

Assessment of the Impacts of Climate and Land Use/Land Cover Changes on Water Runoff in Ca River Basin in Vietnam.

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- **Abstract:** In recent years, rapid socio-economic development and human behaviors have led to significant changes in land cover in Ca river basin, Vietnam. Coverage changes breakdown inflows and water levels of rivers and streams, affecting hydrological factors and water resources. In addition, impacts of climate change has been increasingly evident, causing negative changes in precipitation and temperature. These problems greatly affect the water resources of the North Central region in general and the Ca river basin in particular. Therefore, this study aims to assess the simultaneous impact of land cover and climate change on the water resources of the Ca river basin. The impacts were assessed quantitatively using the future climate and land cover scenarios. These scenarios are included in the simulation with the SWAT model, which has been calibrated and tested suitable for the Ca river basin, reaching 0.73-0.85 and 0.87-0.95 with Nash - Sutcliffe (NSE) and R², respectively. Simulation results show that in the Ca river basin during the rainy season, there is an increase in flood flow, and a decrease in flow in the dry season, making the flood situation in the downstream area are prone to more serious and make salinity penetrate deeper into the river in the dry season.
- **Keywords:** Rapid socio-economic development, hydrological factors and water resources, North Central region, SWAT model