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Water Resources and Water Quality Conservation

Tap Water Source—Yodo River

The water supply of Osaka completely depends on the Yodo River, one of the largest rivers in Japan. The Katsura River, the Uji River, and the Kizu River merge the Yodo River, which flows down to Osaka Bay through the Osaka Plain. The Katsura River, the Uji River, and the Kizu River are different from one another in flow characteristic, but they mutually compensate and contribute to the stability of the flow of the Yodo River. Lake Biwa, in particular, which is Japan's largest lake located upstream of the Uji River, plays a major role in adjusting the flow rate of the Yodo River.

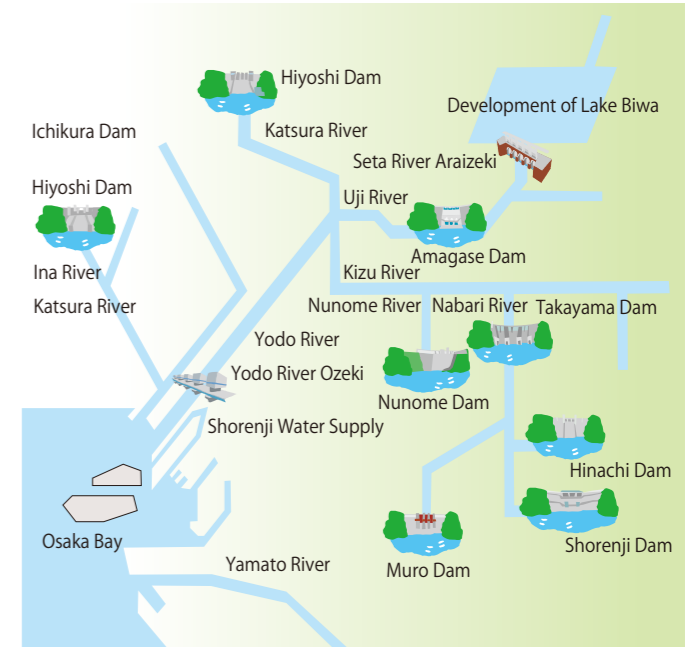
Water Source Development

In response to an increasing demand for tap water, Osaka has been endeavoring to secure the water source in Lake Biwa and the Yodo River systems since early on in the history of Osaka City. Osaka started its First-phase Project of Yodo River Water Control in 1943, completed the reconstruction of the Nagara Movable Weir (the present Great Yodo River Weir), the construction of the Takayama Dam, and the construction of the Shorenji Dam in 1963, 1969, and 1970, respectively. Osaka took part in the Shorenji Water Resource Project and the Lake Biwa Development Project as well, which were completed in 1971 and 1991, respectively. Osaka has thus secured a total flow rate of 30.976 m³/s (approximately 2,676,000 m³/day) to respond adequately to its future water demand.

Lake Biwa Comprehensive Development Project

The Lake Biwa Comprehensive Development Project consisted of two projects. That is, the Lake Biwa Development Project (fiscal 1968 to 1991) and the Regional Development Project (fiscal 1972 to 1996). The Lake Biwa Development Project was planned to maintain a flow rate of 40 m³/s in response to the Hanshin area's new demand for water and to ensure the flood control of Lake Biwa, and the Regional Development Project was planned for the development and maintenance of Lake Biwa and its surroundings. The Lake Biwa Comprehensive Development Project started in compliance with the Act on Special Measures concerning Lake Biwa Comprehensive Development, which was enacted in 1972, and took 25 years for completion (from fiscal 1972 to 1996) at a total project cost of 1 trillion 907,400 million yen.

Development of water resources



Water resources development by Osaka City

	Before the first phase of river control	The first phase of river control	Nagara*	Takayama	Shorenji	Shorenji	Lake Biwa	Total
Domestic water	10.600	6.000	1.420	2.249	1.035	2.187	7.485	30.976
Industrial water		1.200	1.690			0.655		3.545

* Current Yodo River Ozeki

Further improvement of safe and tasty water

Further Safety and Palatability Improvements

The Waterworks Bureau set its own goal to strive for safety and palatability level improvements in tap water, and it has been studying water treatment technology toward the achievement of the goal and making efforts to achieve a high degree of tap water safety and quality management.

