**Annex 5**

**Templates for Mid-Term Evaluation Report**

**(Individual and Consensus)**

**Water Joint Programming Initiative**

**2018 Joint Call**

*Closing the water cycle gap - Sustainable management of water resources*

These Project Management Guidelines will be effective from the date of the National funding decisions and shall remain in force until the last final project report is approved in 2022.

**The Mid-Term Consensus Report will be made available to the Consortium as well as CSC and JPI Water GB.**

**MID-TERM INDIVIDUAL EVALUATION REPORT**

**PROJECT TITLE AND ACRONYM**

“Supporting tools for the integrated management of drinking water reservoirscontaminated by Cyanobacteria and cyanotoxins”“BLOOWATER”

Name of Coordinator: Maria Sighicelli

Project code: WaterWorks2017-BLOOWATER

Duration of project: 36 months

Start date: 29/03/2019End date:29/03/2022

**DETAILS OF THE EVALUATOR**

Name: Olga Covaliova

Organisation: Institute of Chemistry, Republic of Moldova

Date of review: 08/04/2021

### **Scientific and technological progress** (*Maximum 250 words)*

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| *During the Reporting period the progress has been reached with regard to all five WPS, however, due to external circumstances, planned activity was partly delayed. Two study areas in Italy were changed with another two lakes.*  *WP1: not all the remote sensing data from 2 satellites were acquired (3 out of 6). Milestone M3 was reached (project areas identified), whereas M6 (database settings up was started) and M9 (functional parameters chosen) were partly reached.*  *WP2: Two modeling methods have been tested regarding occurrence of cyanobacteria blooms. There were delays with data collection and model development. M3 – data collection not yet completed; M9 – hydrothermal model setup for all study sites and M18 – SELMA water quality model were tested, as well as coupling of these two models.*  *WP3: completed activities – Practical report on data performances and economical assessment of technologies for cyanobacteria reduction. Laboratory tests started to determine parameters of pilot scale equipment. First treatment step - chitosan coagulation was tested.*  *WP4: Guidelines on data collection, as well as data spreadsheet under development. Data collection and acquisition is not yet complete.*  *A multi-disciplinary nature of works performed was due to using of field samplings, bench-scale tests of treatment technology, testing of different model systems, development of decision support system, data collection. There were no publications in peer-reviewed research journals yet, however, project website was developed. Document management system established through the website for partners to share information. In addition, Project activity was mediatized through social media, organizations websites, interviews in mass-media.* |

### **Collaboration, coordination and mobility within the Consortium** (*Maximum 250 words)*

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| *One remote meeting of Consortium partners was held. Another meeting scheduled for spring in Italy was postponed. The mobility foreseen initially was impossible due to emergency situation and covid limitations. Regular exchange of group and individual emails with Project Coordinator made it possible to share project activities, namely, the data demand for Italian lakes needed to construct a dataset for elaborating the functional forecast models regarding occurrence and development of toxic blooms. Project meets the transnational nature, as datasets obtained for Swedish and Norwegian lakes will be applied to develop the forecast model systems in Italy.* |

### **Coordination with other international project funded by WaterWorks2017, or other instruments** (*Maximum 250 words)*

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| *There was no external collaboration of Bloowater Consortium with other projects funded by WaterWorks2017. However, collaboration with the Department of Robotics of ENEA was started to provide test monitoring using the drones, to be performed on 2 Swedish and one Norwegian lakes. Also, collaboration with the University of Rome 3 (Engineering department) and Czech University of Life Sciences, Prague (Department of Applied Geo-Informatics and Spatial Planning) to assess potential of sputnik data to monitor algae blooms.* |

### **Coverage of the themes and sub-themes of the call** (Maximum *250 words)*

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| *The Project results are related to the following themes and sub-themes of the Call: Theme 1. Enabling sustainable management of water resources, Sub-theme 1.1. Promoting adaptive water management for global change; Theme 2. Strengthening socio-economic approaches to water management, Sub-theme 2.1. Integrating economic and social analyses into decision-making processes; Theme 3. Supporting tools for sustainable integrative management of water resources.* |

