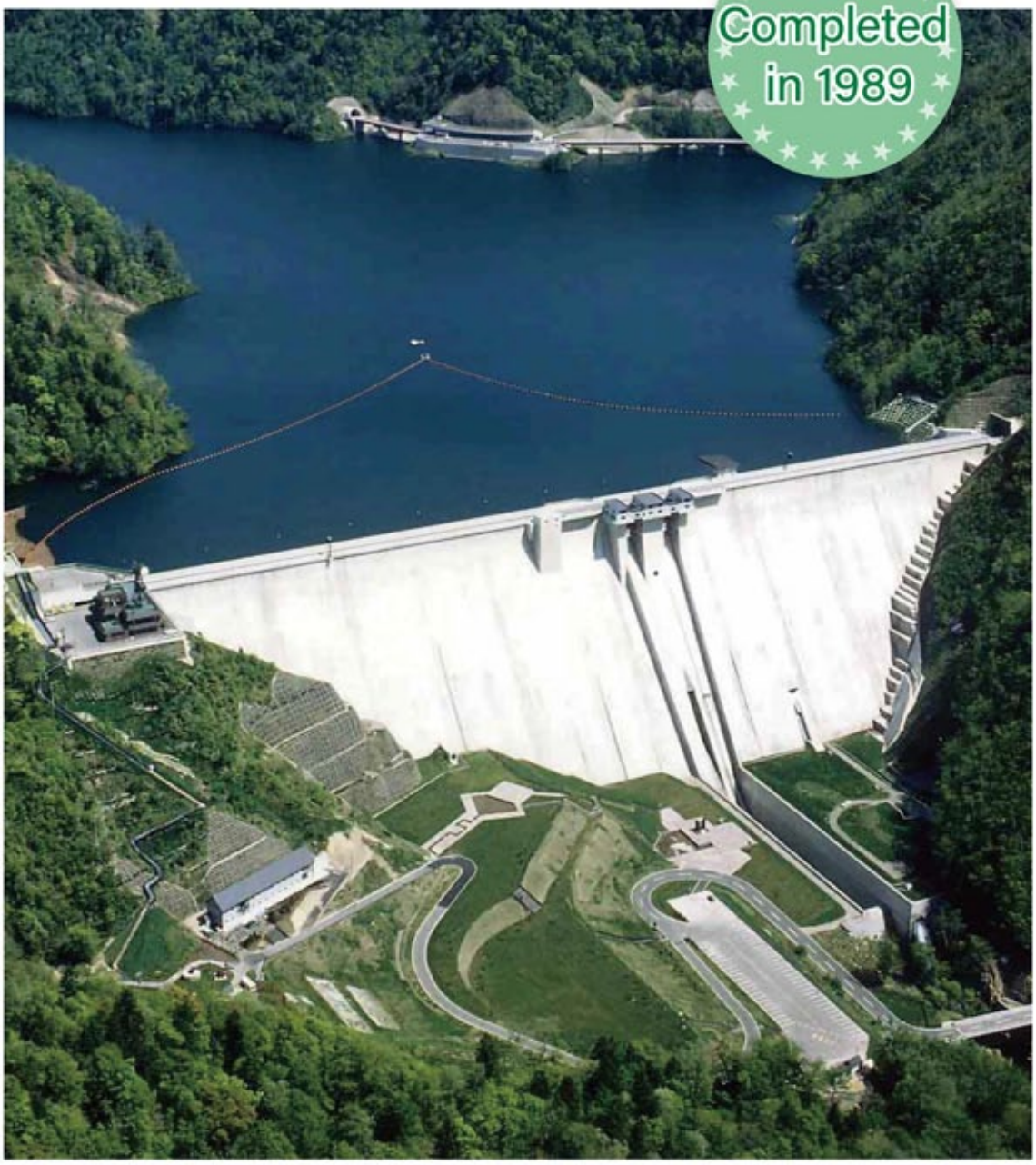
Translation here

CHECK

Introduction to Jozankei Dam



Translation here
CHECK

Toyohira river basin

The Toyohira River, a tributary of the Ishikari River, runs through downtown Sapporo. Bridges, subway lines and other facilities cross the Toyohira River.

