

Study on basic plan for advanced sewage treatment in specific areas of the Tone River System Basin

Whole term

1996.12 ~ 1999.3

(Purpose)

In the basin of the Tone River, as a result of the significant change of watershed environment with urbanization, the problems related to water environment are arising. Therefore, important issues for the development of desirable water environment are not only achievement of the environmental water quality standards in the basin of each prefecture, but also improvement water quality throughout the entire water system.

This study was conducted to formulate a "Basic plan for advanced sewage treatment in specific areas of the Tone River Basin" by five prefectures within the Tone River Basin.

(Result)

(1) Estimation of future pollution load

Various future frameworks in the basin were based on the projects related to sewerage design plan such as population program and land use program of each prefecture. Also, future pollution load in the basin was estimated using the future frameworks and the unit load derived from actual performance of water supply of each prefecture and investigation guideline for comprehensive river basin plan of sewerage systems.

(2) Establishment of pollution analysis model

Monitoring data of water quality from upstream to downstream of the Tone River revealed that rapid deterioration of water quality appeared in downstream region. This was attributed to the increase in pollutant load in downstream region with urbanization, the decrease in river flow caused by water intake in upper and middle region, and water pollution in estuary. Considering these factors, the pollution analysis model was established to quantitatively describe the current water quality in the Tone River Basin.

(3) Consideration of sewerage system planning

Since the constructions of sewage facilities had been embarked in many places of the basin, the sewerage system planning was examined taking into account comprehensive basin-wide planning of sewerage systems for each prefecture and various plans such as prefectural plan of appropriate wastewater treatment. Moreover, two types of basic plans, one aimed at achieving the environmental water quality standards in the Tone River and another at attaining the target for desirable water environment suggested in this research, were considered.

(4) Simulation of future water quality

To investigate the effects of sewerage system mentioned in (3), river water qualities were simulated and compared in both cases of current situation and after construction of sewerage system.

(5) Study of basic plan for advanced sewage treatment

The basic plan for advanced sewage treatment was summarized as follows.

Water quality of treated water (secondary and advanced treatment)

Steps for the introduction of advanced sewage treatment

Estimation of approximate project expenses

(6) Arrangement of issues in getting in operation

Issues in getting in operation were listed, and proposals for resolving them were summarized.

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Researchers: Yasuhiro Shinoda, Satoshi Watanabe, Akio Hasegawa, Satoshi Fujiura, Shinichi Nagamatsu.

Keywords

the Tone River System, target for desirable water environment, advanced sewage treatment