

Survey study on the decision of measure for rain water in Nagaoka city

Whole term

1999.9 - 2001.3

(Purpose)

Because of frequent flood damage in recent years in Nagaoka city, it is recommended to promote the river improvement and reinforcement of the rain water drainage capability of sewerage in order to correspond to increase of the amount of rain water outflow by urbanization. In that case, a plan of the measure against city rain water was decided from 1999 fiscal year to 2000 fiscal year based on "the guide (proposal) of plan decision of a comprehensive city rain water measure against" which was executed in March, 1998 by Ministry of Land, Infrastructure and Transport. This plan was decided for Kaki River basin and Inaba River basin, which located in the right side of Sinano River and flood damages of these places are remarkable.

In this analysis, the author regarded the plan of the measure against city rain water in Nagaoka city as a case study of the plan decision which employed and researched "the guide (proposal)".

(Contents)

It is written that "To decide the program of city rain water, you should constitute the committee of measure against city rain water which consists of the department concerned, consider the situation of a program objective, perform a sufficient coordination and a sufficient adjustment among the person concerned." in "the guide (proposal)". Nagaoka city constituted "The committee of measure against rain water in Nagaoka city" which consists of academic experts and members of the River Department (Ministry of Construction, Niigata prefecture) and the Sewerage and Sewage Purification Department (Nagaoka city).

The author promoted "The committee for the discussion of measure against rain water in Nagaoka city" which would create the practical examination data. Moreover, the employment of "the guide (proposal)" was researched.

1. Present Condition of Nagaoka City Rain Water

(1) The Plan of Kaki River

Although the river improvement is currently in progress by the local improvement section (half year probability) in Kaki River, it is difficult to improve the river earlier because of the current status of urban area on Kaki River Basin.

(2) The Plan of Inaba River

The safety level against the flood of the Inaba River is low (below the half year probability), and flood damage area is expanding by rapid urbanization. Currently, there are some areas which are not covered with sewerage system and it is necessary to correspond to the expansion of the rain water outflow area by review of the plan.

(3) The Plan of Sewerage Project

It is planned to improve the maintenance probability year of the combined sewer coverage area from 1/3 (present status) to 1/7 (comparable to the separated sewer coverage area), and to improve the coefficient of discharge from 0.50-0.60 to 0.60-0.80 to adjust the current condition.

2. Outline of Proposed Measures

(1) The measure against Kaki River

- The safety level against the flood will be set 1/50 probability year (provisional 1/10), river will be improved to the minimum, and two drainage pipes will be set up for the section which doesn't have enough capability of flowing out.
- The sewerage facilities (a storage pipe etc.) will be planned according to the condition of construction of drainage pipes.

(2) The measure against Inaba River

- The safety level against the flood will be set 1/100 probability year (provisional 1/10) for the river basin of mountainous area, river improvement will be carried out by 1/10 probability year to receive the amount of outflows from the sewer plan for the time being, diversion channels will be built in parallel with a river after that.
- Sewer plans will be reexamined such as changing of outlet positions.

3. Employment of "Guide (Proposal)"

- Constitution of "The committee of measure against rain water" is effective for adjustment among different Departments.
- In this examination, the author decided the proposed measure in such order, first was the definition of safety level against the flood, second was designing of final overall plan, third was matching with the sewer plan, and fourth was provisional correspondence, however additional adjustment is needed for the concrete enforcement.

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Key words

City rain measures plan, City rain water measures conference, Flood control safety