Industrial Water Supply System

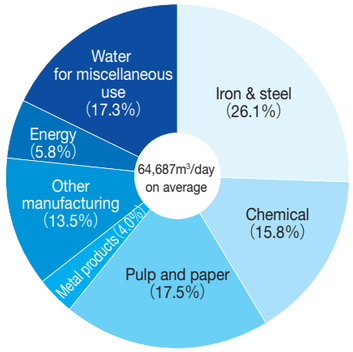
Business summary

As a part of the measures for the prevention of ground subsidence, Osaka City started constructing industrial waterworks in March 1951 for the purpose of supplying water to replace 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 changes in the quantity of water in demand. As a result, the water supply capacity reached 575,300 m³/day in 1967, and industrial water has been playing a role of important infrastructure to support industrial activities in Osaka.
However, abnormal drought in the summer of 1973, the recession caused by the oil shocks, and the penetration of water-saving awareness forced factories to improve their recovery rate, which resulted in a substantial decrease in demand. Aiming to improve management efficiency in response to such demand trends, Osaka City has consolidated the water intake, purification and distribution facilities and reviewed their capacity in phases according to demand trends. As a result of these efforts, the water supply capacity has reached 151,000 m³/day with approx. 293 km in total length of distribution pipes as of the end of fiscal 2018.

Quality of industrial water

Unlike drinking water, industrial water of Osaka City is not treated through filtration or chlorination, but the City controls the water quality so that it can be used as industrial water appropriate for most of the usages, such as for cooling, for cleaning and as materials.
Since the required quality of industrial water varies depending on the intended use, users may need to conduct purification treatment by themselves if they use industrial water for applications that require water of high quality, such as for boilers and dyeing.

Water consumption by business type (FY2017)

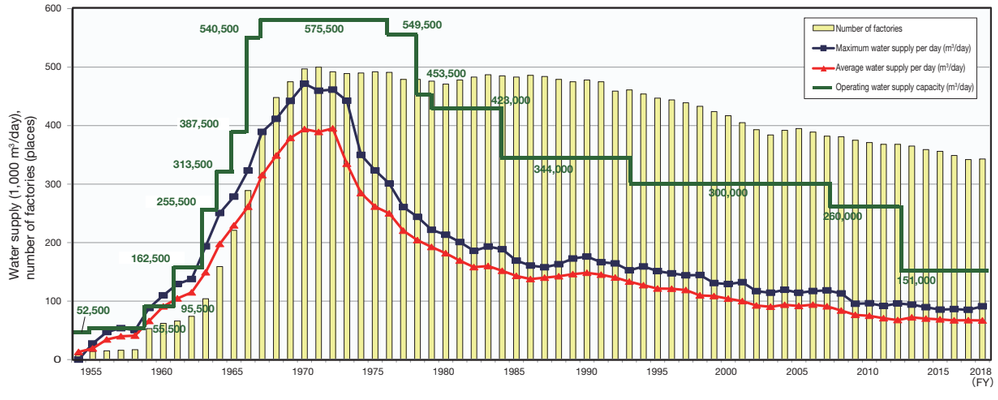


Water supply areas

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

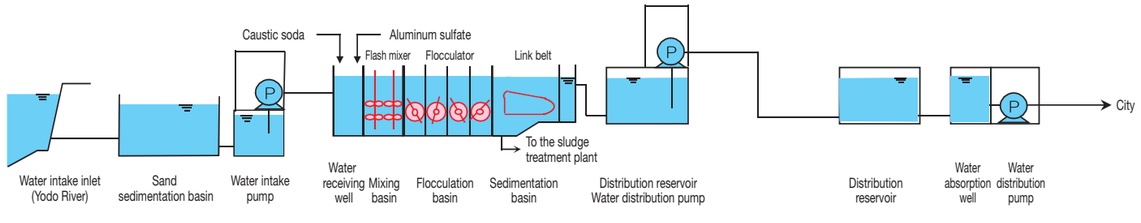
All areas of Miyakojima, Fukushima, Konohana, Minato, Taisho, Naniwa, Nishi Yodogawa, Higashi Yodogawa, Yodogawa, Higashinari, Asahi, Tsurumi, Joto, and Nishinari and some areas of Kita, Ikuno, Suminoe, Hirano, and Higashi Sumiyoshi

