

Introduction to large landslide dams and outburst disasters

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Large landslides or debris flows caused by heavy rainfall or earthquakes, volcanic activities, often blocked mountainous rivers to form landslide dams. The area upstream of the dam is submerged under water and the downstream area is flooded when the landslide dam breaks. In a survey of past sediment floods in the downstream areas of rivers and alluvial fans caused by a major collapse or by other sediment yielding in the upstream area, it was found that many of those floods were triggered by the bursting of the landslide dams. However, to date, sediment control plans have focused only on collapse and landslides in the upstream area, on the contrary ignoring the formation and bursting of landslide dams. To properly elucidate on sediment related disasters, it is impossible to ignore the formation and bursting phenomena of landslide dams. After Niigata Chuetsu Earthquake in 2004 and Iwate Miyagi inland earthquake in 2008, countermeasures of landslide dams carried out

As many as 19 landslide dams have formed in the last 500 years in the northern region of Nagano Prefecture in central Japan, and all except three have broken. Seven were formed when the Zenkoji Earthquake occurred in 1847. This abundance of landslide dams is probably caused by the geotectonic background of this area, which is located at the western end of a major tectonic line called Fossa Magna.