

## Survey Research Concerning the Fukui City Public Sewage System Real Time Information Network Infrastructure Provision

Year of Research

2009

Promoting Flood Protection Measures

### (Purpose)

The Real-Time Information Network is a system to collect rainfall, water level, flow rate, rainwater pump operation and other related information and provide this information in real time. This project was intended to focus on districts where new measures are necessary as a result of the revision of emergency improvement plans for combined sewer systems and districts which have been struck frequently by floods in the past, to clarify how effectively the existing rainwater drainage systems handle localized intense rainfall to construct and to verify the infrastructure needed to study new measures based on a Real-Time Information Network.

### (Results)

#### (1) General classification of existing rainwater drainage systems

Outlines of the sewage trunk line, 3 pumping stations and 3 storage pipes were obtained. The research also classified the state of flood damage in and characteristics of the study districts based on information in past annual reports.

#### (2) Optimization of discharge analysis model data

The storage pipes were added to the model data and the ground surface was modeled to permit two-dimensional analysis using 2m mesh data. The results of calibration confirmed that it will be necessary to adjust the model data based on data obtained by measurements using flow meters, water level meters, etc. to be installed in the future.

#### (3) Construction of an online discharge analysis model

The model data was input to the online model and its operation confirmed. The rain gauges, water level meters, and flow meters already installed and those to be installed in the future were incorporated in the model as observation points. And they were incorporated in the model so it would be possible to monitor pumps to check if they had started or not and the water level in waters receiving final effluent, and their operation on the online model was confirmed.

#### (4) Verifying the provision of the real time information network infrastructure

It was confirmed that the modeled rain gauges, water level meters, and flow meters, etc. will operate in the system shown in Figure 1 for rainfall observed on March 15 and 16, 2010.

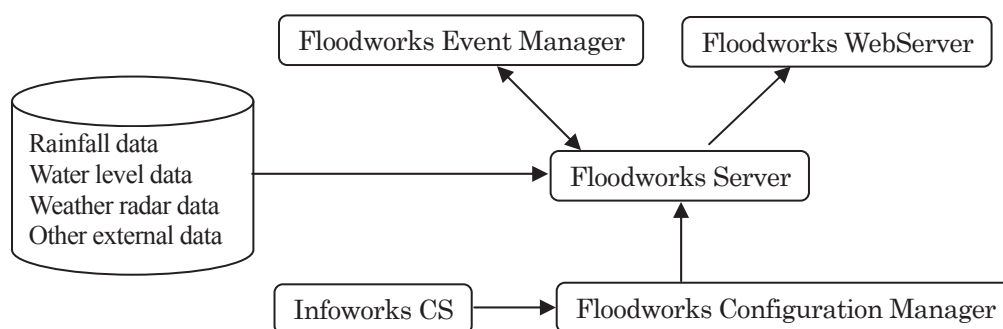


Figure 1. System Configuration

#### (5) Classification of system operation challenges and study of proposed countermeasures

The present state of the flood fighting system in Fukui City and flood fighting activities performed in other cities were classified, and in the future, challenges facing the operation of the system as a flood countermeasure and related matters which must be studied were classified.

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Contact: 2<sup>nd</sup> Research Department, Osamu Matsushima, Makoto Tanokura, Kyoji Yamazaki [03-5228-6598]

Key words

Common MP, discharge analysis model, turbidity analysis