Changes in demand

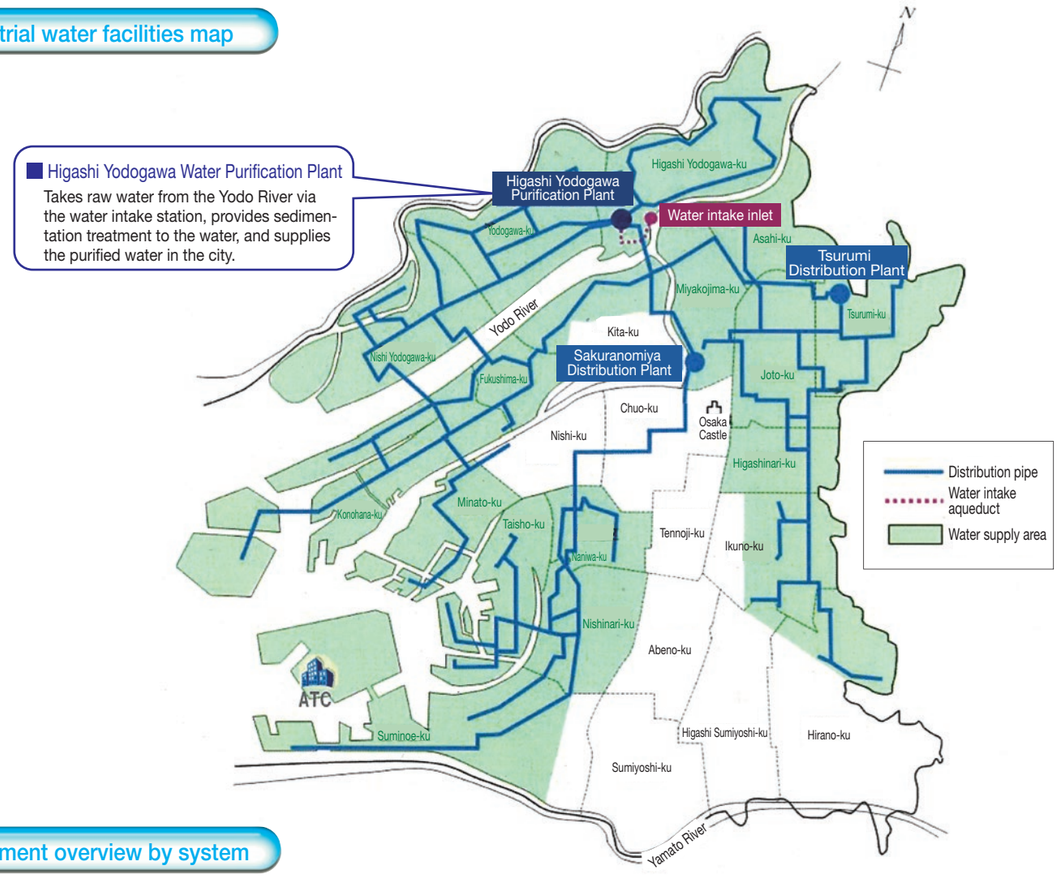


Note: The facility capacity indicates the capacity of facilities in actual operation, and it does not necessarily coincide with the officially reported water supply capacity.

Industrial water treatment flow chart



Industrial water facilities map



Equipment overview by system

Type \ Purification plant			Higashiyodogawa Purification Plant
Facility capacity (m³/day)			151,000
Water intake facilities	Water intake	Type	Water intake inlet
		Place, etc.	Kunijima Water Intake Point shared with the Hanshin Waterworks Project Group
	Intake pipe		φ1,100 to 1,200, two streams
	Settling basin		2 basins
	Water intake pump station		1 building
	Water intake pump		4 sets
Water conveyance equipment	Aqueduct		—
Purification equipment	Receiving well		1 (4 flash mixers)
	Chemical injection equipment		Aluminum sulfate, caustic soda and sodium hypochlorite
	Sedimentation basin	Type	Horizontal flow type (with flocculator basin)
		Number of basins	3
	Sump		Shared with waterworks facilities
	Drainage pump		
Distribution equipment	Distribution reservoir	Number of basins	Distribution reservoir on the premises: 2
			Sakuranomiya Distribution Plant: 2
		Capacity	Distribution reservoir on the premises: 3,460 m³
			Sakuranomiya Distribution Reservoir: 1,950 m³
	Water distribution pumping rooms		Distribution plant on the premises: 1 building
			Sakuranomiya Distribution Plant: 1 building
	Water distribution pump		Distribution plant on the premises: 6 sets
			Sakuranomiya Distribution Plant: 3 sets
Effluent treatment facilities	Concentrator		Shared with water supply facilities
	Dehydrator		
	Solar drying reservoir		—
Water supply start (year)			1963

Major pump specifications

Usage	Installation location	Diameter (mm)	Total pump head (m)	Discharge amount (m³/hour)	Electric motor output (kW)	Number of sets
Water intake	Higashiyodogawa Purification Plant	500×400	20	1,600	130	2
		700×600	20	3,300	270	2
Water distribution	Higashiyodogawa Purification Plant	350×250	55	750	170	2
		500×300	40	2,000	315	1
		600×350	40	2,000	315~68	3
	Hokko Pumping Station	125×100	34	111	22	2
	Tsurumi Distribution 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