THE COMPARISON STUDY
FOR THE MODELS OF RESERVOIR RELEASE RULE FOR IRRIGATION.
CASE STUDY: SUTAMI RESERVOIR

Abstract

Three models of release rule for operating a large reservoir for irrigation water supply are discussed in this paper. The models are a 50-grid storage continuous line restricted release rule, a single rule curve release rule, and a multi 4 rule curves release rule. These three models are to be optimized by stochastic simulation using 30 year inflow data with the maximization of the average monetary annual production in the irrigation area as the objective function. The purpose of this study is to look for the proper release rule for operating the Sutami Reservoir. The optimization is done first by the random search stochastic simulation model to generate a number of alternative solutions. Using these solutions as a generation of solutions, the genetic algorithm model is the applied to improve the solution. Afterward the best of solutions are checked by the Add-Ins Solver of MS-Excel 2010 to see if they can still be improved further. The results show that the 4 rule curves model gives the best solution with the average monetary annual production in the irrigation area of USD 72.248 million.

Key words: release, reservoir, rule, simulation, stochastic