

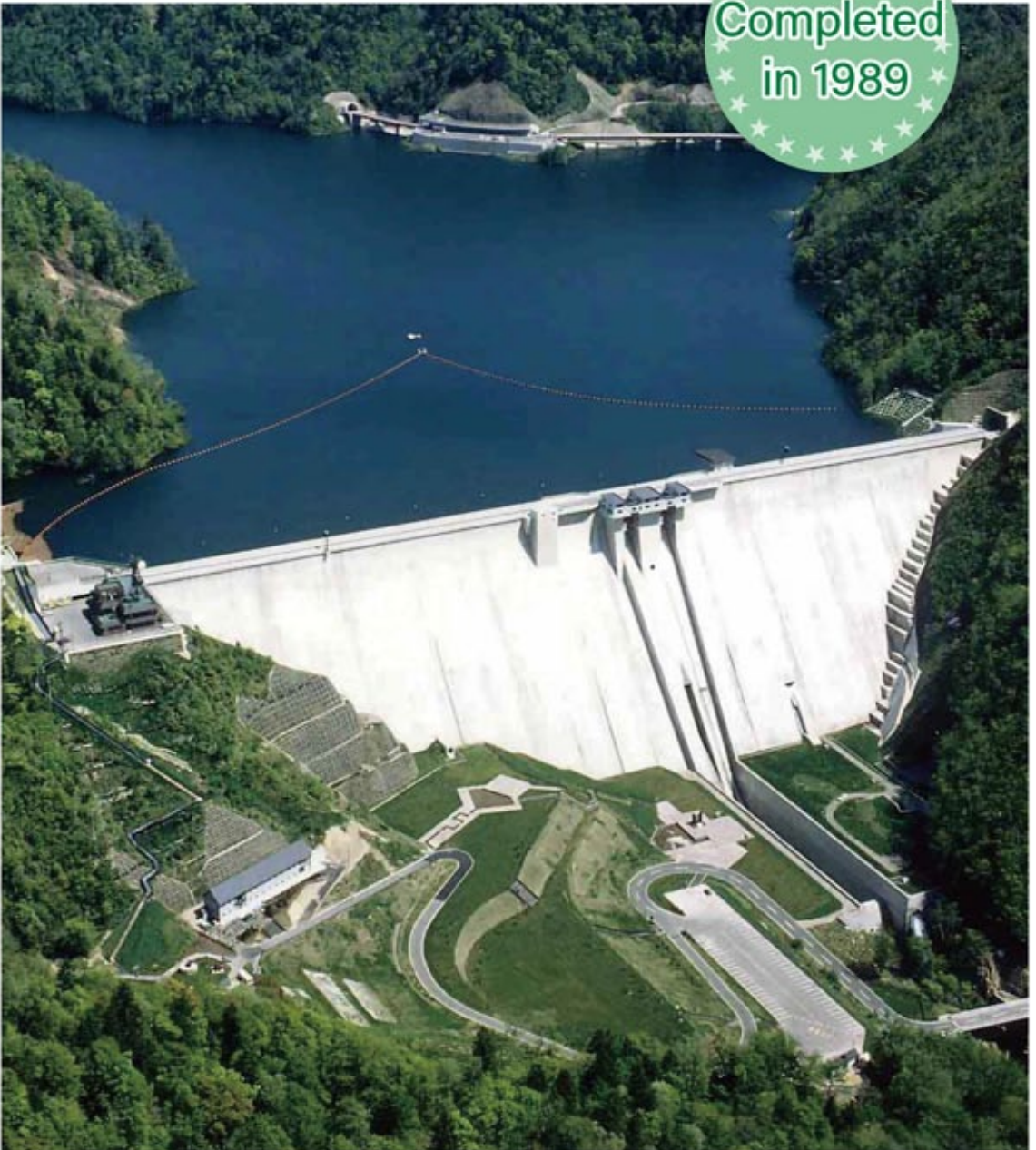
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Introduction to Jozankei Dam

