頭前溪流域土地利用對水質變化影響之研究

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摘要

Taiwan's rivers due to economic development, land development and other factors, have increasingly serious water pollution and ecological environment problems. With the rapid development of Hsinchu Science-based Industrial Park and increasing domestic and industrial water consumption, only rational exploitation and utilization of water resources within environment tolerance limits for Hsinchu river basin should be allowed. Furthermore, in the past the research literatures lack the study of impact of land use to water quality. How to balance river water quality and reasonable development and utilization of river basin resources will be an important issue in the future.

This study is aimed at Hsinchu Toucian River area, and uses the statistics of ten different periods of time from 1999 to 2008 that contain the land use patterns and historical changes in water quality monitoring data, and identifies the variables to affect water quality, and employs regression model to test the main factors to affect water quality, and investigates the relationship between Toucian River land use patterns and water quality to understand how land use patterns impact water quality. The study results contain seasonal data that belong to dry season (October to March in the following year) and the wet season (April to September). Significant responses of land use on water quality in dry season occur in Ruichang Bridge, Chudong Bridge, Chulin Bridge and Sijhou Bridge. The impact is mainly on agricultural use, commercial use and residential use; in wet season increasing rainfall due to typhoons results in high river water level, increasing assimilative capacity, and land use does not have significant impact on water quality in this period of time. The data obtained from the study can be used as references to future plans on river areas, environmental resource conservation, land use and peripheral development.

關鍵字：Toucian River, land use, water quality, regression model