

Business Summary

As a part of measures for the prevention of ground subsidence, Osaka City started constructing industrial waterworks in March 1951 for the purpose of replacing underground water for industrial use. Osaka City started supplying water to some areas of Konohana Ward and Fukushima Ward in 1954. Later, four expansion projects were implemented in response to restrictions on pumping up groundwater for industrial use and the transition of the quantity of water in demand. As a result, the water supply capacity reached 575,300 m<sup>3</sup>/day in 1967, and Industrial water has been playing a role of important infrastructure to support industrial activities in Osaka.

Each factory, however, made recovery rate improvements as a result of abnormal drought in the summer of 1973, the recession caused by the oil shocks, and the penetration of water-saving awareness, and there was a great demand decrease. With the aim of management efficiency improvements in response to the change in demand, Osaka City has been consolidating the water intake, water purification, and water distribution facilities and reviewing the capacity step by step according to the demand. As of the end of fiscal 2013, the water supply capacity was 260,000 m<sup>3</sup>/day and the total length of the aqueducts, water supply pipes, and water distribution pipes was approximately 307 km.

Quality of Industrial Water

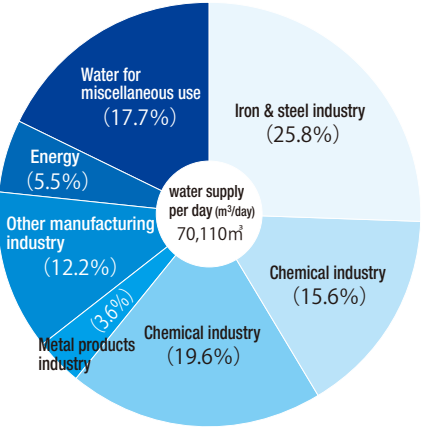
Unlike drinking water, Osaka City does not perform the filtration of chlorination of industrial water, but Osaka City is in water quality control of industrial water. Therefore, industrial water can be used for most industrial applications, including cooling, washing, and material applications. The required quality of industrial water varies with the intended use. Therefore, users need to purify industrial water by themselves if they use industrial water for applications that require water of high quality, such as boilers and dyeing applications.

Water-supply Areas

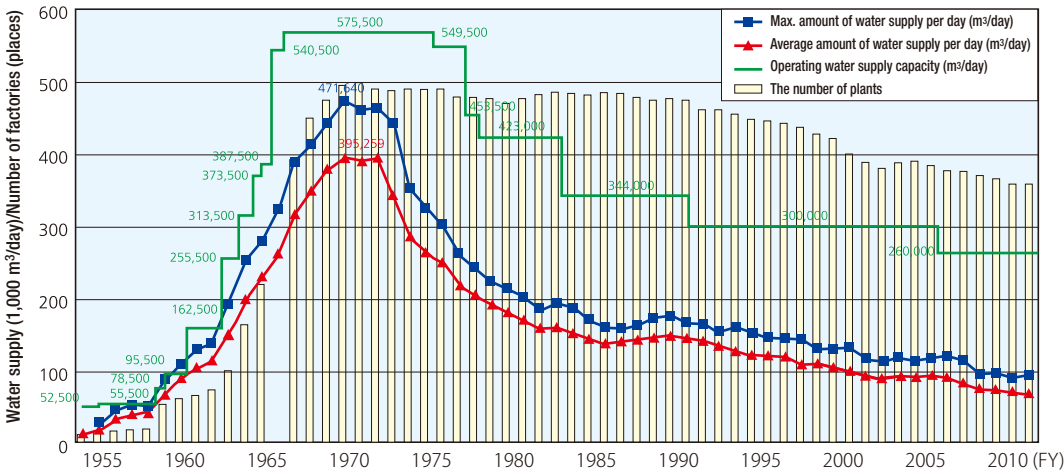
Industrial water is supplied from the Higashi Yodogawa Water Purification Plant and Joto Water Purification Plant to the following 19 areas.