ISO 22000 Accreditation

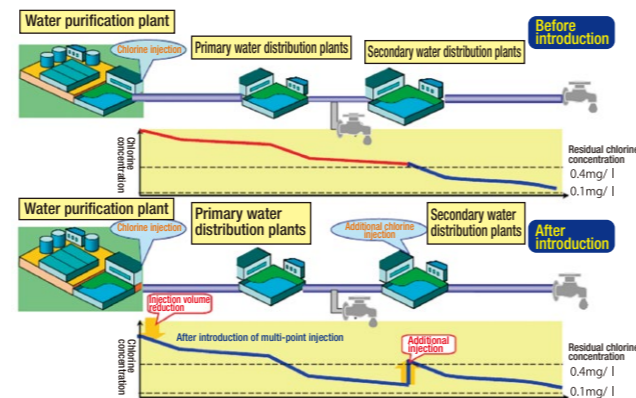
In pursuit of the stable supply of safer tap water of better quality, the Waterworks Bureau integrated its water safety planning and safety and quality management efforts based on ISO 9001 for water treatment, established its unique Water Safety Management System, and acquired ISO 22000 accreditation as an international standard for food safety management in December 2008. (The Waterworks Bureau was the world's first water supply entity that acquired ISO 22000 accreditation.)

Elimination of Chlorine Smell

The Waterworks Bureau has been making efforts toward the homogenization and reduction of the residual chlorine concentration, which is one of the major factors of customers' dissatisfaction with tap water, while ensuring the safety of tap water.

Reduction and Homogenization of Residual Chlorine in Tap Water in Town

The Waterworks Bureau will shift from the conventional chlorine injection system mainly applied to the water purification plants to a distributed chlorine injection system centered in the major water distribution plants of Osaka for well-balanced residual chlorine control for the reduction of chlorine smell.



Transition and Maintenance of Water Quality

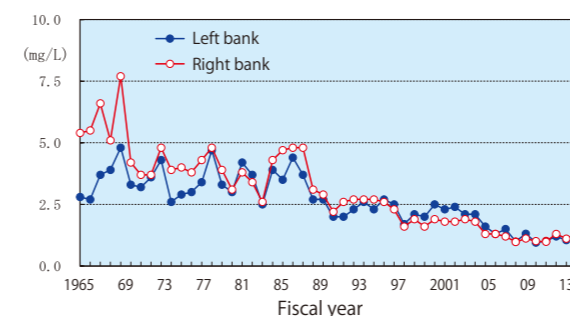
The Yodo River water system originates from Lake Biwa, Japan's largest lake, and that is the reason it is blessed with a large amount of water at a stable flow rate. Large and small cities, including Kyoto, however, are located in the upper and middle reaches, and urban wastewater flows into the Yodo River water system. Therefore, the water quality maintenance of the Yodo River is very important to water supply entities taking water downstream of the Yodo River.

The Yodo River had a high biochemical oxygen demand (BOD) as an organic pollution index from the latter part of the 1950s through the latter part of the 1960s. With the development of sewers in the upper and middle reaches, however, there has been a considerable reduction in the value. In addition, the concentration of ammonia nitrogen (NH₃-N) contamination increased from the latter part of the 1960s to the latter part of the 1970s, but recently, there has been a reduction in the concentration. The Yodo River Water Quality Consultative Committee was founded in August 1965 in order to maintain the water source quality of the Yodo River. Currently, the Yodo

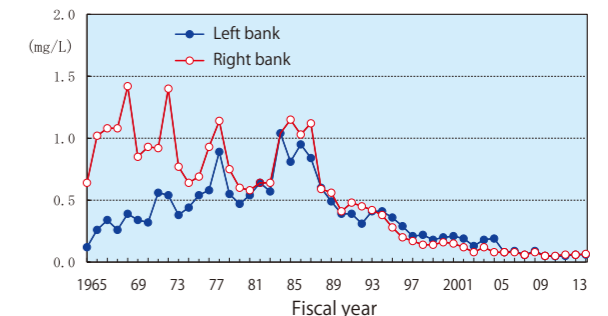
River Water Quality Consultative Committee consists of 10 water utilities taking raw water from the Yodo River (Osaka, Moriguchi, Hirakata, Neyagawa, Suita, Amagasaki, Itami, Nishinomiya, the Osaka Water Supply Authority, and the Hanshin Water Supply Authority). It has been proactively conducting activities for the maintenance of water source quality, including the measurement and inspection of water source quality, and making requests addressed to organizations concerned with water quality maintenance.

Furthermore, six prefectures and three ordinance-designated cities in the Kinki region (Kyoto Prefecture, Osaka Prefecture, Mie Prefecture, Shiga Prefecture, Nara Prefecture, Hyogo Prefecture, Kyoto City, Osaka City, and Kobe City) established the Lake Biwa-Yodo River Water Quality Preservation Organization in September 1993. The Organization has been conducting a variety of projects for the purpose of research and development concerning water purification technology for the water in the Lake Biwa and Yodo River water systems.

Water quality (BOD) change at Hirakata-ohashi Bridge point



Water quality (Ammonia nitrogen) change at Hirakata-ohashi Bridge point



* Created on the basis of the survey results by the Yodo River Water Quality Consultative Committee