

Summary table of projects and results of research activities - Year 2024

Nr. crt.	Proiect	Nr. Contract CD	Produs rezultat din activitatea de CDI (Tehnologie / Metoda / Metodologie)	Nivel maturitate tehnologica
1.	Specialized and sustainable technologies, based on advanced oxidation processes, for wastewater/sludge treatment and the valorization of renewable resources in wastewater treatment processes - WATERTREAT - Phase 5/2025	PN 23 22 03 01	Optimized experimental model for solar PMR (Photocatalytic Membrane Reactor) (Research report)	TRL 3
2.	Specialized and sustainable technologies, based on advanced oxidation processes, for wastewater/sludge treatment and the valorization of renewable resources in wastewater treatment processes – WATERTREAT - Phase 5/2025	PN 23 22 03 01	Optimized experimental model for the quantitative production of carboxylic acids (Research report)	TRL 3
3.	Specialized and sustainable technologies, based on advanced oxidation processes, for wastewater/sludge treatment and the valorization of renewable resources in wastewater treatment processes – WATERTREAT - Phase 5/2025	PN 23 22 03 01	Optimized experimental model for post/pre-treatment of biological effluent from biological leachate treatment – oxidation in Fe(II) / peroxides +/- UV system (Research report)	TRL 3
4.	Specialized and sustainable technologies, based on advanced oxidation processes, for wastewater/sludge treatment and the valorization of renewable resources in wastewater treatment processes – WATERTREAT - Phase 5/2025	PN 23 22 03 01	Experimental study on the association of photo/fermentation processes with the valorization of residual biomass (Research report)	TRL 3
5.	Specialized and sustainable technologies, based on advanced oxidation processes, for wastewater/sludge treatment and the valorization of renewable resources in wastewater treatment processes – WATERTREAT - Phase 5/2025	PN 23 22 03 01	Optimized experimental model regarding the technology for reducing metal content in wastewater using new functionalized cellulose materials (Research report)	TRL 3
6.	Methods/methodologies for structural identification, chemical confirmation and analytical quantification of emerging anthropogenic contaminants in various environmental components in accordance with the new European environmental directives – ECOTRANS - Phase 5.2/2025	PN 23 22 01 01	Quantitative method for the detection and quantification of As species in sediment using HPLC-ICP-MS technique	TRL 4
7.	Methods/methodologies for structural identification, chemical confirmation and analytical quantification of emerging anthropogenic contaminants in various environmental components in accordance with the new European environmental directives – ECOTRANS - Phase 5.2/2025	PN 23 22 01 01	Quantitative method for the detection and quantification of haloacetaldehydes in drinking water using GC-MS technique	TRL 4
8.	Advanced waste recycling through experimental models dedicated to the circular economy – SMARTWASTE - Phase 5/2025	PN 23 22 04 01	Optimized experimental model for reducing pollutant content in wastewater using new adsorbent materials and/or ash-based catalysts (Research report)	TRL 3

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9.	Advanced waste recycling through experimental models dedicated to the circular economy – SMARTWASTE - Phase 5/2025	PN 23 22 04 01	Experimental study to optimize the parameters involved in the process of obtaining smart fertilizers (Research report)	TRL 3
10.	Advanced waste recycling through experimental models dedicated to the circular economy – SMARTWASTE - Phase 5/2025	PN 23 22 04 01	Optimized experimental model for the physico-chemical and energetic parameters of the obtained alternative fuels (Research report)	TRL 3
11.	Environmental biotechnologies to support the green transition and adaptation to circular economy principles - EMBRACE – Phase 5/2025	PN 23 22 03 02	Wastewater treatment technology from decentralized or seasonal sources	TRL 6
12.	Innovative technologies for advanced removal of inorganic and organic micropollutants such as arsenic and chlorine disinfection by-products (trihalomethanes and haloacetic acids) in the context of the implementation of the new European legislation on drinking water quality – AQUASTECH - Phase 5/2025	PN 23 22 03 03	Experimental study of HAAs and THMs removal from water by sonolysis and Fenton photolysis and reduction with zerovalent iron	TRL 3
13.	Innovative technologies for advanced removal of inorganic and organic micropollutants such as arsenic and chlorine disinfection by-products (trihalomethanes and haloacetic acids) in the context of the implementation of the new European legislation on drinking water quality – AQUASTECH - Phase 5/2025	PN 23 22 03 03	Experimental study to establish the optimal parameters specific to the aeration-preoxidation-coagulation-flocculation-settling processes, to monitor filtration performance and quantitative analysis of arsenic speciation for a selected deep water source from the Western Rural Area of Timiș County	TRL 3
14.	Eco-friendly solutions for monitoring and protecting the biodiversity of integrative systems, as well as for preventing their destruction - ECO-PHARMA - Phase 5/2025	PN 23 22 02 01	Working methodology according to OECD Test Guideline no. 249:2021 / ISO 21115:2019	TRL 3
15.	Eco-friendly solutions for monitoring and protecting the biodiversity of integrative systems, as well as for preventing their destruction - ECO-PHARMA - Phase 5/2025	PN 23 22 02 01	Biodiversity analysis methodology using molecular biology methods (DNA analysis from different biological models)	TRL 3
16.	Eco-friendly solutions for monitoring and protecting the biodiversity of integrative systems, as well as for preventing their destruction - ECO-PHARMA - Phase 5/2025	PN 23 22 02 01	Biomonitoring study of pollen particles as a bioindicator of biodiversity	TRL 3
17.	Eco-friendly solutions for monitoring and protecting the biodiversity of integrative systems, as well as for preventing their destruction - ECO-PHARMA - Phase 5/2025	PN 23 22 02 01	Microbiological characterization study of air quality correlated with pollen density	TRL 3
18.	Assessing the impact of climate change in urban and peri-urban areas in Romania - priority measures regarding climate resilience - RCUP - Phase 5/2025	PN 23 22 02 02	Study on investigations conducted on the quality of environmental factors within the experimental field for the three urban/peri-urban areas selected as case studies: Tulcea, Galați, and Ploiești, containing the updated RCUP georeferenced database.	TRL 4

