



Quantification Analysis of Surface Water Bodies in Different Time Series Using Geo-Spatial Techniques

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Abstract

In world view countries are developed with all the inventions and scientific technologies even though lagging with the unpredictable climatic changes and natural disasters. The main objective of this paper is to quantify the extracted surface water bodies for different time series in the Adyar watershed using the geospatial techniques and calculate the area of surface water bodies individually. The major causes which are influenced for the changes over the water bodies are analyzed into two different categories such as 1. Natural Factors & 2. Anthropogenic Factors in detail. Using the traditional method the manual toposheet digitization and the remote sensing datasets are downloaded for the following years 1990, 2000, 2010 & 2020. Using the preprocessed datasets the indices maps are derived for the analysis and the accuracy assessment are evaluated. Due to the impacts of the major causes of factors the three different problems raised to the waterbodies which are 1. Water bodies are reduced its quantity, 2. Water bodies are contaminated and not in use, 3. Water bodies are encroached and lavished in the region. As the result of rapid urbanization in the watershed, the eastern part of the coastal region had made the drastic changes in the waterbodies, and many lakes are encroached and disappeared due to different factors and both of the adjacent sides of the water bodies are occupied which are founded for the different time series is caused the ecological and environmental disturbances. it may lead to natural disasters such as flood and drought in the region. The suggestion of this study is to implement the planning for sustainable development of water usage is highly recommended for conserving the waterbodies and maintain the socio-ecological balance in the region. This study is helpful for the researchers and students for pursuing the waterbody analysis, disaster management and sustainable development.

Keywords: Waterbody Extraction, Quantification Analysis, Accuracy Assessment, Time series Analysis.