

Call Pre-Announcement - Joint Transnational Call 2020

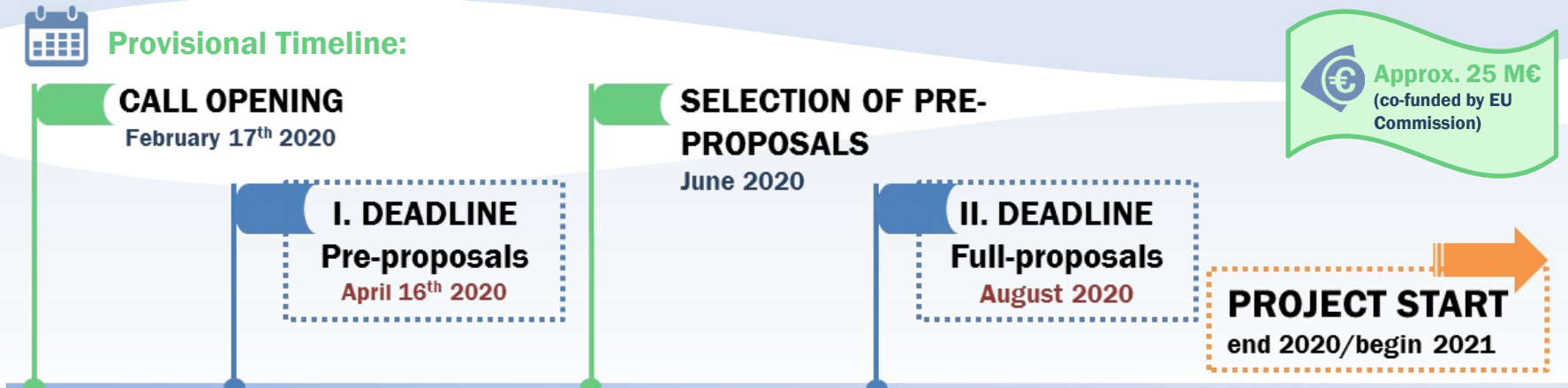
> Risks posed to human health and the environment by pollutants and pathogens present in water resources <



There are still major risks associated with the occurrence of contaminants of emerging concerns, pathogens and antimicrobial resistant bacteria in our water bodies and oceans. To face these challenges in a comprehensive way and to develop multidisciplinary and practical solutions for the provision of safe drinking water and healthy aquatic environments, this Joint Transnational Call aims to make research communities in the freshwater, marine and the health sectors work together and create synergies for joint approaches.



Provisional Timeline:



Themes:

- 1 Measuring** – Environmental behaviour of contaminants of emerging concern (CECs), pathogens and antimicrobial resistant bacteria in aquatic ecosystems
- 2 Evaluating** – Risk assessment and management of CECs, pathogens and antimicrobial resistant bacteria from aquatic ecosystems (inland and marine) to human health and environment
- 3 Taking Actions** – Strategies to reduce CECs, pathogens and antimicrobial resistant bacteria in aquatic ecosystems (inland and marine)



26 participating countries:





Call Announcement

Risks posed to human health and the environment by pollutants and pathogens present in water resources

Joint Call 2020

Publication Date: 17 February 2020



Objectives of the ERA-NET Cofund

The overall goal of the proposed ERA-NET Cofund AquaticPollutants is to strengthen the European Research Area (ERA) in the field of clean and healthy aquatic ecosystems and to leverage untapped potential in the collaboration between the freshwater, marine and health research areas. The ERA-NET Cofund AquaticPollutants is a network of 32 ministries, authorities and funding organisations responsible for funding research and innovation projects in the field of clean and healthy aquatic ecosystems from 26 countries.

Within the framework of AquaticPollutants the Joint Programm Initiatives (JPIs) on Water, Oceans and Antimicrobial Resistance (AMR) are working closely together. A multidisciplinary approach has been set up, which brings together the research needs of the freshwater sector, the marine sector and the health sector to carry out a Joint Transnational Call (JTC) and complementing Additional Activities. This call will make the research communities of those three research fields work together and create synergies for joint approaches.

Objectives of the Call

The European Water Framework Directive (WFD) and the Marine Strategy Framework Directive (MSFD) both require the European Union member states to reach good environmental status of their aquatic ecosystems (inland - freshwater and groundwater - and marine, including sediments). On a global scale the United Nations (UN) Sustainable Development Goals (SDGs) have set out a sustainable blueprint for the international community to improve human health, ensure provision of safe water for all and safeguard both marine and freshwater ecosystems by 2030. Despite these transnational ambitions, there are still major risks associated with the occurrence of emerging pollutants, pathogens and antimicrobial resistant bacteria, in our water bodies and oceans. To face these challenges in a comprehensive way and to develop multidisciplinary and practical solutions for the provision of safe drinking water and healthy aquatic environments, three Joint Programming Initiatives (JPIs) on Water, Oceans and Antimicrobial Resistance (AMR) are working together to strengthen collaboration in a joint research Call on Aquatic Pollutants, to address these challenges, that impact all of society.