The Toyohira River and downtown Sapporo

Catchment area: 902.4 km²
Trunk river channel length: 72.5 km
River basin population: approx. 1.517 million
Flood-susceptible area: 247 km²
Population in the flood-susceptible area: approx. 1.04 million
Related municipalities: 4 cities and 1 town
Sapporo, Ebetsu, Kitahiroshima, Ishikari and Tobetsu

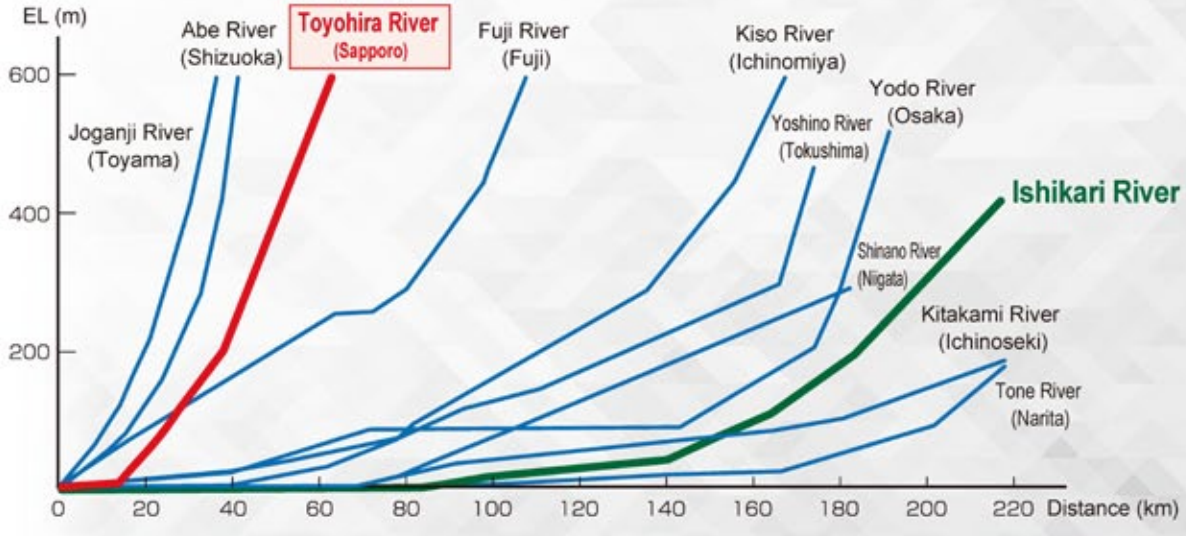
*The river basin population, flood-susceptible area and population in the flood-susceptible area include those in the Fushiko river basin.

[1]Class A river systems are managed directly by the Minister of Land, Infrastructure, Transport and Tourism. Especially important trunk rivers are called "undesignated sections" (ministerial management sections).
[2]Designated sections of Class A rivers (sections managed by the governor of Hokkaido) where improvements need to be conducted integrally with work by the national government (Hokkaido Regional Development Bureau) on undesignated sections are called "2-jo 7-go sections."

The Toyohira River is one of the steepest urban rivers in Japan. If a levee were to fail, flood water might paralyze urban functions.

▪ Riverbed slope of the Toyohira River*

*The inclination of the river bottom in the flow direction is called the riverbed slope.



Translation here
CHECK

Major floods of the Toyohira River

before the completion of Jozankei Dam

In the Meiji and Taisho eras, floods often caused levee failure. Large floods continued to occur in the Showa era, leading to the development and revision of flood control plans.

1898 Flood (typhoon) in September
Flow rate: unknown (levee breach), inundation area: 1,500 km²

1904 Flood (typhoon/front) in July
Flow rate: unknown, inundation area: 1,300 km²

1913 Flood in August
Flow rate: unknown (levee breach), inundation area: unknown

1961 Flood (low pressure/front) in July
Flow rate (Kariki): 874 m³/s, inundation area: 523 km²

Incidents that prompted the construction of Jozankei Dam

1962 Flood (typhoon/front) in August
Flow rate (Kariki): 1,358 m³/s, inundation area: 661 km²

1972 Completion of Hoheikyo Dam in September

1975 Flood (typhoon/front) in August
Flow rate (Kariki): 1,241 m³/s, inundation area: 292 km²

1981 Flood (low pressure/front/typhoon) in early August
Flow rate (Kariki): 647 m³/s, inundation area: 614 km²
Flood (front/typhoon) in late August
Flow rate (Kariki): 1,417 m³/s, inundation area: 57 km²

1989 Completion of Jozankei Dam in October

Levee breach on the Toyohira River (Nakajima area)

Inundation in the Higashi Yonesho area (Shiroishi Ward, Sapporo)

