Wastewater Management and Reuse of Reclaimed Water

Osamu Fujiki
Ministry of Land, Infrastructure and Transport
Government of Japan
Urban and Rural Populations of More Developed Regions And Less Developed Regions: 1950-2030

Reference

Reference
Trend of Population Flow of Large City Areas in Japan

(THOUSAND PEOPLE)

Tokyo area, Osaka area, and Nagoya area

Tokyo area

(FISCAL YEAR)
Trend of Domestic Water Use in Japan

(Billion m³ / Y)

Domestic Water Use

Average Water Use/person/day


(4.2 6.9 8.8 10.2 11.8 13.5 14.1 14.4 14.3 14.2 31.6 32.2 32.2 31.9 31.8 28.7 26.1 24.7 22.4 20.9 16.9)
Reclaimed Water for Water Shortage!
¡Agua reciclada para la escasez!
Reclaimed Water for Water Shortage!
¡Agua reciclada para la escasez!

Clean Water Back!
¡Vuelve el agua limpia!

Water cycle by technology
Ciclo de agua por tecnología

Urban activities
las actividades urbanas

Tokyo Metropolis
Metropolis de Tokio

Wastewater
Agua reciclada

Membrane filtration
Filtrado por membrana

Almost Drinkable!
¡Casi potable!

Advanced wastewater treatment
Tratamiento avanzado de aguas residuales

Playing in reclaimed water
Jugando en agua reciclada

Old waterway (Dried up)
Viejo canal seco

Stream back!
¡Vuelve el río!

Before 1986
antes de 1986

NOW
Ahora

Reclaimed water
Agua reciclada

TAMAGAWA 2013

on Wastewater Treatment Plant
en Planta de tratamiento de aguas residuales
Clean Water Back!
¡Vuelve el agua limpia!

Sweet fish back with people
Los peces de agua dulce de vuelta con la gente

Tama River, Tokyo
Trend of Investment in Sewerage to the General Account

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Investment in Sewerage/The General Account (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1976</td>
<td>1.06</td>
</tr>
<tr>
<td>1981</td>
<td>1.50</td>
</tr>
<tr>
<td>1986</td>
<td>1.40</td>
</tr>
<tr>
<td>1991</td>
<td>1.51</td>
</tr>
<tr>
<td>1996</td>
<td>2.11</td>
</tr>
<tr>
<td>2001</td>
<td>1.08</td>
</tr>
</tbody>
</table>
Lake Biwa - Yodo River Water System

Blue-green Algae Blooms in Lake Biwa

Growth in Population Served with Water from the Yodo River System

Lake Biwa – Yodo River Water System and Its Basin
Lake Biwa Comprehensive Development Plan (1972-1997)

Breakdown of Expenses
<Total expenses : 1,905 billion yen, of which 60 billion yen was paid by downstream local government>

- Lake Biwa Flood Control and Water Resource Development: 18.5%
- Environmental Preservation: 44.5%
- Roads: 11.3%
- Dams: 3.2%
- Rivers: 9%
- Flood Control: 20.2%
- Forest Conservation: 2.1%
- Afforestation and Forestry Roads: 2.8%
- Erosion Control: 3.1%
- Industrial Water Supply: 0.8%
- Domestic Water Supply: 4.0%
- Land Improvement: 11.5%
- Promotion of Effective Water Use: 16.8%
- Night Soil Treatment: 0.6%
- Agricultural Community Drainage Facilities: 3.5%
- Livestock Waste Treatment: 0.1%
- Waste Treatment Facilities: 1.1%
- Water Quality Monitoring Stations: 0.1%
- City Parks: 0.6%
- Natural Park Facilities: 0.1%
- Acquisition of Nature Conservation Areas: 0.1%
Reuse of Reclaimed Water in the Cities

Central Tokyo / Centro Tokyo

on Wastewater Treatment Plant
en Planta de tratamiento de aguas residuales

Playing in reclaimed water
Jugando en agua reciclada

Urban activities
las actividades urbanas
Cooling the Cities in Hot Summer with Reclaimed Waters
Fight against Snow with Reclaimed Waters in Winter