

Abstract

Sluice gates are a man-made hydrology structure which controls the discharge or the depth of an open channel flow such as river flow. Indonesia has many sluice gates installed on many rivers. Operating the sluice gates could be troublesome since the discharge of the rivers in Indonesia always fluctuate over the year because of the seasons. Therefore, this final project analyse the behaviour of river flow and sluice gates effects in a steady state condition with a model based on Saint-Venant equations. The model is approached numerically using Standard Step method. The analysis results in several surface profile for different cases, and lowering sluice gates will produce a backwater. The minimum sluice gate opening of Manggarai gate on Ciliwung river has been obtained by the model for several flow discharge simulations.

Keywords: sluice gate, open channel flow, river, Saint-Venant equations, steady state, Standard Step method.