

## **Impact of the Ertan Reservoir on reduction in sediment load in lower Jinsha River, China**

**XINBAO ZHANG<sup>1</sup>, D. L. HIGGITT<sup>2</sup>, QIANG TANG<sup>1,3</sup>, YI LONG<sup>1</sup>, XIUBIN HE<sup>1</sup> & ANBANG WEN<sup>1</sup>**

*1 Key Laboratory of Mountain Surface Processes and Ecological Regulation, Institute of Mountain Hazards and Environment, Chinese Academy of Sciences, Chengdu 610041, China*

[zxbao@imde.ac.cn](mailto:zxbao@imde.ac.cn)

*2 Department of Geography, National University of Singapore, 118670 Singapore*

*3 University of Chinese Academy of Sciences, Beijing 100049, China*

**Abstract** The potential effect of dam construction on fluvial hydrological processes related to changes in streamflow discharge and sediment load has been widely understood. However, the underlying mechanism may not be homogeneous, depending on storage capacity, operation mode and catchment geographic features. Gauging evidence demonstrates that sediment load in the lower Jinsha River has been reduced considerably since 1998 when impoundment of the Ertan Reservoir commenced. However, the observed sediment reduction is much greater than the sediment load discharged into the reservoir. The present paper discovered that reduction of in-stream sediment transportation capacity during major flood events resulting from water impoundment played an important role in riverine sediment regulation, in addition to the well-documented sediment trapping effect.

**Key words** sediment yield; dam construction; sediment transport capacity; trapping effect; Ertan Reservoir; Jinsha River