



University of Zabol  
Graduate school  
Faculty of Engineering  
Department of Civil Engineering

**The Thesis Submitted for the Degree of M. Sc (in the field of Civil  
Engineering- Water Engineering)**

**Determining an Effective Calibration Method for  
Estimating Runoff Using SWAT (Case Study: Karkheh  
Basin)**

**Supervisor:**  
Dr. Hasan Derakhshan

**By:**  
Navid Rostami

2021

## **Abstract**

Zabol city as one of the arid regions of the country in recent decades has faced a shortage of water resources. Paying attention to the optimal management of water in this city is necessary to solve the problems caused by the scarcity of water resources as well as the successive droughts (which have contributed to this problem). The aim of this study is to identify and prioritize the factors affecting the water resources management in Zabol city using the SWOT-AHP combined model. The research is a case study and descriptive-survey in which 26 factors were identified in the descriptive stage using library resources and in the survey stage using the opinions of 64 experts of Zabol Water, Sewerage and Environment Department. These factors are in 4 groups of threats (5 cases), opportunities (6 cases), strengths (7 cases) and weaknesses (8 cases) were categorized. Hierarchical technique (using Expert Choice 11 software) was used to prioritize these factors that drought with a score of 0.459 (the most important threat); Industrial advances in agriculture with a score of 0.398 (the most important opportunity); Application of modern irrigation methods in some areas with a score of 0.314 (the most important strength) and non-compliance with the cultivation pattern by farmers with a score of 0.290 (the most important weakness) were identified. According to the final score of internal and external factors evaluation matrices (2.508 and 2.363), the current status of water resources management in Zabol city is in a competitive house (ST).

**Keywords:** Water Resources Management, Zabol City, AHP, SWOT Matrix.