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A NEW CONCEPTUAL SUSTAINABLE WATER RESOURCES RESEARCH

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ABSTRACT

A paradigm about the water resources management is changing the operation management to the nation water security. At this stage, the sustainable water resources are a matter of great interest. There are many methods to secure the water resources. Among others, constructing a dam is direct and active**.** In the Korea, however, the dam construction is more and more difficult because of the decrease of a suitable location, the opposition of community Residents and environment group and negative public opinion. Therefore, a new conceptual Multipurpose Regulating Dam is suggested in the present paper. The Multipurpose Regulating Dam can provide securing water resources, flood control, hydroelectric power, eco-environmental in stream flow and recreation as well as the use of function of existing dam. The Multipurpose Regulating Dam saves the construction and compensation costs due to the use of conventional river channel, and has an advantage economically. Also, it will improve negative eyes from the local residents. The research sequence introduces basic concepts for the Multipurpose Regulating Dam construction, and the propriety Evaluation, the decision of dam type and the verification of operation rule are approached sequentially. The verification is applied to Yeong Cheon Dam (water supply only) in the Korea. The appropriate operation scenario is selected after establishing the various scenarios by HEC-Ressim modeling. The results show securing water resources of 14 million ton and the flood control of 15.4 million ton in comparison with solo operation of existing dam. If the current research is advanced and continuous, it will be a good alternative as new water management method.

KEYWORDS: Eco-Environmental in stream Flow, Flood Control, Hydroelectric Power, Multipurpose Regulating Dam, Water Resources