



Heuristic geological hazard potential mapping of Egirdir (Isparta, SW Turkey) settlement area

N. Yesiloglu(1), C. Gokceoglu(2), **H. Sonmez**(2)

(1) Nigde University, Aksaray Engineering Faculty, Geological Engineering Department, Aksaray, Turkey, (2) Hacettepe University, Engineering Faculty, Department of Geological Engineering Department, Ankara, Turkey (haruns@hacettepe.edu.tr / Tel: +90 312 297 71 84)

Egirdir district is a settlement area which is located just near the Egirdir Lake in south-western part of Turkey. The horst and graben systems are observed due to tensional tectonic regime prevailing in the area. The reservoir of the Egirdir Lake is a graben and it covers about 500 km² surface area. The seismicity of the study area can be evaluated as highly active considering seismic potential of southwestern part of Turkey. Egirdir district is settled on narrow shore belt of the Egirdir Lake. The steep topography starts with a normal fault as a boundary between graben and horst. The lithology of Egirdir district area and the steep topography are composed of mainly limestones. The main purposes of the present study is to put forward mapping of the possible geological hazards to affect the district and to map these phenomenon. For this purpose, field observations, air-photo studies and geomorphological assessments were performed. Three main discontinuity sets were identified by using scan-line surveys performed in field. The block sizes of the limestone blocks vary from few cubic centimeter to about ten cubic meter. Therefore, some debris accumulations are very abundant in the study area and its close vicinity. These debris accumulations on steep topography were mapped, because debris flow is very common around the region. In addition, the debris accumulation may be triggered by an earthquake and/or a heavy rainfall. Besides, some large limestone blocks also formed a potential rock fall hazard in the study area. A series of high buildings along the shore of the Egirdir Lake were preserved by retaining wall against rock fall hazard. By considering potential rock fall risk particularly zones including limestone blocks as a source area were also mapped. Another hazard potential which may be hid by debris flow and rock fall, are landslides. Large paleo-landslides were observed around the study area. If particularly one

of the paleo-landslides were triggered, it may be finalized as a catastrophic event, because the paleo-landslide was directly connected to Egirdir district via a narrow valley which includes water flow during even summer season. Considering these possible geological hazards, an heuristic geological hazard potential map of the district was produced in the present study.