

Research on Otsu City combined sewer system urgent improvement plan

Whole term

2002.12 ~ 2004.3

(Purpose)

The “Combined Sewerage Improvement Plan (hereinafter referred to as “Master Plan”)” of Otsu City was formulated in FY1999. On the other hand, in FY2001, the “Committee for Discussing Combined Sewerage Improvement Measures” of the national government made a proposal titled “Each Local Government Having any Combined Sewerage Area Should Formulate a Work Plan within 3 Years and Take Measures for Achieving Immediate Targets within 10 Years” (hereinafter called “the National Government’s Proposal”). So, Otsu City decided to formulate “Urgent Combined Sewerage Improvement Plan of Otsu City” (hereinafter referred to as “Urgent Improvement Plan”) based on the “Master Plan.” The Master Plan specifies three improvement target indicators, “Reduction of Pollutant Load Amounts,” “Safe Water” and “Improvement of Scenery.” They respectively correspond to the following improvement target indicators of the national government, “Reduction of Pollutant Load Amounts,” “Security of Safety in Terms of Public Health” and “Reduction of Impurities.” Otsu City had already identified the outline of the work plan based on the “Master Plan,” and has established the improvement targets of the respective stages of “Urgent (5 years later),” “Medium-Term (10 years later)” and “Long-Term (more than 10 years)” as shown in Table 1.

Table 1 Improvement Targets and Improvement Target Levels of Otsu City

Improvement Target Indicator (Otsu City)		Reduction of Pollutant Load Amounts	Safe Water	Improvement of Scenery
Improvement Target Indicator (National Government)		Reduction of Pollutant Load Amounts	Security of Safety in Terms of Public Health	Prevention of Outflow of Impurities
Improvement Target Levels of Otsu City	Urgent	Implementing the measures capable of achieving high effects in about 5 years		
	Medium-Term	Lowering the annual effluent loads to “the levels of separate sewerage”	Ecosystem friendly disinfection (primary effluent and highly treated effluent)	Impurities control measure at every sewer outlet
	Long-Term	Aiming to achieve the allowable values necessary for complying with the environmental quality standard	Ecosystem friendly disinfection (all effluents)	ditto

The purpose of the present study is to identify the improvement levels of the respective “Urgent,” “Medium-Term” and “Long-Term” stages of the “Urgent Improvement Plan” in view of the aforesaid three target indicators and to compile the contents of work so that outsiders can easily understand. In addition, rechecks will be made in view of “role sharing,” “cost management,” “time management” and “effects of improvement measures” (four checks) as an examination for identifying efficient and effective improvement measures.

(Result)

In FY2002, with the water quality conservation of Lake Biwa as an important influential water area in mind, an examination was made to identify the outline of stepwise improvement effects, comprehensively considering a water treatment upgrading plan in addition to the Urgent Improvement Plan.

1. Reduction of Pollutant Load Amounts

It was confirmed that if the installation of intercepting and flow-down type storage sewers, the upgrading of primary treatment (introduction of high velocity coagulating sedimentation equipment) and the upgrading of water treatment (efficiency enhancement of nitrogen removal by introduction of carrier, and introduction of sand filtration equipment) are performed stepwise, the improvement target levels of the respective urgent, medium-term and long-term stages would be able to be achieved.

2. Safe water

It was confirmed that if the intercepting and flow-down type storage sewer of Mt. Ohji-Otsu Route is installed in the urgent stage, the overflow frequency of untreated effluent will be halved. It was confirmed that if an intercepting and flow-down type storage sewer is installed also in Seiran-Zeze Route in the medium-term stage, further decrease of overflow frequency and overflow discharge can be expected. Meanwhile, for disinfection of

treated water, it is planned to introduce an ecosystem friendly method, and better water quality conservation of Lake Biwa at which effluents are discharged can be expected compared with the present chlorine disinfection.

3. Improvement of scenery

It was confirmed that if filter screens are installed in respective storm overflow chambers, the outflow of impurities will be decreased by 60 to 80%, to sufficiently contribute to the improvement of scenery.

4. Results of examination by the four checks

It was confirmed that intercepting and flow-down type storage sewers will play an important role for all the improvement target indicators. Meanwhile, it was confirmed that the upgrading of primary treatment is an efficient and effective improvement measure for the reduction of pollutant load amounts, that the ecosystem friendly disinfection is an efficient and effective improvement measure for safe water, and that the installation of filter screens is an efficient and effective improvement measure for the improvement of scenery.

5. Future plan

In FY2003, based on the investigation results of FY2002, the Urgent Improvement Plan and the water treatment upgrading plan will be separately discussed, and the effects achieved by implementing the Urgent Improvement Plan and the improvement target levels to be achieved will be compiled so that the outsiders can easily understand them. In addition, the relative function of the water treatment upgrading plan will also be clarified and finally compiled as a report.

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Keywords

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