All areas of Miyakojima, Fukushima, Konohana, Minato, Taisho, Naniwa, Nishi Yodogawa, Higashi Yodogawa, Yodogawa, Higashinari, Asahi, Tsurumi, Joto, and Nishinari and some areas of Kita, Ikuno, Suminoe, Hirano, and Higashi Sumiyoshi

Industry water consumption (FY2013)

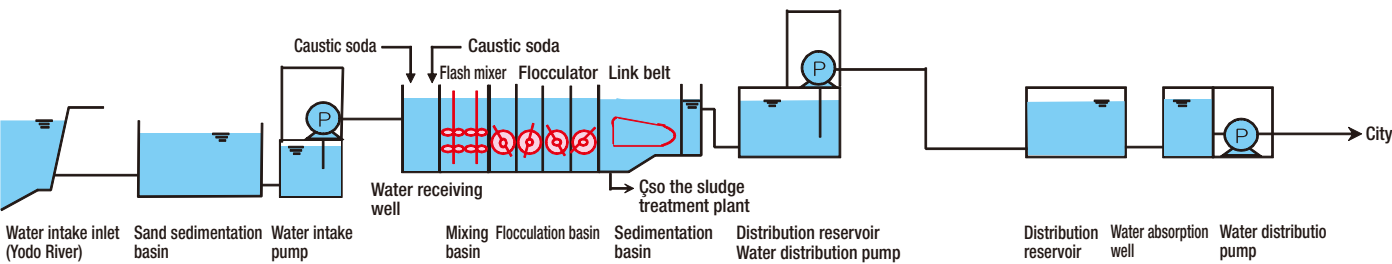


Water supply (1,000 m<sup>3</sup>/day)/Number of factories (places)



Note: The running water supply capacity shows the capacity of facilities in actual operation, and it does not necessarily coincide with the water supply capacity reported officially.

