

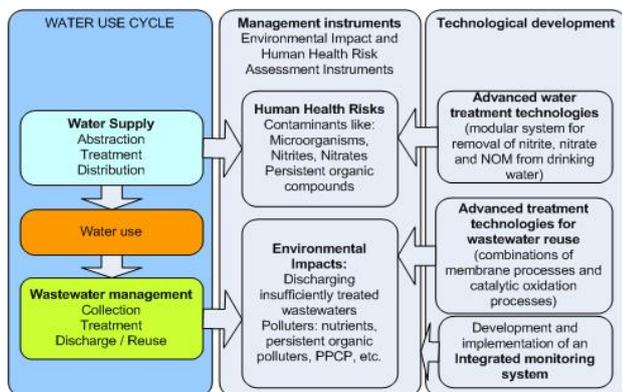
INTEGRATED SYSTEM FOR REDUCING ENVIRONMENTAL AND HUMAN-RELATED IMPACTS AND RISKS IN THE WATER USE CYCLE (WATUSER)

RESEARCH GRANT 60/2012, PN-II-PT-PCCA-2011
(NATIONAL COLLABORATIVE APPLIED RESEARCH PROJECT), 2012-2015,
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The **main objective** of the WATUSER 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, wastewater collection, wastewater treatment and discharge/reuse. The project implementation consortium includes 2 prestigious Romanian Universities: “*Gheorghe Asachi*” **Technical University of Iasi**, which acts as **coordinator** and **Politehnica University of Timisoara**, together with 2 important partners from the regional water operators network: **SC APAVITAL SA** from Iasi and **SC AQUATIM SA** from Timisoara.

For the successful achievement of the main goal, 2 research directions are proposed for the development of:

- **innovative technologies for water and wastewater treatment** in order to respond to specific water quality problems;
- **a coherent framework of innovative assessment and evaluation instruments** that will enable the identification and abatement of environmental and human-related impacts and risks over the water use cycle.



Environmental and human-related impacts & risks and their connection to the water use cycle, within the WATUSER Project

The derived **specific objectives** proposed for the whole water use cycle for the two regional levels of the project (Iasi and Timis Counties) are:

1. Development of specific instruments for the identification, quantification and control of environmental impacts and risks, over the water use cycle, applied to regional water operators;
2. Development of the capacity of collaboration and knowledge transfer between the universities and the regional water operators in Iasi and Timis counties for the control of the environmental impacts and human health risks in the water use cycle;
3. Development of the research and institutional capacities of the universities and regional water operators in Iasi and

Timis counties for facilitation of further cooperation at national and international scale;

4. Development of capacities and competitiveness of Romanian researchers and staff of regional water operators, as well as of the national partnerships contributing to environmental sustainability (protection, conservation of water resources, control of the environmental impacts and human health related risks);
5. Dissemination of relevant results of the project to the scientific community through publication in peer reviewed international journals, ISI ranked, participation in international conferences, workshops, trainings/research stages, as well as to interested stakeholders (industrial agents, water authorities, waterworks companies, agriculture and services, EPAs, local and regional development agencies and authorities, NGOs and societal organizations).

The **major novel project features** are:

a) Integration: the environmental, technical, operational and management problems are approached within the water use cycle in an **integrated and coherent manner**. The integration perspectives of the project refer to multiple aspects: *firstly*, to the water related problems on the entire water use cycle at the level of regional water operators, taking into consideration the inter-relationships in the complex natural environment–technological anthropogenic system, as well as the spatial-temporal variability of water quality and availability; *secondly*, the framework of objectives and activities integrates assessment studies with technological development and testing at pilot scale which enables the improvement of regional water operators management as well as the evaluation of the development perspectives of water and wastewater services for small communities.

b) Multidisciplinarity: the project activities address problems in multiple science areas related to water resources management: **environmental management** (water resources management, impact and risk assessment, water footprinting, life cycle assessment, environmental performance indicators) and **engineering sciences:** chemical and environmental engineering (electrochemical processes, advanced oxidation processes, membrane processes), computer engineering (integrated monitoring system for water related impacts and risk surveys design and implementation).

c) Originality, novelty & innovation: the project develops an integrated system of management instrument and technological developments to tackle water related impacts and risks on the whole water use cycle at regional level. To our knowledge, the scale of the project consortium, as well as the complexity of the activities within the WATUSER project represents a premiere for both the Romanian academia and the regional water operators.

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