Inundation on the Sosei River

Triangular weir on the Toychira River (near the river's confluence with the Yamahana River)

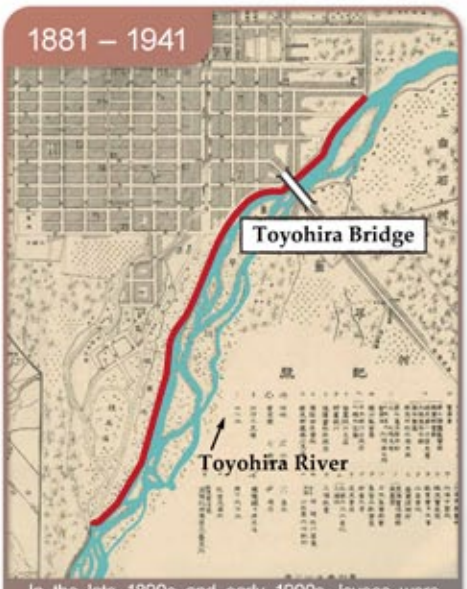
The swollen Toyohira River near Minami 19-jo Ohashi (1981)

Translation here
CHECK

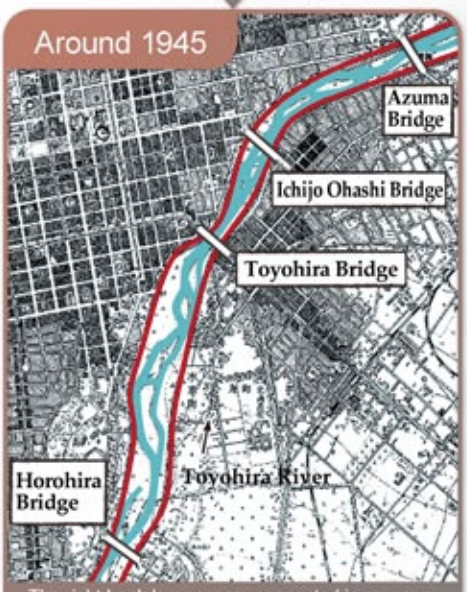
Flood control projects for the Toyohira River

Flood control projects for the Toyohira River have been conducted since the Meiji era, with the development of downtown Sapporo. In addition to river improvement works that included the construction of levees and the excavation of new channels, Hoheikyo Dam was completed in 1972, followed by Jozankei Dam in 1989.

▪ Levee construction



In the late 1890s and early 1900s, levees were constructed on the left bank of the Toyohira River to protect the downtown.



The right-bank levees were connected in response to the expansion of the downtown on the right-bank side.

▪ New channel

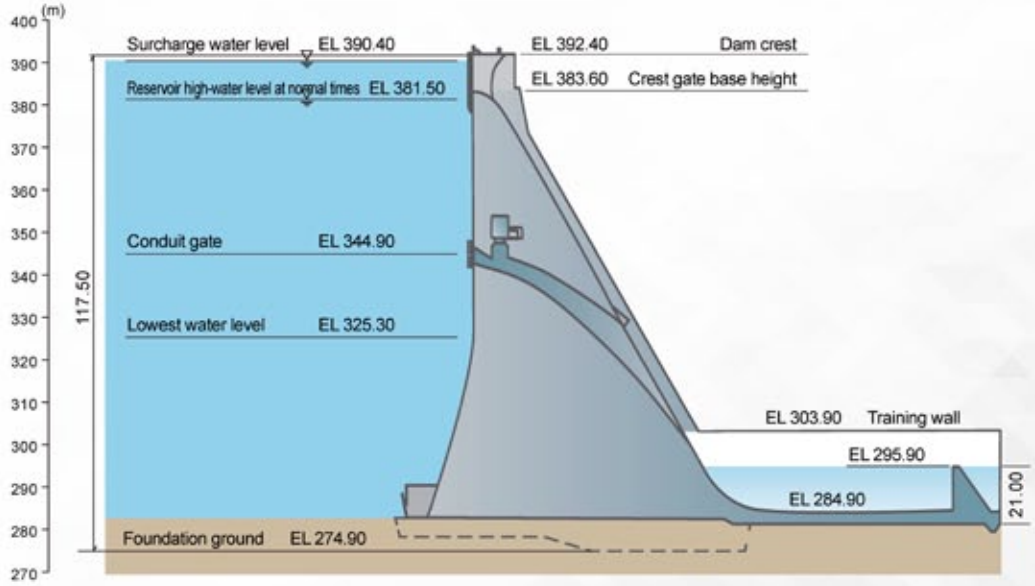
Construction of the Toyohira River New Channel to move the Toyohira's confluence with the Ishikari River downstream began in 1932, and water began to be passed through it in 1941.

