

VULNERABILITY TO FLOODS OF SIRET RIVER'S LOWER (SUBSIDENCE) SECTOR  
 (ROMANIAN PLAIN, ROMANIA)

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The Siret river traverses Romania over a length of 150km, with its lower course flowing between its confluence with Putna river and its spill into the Danube, and has an average slope of 0.23m/hm. The height of the deposits in this area varies significantly as a result of the diverse evolution in the Dacian (Pontian) – Pleistocene era. Alternating deposits of sands, clays and gravels are typical for the Holocene era. The thickness of sediments (fine alluvial deposits) at the point of spilling is over 2000m (Geological map, 1:200.000 scale, Bârlad and Focșani sheets).

Due to the presence of a great quantity of deposits the river forms an extensive meadow (over 3 km) and has a powerful dynamic (disentangling, meanders, etc.). By modifying the course of the river, its former arms became areas with excessive moisture, where the phreatic level is high and as such are vulnerable to flooding.



Fig.1. Localities affected by floods

The most important floods took place in 1970, 1975, 1985, 2005, 2006, 2010 and 2013 (fig.1) having mostly climatic triggers. Both the estimated damages and the large number of localities affected emphasize the increased vulnerability of this area and the need of establishing protection measures.

Considering all of the above the present study intends to find, based on simulations of rising water levels, the best and efficient way to identify a location for a water storage that would act as flooding prevention. In this regard the software used include Global Mapper (transversal profiles) and Arc Gis (Georeferencing and Calculate Geometry). Two types of lake surfaces with protective functions were

proposed, and for each of them morphologic parameters: area, depth, volume, costs and their amortization rate were calculated.

This article is part of VULMIN Project (type of projects PCCA, 52), manager partner Professor Ph D. Alexandru Nedelea.

### **References**

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