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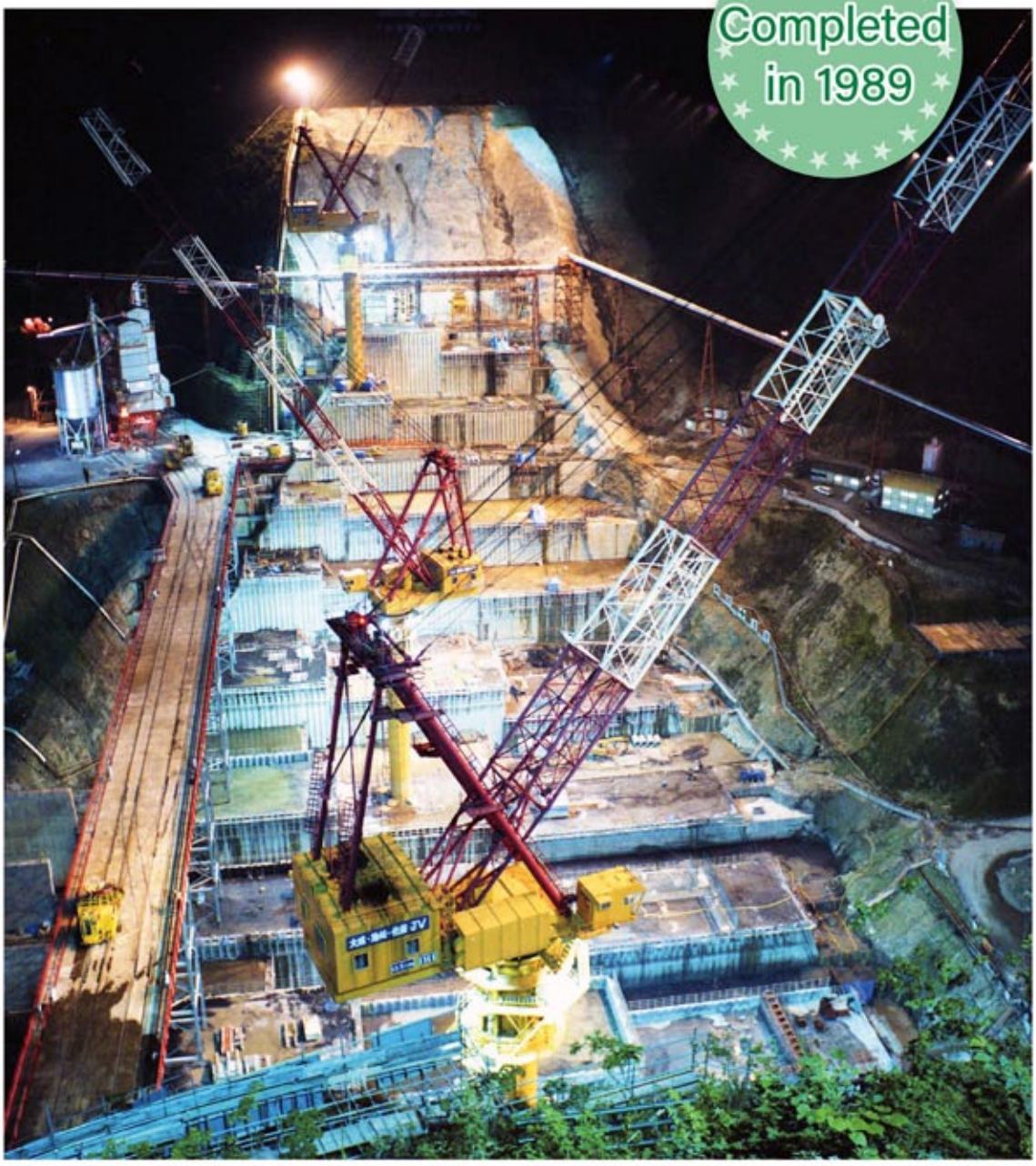
Jozankei Dam construction process

Completed in 1989



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Field surveys

Hydrological*, topographical and geological surveys necessary for dam construction began in 1971.

*Hydrological surveys of rainfall, water level/flow rate, water quality and the like conducted as basic surveys for the dam project

River flow survey

Snowfall survey

Based on a detailed survey, a gravity concrete dam was selected.

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Diversion work

A temporary drainage tunnel (diversion work) was constructed to divert the Otarunai River during dam construction.

Construction of the temporary drainage tunnel in August 1980

Start of water flow in the temporary drainage tunnel in June 1982

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Foundation excavation

The riverbed and sides of the dam body were excavated and the weak rock bed was removed to expose the hard, solid rock bed that would support the dam.

