

## Survey study on the decision of the overall rain water drainage plan

Whole term

2002.1 - 2002.3

### (Purpose)

The amount of rain water outflow increases by urbanization in recent years, and the problem of urban flood damage is frustrating especially in the big city. "The urgent proposal of measures for the urban flood damage" was announced on the basis of the great urban flood damage in the Toukai rain storm in 2000. Moreover, "the committee of measure of urban flood damage" was established for this proposal. This committee will clarify the water hazard scenario, etc. for examining the measure for urban flood damage. However, considering the change of river basin condition in recent years or rain storm damage in the urban area, if the facility plans of "sewerage", "river", and "river basin" are separated (such as the case that objects of external force are different), the flood damage may not be protected effectively. Therefore, in order to decrease flood damage to the minimum, it is necessary to develop the comprehensive measures flood which works with good coordination including software ones and hardware ones. After that, the author mainly targeted in the urban area where urban flood damage occurred frequently, and extracted the issue on the measure by the case study in the big city, etc. Based on the study, the author performed the research and discussion toward the decision of comprehensive plan of rain water drainage which had the objective of promotion of the efficient and effective flood damage mitigation measure in consideration of the coordination with the river project, etc. This plan used "the reasonable control of outflow form", "the promotion of the project for rain water storage and infiltration", and "the broad based rain water information system".

### (Result)

#### (1) Reasonable Control of the Outflow Form

The various generating cause of the urban flood damage can be considered in the current condition. Therefore, in the decision of broad based rain water drainage plan, the project examined the method of most reasonable control of the outflow such as the change of discharge zone by the bypass, the most advantageous main pipe line network and discharge position (the effective and efficient maintenance technique which would be proceed by enhancement of the coordination with persons concerned, such as unification and disuse of the outlets.), and the plan of required quantity of outflow control, based on "the water hazard scenario" which was proposed in the committee of measure for urban flood damage. The important results are shown as follows.

- ① The matching of the maintenance program of sewerage and river
- ② Outflow control (storage pipes, storage ponds, infiltration facilities)
- ③ The integration for evasion of distribution by bypass, etc.

#### (2) The Promotion of the Project for Rainwater Storage and Infiltration

The outflow control which has function of the rain water equalizing tank or the storage penetration facilities are one of the effective technique of the river basin measure. However, the problem is the cost such as the purchase of land.

Therefore the questionnaire was conducted to the local government about the problem for leaving the private sector (development) equalizing tanks, which each local government was guiding installation at the time of land development, after the river maintenance etc., and using them as the equalizing tanks. Furthermore, the following in results were recognized.

- ① Local governments were expecting the outflow control effect to the private sector equalizing tanks.
- ② Local governments were considering the effect of the private sector equalizing tanks as the increase of margin, but not as the sewer plan.
- ③ Local governments were having the financial problem and the transfer of management was not progressing.

#### (3) The Broad Based Rain Water Information System

The project arranged about the name recognition, the present use situation, and the future image of the rain water information system by the result of the questionnaire conducted in 13 cities.

### (Future tasks)

It is necessary to revise "the guide (proposal) of the comprehensive plan of the measure for urban city rain water" published in 1998 with the idea of reasonable outflow control in order to perform the rain water measures effectively and efficiently under the cooperation of Sewerage and Sewage Purification Department and River Department.

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Key words

The overall rain water drainage plan, Rain water storage and infiltration, Operation control of pumps, Rain water information system