



“Gheorghe Asachi” Technical University of Iasi, Romania



ASSESSMENT OF THE IMPACT OF RIVERBED DESIGN ON WATER QUALITY – THE CASE STUDY OF BAHLUI RIVER, IAȘI, ROMANIA

**Costel Boariu*, Ioan Crăciun, Catrinel-Raluca Giurma-Handley,
Tomi-Alexăndrel Hrănciuc**

*“Gheorghe Asachi” Technical University of Iași, Faculty of Hydrotechnics, Geodesy and Environmental Engineering,
Department of Hydraulic Structures Engineering, 65 Prof.dr.Docent D. Mangeron Street, 700050, Iasi, Romania*

Abstract

In 2010 in the area of Iasi city, Romania started the “Water-course regulation of Bahlui River, County of Iași” a project which in its first phase of development. It has as the main purpose to improve stream flow capacity and to guarantee the defending against flood. Also, the project aim at developing a section of approximately 2.5 km located between the Stone Bridge (km 14+073) and Tudor Vladimirescu Bridge (km 11+615) for recreational purposes. In order to obtain water storage, it is intended to build a hydraulic engineering structure (weir), upstream Tudor Vladimirescu Bridge. The river section among Stone Bridge and Tudor Vladimirescu Bridge will be provided with bank-protection structures consisting of concrete pitching on thalweg and both banks until the level of seat +2.60 (0.00 thalweg level).

This reservoir will be used to carry out a draft for small crafts (boats and canoe) devoted to recreational purposes. The section management will change the river hydrodynamics, having also ecological implication regarding the modification of water quality parameters. Also, an increasing the risk of eutrophication will be generated due to low flow rate, as well as water quality damaging risk induced by emplacement of urban sewerage network of Iasi city, on left bank of Bahlui River.

The purpose of this impact evaluation is to establish the viability of the project in terms of water quality requirements. The study will be carried out using design parameters and advantages offered by mathematical modeling of hydrodynamic processes and those of an eutrophication model. Moreover, a risk analysis is achieved regarding the water quality deterioration of Bahlui River.

Key words: eutrophication, impact assessment, mathematical modeling, project viability, recreational purposes, water quality, water storage

Received: December, 2012; Revised final: April, 2013; Accepted: April, 2013

* Author to whom all correspondence should be addressed: e-mail: costelboariu@gmail.com, Phone 0040723201840