Inland Waterway Transport in Japan

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Ministry of Land, Infrastructure and Transport
Government of Japan

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Contents

1. History of IWT
2. Promotion of IWT
3. International Cooperation / IWT network

Title : World Map
Source : World Navigator
Features of Japan

Area: 377,835 km²
Population: 127 million
Population Density: 337 persons/km²
Capital: Tokyo

Kanto Region

Edo (now Tokyo)

Title: Map of Japan
Source: Map Mountain 3D-CG
1. **History of IWT**

1.1 **Water Transport; Edo Period (17th ~ 19th Century)**

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**Title**: Water Transport at the end of modern period  
**Source**: ISHII Kenji, in “The Study of the History of Marine Transportation in Japan Sea”, Fukui-ken study group of local history journal  
**Supervisor**: Prof. Hiroyuki ADACHI
1. **History of IWT**

1.2 **Today’s Coastal Water Transport**

- **Ferry Terminal**
- **Long Haulage Ferry Route**

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**Title**: Today’s Coastal Water Transport

**Source**: Ministry of Land, Infrastructure and Transport (MLIT)
1. **History of IWT**

1.3 **Edo Period (17th ~ 19th Century)**

*Title: Moorages of the Kanto Region in EDO period*

*Source: MATSUMURA Yasukazu, in “Nihon Sangyoshi Taikei”, University of Tokyo Press*

“Funa-kagami” / Museum of Maritime Science

*Supervisor: Prof. Hiroyuki ADACHI*

*Title: Moorages of the Kanto Region in EDO period*

*Source: MATSUMURA Yasukazu, in “Nihon Sangyoshi Taikei”, University of Tokyo Press*

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*Supervisor: Prof. Hiroyuki ADACHI*
1. **History of IWT**

1.4 **Meiji Period (19th ~ 20th Century)**

Title: Satsuki-maru

Source: Chiba Prefectural Otone Museum
1. **History of IWT**

1.5 **Meiji Period (19th ~ 20th Century)**

*Title: Steam Locomotive*

*Source: Tobu Museum*
1. History of IWT

1.6 Historical Trend of Freight Transport

Title: Historical Trend of Freight Transport
Source: Yanotsunetakinenkai
1. History of IWT

1.7 Traffic Jam

Title: The Traffic Congestion
Source: Urban Renaissance Agency
2. Promotion of IWT
2. Promotion of IWT

2.1 Modal Shift with IWT

Consumed Energy per ton-km of Freight

<table>
<thead>
<tr>
<th>Mode</th>
<th>Energy Consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Railroad</td>
<td>100</td>
</tr>
<tr>
<td>IWT</td>
<td>121</td>
</tr>
<tr>
<td>Truck for business use</td>
<td>464</td>
</tr>
</tbody>
</table>

Comparison on the basis of the Railroad value "100"

Title: Consumed Energy per ton-km of Freight, 2003
Source: MLIT
2. **Promotion of IWT**

2.1 **Modal Shift with IWT**

- CO₂ Emission per ton-km of Freight

<table>
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<tr>
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<td>Truck for business use</td>
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Comparison on the basis of the Railroad value "100"

Title: CO₂ Emission per ton-km of Freight, 2004
Source: MLIT
2. **Promotion of IWT**

2.1 **Modal Shift with IWT**

Project: Modal Shift Trial from Trucks to Coastal Ferry

% CO₂ Emission Reduction Ratio

Title: Modal Shift Trial
Source: MLIT
2. Promotion of IWT

2.1 Modal Shift with IWT

Logistics Revival

Title: Tanker in Sumida river
Source: Foundation for Riverfront Improvement and Restoration
Supervisor: Prof. Yuji MIURA
2. Promotion of IWT

2.1 Modal Shift with IWT

IWT is suitable for transport of bulky industrial material

<table>
<thead>
<tr>
<th>Material</th>
<th>IWT (Coastal Water Transport)</th>
<th>Truck</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metal (steel)</td>
<td>72.9%</td>
<td>27.1%</td>
</tr>
<tr>
<td>Petroleum product</td>
<td>88.8%</td>
<td>11.2%</td>
</tr>
<tr>
<td>Cement</td>
<td>91.6%</td>
<td>8.4%</td>
</tr>
</tbody>
</table>

Title: Ratio of IWT Transport
Source: MLIT
2. Promotion of IWT

2.1 Modal Shift with IWT

Reverse Logistics Network

Title: Garbage Ship
Source: Masanori MIURA/Nippon Koei Co., Ltd.
Supervisor: Dr. Satoquo SEINO
2. Promotion of IWT