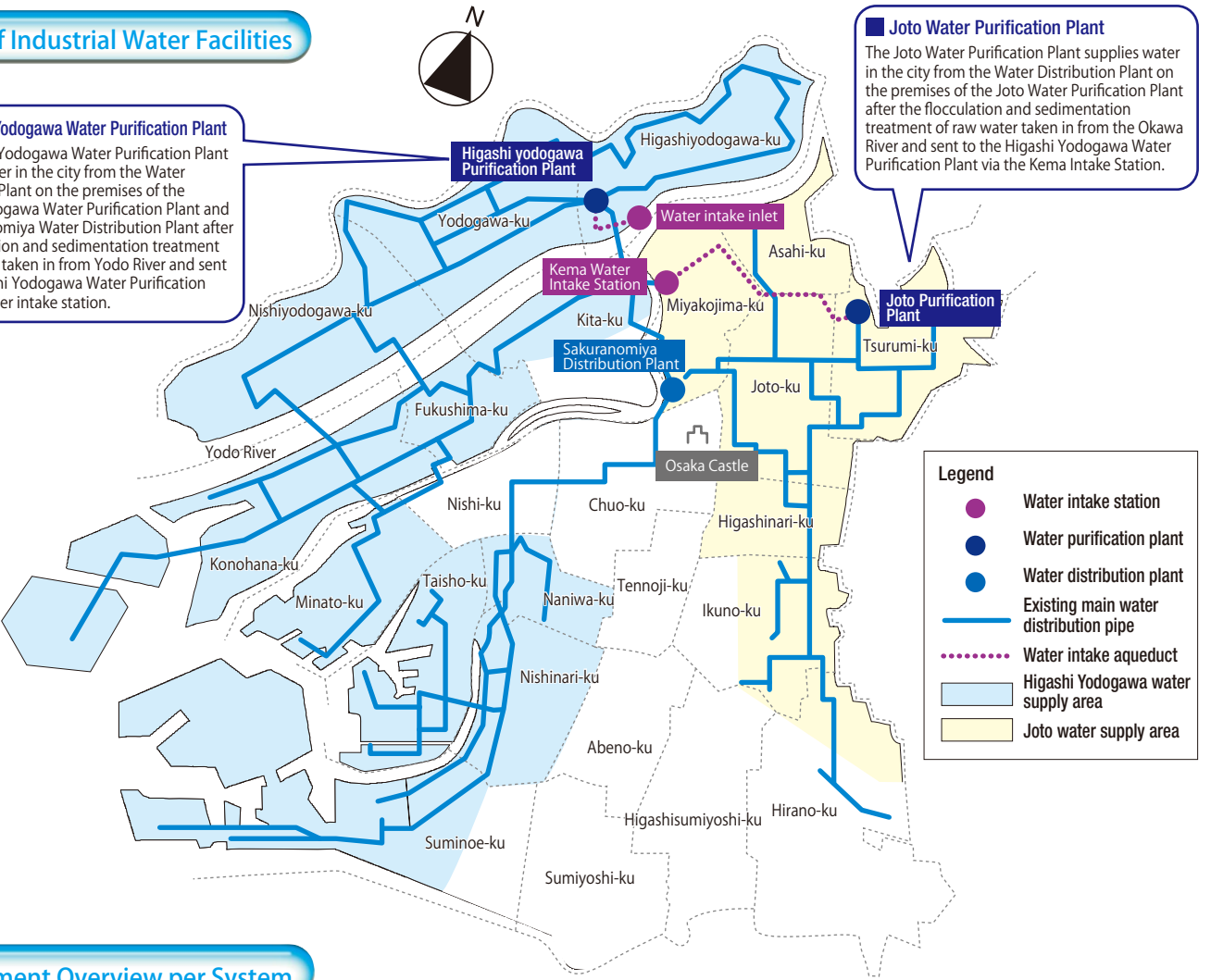
Industrial water processing flow



Map of Industrial Water Facilities

**Higashi Yodogawa Water Purification Plant**  
The Higashi Yodogawa Water Purification Plant supplies water in the city from the Water Distribution Plant on the premises of the Higashi Yodogawa Water Purification Plant and the Sakuranomiya Water Distribution Plant after the flocculation and sedimentation treatment of raw water taken in from Yodo River and sent to the Higashi Yodogawa Water Purification Plant via water intake station.

**Joto Water Purification Plant**  
The Joto Water Purification Plant supplies water in the city from the Water Distribution Plant on the premises of the Joto Water Purification Plant after the flocculation and sedimentation treatment of raw water taken in from the Okawa River and sent to the Higashi Yodogawa Water Purification Plant via the Kema Intake Station.



Equipment Overview per System

Water purification plant		Higashiyodogawa Purification Plant	Joto Purification Plant
Type		151,000	109,000
Water intake facilities	Facility capacity (m <sup>3</sup> /day)		
	Water intake	Water intake inlet	Water intake inlet
	Intake pipe	Kunijima Water Intake Point shared with the Hanshin Waterworks Project Group	Kema
	Settling basin	φ 1,100 to 1,200, two streams	φ 1,500 to 1,000, one stream
	Water intake pump station	Two basins	Two basins
Headrace equipment	Water intake pump	One building	One building
	Water intake pump	Four sets	Four sets
Aqueduct	Water purification equipment	-	φ 1,350 to 600, one stream
	Receiving well	One well (4 sets of flash mixers)	One well
	Chemical injection equipment	Aluminum sulfate, caustic soda and sodium hypochlorite Horizontal flow type (with flocculator)	Aluminum sulfate, caustic soda and sodium hypochlorite High-speed flocculation and sedimentation reservoir of sludge blanket type
	Sedimentation basin	Three wells	Four wells
	Sump	Shared with waterworks facilities	One building (1,340m <sup>3</sup> ± 110m <sup>3</sup> )
Distribution equipment	Drainage pump		One well
	Distributing reservoir	Premises distribution reservoir	Four wells
	Capacity	Sakuranomiya Distribution Plant Two wells	
		Distribution reservoir in the premises 3,460m <sup>3</sup>	
		Sakuranomiya Distribution Reservoir 1,950m <sup>3</sup>	12,520m <sup>3</sup>
Effluent treatment facilities	Water distribution pumping rooms	Distribution plant in the premises One building	One building
	Water distribution pump	Sakuranomiya Distribution Plant One building	
		Distribution plant in the premises Seven sets	Five sets
	Concentrator	Shared with water supply facilities	Two tanks
	Dehydrator		Two sets
	Natural light drying reservoir	-	3,240m <sup>2</sup>
	Water supply start (year)	1963	1966

Main pump specifications

Usage	Installation place	Diameter (mm)	Total pump head (m)	Discharge amount (m <sup>3</sup> /hour)	Electric motor output (kW)	The number of sets
Water intake	Higashi yodogawa Purification Plant	500×400	20	1,600	130	2
		700×600	20	3,300	270	2
	Kema Water Intake Station	600×600	35	2,300	320	2
		600×600	15	2,300	140	1
Water intake		600×600	10	1,500	60	1
	Higashi yodogawa Purification Plant	350×250	55	750	170	2
		400×250	55	1,000	230	1
		500×300	55	1,500	350	1
		600×350	55	2,400	550	3
	Hokko Pumping Station	125×100	34	111	22	2
	Joto Purification Plant	500×350	55	1,500	310	2
		700×500	55	3,000	620	2
		700×500	39	2,300	310	1
	Sakuranomiya Distribution Plant	450×300	45	1,560	280	2
		500×350	45	1,560	280	1