

Local and regional landslide hazard assessment on the Swabian Alb, Germany

R. Bell and T. Glade

Dep. of Geography, University of Bonn, Germany (rainer@giub.uni-bonn.de/+49-228-739099)

The Cuesta landscape of the Swabian Alb is very prone to landsliding, mainly due to Jurassic limestone bands overlaying marls and clays. The largest landslides are supposed to be either of Pleistocene or Holocene age. However, in 1983 the Mössingen landslide involving 6 Mio. m³ demonstrated the continuing threat to the society of such large landslide events even today. Altogether the occurrence of further three events of similar magnitude are recorded in the last 200 years. This reveals that these events should not be neglected in hazard assessments, despite the lower return period.

This study aims to investigate landslide hazards at both local and regional scale. At local scale drillings, penetration tests, sampling (incl. laboratory analytical analysis), geophysical investigations, detailed mapping, inclinometer measures, tachymetric measurements of control points and deterministic slope stability modelling are applied. At regional scale different approaches will be used to calculate landslide hazard. Landslide inventories are essential to carry out such assessments reliably. Thus, a predominant project aim is to improve and extend the already existing spatial and temporal landslide database.

Preliminary results show that slopes in the local study areas are periodically moving and thus, posing serious threats to the communities. At regional scale various quality checks of the landslide database demonstrate the urgent need to improve and extend the database. Very promising are the first analysis results of a high resolution DTM to delineate and map landslides. Initial multiple regression analyses show the extent of the landsliding problem in the Swabian Alb.

This study contributes to the project Integrative landslide risk analysis and risk evaluation in the Swabian Alb, Germany funded by the German Science Foundation. Based on more detailed hazard assessments landslide risk will be calculated. In exchange

with the other subprojects run by sociologists, economists and historians, sustainable and integrative risk management strategies will be developed to reduce landslide risk.