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19.	Specialized and sustainable technologies, based on advanced oxidation processes, for wastewater/sludge treatment and the valorization of renewable resources in wastewater treatment processes - WATERTREAT - Phase 6/2025	PN 23 22 03 01	PMR solar functional experimental model (Report on the demonstration of the functionality of the PMR solar experimental model)	TRL 3
20.	Specialized and sustainable technologies, based on advanced oxidation processes, for wastewater/sludge treatment and the valorization of renewable resources in wastewater treatment processes - WATERTREAT - Phase 6/2025	PN 23 22 03 01	Functional experimental model (Demonstration report of the functionality of the hybrid process with ozone and percarbonate)	TRL 3
21.	Specialized and sustainable technologies, based on advanced oxidation processes, for wastewater/sludge treatment and the valorization of renewable resources in wastewater treatment processes - WATERTREAT - Phase 6/2025	PN 23 22 03 01	Functional experimental model (Report demonstrating the functionality of the experimental model for post/pre-treatment of biological effluent from biological leachate treatment – oxidation in Fe(II)/peroxides +/- UV system)	TRL 3
22.	Specialized and sustainable technologies, based on advanced oxidation processes, for wastewater/sludge treatment and the valorization of renewable resources in wastewater treatment processes - WATERTREAT - Phase 6/2025	PN 23 22 03 01	Functional experimental model (Report demonstrating the functionality of the model that couples the processes of biophotolysis and photo/fermentation)	TRL 3
23.	Specialized and sustainable technologies, based on advanced oxidation processes, for wastewater/sludge treatment and the valorization of renewable resources in wastewater treatment processes - WATERTREAT - Phase 6/2025	PN 23 22 03 01	Functional experimental model (Report demonstrating the functionality of the technology for reducing metal content in wastewater using new functionalized cellulose materials)	TRL 3
24.	Methods/methodologies for structural identification, chemical confirmation and analytical quantification of emerging anthropogenic contaminants in various environmental components in accordance with the new European environmental directives – ECOTRANS - Phase 6/2025	PN 23 22 01 01	Study on the degree of contamination with azole antifungal agents at the level of wastewater treatment plants - Part I (method validation in relevant environment)	TRL5
25.	Methods/methodologies for structural identification, chemical confirmation and analytical quantification of emerging anthropogenic contaminants in various environmental components in accordance with the new European environmental directives – ECOTRANS - Phase 6/2025	PN 23 22 01 01	Study on the degree of contamination with unconventional organic pollutants such as perfluoroalkyl sulfonic acids at the level of wastewater treatment plants (method validation in relevant environment)	TRL5
26.	Methods/methodologies for structural identification, chemical confirmation and analytical quantification of emerging anthropogenic contaminants in various environmental components in accordance with the new European environmental directives – ECOTRANS - Phase 6/2025	PN 23 22 01 01	Study on the efficiency of microplastic removal at the level of wastewater treatment plants (method validation in relevant environment)	TRL5
27.	Methods/methodologies for structural identification, chemical confirmation and analytical quantification of emerging anthropogenic contaminants in various environmental components in accordance with the new European environmental directives – ECOTRANS - Phase 6/2025	PN 23 22 01 01	Study on the in-situ electrochemical detection of perfluorooctanoic acid using a portable equipment (method demonstration in relevant environment)	TRL 6

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28.	Methods/methodologies for structural identification, chemical confirmation and analytical quantification of emerging anthropogenic contaminants in various environmental components in accordance with the new European environmental directives – ECOTRANS - Phase 6/20255	PN 23 22 01 01	Quantitative method for the detection and quantification of Cr species in sediment using HPLC-ICP-MS technique	TRL 4
29.	Methods/methodologies for structural identification, chemical confirmation and analytical quantification of emerging anthropogenic contaminants in various environmental components in accordance with the new European environmental directives – ECOTRANS - Phase 6/2025	PN 23 22 01 01	Study on the degree of contamination with azole antifungal agents at the level of wastewater treatment plants - Part II (method validation in relevant environment)	TRL5
30.	Environmental biotechnologies to support the green transition and adaptation to circular economy principles - EMBRACE – Phase 6/2025	PN 23 22 03 02	Biowaste recuperative treatment technology and installation	TRL 4
31.	Eco-friendly solutions for monitoring and protecting the biodiversity of integrative systems, as well as for preventing their destruction - ECO-PHARMA - Phase 6/2025	PN 23 22 02 01	Experimental study on the use of cell lines from fish tissues in aquatic toxicity tests	TRL 3
32.	New Chromatographic Method for the Analysis of Emerging Unconventional Contaminants in the Black Sea Marine Ecosystem - UNCHAIN-SEA - Stage I/2025	PN-IV-P7-7.1-PED-2024-0372 Ctr. 112PED / 2025	LC-MS/MS analytical method (Scientific report containing the optimal liquid chromatography (LC) and detection (MS) parameter values)	TRL 3
33.	Development of polymer composites with reduced ecological footprint through incorporation of residual biomass – ECOPOLIA – Stage I/2025	PN-IV-P7-7.1-PTE-2024-0653 Ctr. 38PTE / 2025	Experimental study to characterize recycled raw materials and polymer bio-composites with reduced ecological footprint, using biomass from the agri-food sector	TRL 3