The German-Chinese research collaboration YANGTZE-GEO: Assessing the geo-risks in the Three Gorges Reservoir area

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The river impoundment by The Three Gorges Dam leads to resettlement and land reclamation on steep slopes. As a consequence, ecosystem changes such as soil erosion, mass movements, and diffuse sediment and matter fluxes are widely expected to increase rapidly.

In order to assess and analyse those ecosystem changes, the German-Chinese joint research project YANGTZE-GEO was set up in 2008. Within the framework of YANGTZE-GEO five German universities (Tuebingen, Erlangen, Giessen, Kiel, Potsdam) conducted studies on soil erosion, mass movements, diffuse matter inputs, and land use change and vulnerability in close collaboration with Chinese scientists. The Chinese partners and institutions are according to their alphabetic order of hometown the Chinese Research Academy of Environmental Sciences (CRAES; Beijing), the Standing Office of the State Council Three Gorges Project Construction Committee (Beijing), the National Climate Centre (NCC) of the China Meteorological Administration (CMA; Beijing), the Aero Geophysical Survey and Remote Sensing for Land and Resources (AES; Beijing), the Nanjing University, the CAS Institute of Soil Science (Nanjing), the Nanjing Institute of Geography and Limnology at CAS (NIGLAS; Nanjing), the China University of Geosciences (CUG; Wuhan), the CAS Institute of Hydrobiology (Wuhan), and the China Three Gorges University (Yichang).

The overall aim of YANGTZE-GEO is the development of a risk assessment and forecasting system to locate high risk areas using GIS-based erosion modelling, data mining tools for terrace condition analysis and landslide recognition, eco-hydrological modelling for diffuse matter inputs, and state-of-the-art remote sensing to assess the landscape's vulnerability. Furthermore, the project aims at the recommendation of sustainable land management systems.

YANGTZE-GEO showed the relevance of such research and crucially contributes to the understanding of the dimension and dynamics of the ecological consequences of large dam projects.