Overview of Urban Railway in Tokyo

Railway Bureau, MLIT

October, 2016
1. Outline of Japanese urban railway
2. History of development of urban railway
3. Improvement of Railway convenience
4. Collaboration with city development
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Length of Railway Network in the World

- **JAPAN (JR)**: 27,796 km
- **FRANCE (RFF+SNCF)**: 30,013 km
- **GERMANY (DB AG)**: 33,446 km
- **INDIA (IR)**: 64,460 km
- **CHINA (CR)**: 66,298 km
- **RUSSIAN FED. (RZD)**: 84,249 km
- **USA (AAR+AMTRAK)**: 228,218 km

Most Used Railway in the World

Number of Railway Passengers Per Annum

Ratio of Railway Accident per Passenger Train-Kilometer (Japan’s figure* is set as 1)

- **JAPAN (JR)**: 1.0
- **FRANCE (SNCF)**: 1.2
- **ITALY (FS)**: 1.9
- **KOREA (KORAIL)**: 2.3
- **GERMANY (DB AG)**: 2.4

*The figure represents the total kilometers of the railways of the Six Japan Railway companies.

Japan’s Efforts to Ensure the Safety of Railways

Facilities and Equipment

Automatic Train Control (ATC)

- Automatic train speed control
- Preceding train

Operation control center

Upgraded grade-crossing

Maintenance and Inspection

- Preventive maintenance
- MLIT’s on-site inspection
# Japan’s Current Rail Network

**Outline Picture of Japan’s Railways**

## Route Length (km) and Passengers carried (million/year)

<table>
<thead>
<tr>
<th>Area</th>
<th>Route Length</th>
<th>Passengers carried</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tokyo area</td>
<td>2,409</td>
<td>14,562</td>
</tr>
<tr>
<td>Nagoya area</td>
<td>956</td>
<td>1,102</td>
</tr>
<tr>
<td>Osaka area</td>
<td>1,503</td>
<td>4,494</td>
</tr>
<tr>
<td><strong>Total of 3 areas</strong></td>
<td><strong>4,868</strong> (18%)</td>
<td><strong>20,158</strong> (88%)</td>
</tr>
<tr>
<td><strong>Total of Japan</strong></td>
<td><strong>27,796</strong> (100%)</td>
<td><strong>22,797</strong> (100%)</td>
</tr>
</tbody>
</table>

## Population (thousand)

<table>
<thead>
<tr>
<th>Area</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tokyo area</td>
<td>32,469</td>
</tr>
<tr>
<td>Nagoya area</td>
<td>8,219</td>
</tr>
<tr>
<td>Osaka area</td>
<td>16,121</td>
</tr>
<tr>
<td><strong>Total of 3 areas</strong></td>
<td><strong>56,810</strong> (44%)</td>
</tr>
<tr>
<td><strong>Total of Japan</strong></td>
<td><strong>128,057</strong> (100%)</td>
</tr>
</tbody>
</table>
The share of railway passenger transport in the Tokyo Metropolitan Area is outstandingly higher than metropolitan areas in other countries.

**International comparison**

- **Tokyo Metropolitan Area (FY 2009)**: 60% Train, 40% Others
- **New York (FY 2007)**: 22% Train, 78% Others
- **London (FY 2006)**: 19% Train, 81% Others
Various Types of Japan’s Urban Railway

- Commuter train
- Subways
- LRT
- AGT (Automated Guideway Transit)
- Monorail (1)
- Monorail (2)
- MAGLEV
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History of Urban Railway

- **1872**: The first Railway Opened (Shinbashi – Yokohama)
- **1925**: The first Subway Opened (Asakusa- Ueno, Ginza Line)
- **1950~**: Necessity to Expand railway network
- **Now**: Railway network in Tokyo ⇒ 2,500km

The traffic volume of car increased rapidly.
## Development of Railway and Increase in Passengers in Tokyo Area

<table>
<thead>
<tr>
<th>Year</th>
<th>Railway</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1950</td>
<td>Route Length (km)</td>
<td>1,478&lt;100&gt;</td>
</tr>
<tr>
<td></td>
<td>Passengers Carried (million/year)</td>
<td>2,258&lt;100&gt;</td>
</tr>
<tr>
<td>2010</td>
<td>Route Length (km)</td>
<td>2,409&lt;163&gt;</td>
</tr>
<tr>
<td></td>
<td>Passengers Carried (million/year)</td>
<td>14,562&lt;645&gt;</td>
</tr>
</tbody>
</table>

- Construction of new lines
- Increase of tracks
- Introduction of longer train set and larger body car

![Diagram of Tokyo area with tram and subway lines](image)
Subway Network in Tokyo

As of 2015
13 Lines
Network: 304.1 km

Ministry of Land, Infrastructure, Transport and Tourism
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Congestion Rates of Tokyo Metropolitan Areas

221
212
192
176
170
166


Target

Rough indication of congestion rate

100% 150% 180% 200% 250%
Facilities for Accessibility at Railway Stations

Installation of facilities for accessibility
- Elevator

Installation of facilities to prevent falling from platform
- Platform door
- Guide block

Toilet for wheelchair users
Visitor-friendly services

◆ Concierge

◆ Multilingual sign

◆ Free Wi-Fi
Use of IC Card in Public Transportation

**Touch & go (0.2 second)**

Beep!

Just lightly touch the automatic ticket gate

**Note 1:** IC card use rate: Ratio of IC cards to all tickets used through automatic ticket gates
Diverse ways IC card can be used

With one IC card …

Train

Bus

Taxi

Shopping

ID card
Spread of IC cards with a variety of functions

Number of public transport IC cards

- **2008**: 39 million
- **2013**: 87 million

Increased 48 million (x 2.2)

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Commercial Development of Railway Station Area

The Case of Tokyo Station Area

Sapia Tower
Gran Tokyo North Tower
Gran Tokyo South Tower

Hotel
Office
Shopping Center

RAILWAY

Art Gallery

In-Station business (Ekinaka Retail · AD)

The Tokyo Station Hotel

Restoration of Historical Station Building
Development of Residential Area around Railway Stations

The Case of Tokyo Suburban Area

Tsukuba Express Line

- Open 2005
- Number of passenger 280,000 (Per day)

Development of residence

Kashiwanoha-Campus St.
Thank you