



# Stability Causes of Ab-Ask landslide dam in Haraz river

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## Abstract

So far so many landslide dams have developed along the steep slopes of Haraz valley, and the failure of some of them have claimed many lives and caused huge damages. Damavand eruption, the event of huge earthquakes and rapid snow-melting, are the most important causes of landslide dam development.

In 1999, along with rapid snow-melting in May, Ab-Ask landslide took place in the south of Damavand volcano. This landslide berried Pashang village, destroyed 450 m of Tehran-Amol main road and blocked Haraz river. This landslide dam is 20 m above the river level and its lake is at most of 700 m length, 300m width and 15m depth. Just like rapid-rock slide, this landslide occurred in the beddings of early Jurassic shale, sandstone and coals. The surface of the rupture formed along the bedding plane. Immediately after the main landslide and river's blockage there was a rock avalanche when a huge mass of big Travertine rocks fell on the northern part of the landslide. These boulders are haphazardly placed in the mud from the landslide and this has turned the northern landslide mass to be strongly firm. Following the landslide dam being filled, water overflow from the northern part of the landslide mass. Presence of Travertine boulders in this part has prevented the landslide dam from erosion during the past 17 years. The flow of Haraz river's overtopping water over the Ab-Ask landslide mass and water seepage through different parts have all created a dangerous situation. Nevertheless, Ab-Ask landslide dam's resistance in such hard a situation has made for a uniquely gorgeous instance of landslide dams.

**Keywords:** Landslide dam, Rock slide, Geomorphometric parameters, Ab-Ask landslide, Haraz river.