

TOXMIC: TOXicant monitoring chamber for MICrocontaminants

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■ Consortium:

The *TOXMIC* Consortium comprises **5 interdisciplinary partners** from public research centres, water agencies, SMEs and university, distributed **throughout 3 European countries**. The consortium has highly complementary expertise in the fields of ecotoxicology and site specific toxicity assessment of aquatic systems, passive sampling, ecological modelling and sensor developing.

■ Background:

- The estimation of the total cost of **ecological monitoring of surface water in EU** amounted already to **350 million euros**.
- Not practical or affordable to sample and analyse at sufficient temporal and spatial resolution for **hundreds of individual chemicals**.
- About **71,000 municipal WWTPs** are operational at present in the EU.
- There is a need for improving the **diagnosis capacity** of pesticides, antibiotics and heavy metals loads on EU rivers and surface waters in general.

■ Goal:

The main aim of the study is to develop and test a patentable low-cost in situ monitoring device able to perform a fast screening of surface water for the assessment of possible contamination events, including effects of mixtures. The device will check in continuous water quality and will send an alert in case of point or diffuse contamination.

■ Expected impact:

- ✓ Wide application of TOXMIC by WWTP managers and Water administrations all over the EU, enabling to rapidly take measures in case impacts on the ecosystem are detected and only check in remote good-state sites, **saving up to 50% of money** invested in monitoring analysis.
- ✓ Substantial **reduction of monitoring costs** in EU rivers.
- ✓ Improve **water quality diagnosis**, leading to **higher water safety**.
- ✓ Contribute to the assessment, and eventual management, of water as a **natural resource**, especially in the contest of water scarcity and poor quality due to the forecasted climate change.
- ✓ Improvement of the **ecosystem and human health** in EU.
- ✓ Contribute to the advances in the enabling technologies of **nanotechnology, photonics** and **biotechnology**.
- ✓ Improve the **competitiveness of the EU** and the **growth of SMEs** in the sectors of superficial water safety assessment.



Fig. 1: Point source pollution example

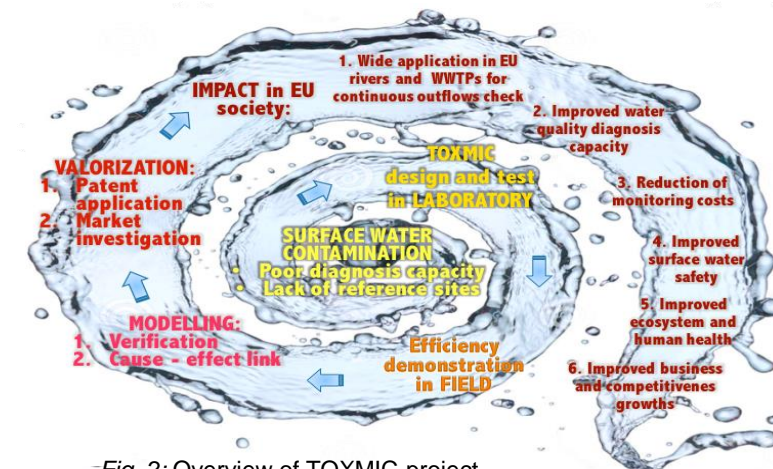


Fig. 2: Overview of TOXMIC project.