The Master Plan for the Water Environment and Advanced Wastewater Treatment in Yokohama

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1. The water environment in Yokohama

Situated on Tokyo Bay, Yokohama is one of the Japanese cities designated by cabinet ordinance (for delegation of a greater degree of autonomy than ordinary municipalities) and had a population of 3.43 million as of March 2001. Over the last 40 years, it has vigorously promoted sewerage construction. This construction has brought its percent of sewered population close to 100 percent and greatly improved the quality of water in public water bodies. However, Tokyo Bay is a relatively closed water body and continues to be subject to eutrophication, which demands further countermeasures.

2. The master plan for the water environment

In 1999, Yokohama formulated a master plan for realization of a better water environment. Among other measures, the plan calls for a switch to advanced wastewater treatment and improvement of combined sewer system for more efficient removal of nitrogen and phosphorus, which are one of the causes of eutrophication on Tokyo Bay.

3. Actual data for advanced wastewater treatment

At present, eight of the city's wastewater treatment plants discharge effluent into Tokyo Bay (their treatment effluent came to 496 million m^3 in 2000). Three of them have made a partial switch to advanced wastewater treatment by an anaerobic-anoxic-oxic process (their advanced treatment effluent came to 44 million m^3 in 2000). It has been confirmed that advanced wastewater treatment is resulting in higher removal rates for nitrogen and phosphorus.

Actual data for wastewater treatment in 2000

	T-N	T-P
Influent	29	4.0
Ordinary wastewater treatment	14 (50%)	1.8 (54%)
Advanced wastewater treatment	8.9 (69%)	0.69 (83%)

Increase: mg/l , Figures in parentheses indicate removal rates

4. Plans for advanced wastewater treatment

Basically, the switch to advanced wastewater treatment can be made by modifying the reactor at the time of replacement of treatment facilities. As such, the city has made advanced wastewater treatment plans with consideration of the trend of the influent volume and the timing of facility replacement. For the future, it intends to address tasks such as the acquisition of additional space and networking among treatment plants to cope with the space shortage caused by the lengthening of the retention time due to advanced wastewater treatment.