

# Researchers estimate possible scenarios for ecological services in Three-River-Source region

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The condition of the ecosystem in the Three-River-Source region affects the basins of the Yellow River, the Yangtze River and the Lancang

(Mekong) River.

A research team at the Institute of Geographic Sciences and Natural Resources Research of the Chinese Academy of Sciences estimated the likely situation in the future for ecological services in the Three-River-Source region. The study was published in the *Journal of Resources and Ecology*.

The researchers used a combination of land use change simulation models, [climate models](#) and ecosystem service assessment models to identify possible future scenarios.

They simulated possible states of water yields and [soil erosion](#) in the future, and revealed the effects of different land use developments and [global climate change](#) on water yields and soil erosion.

Most previous studies have focused on the analysis of one or several specific ecological services. The current study is broadly based on the characteristics of the study area, historical trends in changing land use and [climate change](#) trends.

Based on the Future Land Use Simulation (FLUS) model, as well as the output data and downscaling correction method of Community Climate System Model v4.0 (CCSM4), the researchers designed future scenarios for land use and climate change. Then they used the Integrated Valuation of Ecosystem Services and Tradeoffs Tool Model to develop scenario simulations of ecosystem water yields and soil erosion in the region.

The study found that under different land use/cover development scenarios, grassland remained the dominant land use/cover type in the Three-River-Source region.

Water yields and soil erosion in the Three-River-Source region increased

with the increase in precipitation and decreased with the decrease in precipitation. Climate change played a leading role in changes of water yields and soil erosion.

The research also showed that a comprehensive regional [land use](#) development strategy must consider issues such as regional development, the impact of returning farmland to forest and grassland, as well as the influence of the ecological benefits that result from such efforts.

**More information:** Gao Min et al. Evaluation of Water Yield and Soil Erosion in the Three-River-Source Region under Different Land-Climate Scenarios, *Journal of Resources and Ecology* (2020). [DOI: 10.5814/j.issn.1674-764x.2020.01.002](#)

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