## Research about sophistication of design method of high rate flow channel facility

## [Point]

Civil engineering structure dimension of pump suction section is a significant factor for determining the scale of the entire drainage facilities that prevent flood in lowland. It is possible to reduce the scale of facility by increasing the flow rate in this section, and reduction in facility construction cost and capacity improvement of the existing drainage facilities are expected.

In this study, forms and dimensions of the standard high rate flow channel facility were indicated, upon recognizing hydraulic characteristic of pump suction section by model test as well as computer simulation.

Based on the outcome of this study, dimension and water depth of water absorption tank, in which whirlpool did not occur even though flow rate inside a water absorption tank was faster at about 30% than the traditional flow rate, was regulated in a drainage pump facility with a single drainage capacity of 10m3/s. It was reflected on drainage pump facility design manual (proposal) that was issued in January 2001. Furthermore, at the time of designing and planning water absorption tank, model test method of pump water absorption tank, in which whirlpool could be preliminary verified for its existence and countermeasure for whirlpool could be implemented, was summarized as "Pump water absorption tank test project manual (proposal)."

Keywords: drainage pump facility, cost reduction, suction tank, model test, CFD