2.1 Modal Shift with IWT

Recycle Port Project

Recycling facilities complex

Stock yard

Open green space

Portal site

Wastes

Disposal site

Recyclable resources

Recycled products

Road

Source: MLIT
2. Promotion of IWT

2.2. IWT for Disaster Management

Earthquake Prone Islands of Japan

Title: Seismicity of Japan
Source: USGS National Earthquake Information Center

DEPTH [km]
- 0 ~ -35
- -35 ~ -70
- -70 ~ -150
- -150 ~ -300
- -300 ~ -500
- -500 ~ -800
2. Promotion of IWT

2.2 IWT for Disaster Management

Title: Great Hanshin-Awaji Earthquake
Source: Hanshin Expressway Management Technology Center
Emergency Relief delivered by IWT

Great Hanshin-Awaji Earthquake

2. Promotion of IWT
2.2 IWT for Disaster Management

Title: Emergency Relief delivered by IWT
Source: Kobe Port Promotion Association
2. Promotion of IWT

2.2 IWT for Disaster Management

Great Hanshin-Awaji Earthquake

IWT as Alternative Mode of Transport

Title: IWT as Alternative Mode of Transport
Source: Kobe Port Promotion Association
2. Promotion of IWT

2.2 IWT for Disaster Management

Disaster Management Network with IWT

Arakawa Lock Gate
(commissioned in Oct. 2005)

Title: Arakawa Lock Gate
Source: MLIT
Supervisor: Prof. Yuji MIURA
2. Promotion of IWT

2.2 IWT for Disaster Management

Disaster Management Network with IWT

Arakawa River Network
Promotion of IWT

2.2 IWT for Disaster Management

Regional Disaster Prevention Base Camp
Higashi-Ohgijima District, Port of Kawasaki

- Domestic cargo berth
  + Used for unloading Emergency Relief goods

- Open-air gathering place
  + Heliport

- Marine recreational boat berth
  + Used for loading emergency relief goods on river boats

- International cargo berth
  + Used for unloading emergency relief goods

+ Logistic Management center

- Port park
  + Base camp for emergency relief corps

- Multi-purpose recreational area
  + Emergency Relief goods yard

- Port area disaster prevention center

Source: MLIT
2. Promotion of IWT

2.3 IWT for Tourism

Water Shuttle in Sinano River (Nigata)

Pleasure Boat Facilities in Inland Waterway

Title: Water Shuttle in Sinano River
Source: Masatoshi Sakamoto

Title: Pleasure Boat Facilities in Inland Waterway
Source: Foundation for Riverfront Improvement and Restoration
2. Promotion of IWT
2.3 IWT for Tourism

Water Shuttle “Himiko” in Sumida River (Tokyo)

Title: Water Shuttle “Himiko” in Sumida River
Source: Dr. Satoquo SEINO / The University of Tokyo
2. Promotion of IWT

2.3 IWT for Tourism

Tenjin Festival (Osaka)

Title: Osaka Tenjin Festival
Source: Toru MIHO/Osaka City Foundation for Urban Techno
Supervisor: Prof. Yuji MIURA, Dr. Satoquo SEINO
2. Promotion of IWT

2.4 R&D on IWT Vessels

Superconducting Electromagnetic Propulsion Ship

Title: Superconducting Electromagnetic Propulsion Ship
Source: Ocean Policy Research Foundation
Supervisor: Prof. Yuji MIURA
2. **Promotion of IWT**

2.4 **R&D on IWT Vessels**

**Variable Draft Ship**

Title: Variable Draft Ship
Source: OSAWA TECHNICAL DESIGN OFFICE CO., Ltd.
Supervisor: Prof. Yuji MIURA
2. Promotion of IWT
2.4 R&D on IWT Vessels

Floating Debris Collection/Oil Recovery Vessel

Title: Floating Debris Collection/Oil Recovery Vessel
Source: MLIT
2. Promotion of IWT
2.4 R&D on IWT Vessels

Trailing Suction Hopper Dredger / Oil Recovery Vessel

Seiryu-maru

Title: Seiryu-maru
Source: MLIT
3. International Cooperation and IWT network
3. International Cooperation and IWT Network

3.1 Japan ODA for IWT

JICA Development studies on IWT supported by MLIT

The Arab Republic of Egypt (year 2001)
The Development Study on Inland Waterway System in the Arab Republic of Egypt

The Socialist Republic of Vietnam (year 2001)
The Study on the Red River Inland Waterway Transport System

Indonesia (year 2000)
The Study on the Development Scheme for the Principal River Ports in Indonesia
3. **International Cooperation and IWT Network**

3.2 **Promotion of the "IWT Network"**

http://www.iwtnetwork.jp/

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Title : IWT Network
Source : Foundation for Riverfront Improvement and Restoration
3. International Cooperation and IWT Network

3.3 IWT Network around the World

Title: World Map
Source: World Navigator
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