Completed
in 1989





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

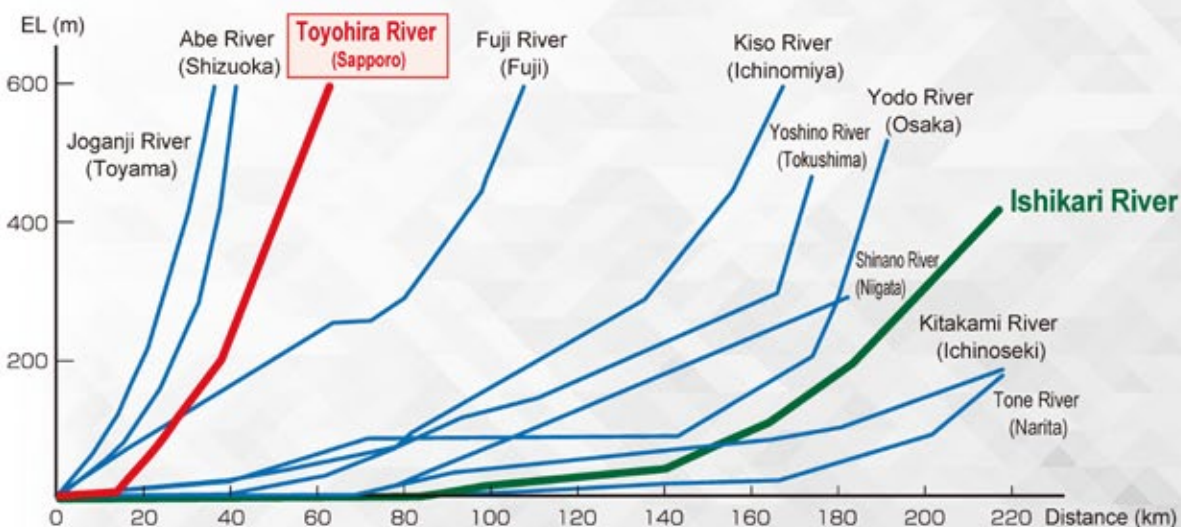
*The river basin population, flood-susceptible area and population in the flood-susceptible area include those in the Fushiko river basin.



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.





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

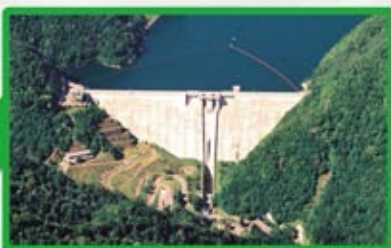
Flow rate (Kariki): 647 m³/s, inundation area: 614 km²

Flood (front/typhoon) in late August

Flow rate (Kariki): 1,417 m³/s, inundation area: 57 km²

1989

Completion of Jozankei Dam in October





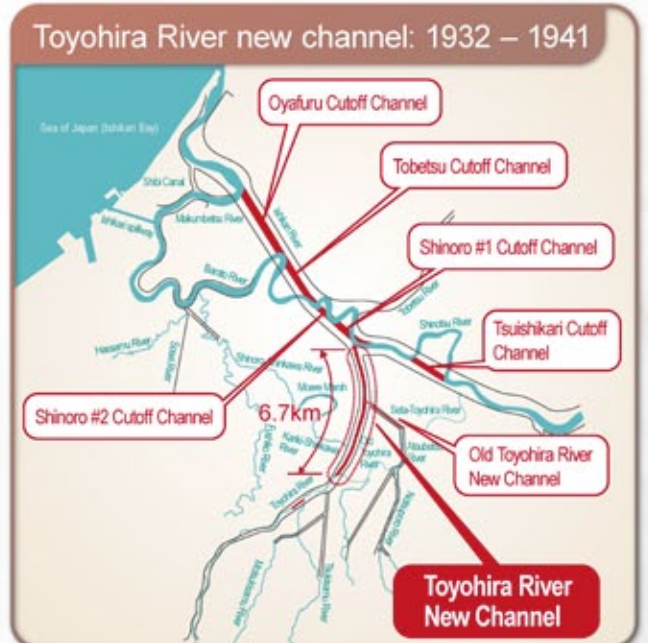
Flood control projects for the Toyohira River

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



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.