Translation here
CHECK

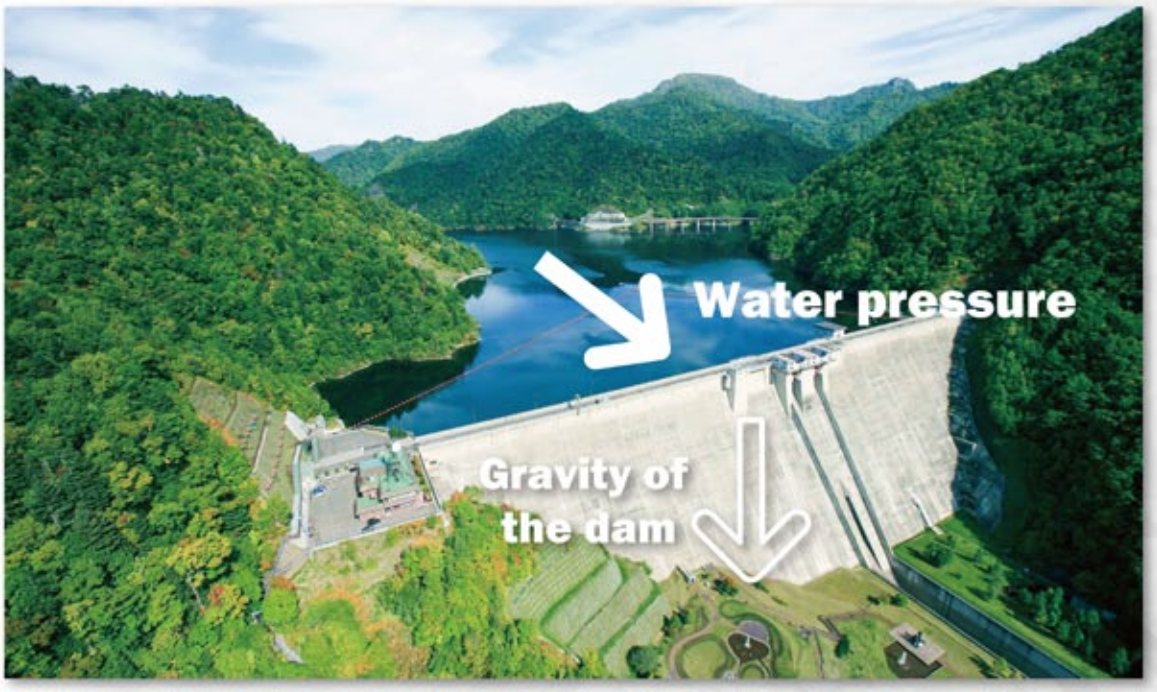
Concrete gravity dam

Jozankei Dam is a concrete gravity dam 117.5 m in height and 410 m in length in the traverse direction. Concrete gravity dams are the most common dams in Japan.

- Standard cross section



A concrete gravity dam uses the weight of the dam body itself to resist the pressure of water from the reservoir.)



