



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

**Investigation of environmental consequences of water supply
sources in Zabol city using satellite images (۲۰۲۰-۲۰۲۲)**

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Abstract

Over the past few decades, the increase in the population of cities has caused a change in land use and negative consequences on the urban environment, such as (increasing the temperature of the environment, reducing the quality of urban water (underground and surface), reducing vegetation and losing agricultural land). Therefore, the aim of the current research is to Investigate environmental consequences of water supply sources in Zabol city using satellite images (۲۰۰۰-۲۰۲۰). This research is in terms of purpose (applied), in terms of nature and method (descriptive-analytical). For this purpose, the time period (۲۰۰۰-۲۰۲۰) and the city of Zabol were chosen as the study area. In this research, in order to analyze the indices (NDVI) to estimate vegetation, (LST) to estimate land surface temperature, (SST) to estimate water surface temperature, (OC₂ and OC₃ algorithm) to estimate water surface chlorophyll and from the test A single sample is used to evaluate the indicators. The results showed that the vegetation cover has decreased from ۲۰۰۰ to ۲۰۲۰, and this decrease was more noticeable in the areas near the city. The amount of vegetation reduction during this time series was approximately ۰۰۰ hectares. The temperature of the earth's surface in the studied time series has been increasing at the same time as the vegetation cover has decreased. This increase in temperature has been more in areas where vegetation has decreased. Also, the results showed that changes in the salinity of the underground water were an increasing trend and the pH of the water was a decreasing trend towards acidification. Finally, the results for measuring and evaluating the environmental effects of Zabol city showed that the indices of surface water with an average of ۳,۹۰, planting of plant species with an average of ۳,۸۸, pH the highest average and topographic change index the lowest average, respectively, are assigned to themselves.

Keywords: Environmental Impacts, Water Supply Sources, Satellite Images, Sustainability, Zabol City