1. **Stakeholder/industry engagement** (*Maximum 250 words)*

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| *During the Reporting period, a series of collaborations have been started with following stakeholders:*  ***Regional Agency for Environmental Protection*** *- ARPA Lazio and ARPA Marche,* *collaborated by providing historical data series on the new pilot areas of the project, Lake Albano in Lazio and Lake Castreccioni in Marche:*  ***Regional Park*** *of “Castelli Romani”, where the lake of Albano is located, interested in monitoring the quality of the lake water; is providing great logistical and administrative support for necessary authorizations to navigate and fly within protected areas;*  ***Acquambiente*** *a company owned by Local Authorities with a strong vocation in the comprehensive management of water resources, the drinking water treatment plant located in the district of Castreccioni is managed by Acquambiente Marche S.r.l., which is therefore particularly interested in the treatment of waters subject to blooms.* |

### **Recommendations for improvements/amendments of the report** (Please complete Table below)

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| **Page** | **Modification** | **Rationale for change** |
| Page 8 | Under the Project, it was proposed using of chitosan as coagulant to remove the algae from treated water, as the first treatment step, prior to the polymer-enhanced filtration step. It would be rational assessing the amount and cost fo natural resources (sea shells, etc.) necessary to obtain the dispersive chitosan, on a regional / or broader scale. Moreover, it would be worth assessing the chitosan consumption for coagulation treatment step per 1 m3 of treated water, and, maybe, to identify other available raw materials that could be used for this treatment step. Maybe, using a mixture of coagulating agents could be considered as well. | Overall significance of cyanotoxines removal problem, and possible practical application of the proposed two-step treatment technology. |
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1. **Recommendations/ problems and risks** (Maximum *250 words)*

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| *The factors that caused the delay with scheduled activity implementation, were: 1. Covid pandemics and 2. Delays in funding of two Italian Partners, which have not received financing yet. This led to organization of just few meetings, prevented mobility, experts exchange, joint works at project sites and water treatment tests; difficulties with acquisition of satellite data and equipment tools; delays with staff involvement: post-doc position in Sweden was not completed; and delays in performing the scheduled activities under WPs 1-5. As two above problems could be regarded as force-majeur, it could be expected that they will persist some time more. It could be recommended: that the Partners continue using their own available resources, including manpower, equipment, logistics; to continue the remote communication with other partners; to attract stakeholders with relevant expertise, to implement certain works; the Consortium could submit a request for project extension for certain period they consider necessary to successfully finalize the Project activities.* |

**MID-TERM EVALUATION CONSENSUS REPORT**

**This Consensus Report will be made available to the Consortium as well as CSC and JPI Water GB.**

**PROJECT TITLE AND ACRONYM**

Name of Coordinator:

Project code: WaterWorks2017-BLOOWATER

Duration of project:

Start date: End date:

**FOLLOW-UP GROUP**

Please include the data of the FG members reviewing the report

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| Name | Organisation |
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### **Scientific and technological progress** (Maximum *250 words)*

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| *Please describe the work performed and the results obtained during the lifetime of the project, and the conformity of work progress within the initial schedule. Take into account the following aspects:*   * *Has progress been achieved towards reaching the project objectives according to the original description and milestones?* * *Detailed update on methodology & results* * *How has the progress of the project promoted a multi-disciplinary work?* * *Dissemination of the results (publications, patents, other)* |

### **Collaboration, coordination and mobility within the Consortium** (Maximum *250 words)*

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| *Please evaluate the collaboration, coordination and mobility within the Consortium*  *Take into account the following aspects:*   * *Efficiency on the coordination and organization of the projects* * *Collaboration effective between the partners* * *Mobility of the research between the consortia* * *Does the project meet the transnational nature and its added value?* |

### **Coordination with other international project funded by WaterWorks2017, or other instruments** (Maximum 250 *words)*

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| *Please evaluate the external collaboration of the Consortium*  *Take into account the following aspects:*   * *Collaboration effective with other projects funded under the 2018 Joint Call:* * *Collaboration effective with other projects or consortia.* |

