



**University of Zabol**  
Graduate School  
Faculty of Literature and Human Science  
Department of Geography  
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for the degree of Master of Science (MSc)

**Title**

**Environmental analysis of water and wastewater in Zabol city**

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## **Abstract**

Unbridled urban development in recent decades has affected various aspects of social, economic, cultural, political and human life. Characteristics of Communities New urban settlements have led to the instability of human societies and the living environment. The problem that urban planners face today is how to implement sustainable urban policies and implement their manifestations in cities. In the meantime, the issue of water and wastewater has always been an important concept for humankind. Wastewater environmental problems can create heavy and irreparable costs for cities, making it impossible to live in urban settlements. Therefore, the purpose of this study is Environmental analysis of water and wastewater in Zabol city. The present study is applied in terms of purpose and descriptive-analytical in nature and method. For data analysis, descriptive and inferential SPSS and Arc GIS software and combined with (models, AHP, SAW ANP and fuzzy environment), Delphi method, FARAS model and Shannon entropy method have been used. The statistical population of the present study was the head of household living in Zabol city (35280 people), which was determined using Cochran's formula (350 people). The results of FARAS model showed that among the most important environmental damage caused by improper wastewater disposal, the prevalence of infectious disease by weight (0.411), and the most important economic damage caused by improper wastewater disposal, economic damage by weight (0.392). Also, the results of Shannon entropy method to study and present appropriate and scientific solutions with the principles of urban planning to get out of improper disposal of wastewater in Zabol showed that the solution of establishing a wastewater treatment plant in Zabol is the most important solution. Finally, the results of the study of the most important geographical part of Zabol city, which suffered the most damage from improper wastewater disposal using Arc GIS software and combined with (models, AHP, SAW ANP and fuzzy environment), showed: The site of the current refinery plant is in poor condition and it has caused a lot of damage and problems for the southwestern part of Zabol city. The results show that the western part (from Imam Hossein Square to the terminal) has suffered the most from improper wastewater disposal in Zabol.

**Keywords:** Environmental analysis, Wastewater, Physical growth, Zabol city