

Gunsakot landslide, a gigantic dormant landslide found in central Nepal Himalayas

*Hiroshi YAGI¹, Yuki Matsushi²

1. Faculty of Art, Science and Education, Yamagata University, 2. Disaster Prevention Research Institute, Kyoto University

Dormant landslides of deep-seated type are densely distributed in the topographic transitional zone from the Midland to the Great Himalaya in the upper course of Sun Kosi watershed. Dormant landslides of the deep-seated type are distributed in an area below 3,500m a.s.l., because the mountain slope higher than that was presumably eroded away by valley glacier in the former Ice Age. As to geology, they are predominantly distributed in geological areas of phyllite & augen gneiss areas, considering both landslide area ratio and the number of the landslide site. Most of large landslides are sliding down to northwest, reflecting the geological structure that declines to northwest due to activity of MCT. Consequently, landslides of deep-seated type are also prone to develop on dip-slope in this area. And landslides usually occur easier on dip slope than on anti-dip slope under same geological condition.

Area per site becomes larger in the area of augen gneiss. One of the author found a gigantic landslide at Gunsakot locating in the upper course of Indrawati River, Sun Koi watershed in the process of inventory mapping based on aerial photo interpretation. Planar scale of the landslide is almost 10km² including source and depositional areas and its volume is estimated to be 1.25 km³ in the source area. Equivalent coefficient of friction, H/L, is 0.238, that is equal to 13.43 degree.

Gravitational deformation also has proceeded in the augen gneiss area, forming multiple ridges widely along the top ridge and uphill facing scarplets and linear depressions on its surrounding slope in southern part of Gunsakot. This implies more mega-scale landslide will occur in future.

Depositional area of detritus with the thickness of 300m more is 3.38 km² remained on the left bank of Indrawati river. Detritus-flow mounds are distributed in the area. Rock masses with long axis of 5 - 10m are scattered on the mounds.

The authors got samples from the rock masses for ¹⁰Be dating to clarify the age of the gigantic landslide. Dating is now under processing.

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