Blasting on the right bank in 1981

Foundation excavation on the left bank in 1981

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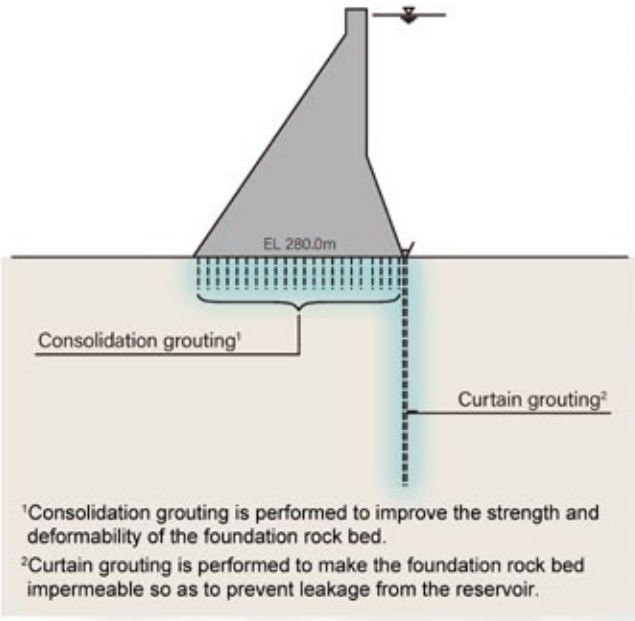
Foundation grouting

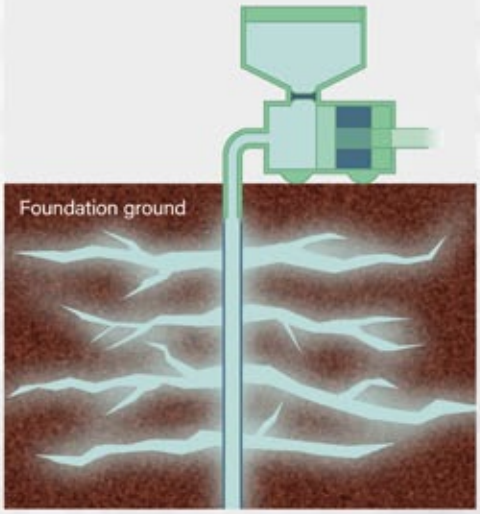
The dam foundation needed to be strong enough to withstand the large load and impermeable enough to prevent leakage. Grouting, in which cement milk was poured into the foundation ground to fill cracks of the bed rock, was conducted.

Boring



[1]Consolidation grouting is performed to improve the strength and deformability of the foundation rock bed.
[2]Curtain grouting is performed to make the foundation rock bed impermeable so as to prevent leakage from the reservoir.

Grouting hole arrangement



Enlarged view of grouting

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Road replacement

Since approximately 6.5 km of the Otaru–Jozankei line, which was a major prefectural road, was to be submerged due to dam construction, in replacing the road, a route was selected that would minimize impact on the natural environment and other impacts.

