Abstract

Limitations of renewable water resources and increasing water demand for different purposes, have been increased the importance and sensitivity of water resources management. It will be more sensitive, especially in dry periods. The experience of different countries in water resources management shows that management on water resources will greatly moderate limitations and problems caused by the shortage of water resources. Different models exist for water resources optimum planning and management of water resources at the basin scales. Among them, MODSIM model was selected for studying the methodology of research due to it's preference in water management modeling approach at river basin and considering prioritize different rules of water allocation. The main objective of this study is and simulation and evaluation of agricultural water needs of Dehgolan plain located in Kurdistan province in different weather conditions (wet, drought and normal). Also in order to assess the impact of Sangsiah and Soral dams to supply demands of current and suggested cropping pattern, scenarios were added to the model in both cases i.e., before and after the operation of the dams. For further verification of the model, the modeled flow from the branch of the river Talvar was compared with the actual values of Hassankhan station. The result of this comparison showed good correlation (87%) between the simulated data and actual values. State of the system reliability at drought conditions for demands of Soral and Sangsiah dams zone is respectively 75% and 71%, that this value after operation of dams and implementation of suggested cropping pattern and increasing area under cultivation is reached respectively (100%, 85.7%).

Key words: Dehgolan Basin, Dry perids, limitations of water resources, Talvar River, MODSIM, Water Resources Management.

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Simulation and evaluation of Talvar river basin using MODSIM model (case study: Dehgolan Basin)

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