

Use of old maps in developing an environmental monitoring system

Gercsák Gábor

A consortium of institutions from Hungary and Slovakia carried out an extensive study of the Ipoly River area (Ipel' in Slovakian language) in 2009 and 2010. The drainage basin of the river is shared by these two countries: a quarter of the 5108 km² drainage area belongs to Hungary. The river forms the international border between Hungary and Slovakia along half of its total length of 215 km. The water discharge of the Ipoly River ranges between 2 and 400 m³/s at its mouth with the Danube River. The settlements in the river valley have often been endangered by sudden floods.

The project partners have built up an environmental monitoring system that includes all available information collected on the geography, geology, hydrology, climate, soils, vegetation, land use, wildlife, geohazards, administrative divisions, name changes, etc. in historical perspective. This geographical information system will help the protection-centred decision-makers both in Hungary and in Slovakia to maintain, develop, and manage the geoheritage of the area by giving a complex model of the past and supposed changes in the geographical environment.

The Department of Cartography and Geoinformatics at Eötvös Loránd University, with the involvement of several students of cartography, was responsible for processing the historical-geographical and cartographical data for the area. Old military survey maps and various thematic maps were studied to gather information mainly on land cover, waters, forests, built-up areas, and geographical names within the watershed of the river. First, the digitizing of the topographic map sheets with different scales, projections, and legend was completed. In the next stage, the gerefencing of the map sheets and the harmonization of their content required special computer and cartographic skills. The Department of Cartography and Geoinformatics has also collected the settlement names and their changes for the past more than two-hundred years in Hungarian, Slovakian, and German languages. All these data have been arranged into a large number of information layers of the GIS, which now allows the detailed and complex study of the river basin. The results and methods developed for the project may also be useful when working out information systems for other river basins.

The project is supported by the European Union and co-financed by the European Social Fund (grant agreement no. TÁMOP 4.2.1/B-09/1/KMR-2010-0003)