

Water Resources Management Challenge in the Citarum River Basin, Indonesia

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Abstract

The Citarum River Basin is the biggest river basin in West Java Province, Indonesia and it plays strategic roles in providing water for irrigation, domestic and industrial uses, and power generation, besides controlling the flood during rainy season. Flowing through seven major cities makes the river flow and water demand are vulnerable to land use change around the river. The present water resources management has involved the regulator, operator, and users in deciding an appropriate water management plan for the entire basin. The plan includes an operation plan for three reservoirs, construction or maintenance of the river channel, and water allocation for all users along the river. Following this plan, a smaller operation group will execute and evaluates the plan based on the actual flow condition. Recently, a deforestation, environment degradation, river sedimentation, a rapid growth of population and industry, also public health become new issues that should be considered in water basin planning. Facing these arising issues, a new development program named ICWRMIP was established to advance the existing management system. This program includes actions to strengthen institutional collaboration, do the restoration and conservation of the river environment, improve water quality and public health, also advance the water allocation system.

At present, the water allocation plan is created annually based on a forecasted flow data and water usage prediction report. Sometimes this method causes a difficulty for the operator when the actual flow condition is not the same as the prediction. Improving existing system, a lot of water allocation studies, including a development of the database and water allocation simulation model have been placed to help stakeholders decide the suitable planning schemes. In the future, this study also tries to contribute in advancing water allocation planning by creating an optimization model which ease stakeholders discover a suitable water allocation plan for individual users.

Keywords: Citarum River Basin, Water allocation, Optimization model

Acknowledgement :

This study was supported by a grant from 2015 International Hydrological Programme (IHP) funded by the Ministry of Land, Infrastructure, and Transport of Korean government.

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