

## Surveillance study on outflow analysis model

Whole term

2002.6 ~ 2003.6

### (Purpose)

Japan Institute of Wastewater Engineering Technology issued “Manual for Use/Utilization of Effluence Analysis Models” in 1999. The purpose of this manual is to promote the utilization of “Effluence Analysis Models” as a tool for understandably explaining the formulation of an effective and efficient storm drainage plan as well as the details and effects of inundation control work.

Thereafter, cases of utilizing the effluence analysis models increased, and the effluence analysis models tend to be used for devising and verifying not only inundation control measures but also combined sewerage improving measures. Further, the “Committee for Discussing Urban Flood Control Measures” established by the national government after the Tokai Heavy Rain performs effluence analyses in liaison with River Departments/Bureaus.

With this background, the manual has been revised to include the findings accumulated for 3 years after the initial issue for the purpose of widening the applicable range of the manual as a comprehensive evaluation tool for integrally analyzing both sewerage and rivers with an intention to control the urban flood damage frequently occurring in recent years.

### (Result)

#### (1) Effluence analysis models

As the effluence analysis models covered by the manual, the following three software products were selected for such reasons that they are generally commercially available and substantially used, that they can simultaneously analyze the phenomena of storm effluence from urban areas and the flow regimes in sewers in view of both water amount and water quality in time series, and that they can also integrally analyze both sewerage and rivers.

InfoWorks (Wallingford Software, United Kingdom)

MOUSE (DHI, Denmark)

XP-SWMM (XP Software, Australia)

#### (2) Applicable tasks

Evaluation on the capabilities of existing sewers, etc.: Effective utilization, extraction of problem portions, confirmation of the effects of diversion devices and manholes

Evaluation of a proposed combined sewerage improving facility: Analysis of pollution loads, confirmation of the effect of constructing a storm water retention reservoir, etc.

Evaluation of a new facility plan and confirmation of its effect: Renewal plan, effluence control facility, bypass sewer, increase of pumping stations, re-construction, etc.

Evaluation of diffused pollutant loads

Proposed tasks of inundation control measures: Internal water analysis, and integral inundation control measures for both the river in question and sewerage

Promotion of citizens' understanding on sewerage service: Making citizens aware of the anticipated inundation area map and the effects of constructing control facilities

#### (3) Contents of manual

Basic Course: Descriptions on the outlines and theories of models, data items and tasks

Investigation Course: Descriptions on the data types, investigation methods, etc. for respective tasks

Analysis Course: Descriptions on simulations, calibration method, modeling method, etc.

Application Course: Descriptions of applicable cases (cases are classified for respective tasks), etc.

Materials Course: Descriptions on calculation grounds and specifications for respective tasks, helpful for use of effluence analysis models

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Keywords

Outflow analysis mode, Sewer-river integration analysis, Volume of water, Water quality