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The potential of road construction department archives for the establishment of landslide inventories

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Landslides cause enormous economic damage and fatalities worldwide. Landslide hazard and risk maps can help to reduce consequences of future events. Landslide inventories are a fundamental part in landslide hazard and risk assessments. Historical data, beside direct and indirect mapping methods, is a main source for landslide inventories. In this study the archive of the road construction department of the Stuttgart district (South West Germany) was used as a source for the establishment of a regional landslide inventory. The aim of this study was to extract information about the location, the date of occurrence, the process type, the size of the landslides and to transfer it into a GIS Data base.

The archive contains records about road construction and maintenance measures that range from the 1960ies until today. Information from the archive records was entered in a database and subsequently mapped as point layer in a GIS. For the southern part of the study area a high resolution lidar Digital Terrain Model (DTM) was available. Using this DTM it was possible to create a polygon layer with more precise information about the size of the landslides.

The results of the archive evaluation were very satisfying as for the position, the date of occurrence and the type of the landslides, unfortunately only 50% of the records contained information about the size of the landslides. The visual interpretation of the DTM allowed the estimation of the size for 66% of the landslides. Most of the non identified landslides had no information about their size or were smaller than 100 m2

and could therefore not be recognized in the DTM.

This study shows that the archive of the road construction department is a good historic data base for landslide inventories. The lack of information about the size of the landslides could be partly compensated through visual interpretation of a DTM especially for larger landslides.