

## INTEGRATED AND SUSTAINABLE PROCESSES FOR ENVIRONMENTAL CLEAN-UP, WASTEWATER REUSE AND WASTE VALORIZATION – SUSTENVPRO

### Goal of the project

The goal of complex project SUSTENVPRO is to increase the institutional performance in the ENVIRONMENT field of a consortium of 5 public research organizations with recognized research performances and one R&D National Institute under consolidation, through an integrative approach which supports/develop the existent research competencies of each partner and transfer capacities of results with applicative and innovative potential envisaging the elimination of priority pollutants from water using innovative advanced water/ wastewater treatment processes and waste recovery.

### Short description of the project

The complex project **SUSTENVPRO** consisted of 5 research component projects (PC):

PC 1. Complex evaluations of priority pollutants present in various water matrixes and risk identification on the ecosystems and human health;

PC 2. Water treatment processes optimization and development of innovative materials for the priority pollutants removal;

PC 3. Valorization of biomass resources for the development of innovative processes for wastewater treatment and priority pollutants removal;

PC 4. Metallic waste valorization for innovative wastewater treatment process development and removal of priority pollutants;

PC 5. Sustainability assessments of water/ wastewater treatment and waste valorization processes based on life cycle assessment.

### Project implemented by

The project is implemented by 4 universities and two national R&D institutes:

**Coordinator:** "Gheorghe Asachi" Technical University of Iasi;

**Partners:** Politehnica University of Bucharest; "Alexandru Iona Cuza" University of Iasi; Politehnica University Timișoara; "Petru Poni" Institute of Macromolecular Chemistry Iasi; National Research and Development Institute for Environmental Protection, Bucharest.

### Implementation period

2018 – 2020

### Main activities

- Developing and validating an innovative approach oriented to analysis, preventing and correcting the environmental risks associated with the presence of priority pollutants in various matrices of water use;
- Development of efficient innovative water treatment and advanced wastewater treatment processes in order to eliminate priority organic and inorganic pollutants in the anthropic water cycle;
- Development of new innovative materials (polymeric or composite materials) with properties designed according to the characteristics of the priority pollutants;
- Utilization of materials from organic (biomass) and inorganic waste (metallic waste) in innovative wastewater treatment processes for removing priority pollutants and recirculating / reusing water;
- Sustainability assessment of processes and products through Life Cycle Assessment tool.

### Results

- Research workplaces;
- New/significantly improved technologies /procedures;
- New/significantly improved research services;
- New research and technology consultancy services (uploaded on the ERRIS platform);
- Research services by sharing the research infrastructure among project partners (A1 and A2 research vouchers);
- Knowledge transfer to water operator through C voucher;
- Research papers published in ISI-ranked journals;
- Communications at national and international scientific events (conferences, exhibitions);
- Dissemination and technology transfer workshops;
- (Initiation /Intermediary /Final) Project workshops;
- RDI common program (in agreement with the institutional development plan of every partner).

## Applicability and transferability of the results

- Transferability of research results between consortium partners;
- Technological transfer of advanced water/wastewater treatment technologies/procedures to public and private economic environment (regional water operators, environmental companies, private companies in the water/waste field etc.); knowledge transfer to regional water operator through C voucher within the project framework tested at pilot scale as treatability study for concrete applications in drinking water treatment;
- Good practice guide for circular economy in water field for sustainability consulting company, non-profit organization, environmental agencies.

## Financed through/by

Executive Agency for Higher Education, Development and Innovation Funding (UEFISCDI)

## Research centre

Research Centre in Environmental Science and Engineering

## Research team

UPT Project Responsible: Prof.dr.eng. MANEA Florica  
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Scientific Researcher, level III: COCHECI Laura  
Scientific Researcher, level III: POP Aniela  
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