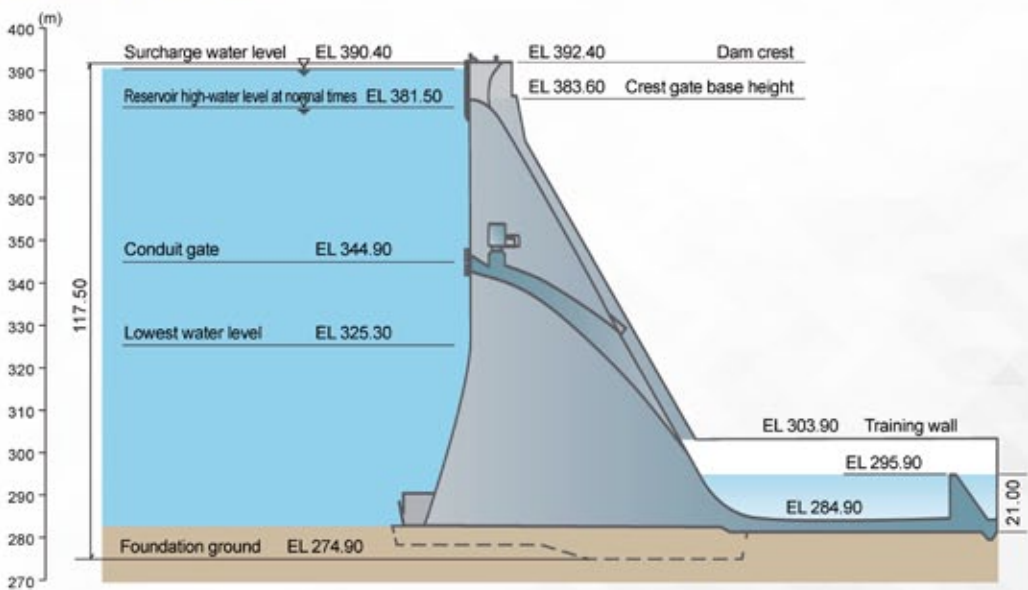




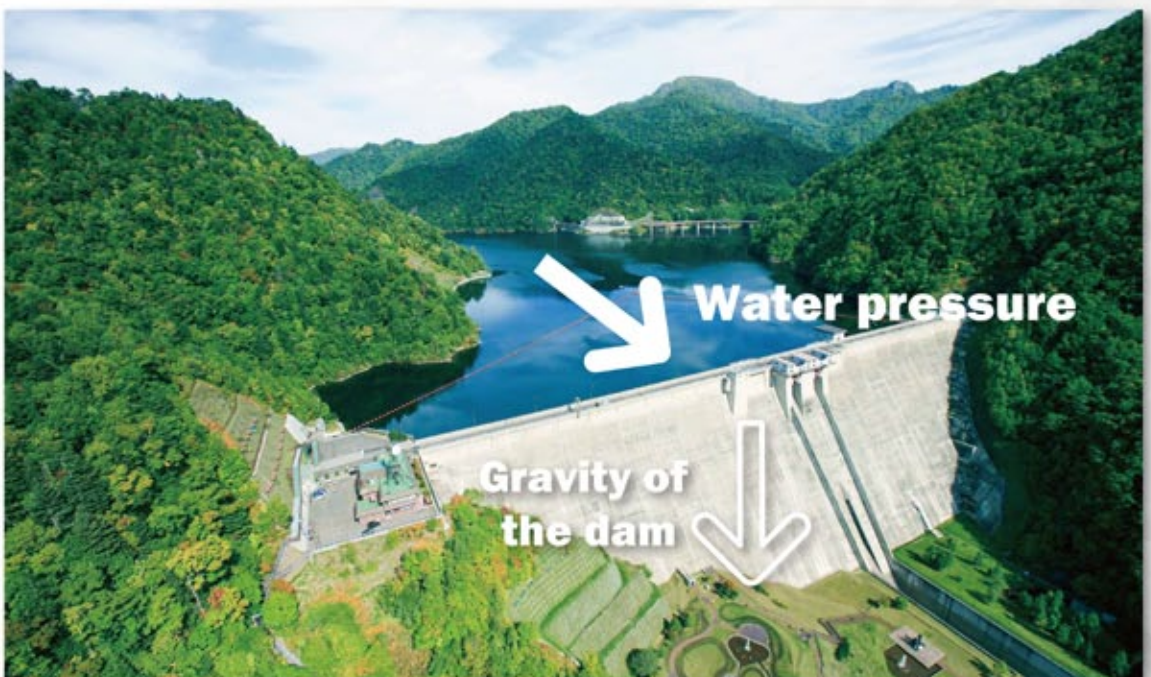
Concrete gravity dam

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.)





