USE A GIS TECHNIQUES TO IDENTIFY AREAS TO CONSIDER WHEN DESIGN MOUNTAIN TRANSPORT INFRASTRUCTURE

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The paper focuses on the specific conditions of the relief configuration in order to identify areas which can be support from a new mountains transport infrastructure. The study is based on a detailed geomorphic mapping using GIS tools and technique.

The importance of the study area is that here overlaps the 4th paneuropean corridor which links Western Europe with Athens or Istanbul

The first issue is based on the geomorphotechnical mapping of the study area, which provides in a specific formula, at a high scale of 1:5000, the key morphodynamic features together with the slope engineering works and the transport infrastructures. Mapping was done in a multitemporal system, providing the landslide bodies' configuration in two moments (1997 and 2005). The map offers a synthetic view over the technical solutions provided by geotechnical engineers within the study area, together with the critical points.

Most of the times, for financial reasons consultancy companies developing motorway projects neglect certain environment aspects (whether it is the local geology, geomorphology or flora and fauna). Although temporarily advantageous financially, this kind of approach may turn out to be several times more costly, when calculated against the entire operation period, as a result of environment related costs, maintenance or other hidden costs. Still, building at the lowest price proves sometimes more tempting than landscape integrated solutions.

The first step in this endeavour was to identify, with the help of GIS techniques, surfaces suitable for the construction of such infrastructure that is, areas within the following parameters: over 26m wide, of low gradient, with stable lithology. We created a GIS geodatabase with all this features, with a lot of attributes.

For instance, in order to find the best path for a mountain motorway, we created a GIS project based on the elevation contour lines extracted from 1:5000 scale topographic maps, through interpolation, a numeric terrain model was generated where each pixel equals 1 square m. At a later stage, based on the DEM, absolute elevation points were generated (over 121000 points), 3 m apart from each other, intersecting the previously