

Abstract

The inherent limitations of water resources, population growth, droughts, and the devastating effects of human activity on the environment are all causing serious challenges in utilizing freshwater resources. Construction of dams and reservoirs is one of the solutions used to store surface water. Situated below the Hirmand River, the Sistan River is a seasonal river that plays a vital role in the survival of the Sistan Plain. Dewatering tanks Chahnimeh the significant dependence of the river for drinking, agriculture and the environment is sent to Sistan River. Therefore, increasing the amount of dewatering and water storage of this river is essential for exploitation in times of drought. In this study, the HEC-RAS model in order to perform hydraulic calculations for modeling the increased dewatering tanks Chahnimeh one-dimensional channels through a feeder and feeder was used. After calibration and hydraulic validation of the flow, simulations were performed in 5 scenarios. The results of this study showed that if feeder channels are operated separately, feeder channel 1 will pass about 97% of river average flow and 34% of river flood flow. And feeder channel 2 carries about 100% of the average river flow and about 61% of the river flood. When, If operated simultaneously, the No. 1 canal accounts for about 97% of the average river flow and 29% of the river flood flow. No. 2 channel receives approximately 2/7% of the river average flow and about 48/79% of the river flood flow. Pass by. The results also showed that by modifying the floor width of channel No. 1 to 60 m it can increase the river capacity up to 56%. Based on research findings, being Chahnimeh water level at its maximum nutritional channel inflow, water level in the No. 1 position with respect to time, but does not adversely change its minimum flows downstream decline in channel capacity (2) Is found and does not change during floods.

Keywords: Hydraulic Modeling, HEC-RAS, Chahnimeh Reservoirs, Sistan River



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Feeder 1 and Feeder 2 Canals Using HEC-RAS Model*

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