



"Gheorghe Asachi" Technical University of Iasi, Romania



IMPACT OF DROUGHT ON WATER RESOURCES IN NORTH - EASTERN ROMANIA. CASE STUDY - THE PRUT RIVER

Flaviana Corduneanu¹, Vasile Vintu¹, Isabela Balan², Loredana Crenganis³, Daniel Bucur^{1*}

¹*"Ion Ionescu de la Brad" University of Agricultural Sciences and Veterinary Medicine in Iasi,
3 Mihail Sadoveanu, 700490 Iasi, Romania*

²*"Gheorghe Asachi" Technical University of Iasi, Faculty of Hydrotechnical Engineering, Geodesy and Environmental Engineering, Department of Hydroamelioration and Environment Protection, 65 Prof. Dr. Dimitrie Mangeron Str., 700050 Iasi, Romania*

³*"Gheorghe Asachi" Technical University of Iasi, Faculty of Hydrotechnical Engineering, Geodesy and Environmental Engineering, Department of Terrestrial Measurements and Cadastre, 65 Prof. Dr. Dimitrie Mangeron Str., 700050 Iasi, Romania*

Abstract

From previous studies, it was found that the most important pluviometric indicators which characterize the frequency, intensity and spatial distribution of drought in Prut River floodplain are the standardized precipitation index, Hellmann's criterion and Topor aridity index. Standardized precipitation index values between (-1.5) and (-1.0) indicates a high frequency of the moderate-dry periods and very dry ones reached 2.3 %. Autumn shows moderate - dry traits in 13.5% of the years and can be very dry only for 9% of the cases from 1979 until 2013. To forecast drought through the standardized precipitation index, it is estimated that if severe periods occur in autumn, will be extended throughout the winter period and for the whole next (year) growing season. A severe drought which began in autumn of 2011 remained throughout the winter until the next growing season (2012). To strengthen this study, a characterization of months using Hellman's criterion was carried out. The authors laid emphasis on the excessively rainy months and the excessively dry months, the latter had a higher weight. Topor aridity index results showed a dry substance in 1982, 1985, 1986, 1989, 1992, 1997, 2000, 2002, 2003, 2004, 2006, 2008, 2009, 2011 and 2012 respectively. The incidence of droughts in the Moldavian Plain resulted in a sharp decrease in the runoff and the appearance of a drying - up phenomenon in the middle basin of Prut River. Rivers dried up at a frequency of 40 - 50 % in river basins with a surface area of 15 - 20 km² and over 90 % in river basins with areas less than 5 km².

Key words: agricultural drought, dry period, Prut River, standardized precipitation index

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