



## **Role of landslides in sediment connectivity on the Loess Plateau, China**

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A landslide represents an important process for landscape evolution and an important sediment source within watersheds on the Loess Plateau of China. It also produces sizeable economic losses. Here, a statistical analysis together with a field investigation was carried out on the Loess Plateau of China to address the challenges. Landslide is widespread in the study area and greatly impacts on the geomorphic evolution followed by vegetation deterioration and ecological damages. On the relatively steep slope, landslides in association with gullies formed gully-landslide complexes, which represented the main kind of geo-environmental degradation in the area. Sediment discharge from landslides accounted for a considerable proportion of the total soil loss in the upper and middle reaches of the Yellow River. In some catchments of the Loess Plateau, landslides contributed over 50% of the total sediment discharge. The study also tracks landslide-related deaths and collects knowledge about this natural hazard. Since the 1980s, 53 fatal landslides have occurred, causing 717 deaths. As the most important trigger, rainfall induced 40% of the catastrophic landslides, while other factors, i.e. human activities, freeze-thaw and earthquake, accounted for 36, 23 and 1%, respectively. Furthermore, landslide frequency and death toll related to human activities were increasing as time went on. The result shows landslide is a widespread geologic hazard and plays an important role in sediment connectivity on the Loess Plateau, China