**Annex 5**

**Mid-Term Evaluation Report**

**(Individual)**

**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**

Name of Coordinator: Robert J. FOSTER

Project code: WaterWorks2017-Spy – Sense and Purify

Duration of project: 36 months

Start date:  **1April 2019** End date: **31 March 2022**

**DETAILS OF THE EVALUATOR**

Name: Gaëtane SUZENET

Organisation: International Impact Partners

Date of review: 6 April 2021

### **Scientific and technological progress**

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| *Significant progress has been made towards achieving the objectives of all the work packages (WP).**WP1: Deliverable 1.1 has been completed. The project partners succeeded in developing a reusable electrochemiluminescent sensor for detecting pathogens as low as 100 CFU/ml. Progress has also been made on assessing two potential approaches to measure organic loads in wastewater, i.e. Boron Doped Diamonds (BDD) electrodes have been successfully tested for the detection and elimination of pharmaceuticals commonly consumed in South Africa, and UV-Vis Spectroscopy has demonstrated promising results for monitoring the concentration and degradation of pharmaceuticals.* *WP2: Deliverables 2.1 and 2.2 have been completed. The project consortium encountered technical and staff difficulties to complete Task 2.2 on quantifying the electrochemical performance, lifetime and costs of BDD particles. These difficulties could be exacerbated by the end of the funding of one of the main partners, DCU.* *WP3: Progress has mainly been made on Task 3.1 on designing a prototype reactor that will combine the monitoring and treatment technologies. Main progress has been on experimenting BDD electrodes and particles to decompose key active pharmaceuticals ingredients within the prototype reactor.* *WP4: Contacts have been initiated with pharmaceutical and food industries. However, technical and COVID 19 issues have delayed the use of industrial samples, particularly in Ireland.* *The results of the project have promoted a multi-disciplinary approach through the combination of several academic disciplines and industrial specialisations.* *Two publications were issued in peer-reviewed journals and 2 presentations were made, respectively in a conference and an academic media (Theconversation.com)*. |

### **Collaboration, coordination and mobility within the Consortium**

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| *The mid-term report does not develop much on the efficiency of the organisation and coordination of the project. Coordination seems to have been mainly on scientific and technical tasks. Because of the COVID 19 situation, the consortium organised on-line progress meetings, mainly to discuss scientific issues. 4 meetings were organised over the period running from June 2019 to April 2020. Two in-person meetings were organised in May and June 2019 to discuss administrative and strategy issues. The report demonstrates well the effectiveness of the collaboration between the partners towards reaching the objectives for each WP, i.e. first significant results have already been achieved. The mobility strategy originally planned between the different research labs was not implemented because of COVID 19. It is planned to start when the travel restrictions are lifted. The project meets the transnational nature and mainly lies in the transfer of materials and complementarity expertise between the project partners.*  |

### **Coordination with other international project funded by WaterWorks2017, or other instruments**

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| *The mid-report gives only a brief indication of coordination with other projects. The report mentions strong links with the EU funded Innovative Training Network BREAKBIOFILMS on the development of sensors for the detection of pathogens. Close collaboration with the Intelligent Polymer Research Institute in Australia has also been initiated. The report does however not give any details on how effective the collaboration has been and which parts of the project it has contributed to.*  |

### **Coverage of the themes and sub-themes of the call**

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1. **Stakeholder/industry engagement**

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| *Stakeholders’ engagement has been mainly carried out through visits to schools (8). The mid-term report does however not provide any details on the content of the visits and results/impacts these generated.**The project is principally targeted at the industry and municipal wastewater treatment managers, and is less relevant to the wider public. During the reporting period, the project consortium has successfully engaged with the pharmaceutical and food industries, to understand their needs and their respective wastewater types. In Ireland, the pharmaceutical company provided samples and contributed to designing the sampling protocols. In France, discussions also concerned the expected performance criteria with respect to sample volume and throughput rates. No confidential data has however been provided at this stage. The industrial relationships have influenced the design of the monitoring and treatment performances of the reactor, in order to fit with the market expectations.*  |

### **Recommendations for improvements/amendments of the report**

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| **Page** | **Modification** | **Rationale for change** |
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1. **Recommendations/ problems and risks**

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| *The main problem identified is related to the COVID 19 situation, which has caused delays in starting and implementing the project as planned, i.e. the laboratory work in Ireland, France and Spain and South Africa had to stop in March 2020 and only re-opened between July and November 2020. The mid-term report reports a loss of 30 person months for experimental lab work. It also reports a loss of industry’s interest in the project.* *This caused delays in ordering of materials and services and longer time response from 3rd party suppliers lack of access to ‘real’ industrial samples.* *Having different execution of contracts by funding agencies also posed a challenge for the different partners. E.g. DCU funding was meant to stop in March 2021, the contract between the University of Western Cape and the Water Research Commission of South Africa was signed later than the other contracts, coupled with the COVID 19 situation, led to a significant impact on the starting date of the project, i.e. almost one year after the official start of the project.* *One recommendation may be to include Representatives of the industrial partners in the Advisory Board.*  |