonderauswertung zur Verkehrserhebung 'Mobilität in Städten – SrV', 2003 und 2008
- French cities) CERTU
1. Background – Demographics (metropolitan areas)

- Concentration of population along railway network

*FIG. Expansion of Urban Areas and Railway Network in Tokyo Metropolitan Area*

*DID (Densely Inhabited District) is defined as the area which is more than 5000 population, and contiguous with cities that hold more than 4000 pop./km square*

1. Background – Demographics (rural areas)

- Sparsely inhabited areas, not suitable for public transport
- Road network expansion to cope with increasing travel demand
- Sprawl of urban districts along road network
- Less convenient public transport → Decline of ridership → Cut down of service level → More motorization

Fig. Map of Spread of Urban Districts in Okayama City, Okayama

Resource: Okayama City Government
2. Road authorities approaches to intermodal transport

i) Transfer squares adjacent to major rail stations

- Seamless transfer among various modes such as train, bus, taxi, cars, and bicycle
- Rail station connected with bus and taxi stops and bicycle parking lots by pedestrian routes

Example: City of Kitakyusyu

At Kokura Station, Monorail extends to the rail station and a pedestrian deck connects to the buildings.

<table>
<thead>
<tr>
<th>Number of Station User per day</th>
<th>Has Transit Square</th>
<th>Install rate of Transit Square</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>More than 100 thousand</td>
<td>12</td>
<td>2</td>
</tr>
<tr>
<td>1-10 thousand</td>
<td>45</td>
<td>43</td>
</tr>
<tr>
<td>Less than 10 thousand</td>
<td>2</td>
<td>24</td>
</tr>
</tbody>
</table>

Fig. Kokura Station before the reconstruction

Fig. Kokura Station after the reconstruction
2. Road authorities approaches to intermodal transport
ii) Improvement of pedestrian routes around the station
◆ Many facilities concentrate within walking distance from railway station
◆ Improving the accessibility and safety of pedestrians

Fig. Examples of Measures for Smoothing the Movements in the Designed Area

- Lifts at multi-level intersection
- Guiding blocks for the blind
- Route map for facilities on information boards
- Clearing illegal bicycle parking in pedestrian space
- Rest place on continuous steeps
- Widening of sidewalks
- Smoothing steps and stairs

Resource: MLIT
2. Road authorities approaches to intermodal transport

iii) Bus lane, PTPS to improve the bus operation

**PTPS; Public Transport Priority System**
- Interactive communication between on-board unit and roadside beacons
- Control of traffic signals, warn illegal vehicles in bus lanes, and estimate arrival time on bus stops
- Set up on 151 sections of 701km, and 2,188 intersections (by 2008)

![Fig. Concept of PTPS](image)

MLIT
2. Road authorities approaches to intermodal transport

iv) Park & Ride

- Objective:
  - Shifting commuters from car to rail
  - Mitigating congestion in city center
- Many pilot projects tried
- Most ended in poor performance

P&R, Example of City of Sapporo

In Sapporo, P&R parking lots were installed at 29 stations of railways, which provides 3000 parking spaces in total.

City of Sapporo
Pop: 1.92 Million

Figure P&R parking in Sapporo
2. Road authorities approaches to intermodal transport

Reasons for P&R poor performance

▶ Limited P&R parking lots available near rail stations
  • Neighborhood around rail station stations in Japan is relatively highly-developed areas, not suitable for parking facilities in the light of land value.
  • With limited parking lots available, only few people may change a mode of transport from cars to trains.

▶ Convenience of automobile in rural areas
  • Driving to destination directly take less time.
  • More expensive for users to use public transport compared to individual cars
  • Difficult to change behavior of commuters from passenger cars to rail
2. Road authorities approaches to intermodal transport

v) Park & Bus Ride (Itako city)

- P&BR parking constructed at Suigo Bus Terminal adjacent to the interchange of expressway.
- Expressway buses operated to the destinations such as Downtown Tokyo and International airports.

Parking spaces

<table>
<thead>
<tr>
<th>Destination</th>
<th>Number of Service (per day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tokyo Station</td>
<td>101</td>
</tr>
<tr>
<td>Narita Airport</td>
<td>9</td>
</tr>
<tr>
<td>Haneda Airport</td>
<td>6</td>
</tr>
<tr>
<td>Odaiba</td>
<td>11</td>
</tr>
</tbody>
</table>

Parking fee

- 236 Parking spaces (of which 2 are for the disabled)
- JPY500 (for 24 hours) (Free within 60 minutes)

Resource: Itako city
3. New approaches

v) Integration of land use planning and transport planning (Case of a Compact City Plan: Toyama City)

- As the city sprawled, the maintenance of infrastructure became costly and inefficient.
- Mobility for transportation-poor people was a challenge.
- Set up TOD (Transit Oriented Development) policy focused on public transport
  - Concentration of the urban functions to the city center and sub centers
  - Connect these centers with LRT lines and bus services

> LRT passengers increased
  - Weekdays 2.2 times, Weekends 5.3 times
  - Passengers in their 60s increased most.
  (Weekdays 3.5 times, Weekends 7.4 times)

Resource: Comprehensive Transport Plan, Toyama City

Toyama City
Pop: 420 thousand

Resource: Research on LRT project of Toyamakou-line, Toyama City, MLIT
3. Intermodal measures in Rural cities in Japan

vi) From mass transit to demand responsive transport service

Case: On-demand bus in Nakamura City, Kochi

【Features】
> More bus-stops (57 bus stops incl. hospitals)
> Flexible routes and schedules (Passengers can book last minute)

【Effects】
> Passengers increased by 4-5 times
> 26% of them shifted from bikes, cars and walks

Existing routes
Additional routes (newly applied)
hospital
Commerce facility

Nakamura City
Pop: 30 thousand
4. Lessons learned and future direction

i) Constraint of dedicated funds for road
✓ Dispute on whether dedicated funds for road should be allocated to other transport mode when the expansion of road network was still under way

ii) Sectionalism
✓ A principle of self-supporting accounts by each transport business makes it difficult to share costs and roles each other.
✓ The government sets up their organizations by modes, which makes barriers to cooperate each other.

iii) Building a social consensus and campaigning to road users
✓ Intermodal measures such as P&R requires changes in road users behavior and social consensus, so that beneficial systems for them and campaigning to them is necessary.

iv) Integration of transport planning with other polices
✓ e.g. Land use planning, welfare policy, etc