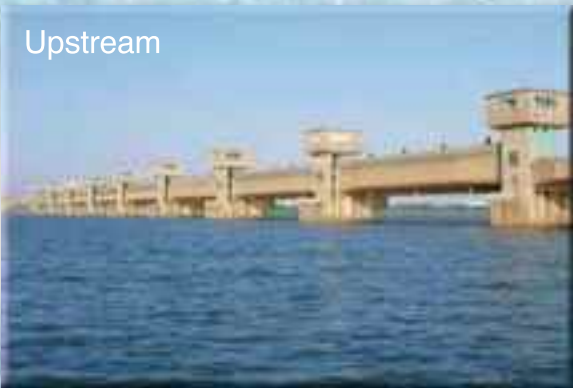


Operation and Maintenance of Tonegawa Estuary Barrage

~The Barrage to Prevent
the Surrounding Areas from Salt Damage~

Upstream



Downstream



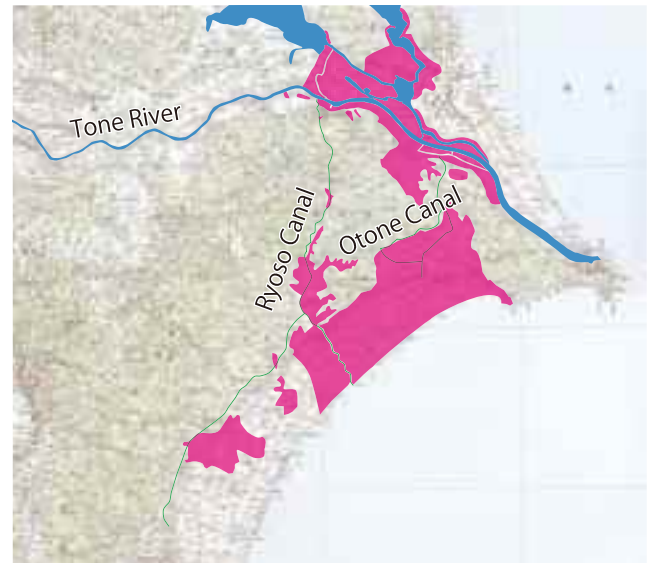
Purpose and Background of Construction of the Barrage

Background of the Barrage Construction

The Tone River originates in Ominakamiyama Mountain (1831 m high) in Minakami Town, Tone County, Gumma Prefecture. The Tone River is one of the largest rivers in Japan, with its main river extending over 322 km and with its catchment area measuring 16,840km². It runs through the central Kanto Plain and flows into the Pacific Ocean at Choshi City, Chiba Prefecture.

Tokyo metropolitan area, including eastern Chiba Prefecture had been facing the severe water shortage caused by the drought and the sharp growth of water use since the late 1950's driven by the rapid economic growth. Along with this situation, the Tone River had less flowing volume, which caused the lower reaches of the Tone River to face sea water flowing upward as far as 50 km upstream from the estuary, often causing salt damage to agricultural products and domestic water. For example, the unusual severe drought in 1958 caused some ¥500 million of damage to agricultural products alone in Chiba Prefecture.

Such damages from water shortage and salt in the downstream basin gained momentum to construct the Tonegawa Estuary Barrage. The construction of the main body began in November 1965. It took 6 years and ¥12.5 billion, including the cost for rebuilding Kurobe River Sluice Gate.



Areas that Suffered from Salt Damage

Application	Volume (m ³ /s)	City/Prefecture	Volume (m ³ /s)	City/Prefecture	Volume (m ³ /s)	City/Prefecture	Volume (m ³ /s)
Domestic water	18.76	Ohoshi City	0.12	Industrial water	1.15	Saitama Pref.	1.24
Tokyo	14.01	Chiba Pref.	3.48	Chiba Pref.	2.27	Hokuso Tobu area	2.27

Volume of Water Newly Used from the Tonegawa Estuary Barrage (by Applications and Prefectures)

Purpose of the Barrage Construction

1. Maintenance of River Functions

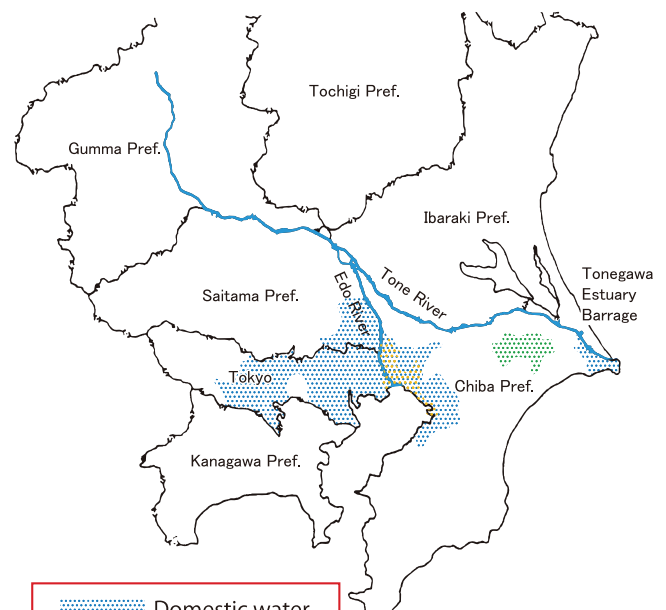
The main purpose of the construction of Tonegawa Estuary Barrage was to prevent the lower reaches of the Tone River from salt damage and to maintain a normal water flow. This is implemented by operating the movable barrage to regulate river water flow rates, chlorine ion concentration, upstream and downstream water levels at the barrage, and tide levels in the estuary.

In addition, rebuilding sluice gates on Kurobe River was also planned to prevent the areas from salt damage, together with the increase of its flood channel capacity so as to protect the basin from flood.

2. New Water Utilization

Appropriate operation of the barrage enables 20m³/s of water supply for Tokyo, Chiba and Saitama Prefectures, and Choshi City for domestic water, and Chiba Prefecture for industrial water.

Controlling the upper-reach water levels at the barrage enables 2.27m³/s of water supply for agriculture on average in Hokuso Tobu area of Chiba Prefecture.



	Domestic water
	Industrial water
	Agricultural water

Above shaded areas mean the ones the water is supplied from the Tonegawa Estuary Barrage