

Debris flow, sediment and vegetation distribution

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In the recent 10 years debris flow activity in the Gudbrandsdalen valley has increased. The valley sides are characterised by ravines that concentrate surface and ground water. It exists historical records for debris flow for more than 200 years and geological evidence for more than 4000 years. The main triggering factor is precipitation, but also sediment distribution and vegetation plays important factors for size and occurrence of debris flow. Forest reduce infiltration and affects the unsaturated zone and ground water level prior to a precipitation event. In areas with clear-cut, the number and size of debris flow seems to increase compared to forested areas. Examine concentration of water by forest roads and ravines, a study indicate that the majority of the debris flow in slopes less than 30 degrees are caused by the clear cut itself. In steeper terrain, the forest seems to have less influence on debris flow activity.

In forested areas with minor ravines, debris transport occurs, but is often stopped or reduced by the trees so that the size and runout distance are reduced.

The sediments are mainly till, but glaciolacustrine sediments also influence the volume, runout distance and deposits of the debris. The runout distance is usually in the valley bottom where fans are created. The same area are of influenced by river flooding and fluvial sediments may cover or remove historical evidence.