Construction around Kotengu and Shigure tunnels in 1984

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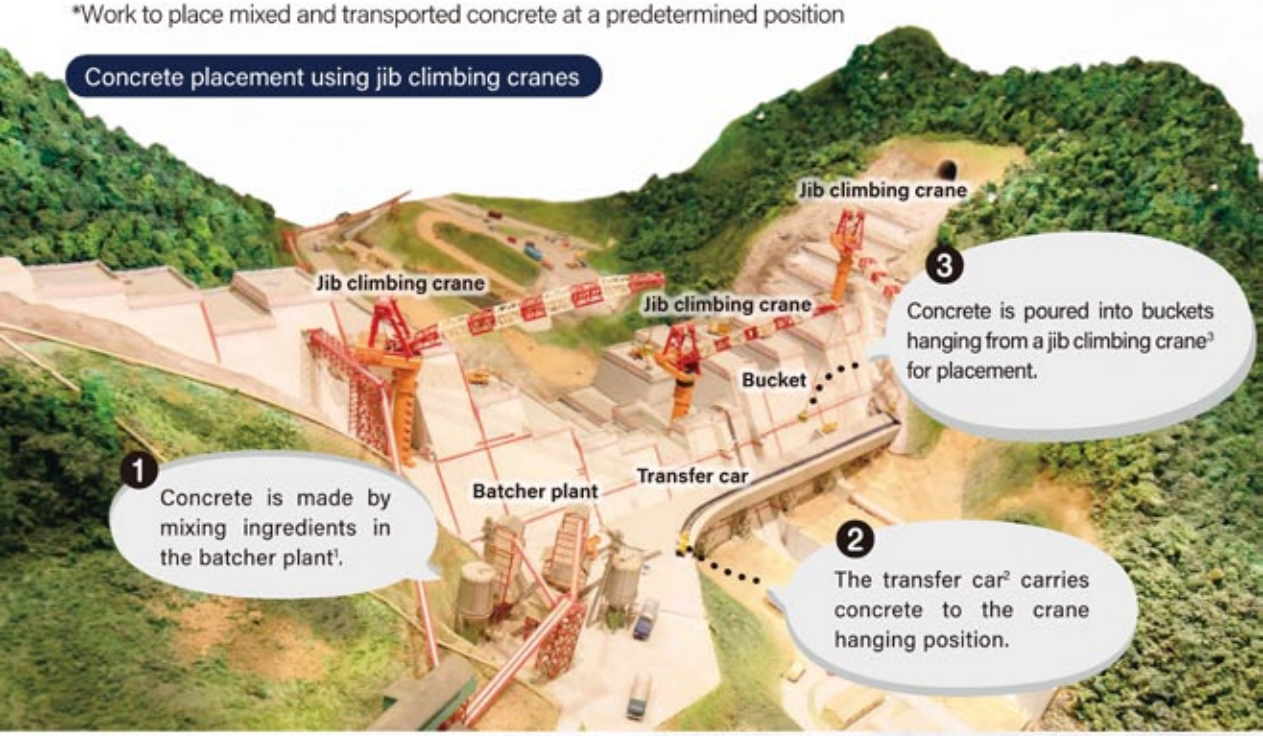
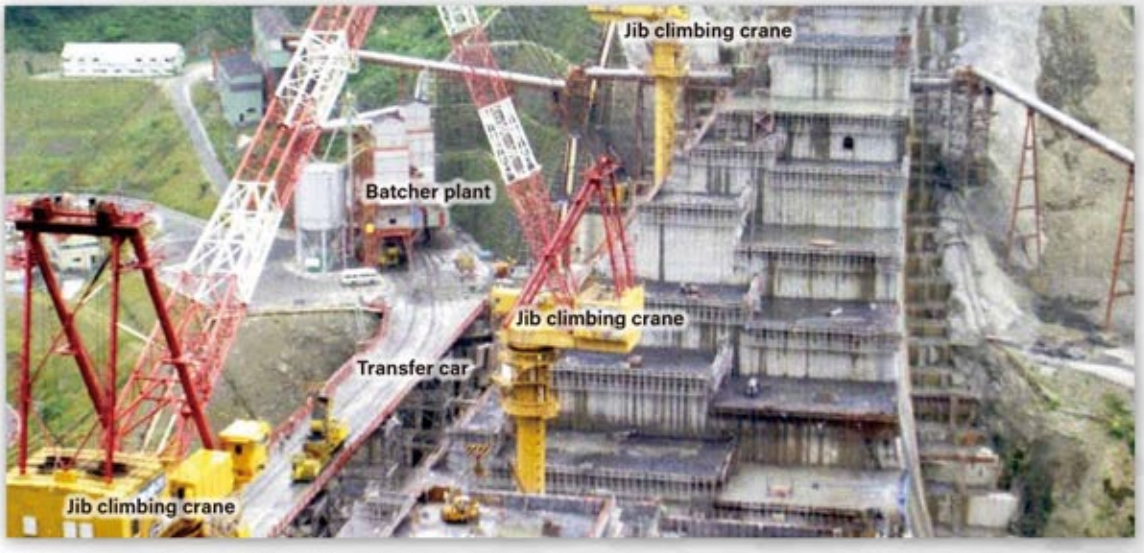
Dam body concrete placement

Dam body concrete placement* began in June 1981. Concrete and other materials were transported and placed using three stationary jib climbing cranes as there was steep mountainside ground on both sides of the dam.

*Work to place mixed and transported concrete at a predetermined position



[1]A batcher plant manufactures concrete by mixing sand, gravel, cement, water and admixture.
[2]A transfer car transfers concrete made in the batcher plant.
[3]A jib climbing crane has a tower with a jib (arm) at the top. Its height can be increased by adding towers.



Placement of 1,103,412 m^3 of dam body concrete was completed in June 1988.

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Test filling

Test filling* was conducted between March 23, 1989 and September 2, 1990.

*The storage of water on a trial basis to confirm the safety of the area around the dam body, reservoir and other facilities

Test filling in May 1989

Test filling in May 1990

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Dam management

Dam construction began in 1978 and was completed in September 1990. September 2020 marked the 30th anniversary of the commencement of dam management.

Jozankei Onsen resort and Jozankei Dam