River Restoration Centered on the Sumida River

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Bureau of Construction, Tokyo Metropolitan Government
The Sumida River - A Representative River in Tokyo

Upstream edge
Iwabuchi sluice gate

Downstream edge
Around the lower reaches of the Tsukiji Market

Overall length 23.5km

The entire river is a tidal river, which is influenced by tides.
Cultural and Historical Points of Interest
Around the Sumida River

Sensoji Temple
Cultural and Historical Points of Interest Around the Sumida River

Ryogoku National Sports Stadium (Kokugikan)
Cultural and Historical Points of Interest
Around the Sumida River
New Place of Interest: “New Tower”

Height: 610
(to be the tallest in the world when completed)

Planned to be opened in 2011
(Oshiage-Narihira District in the Sumida Ward)
Friendship Rivers – The Sumida and the Seine

On October 27, 1989 it was announced that the Sumida River and the Seine River in Paris became “friendship rivers.”

River City 21 in Ohkawabata

Commemorative Planting of a Marronnier Tree

Commemorative Planting

On a dike in the Ohkawabata district, the Governor of Tokyo Suzuki and the Mayor of Paris Chirac planted young marronnier, a tree symbolizing Paris.
Messenger

In commemoration of the friendship between the two rivers, the City Government of Paris presented “Le Messager” to the Tokyo Metropolitan Government.

“Le Messager” - sculpted by Ossip Zadkine in 1937

Friendship Rivers – The Sumida and the Seine

River City 21 in Ohkawabata

Chuo-ohashi Bridge
Paris Square

The “Paris Square” is situated in the Chuo ward’s Ishikawajima Park in the Ohkawabata District, being paved with stone in imitation of a square in Paris.
The Sumida River Presenting an Exhibition of Bridges

26 bridges of varied types

Designated as important cultural assets (on June 18, 2007)

Kiyosu Bridge
(built in 1928)

Eidai Bridge
(built in 1926)
(the oldest bridge among those existing on the Sumida River)

Kachidoki Bridge
(built in 1940)
History of Lowlands Around the Sumida River
The Sumida River When Lord Ieyasu Tokugawa Acquired the Fiefdom of the Area (Around 1590)

The section of the present Ara River was meandering.
The downstream section of the present Ara River had not been excavated yet.

The section of the present Sumida River was flowing through about the same course as the present one.

The coastal line almost coincides with the present Onagi River.

Excavation: 1911 (Meiji 44) ~ 1930 (Showa 5)
Area Around the Ryogoku Bridge Around 1873 (Meiji 6)

Ryogoku Bridge:
Bridged in 1838 (Tenpo 9)
Area Around Mukojima in the Meiji Era (1868 - 1912)
Floods Hit Lowlands Frequently

The Sensoji Temple was inundated by a major flood in 1910 (Meiji 43).
Deterioration of the Water Quality in the Sumida River over a Certain Period

The deterioration was caused by industrial and domestic wastewater.

The water quality was improved gradually with the enforcement of the Water Pollution Control Law and an increase in the ratio of population connected to public sewerage.
**Lowlands with Accelerated Ground Settlement**

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### Total changes at the major reference points

<table>
<thead>
<tr>
<th>No.</th>
<th>Ref. point number</th>
<th>Location of reference points</th>
<th>Total subsidence (m)</th>
<th>Measured Since</th>
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<tbody>
<tr>
<td>①</td>
<td>3932</td>
<td>Minamiutsu 2-chome, Kōtō-ku</td>
<td>4.5115</td>
<td>1918 (Taisho 18)</td>
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<tr>
<td>②</td>
<td>3377</td>
<td>Kameido 7-chome, Kōtō-ku</td>
<td>4.2869</td>
<td>1918 (Taisho 18)</td>
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<td>③</td>
<td>Muku (5)</td>
<td>Tachibana 6-chome, Sumida-ku</td>
<td>3.4269</td>
<td>1935 (Showa 10)</td>
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<tr>
<td>④</td>
<td>9836</td>
<td>Nakasai 3-chome, Edogawa-ku</td>
<td>2.2569</td>
<td>1932 (Showa 7)</td>
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<td>⑤</td>
<td>3365</td>
<td>Shinkokucho, Edogawa-ku</td>
<td>1.4891</td>
<td>1972 (Showa 47)</td>
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<tr>
<td>⑥</td>
<td>473</td>
<td>Shimizuku, Taitō-ku</td>
<td>0.8407</td>
<td>1971 (Showa 47)</td>
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<tr>
<td>⑦</td>
<td>Kiyose (2)</td>
<td>Adachi-ku</td>
<td>0.6553</td>
<td>1971 (Showa 47)</td>
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<td>⑧</td>
<td>Muku . . . (5)</td>
<td>Shimukyo 2-chome, Kiyose-shi</td>
<td>0.2256</td>
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</tbody>
</table>

