WATERWORKS 2017 RDI FUNDED PROJECTS BOOKLET

Title of the project:

Supporting tools for the integrated management of drinking water reservoirs contaminated by Cyanobacteria and cyanotoxins

Acronym and LOGO: BLOOWATER

Representative image of the project:

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Project partners *(1 per partner)*

Institutions: POLYTECHNIC UNIVERSITY OF MARCHE
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Project partners:
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Project website:
www.bloowater. eu (work in progress-under construction)

Abstract: Cyanobacteria, known as blue-green algae, under favourable environmental conditions, can quickly multiply and form blooms in water and release toxic secondary metabolites during their senescence and death. The presence of toxins from Harmful Algal Blooms (HABs) in drinking water reservoirs may represent serious health risks for the human population. It is necessary to plan effective strategies of risk assessment and management considering all the possible routes of exposure for the human populations.
The BLOOWATER project proposes innovative technological solutions aim to develop a low cost methodological approach based on the integration of monitoring techniques and treatment of drinking water affected by toxic blooms. In particular the project intends: to define diagnostics protocols integrating of innovative techniques for water monitoring, aimed to creating forecasting models and systems of surveillance and early warning of toxic blooms to perform immediate actions; to develop and implement methods to treat raw water with more efficient processes. A planned process and a Decision Support System (DSS) devoted to provide information on the results of the project programmes to key actors will be developed.

Keywords: (In relation with Water JPI SRIA)
Global change; Emerging contaminants; Wastewater treatment; Methodologies for adaptive water management.

Open keywords: Decision-making approaches; Emerging contaminants removal; Fresh water supplies; Freshwater security; Monitoring tools; Technological solutions; Water management tools; Water service.

Project structure (WPs description):

WP1.MONITORING SYSTEM DEVELOPMENT

- ► **WP1.1** Implementation of Cyanobacteria monitoring system
- ► **WP1.2** Data Collection of Cyano-HABs
- ► **WP1.3** Design of a Digital Database

WP2. DEVELOPMENT OF BLOOM FORECASTS

- ► **WP2.1** Testing of mechanistic water quality models for predicting cyanobacterial blooms
- ► **WP2.2** Testing of alternative methods of predicting cyanobacterial blooms based on machine learning algorithms
- ► **WP2.3** Developing model workflows

WP3. TREATMENT PROCESS COMPARISON

- ► **WP3.1** Definition of specific technological treatment solutions functional to the different scenarios
- ► **WP3.2** Bench Scale Testing of Polymer Enhanced Utra Filtration (PEUF) and reference technology
- ► **WP3.3** Processes design

WP4. DECISION SUPPORT SYSTEM DEVELOPMENT

- ► **WP4.1** Country data acquisition
- ► **WP4.2** Realization of a database on the drinking water management
- ► **WP4.3** Realization of a GIS and data normalization
- ► **WP4.4** Decision Support System Development

- ► **WP5. PROJECT MANAGEMENT**
- ► **WP5.1** Reporting
- ► **WP5.2** Quality management
- ► **WP5.3** Document management
- ► **WP5.4** Budget management