### **Coverage of the themes and sub-themes of the call** (Maximum 250 words*)*

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| *Please evaluate relation within the project results and the themes and the sub-themes of the call.*  *Theme 1. Enabling sustainable management of water resources.*  The overall aim for this theme is to develop new governance and knowledge management approaches.   * *Sub-theme 1.1. Promoting adaptive water management for global change:*   The aim of sub-theme 1.1 is to increase knowledge and to develop evidence-based methodologies and technologies for monitoring the cumulative impacts of human activities and climate change on the water cycle, but also to develop management options on the water cycle (considering all cycle compartments) and water / ecosystem services. This knowledge must be applicable for the adaptive management of water resources on a regional scale, while enabling downscaling to address local or catchment situations.   * *Sub-theme 1.2. Integrative management by implementing Natural Water Retention Measures (NWRM) such as Managed Aquifer Recharge (MAR):*   The aim is to increase the knowledge and develop NWRMs such as MAR in a multidisciplinary way, to protect, prolong, sustain and augment freshwater supplies. Evidence of their effectiveness and on the multiple benefits they deliver should be demonstrated.   * *Sub-theme 1.3. Mitigating water stress in coastal zones and urbanized areas:*   The aim is to develop and demonstrate a comprehensive coastal zone management system based on monitoring and modelling to ensure the provision of freshwater security under a range of conditions including saline intrusion, sediment management, storms, floods and droughts, but also specific coastal water uses. Please, refer to H2020 calls on nature-based solutions to propose complementary actions.  *Theme 2. Strengthening socio-economic approaches to water management.*  The overall aim of this theme is envisaging education and communication initiatives to raise social awareness of consumption habits and water scarcity and to increase the levels of social acceptance and use of recycled water.   * *Sub-theme 2.1. Integrating economic and social analyses into decision-making processes:*   The aim is to increase the knowledge the effectiveness and efficiency of existing economic mechanisms and policy instruments related to water management, with a special emphasis on implementation of water policies (such as the EU Water Framework Directive) and development of a circular and green economy. The approach should aim to break boundaries between services valuation including more flexible pricing and charging mechanisms, management tools and institutions, and the employment of economic and social sciences to develop best practice management guidelines for efficient water uses, including under extreme events such as droughts and floods.   * *Sub-theme 2.2. The reuse of water:*   The aim is to develop integrative methods and cost-effective technologies for the implementation of acceptable and sustainable solutions on a large scale for different reuse cycles, spanning from irrigation, via livestock drinking water, to human consumption. Furthermore, goals include assessments of social acceptance for the use of recycled water and the development of integrated approaches combining technological solutions with social-psychological acceptability, economic viability and appropriate governance approaches. Research into the removal of emerging contaminants must consider the cost of the technology vs yield and realistic options for reuse of the recovered water. Please refer to projects funded under previous Water JPI Joint Calls (2013, 2015 and 2016) to avoid any duplication. See Joint Calls on Water JPI website.   * *Sub-theme 2.3. Connecting science to society:*   The aim is to increase understanding of the role of socio-economic approaches to water uses in hydrological cycles. Knowledge building should address stakeholders' and public awareness of water challenges and values, and how perception of policy measures and technological solutions are formed and how stakeholders can be steered towards desirable behaviour. Local and/or regional context (attitude, social norms, cultural context, etc.) should be taken into consideration. The value of improved water stewardship overall should be considered by developing sustainable business models.   * *Sub-theme 2.4. Promoting new governance and knowledge management approaches:*   The aim is to develop innovative water management tools and approaches suitable for decision-making based on an analysis of the limitations of current practices. These approaches should involve the broad participation of stakeholders (including public monitoring, communication and education), multidisciplinary research, and short and long-term water cycle scenarios to support decision-making and the integration of water policy into other policy fields. In effect, governance capacities for implementation of water policies at the local and regional levels should be enhanced.  *Theme 3. Supporting tools for sustainable integrative management of water resources.*  This theme aims to complement the actions developed under the European Strategy Forum for Research Infrastructures (ESFRI) and other European initiatives. Emphasis should be on establishing networks and information sharing among existing research facilities/field labs, analytical methods, monitoring tools and programmes, access to databases and platforms, exploring the use of big data solutions and establishing reliable hydrological standards. Across the globe, there is a large body of knowledge, methodology and data related to hydrology and the water cycle that has the potential of being beneficial for a wide range of the world's regions. The alignment of water-related research and sharing of data and results will serve to avoid duplication of research, support progress based on previous finding, and thus facilitate the establishment of water management policies addressing rapid climatic changes. |

1. **Stakeholder/industry engagement** (*Maximum 250 words)*

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| *Please evaluate the participation of stakeholders/industry on the project and the added value of this participation.* |

### **Recommendations for improvements/amendments of the report** (Please complete Table below)

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| **Page** | **Modification** | **Rationale for change** |
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1. **General Assessment Comments** (*Maximum 250 words)*

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| *Please include a summary of the key points of this evaluation.*  *Problems identified or specific risks to the projects. As well recommendations/feedback, which could be relevant to the Consortium.* |