Flood control with a dam

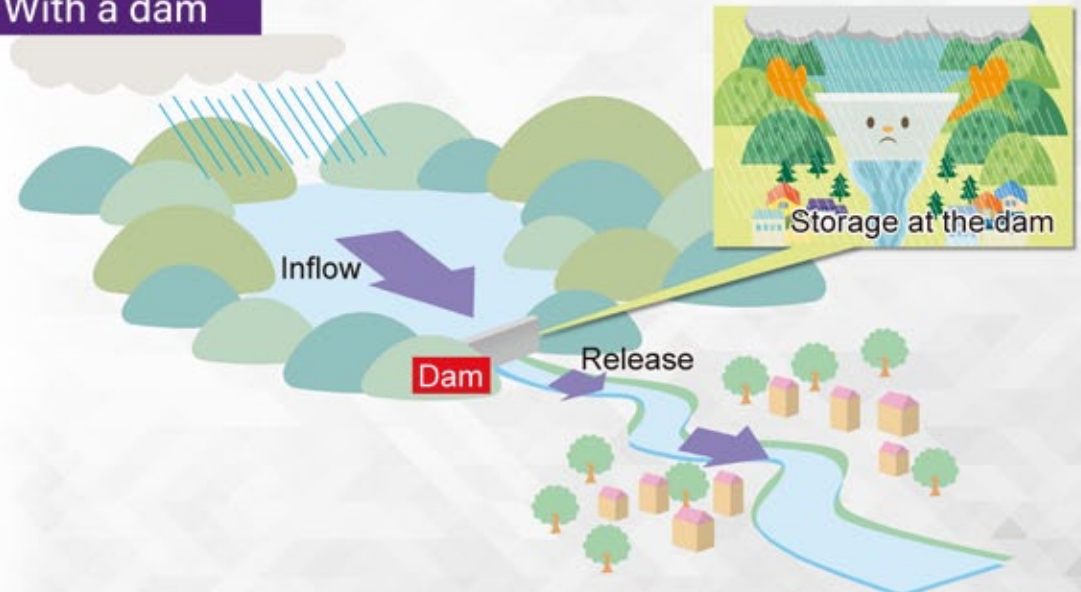
The water volume of the river is at risk of increasing and overflow may occur with heavy rainfall in the basin.

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





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.



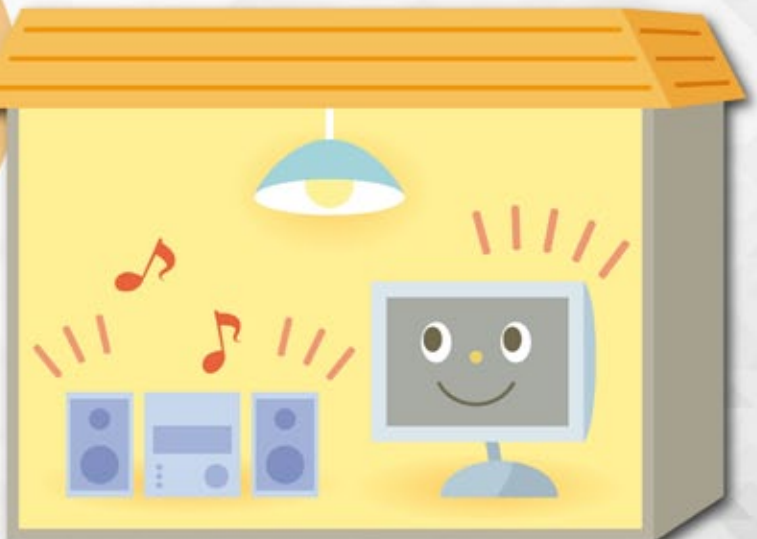
Jozankei Dam can supply **375,000 m³** of city water per day.



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.





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



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.





The natural environment around the dam

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

Flora and fauna around Jozankei Dam

Insects



Chequered blue
(*Scolitantides orion*)

Amphibians



Ezo salamander



Mukashi tombo
(*Euphydryas superstes*)



Crested kingfisher



Birds



Ezo red squirrel



Mammals



Black woodpecker





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.

