**The crucial role of networked laboratories within Research Infrastructures: the case of the Technological Hall for Pollution Mitigation in the research infrastructure “Integrated Laboratories System for the Environment”.**

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The Technological Hall for Pollution Mitigation (HTI) is one of the seventeen laboratories of the research infrastructure “Integrated Laboratories System for the Environment” (IR-SILA), developed under the PON, POR Calabria and PAC project, coordinated by the University of Calabria. IR SILA is a research infrastructure that provides resources and services aimed at monitoring, controlling and protecting the environment. The HTI serves as a multidisciplinary platform to support research, development, and innovation in the field of pollution mitigation, with strong relevance to waste and wastewater treatment, soil remediation, energy recovery from biomass, and environmental monitoring.

The HTI brings together multiple specialized laboratories, including: Environmental Chemistry; Environmental Sanitary Engineering; Chemical Fundaments of Membrane Technology; Laboratory of Particulate Solids Technology; Materials for the Environment and Transport Phenomena and Biotechnologies. It offers a broad range of services such as analytical instrumentation, pilot-scale plants, research support, and training programs for environmental professionals.

The HTI represents a cutting-edge hub for environmental innovation, where Chemical Engineering provides the backbone for technological solutions in pollution mitigation. Its contributions span from fundamental research in materials and processes to industrial applications in waste valorisation, clean energy, and sustainable production systems.

The HTI plays a crucial role in supporting research project at UNICAL in the field of environmental risk mitigation, like TECH4YOU (T4Y) and EUPEACE project where UNICAL is involved.

In particular, the role of HTI in T4Y project is focused on the development of prototypes of innovative membrane for water purification and protection of sea resources, in the field of “Technologies to reduce energy consumption and save biodiversity”. The project focuses on the validation of innovative membrane technologies aimed at preventing and reducing marine pollution by improving wastewater treatment processes. Additionally, the project includes the creation of an early warning system for water quality monitoring, aimed at protecting marine and coastal ecosystems. The facilities offered by HTI permitted to realise lab-scale tests of the proposed prototypes.

The role of HTI in EUPeace addresses key societal challenges by creating world-class Research Hubs focused on peace, justice, and inclusive societies. These hubs are built on the existing strengths of the Alliance’s member institutions and promote a transdisciplinary approach that strengthens the European Research Area. Through active engagement with society, EUPeace fosters innovative research and research-based teaching across all academic disciplines and focuses on environmental protection, sustainable resource management, and clean energy transition. HTI is highly relevant thanks to its multidisciplinary expertise, because integrates chemical, environmental, and biotechnological engineering, offering a comprehensive, systems-based approach to solving environmental challenges—directly aligning with EUPEACE’s focus on holistic, cross-sectoral innovation. Very important aspect is represented, as social point of view, from the possibility to offer training and knowledge transfer. HTI acts as a training hub for environmental professionals, offering internships, workshops, and technology transfer services. This is essential for EUPEACE’s goal of building capacity and fostering innovation ecosystems across regions.

HTI is a key technological and scientific asset for both T4Y and EUPEACE project, offering practical solutions, deep expertise in chemical and environmental engineering, and a solid foundation for collaboration. It bridges the gap between research and real-world implementation—essential for meeting the ambitious sustainability and resilience objectives of such projects, confirming the crucial role of networked laboratory systems

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