

Survey Study on Reservation of the Healthy Water Cycle

Whole term

1999.4-2001.3

(Purpose)

In order to aim at the maintenance and recovery of a good water environment, it is necessary to evaluate quantitatively the sewerage works which supports an important role in the measures for the future desirable water environment, and make it concretely reflected in the by-basins comprehensive plan for sewerage improvement, sewerage schemes, the city planning, the river planning, etc.

This research is a part of "the research and examination for reservation of a healthy water cycle" performed in collaboration with the Ministry of Land, Infrastructure and Transport, and the Ministry of the Environment, etc. The effect of each measure related with sewerage on the recovery and conservation of a water cycle is quantitatively evaluated water quantity and quality, taking Tokyo Nogawa River basin as an objective basin of a case study.

Furthermore, some considerable points for applying the measure to another river basin were also examined based on this result.

(Results)

1. Present Condition Analysis

The current status has been analyzed by collecting and arranging the previous data about the Nogawa river basin, subjects on water quantity and quality were extracted, and the past research results which quantitatively analyzed the stream system quantitatively were verified.

2. Examination of Water and Contamination Balance Model

In order to examine the effect of each measure and the preservation of the water cycle in the Nogawa river basin, an evaluation model for the water and contamination balances of the watershed is needed. Therefore, this research examined the model analysis based on a tank model with a present condition analysis.

3. Estimation of Measure Implementation Effect

Concerning the enforcement effect of each measure of sewerage works, the evaluation values were set up based on the water cycle master plan of Tokyo, and quantitative evaluation was performed. Although the evaluation value was not fulfilled only by performing an independent measure, the water quality was more than the water-amenity target level, and the water quality mostly attained the evaluation value with implementing complex measures. Moreover, the improvement action on water quality and quantity by the advancement was shown by a distributed discharge and the improved quality of the effluent. This result showed that the "final-effluent-from-a-treatment-plant" measure was comparatively great.

4. Considerable Points of Applying Measure to Other Watershed

Considerable Points of applying a measure to another watershed was arranged with consideration of goal setting, selection of an analysis model, a setup of the examination measure, etc. Moreover, the measures by the coordination with other works were also shown.

(Future tasks)

In order to make the results of this research effectively reflected in a measure, it is important to collect and analyze previous data planning efficiently, and improve the substantial model analysis (with close investigation of parameters etc.), by taking the coordination with related departments or community residents.

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Key words

Healthy water cycle, Water balance, Pollution balance