

Study on the improvement of combines sewer in Otsu City

Whole term

1999. 6-2000. 3

(Purpose)

Sewer project in Otsu city was started for the prevention of flood in urban areas, in Otsu treatment area (Otsu and Zeze drainage areas) in Syowa 36 fiscal year. In this result, the problem of flood was mostly resolved. However, the city has been had the problem of pollution by discharge from rain outfall in storm event and primary effluent.

This study aims at implementing surveys of outfall pollution loading amount and making effective plans to improve combined sewer by using existing facilities for effluent from rain outfall in storm event and primary effluent.

This study has been examined with continuing discussions in the community consist of experts.

(Results)

The following problem was unclosed from survey in intended areas

- (1) Separated wastewater and rain flow into combined conduits. The capacity of interception in some storm outfall is low.
- (2) The ratio of pollution loading amount discharged from storm outfall and facilities for primary treatment in storm event is high.
- (3) It is sometimes impossible for effluent of storm outfall to attain local effluent standards which more stringent than the national uniform standards.

1. Setting gradual improvement goal

Otsu city decided gradual improvement goal in order to improve above problems.

The goals have medium-term and long-term one, and then each goal has goal level. Moreover, remediation measures for accomplishment of goal were examined.

2. Setting remediation measures

The following remediation measures were decided after considering each improvement measures and the cost and time of construction for gradual remediation measures.

Emergency countermeasure: Heightening of embankment of storm outfall weir, Installation of filtration screen, changing primary treatment to flocculator and clarifier

Medium-term remediation measures: Division of separated wastewater, Installation of storage pipe, Adoption of advanced treatment, Adoption of disinfection for organism in Biwa lake
The measure which enables to take within 5 years and takes immediate effect of medium-term remediation measures was implemented as an emergency measure.

Long-term remediation measure: The development and adoption of ultra advanced treatment in order to attain environmental standards in Biwa lake

3. The improvement effect

The following effects by remediation measures were obtained.

- (1) The achievement of medium-term goal (the same level as separate system) (advanced treatment)

The goals were attained in evaluation indexes except T-N. The goals were attained in all evaluation indexes.

- (2) The achievement of long-term goal

To attain goals is difficult for indexes except BOD. The further technical development of ultra advanced treatment, etc. is needed, as the present techniques have limitations.

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Key words

Combined improvement, Phased improvement target, Filtration screen, high-speed cohesion precipitation, Storage pipe