



**“Gheorghe Asachi” Technical University of Iasi, Romania**



---

## **SUSTAINABILITY IN THE WATER USE CYCLE: CHALLENGES IN THE ROMANIAN CONTEXT**

**Carmen Teodosiu, George Barjoveanu\*, Brindusa Robu, Simona-Andreea Ene**

*“Gheorghe Asachi” Technical University of Iasi, Faculty of Chemical Engineering and Environmental Protection,  
Department of Environmental Engineering and Management, 73 Prof.dr.docent D. Mangeron Street, 700050 Iasi, Romania*

---

### **Abstract**

Sustainable water resources management represents a key development direction which includes several challenges to be tackled, such as: development and implementation of strategic and integrated activities for water resources management processes according to the principles of the European Water Framework Directive, solving water availability and pollution problems, ensuring a sustainable pathway for development perspectives, involvement of stakeholders in decision-making processes.

This paper addresses in an integrated approach a series of complex issues leading to major problems for the sustainable management of the water use cycle. This study is based on the general research framework given by the WATUSER research project implemented by a consortium formed by two technical universities and two regional water operators in Romania. The main objective of this project is to develop and implement an integrated system of innovative technologies and management instruments for reducing environmental impacts and associated human health risks caused by water quality aspects in the entire water use cycle: water abstraction, treatment, distribution, use (human consumption, industry, agriculture etc.), wastewater collection, wastewater treatment and discharge/reuse.

This study presents the major challenges for sustainable management at the level of the water use cycle in Romania, as well as a coherent, integrated evaluation framework for the use of different assessment instruments (environmental impact and risk assessment, human health risk assessment, grey water footprint, and life cycle assessment). These instruments can facilitate the development of a reference scenario and a base for further analysis of the water use cycle in two Romanian regions (Iasi and Timisoara) by taking into consideration the technical developments of the systems, the environmental impacts and associated risks as well as human health risks reduction.

*Key words:* grey water footprint, impact assessment, life cycle assessment, risk assessment, Romania, water use cycle

*Received: July 2012, Revised final: October 2012, Accepted: November 2012*

---

---

\* Author to whom all correspondence should be addressed: e-mail: [gb@ch.tuiasi.ro](mailto:gb@ch.tuiasi.ro)