* For the locations of the reference points, refer to the map of ground height in lowlands

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**Maximum Ground Settlement: 4.6 m**

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**Old well (in Higashi-shinkoiwa 1-chome, Katsushika-ku)**
Ground height in lowlands

Lowlands are prone to floods caused by storm surge etc.
Mechanism of Storm Surge

Typhoon or low atmospheric pressure

[1] Suctional rise of sea surface due to a decrease in atmospheric pressure

[2] Seawater blown by the wind


Normal tide level

Storm Surge

Revetment

Source: Keihin Port Office’s Leaflet on the “Project for Preventive Measures against Storm Surges at the Mabori Seacoast”
Greatest Storm Surge Disaster in Tokyo since the End of World War II

Diagram of changes in tidal level

Inundated areas caused by Typhoon Kitty in 1949 (Showa 24)

Legend

- Inundated areas
- Watercourses
- Where spills occurred
- Where levee breaches/failures occurred

Figures in the map show the depths of inundation (cm)
Storm Surge Disaster caused by Typhoon Kitty

Hirai Station (Around Hirai 5-chome, Edogawa-ku)
River Projects in Lowlands
Greatest storm surge disaster in Japan: "Isewan Typhoon"

4,697 Dead, 401 Missing, 38,921 Injured

Target for Improvement

To Cope with Storm Surge of Isewan Typhoon Level

1959 (Showa 34)
Theoretical routes of typhoons

Changes in tidal level at the estuary

Model | Typhoon | Route
--- | --- | ---
1 | Kitty | I
2 |  | II
3 |  | III
4 | 1917 (Taisho 6) | IV
5 |  | V
6 |  | I
7 | Isewan | IV
8 |  | V
9 |  | I
10 |  | II

Typhoon in 1917 (Taisho 6)

A.P. +5.10

Tidal level at the estuary

Closure of sluice gate

Hours

Tidal level

A.P. +m
Preventive measures against storm surge have almost been completed.

Protection levee against storm surge
(on the Sumida River)

Sluice gate/ pumping station
(at the Imai sluice gate)

<table>
<thead>
<tr>
<th>Improvement status</th>
<th>Length (km)</th>
<th>Ratio of improvement (%)</th>
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</thead>
<tbody>
<tr>
<td>Overall plan</td>
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<tr>
<td>Up to the end of 2005 (Heisei 17)</td>
<td>154.7</td>
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<td>Planned for 2006 (Heisei 18)</td>
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<td>2007 (Heisei 19) and thereafter</td>
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*The ratio of improvement shows the accumulated percentage*
Development of Super Levees

- Super levee
- Design high water level
- Average high tide level
- Terraced area
- River zone
- Super Levee Development Project Area (River Conservation Area)
The waterfront environment was improved.
The levee is robust against earthquakes as well.
Development of Super Levees

Azumabashi District (Sumida River)
Vast Evacuation Site on a Super Levee in the Shirahige West District

Evacuation capacity
120,000 (66% of the population in the Arakawa Ward)
“Gatherings” on the Sumida River

Sumida River Fireworks Festival

Sou-Kel Regatta (a boat race between Waseda and Keio Universities)

Cherry Blossom Festival

Open Café
“Gatherings” on the Sumida River

Sumida River Terrace Gallery

Works by elementary school students in commemoration of graduation

Water bus station

Ryogoku
Improvements of Rivers within the Koto Ward

On the west side, revetment was constructed as a measure against earthquakes.

A lock gage was installed to allow navigation.

On the east side, the water level was lowered.

Around 1974 (Showa 49)

Water level was lowered to AP - 1.0 m.

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<tr>
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</thead>
<tbody>
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<td>Up to the end of 2005 (Heisei 17)</td>
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<tr>
<td>Planned for 2006 (Heisei 18)</td>
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<td>2007 (Heisei 19) and thereafter</td>
<td>26.8</td>
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</tbody>
</table>

*The length shows the total length of the rivers on the west and east sides. The ratio of improvement shows the accumulated percentage.*
Redevelopment of Rivers in the Kōtō Ward after Lowering the Water Levels

The water level was at the same height as the second floor of the house.

Old Naka River
Restoration of the “Salt Road” (Onagi River)

Map of Edo Revised in the Kôka era (1844 – 1848)

Important navigation route in the Edo era
Restoration of the “Salt Road” in the Onagi River

Before

After
“Gatherings” on Rivers in the Kōtō Ward

- Boat riding
- Walking and fishing along the river
- Fukagawa Cherry Blossom Festival
- Annual Lantern Floating Ceremony on the Former Nakagawa River
Overall Concept to Attract More People to Waterfront Environment in Tokyo

Improving attractiveness of waterfronts through cooperation among relevant bureaus in the Tokyo Metropolitan Government
The “Media Center” will be on the lot alongside the Sumida River to be vacated upon relocation of the Tsukiji Market.
Thank you very much for your attention