



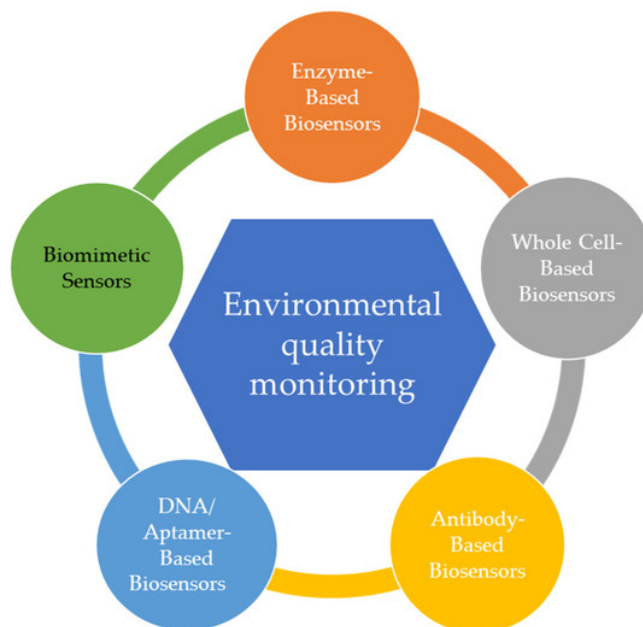
Epsilon	Engagement		Biosensors and user-friendly diagnostic tools for environmental services					
	Countries	Project value (€)	% by EPSILON	€ by EPSILON	Engagement	Funding by	Date	Partners
	IE, HU, ES, SE, PL, IT, GR	4,000,000	17%	680,000	Tender	HORIZON-CL6-2023-ZEROPOLLUTION-01-7	2023	GLANTREO (IE), University of Pannonia (HU), Fibsen (ES), AgriClima (SE), Pro-Akademia (PL), Sensichips (IT), EPSILON (GR)

Description

The BIOSENSOR proposal targeted the development of next-generation biosensors and user-friendly diagnostic tools for environmental monitoring applications, with a focus on water quality and toxic compound detection.

The concept would integrate advanced materials (e.g., molecularly imprinted polymers), bioengineered recognition proteins, and real-time fiber-optic or microelectronic transducers into modular sensor platforms capable of detecting pesticides, heavy metals, and emerging contaminants under real-life conditions.

The project framework envisioned both standalone and networked sensor applications, including integration on autonomous robotic platforms and long-range fiber-optic systems. The approach covered diverse environmental conditions (e.g., freshwater, agricultural zones, industrial effluents), with an emphasis on scalability, robustness, and environmental safety. Multidisciplinary partners brought expertise in nanomaterials, biosensing, machine learning, and regulatory assessment. Use-case validation was foreseen across multiple countries and sectors, targeting stakeholders in agriculture, water utilities, environmental inspection, and civil protection.



Outcome

The proposal defined a technology roadmap toward achieving TRL 5, incorporating modular biosensing units for in situ monitoring and FAIR-by-design data architectures for integration with EU environmental research infrastructures.

Expected outcomes included

- Prototype biosensors for selected toxic molecules (e.g., arsenic, nickel, copper, selected pesticides)
- Development of RNA-based detection elements, and proof-of-concept deployment in monitored environments.
- The consortium also structured a comprehensive life cycle assessment (LCA) and risk analysis framework to ensure safety, reproducibility, and compliance with the EU's Zero Pollution Action Plan.
- The proposal embedded a strong communication and citizen science component to enhance awareness and stakeholder participation in pollution tracking and response.