

Analysis of the sediment fluxes and their environmental and societal impact in the Podu Iloaiei (Romania) reservoir catchment

Silviu Doru (1), Mihai Niculita (1), Iuliana Cornelia Niculita (2), and Constantin Rusu (1)

(1) Geography Department, Geography and Geology Faculty, Al. I. Cuza University of Iasi, Carol I, 20A, 700506, Iasi, Romania (mihai.niculita@uaic.ro), (2) GeoGraphGIS, Iasi, Romania (geographgiscompany@gmail.com)

Sediment fluxes in agricultural areas are important because of their impact on the fluvial systems, human society, agricultural system and environment. We present a case study of sediment fluxes in the Podu Iloaiei reservoir catchment (Northeastern Romania) and we try to establish scenarios of future sediment yields regarding the possible evolution of land use, climate change and human society. Dating from 1963, the reservoir, has exceeded its half-life, and if the present day sediment yields will be kept is estimated that the lake will be totally filled with sediment in the next 21 years. We have modelled and validated the sediment budgets for four periods (1975, 1979, 1996, 2012) in order to understand the sediment fluxes and their effects over the local environment and the reservoir use. Finally we make an analysis on how the human management impacted the sediment fluxes and we estimate the future actions needed in order to proper manage the sediment fluxes. The conclusion is that if the agricultural and hydrological management regulations are well implemented in the future, the negative impact of sediment fluxes on the environment and society can be minimized, but the single component of the equation that cannot be controlled, the climate changes, requires future actions, not presently regulated.