Abstract

Flood is a natural disaster that causes Annual losses of lives and property leaving. One of the most common methods of flood control or Increase in maximum flow rate of rivers is using Levee. Sistan and Baluchistan province is the fifth province of Prone to flooding. Sistan River is the main source of vital in north of province, and Due to being located in a flat plain is always the risk of flooding. In this paper the mathematical model HEC-RAS was used to organize the Sistan River. Hence Using cross-sectional data from surveys and topographic data In ARCGIS environmental, geometric plan was prepared. Then The data was transfered to the HEC-RAS model and first Model calibration was performed and then Simulation of flood return periods of 10, 25, 50 and 100 years were done. The results show that the rivers in terms of discharge 810 cubic meters per second has to be passed While flood discharge with return period of 10 years is equivalent to 846 cms. The definition of these two scenarios using different flood elevation, increase the maximum flow rate was studied. In the first scenario, the average Levee height of 1 m was simulated by HEC-RAS model. The results show that The river crossing can be increased to 1318.65 cms which is equivalent to a return period of 37 years. In the second scenario, the average Levee height of 1 m was simulated by HEC-RAS model. The results show that The river crossing can be increased to 1700 cms which is equivalent to a return period of 107 years. Due to the slope of the river bottom, using levee is essential.

Keywords: Sistan River, Flood control, ArcGIS, HEC-RAS model, Levee

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Effectiveness of levee height on peak passing flood of Sistan river using HEC-RAS

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