Translation here
CHECK

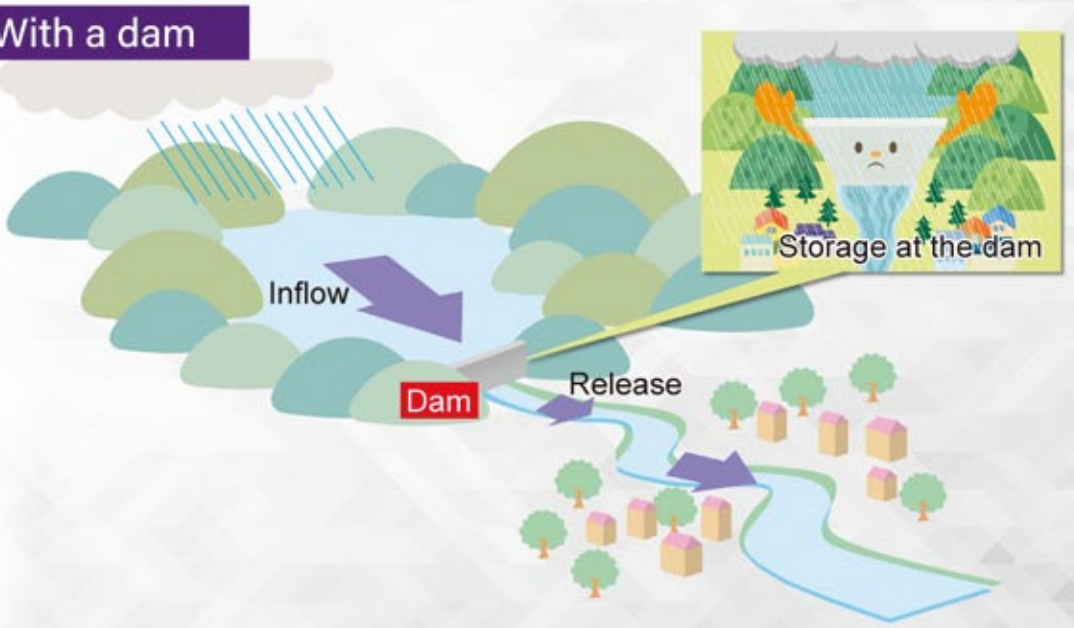
Flood control with a dam

The water volume of the river is at risk of increasing and overflow may occur with heavy rainfall in the basin.

Without a dam

When the water volume of the river upstream of the dam increases, water is temporarily stored in the dam reservoir to control the volume and reduce the water level downstream of the dam.

With a dam



Translation here
CHECK

Use of water of Jozankei Dam

The water stored in the Jozankei Dam reservoir is used for city water supply and power generation.
Hoheikyo and Jozankei dams supply more than 80% of Sapporo's water.

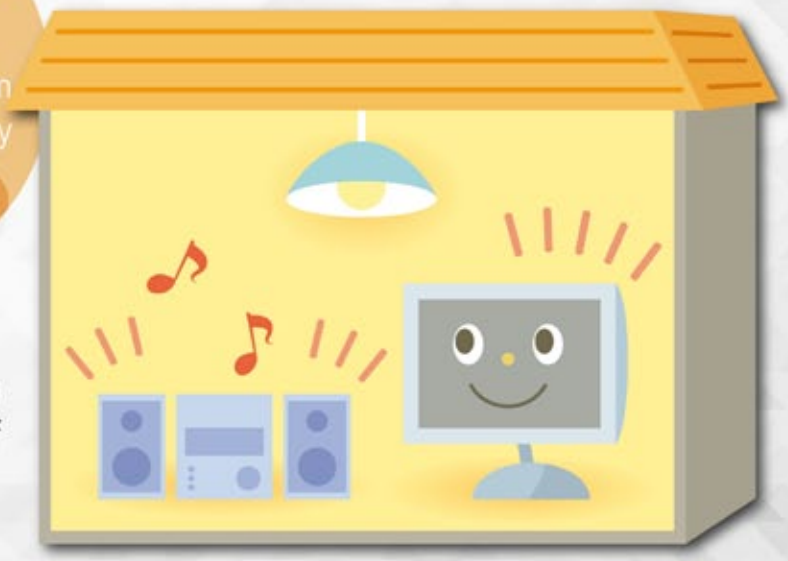
City water

Water essential for people's lives is supplied.

Jozankei Dam can supply **375,000 m³** of city water per day.

Hydropower generation

Water stored in the dam reservoir is used effectively for power generation.



The Otarunai Power Station can generate **7,000 kW** of electricity.

Translation here
CHECK

Dam management

For the efficient and effective operation of Hoheikyo and Jozankei dams, the two dams are managed in an integrated manner by the Toyohira River Integrated Dam and Reservoir Group Management Office.

Patrol

Reservoir management

Discharge facility inspection

Driftwood treatment

Discharge facility operation room

Discharge warning facility

Rainfall/water level observation facility

Water quality survey

Translation here
CHECK

Events involving the dam

A festival to enjoy forests and lakes is held in "the period for enjoying forests, lakes and dams" every July.

Festival for enjoying forests, lakes and dams

Dam tour

Visitors can go inside the dam body from Downstream Park to observe the management facilities.

Boat ride on Lake Sapporo

Enjoy a boat ride on Lake Sapporo.

Translation here
CHECK

The natural environment around the dam

The dam environs are blessed with a rich natural environment, including flora and fauna in great variety.

Translation here
CHECK

Facilities in Dam Downstream Park

Jozankei Dam Downstream Park is part of Shikotsu–Toya National Park. Visitors can enjoy the museum, the cross gallery and other highlights.