Pollutants of emerging concern, in short emerging pollutants, have only recently been detected in water and are found in very small concentrations in the environment. The spectrum of these pollutants is very broad and they are mostly derived from anthropogenic sources, especially from urban areas, agriculture, industry as well as maritime activities and consequently end up in our rivers, estuaries and coastal ecosystems. These emerging pollutants and their transformation products have been detected at concentrations significantly higher than expected and are more persistent and capable of dissemination than previously known to. In turn this has qualified emerging pollutants as a new risk to human health and environmental ecosystems that needs to be addressed, urgently.

The occurrence of pathogens and emerging pollutants in water resources is nowadays one of the most serious risks in our environment and is considered a major factor particularly in the degradation of water quality. Anti-microbial resistant organisms and genes are now found widespread throughout the environment that poses as a serious emerging risk for human health and well-being. Anti-microbial resistant bacteria enter the aquatic ecosystems through effluents from wastewater treatment plants, hospitals, pharmaceutical production and stock farming including aquaculture.

Some of these pollutants and pathogens are known to harm aquatic ecosystems even in very low concentrations and in turn can negatively influence the provision of safe and clean water for drinking water purposes. In aquatic organisms, serving as staple food, pollutants and anti-microbial resistant bacteria can accumulate and hence enter the food chain respectively causing further secondary effects.

The input of these harmful substances into the aquatic environment must be avoided. By identifying the sources and assessing the corresponding practical measures, such as sustainable production methods and responsible handling of emerging pollutants, needs to be improved. Further understanding and analysis of the behaviour of such pollutants, pathogens and antimicrobial resistant bacteria needs to be undertaken. Appropriate strategies for their detection, monitoring and solutions for their removal needs to be further developed. This will underpin strong and much needed policy, enforcement and inform appropriate decision-making.

To undertake such actions, a holistic catchment approach for a better understanding of the ecological and human health effects is necessary. The whole water cycle, from the sources through the river basins and eventually to the estuaries and oceans, has to be considered. This approach has to include soil and groundwater transport as well as

potential atmospheric pathways that these pollutants may take. The effects to the human health, the transport and transmission of harmful substances from the freshwater and marine environment to organisms via the food chain also need to be taken into account.

The three participating JPIs already implemented several activities dealing with the topics on risk management, emerging pollutants and antimicrobial resistant bacteria, for example the Water JPI Pilot Call 2013 on emerging contaminants, the Water JPI 2015 call on wastewater treatment and water reuse, the JPI AMR transmission dynamic call 2016, JPI AMR intervention call 2017, the JPI Oceans micro-plastics calls 2015 and 2018 (considering their functions in pollutant migration), the MarTERA calls 2017 and 2019 and the EC research funding programmes (in particular FP7 and H2020). Furthermore, the actions carried out by the NORMAN Network and the COST action NEREUS should be considered. Results and expertise already developed from these previous and other relevant activities should be built on and taken into account within this call.

The **main research and innovation objectives of the AquaticPollutants joint transnational call** are:

- to **establish** integrated and cross-sectoral **approaches for risk management** combining the research areas of emerging pollutants, pathogens and antimicrobial resistance under the overall topic “from the source to the mouth”;
- to **analyse the spread** of emerging pollutants and pathogens related to antimicrobial resistance from the different sources (e.g. urban areas), that lead to impacts and risks on the aquatic ecosystem, environment and human health;
- to **describe the transformation** of such emerging pollutants and pathogens and their effects when entering the different aquatic systems and accumulating in the food chain;
- to **improve strategies and develop/ evaluate technologies** (incl. digital technologies) for reducing emerging pollutants and pathogens at the sources, on their pathways and end-of-pipe;
- to **develop/ integrate innovative methodologies and tools** in order to allow policy-makers to develop more effective policies and efficient regulations;

Theme of the Joint Call

The participating organisations agreed on a Joint Transnational Call encompassing three main themes, and 8 subthemes:

Scientific Projects

Theme 1 - Environmental behaviour of emerging pollutants, pathogens and antimicrobial resistant bacteria in aquatic ecosystems (“Measuring”)

Subtheme 1.1 - Assessment of the significance of different potential sources, reservoirs and pathways of emerging pollutants and pathogens including antimicrobial resistant bacteria

Proposals may cover: i) Estimating the entry of emerging pollutants and pathogens into the environment, with indication of the matrix to be also analysed (water, sediment, biota) with a view to emission control at local and regional levels; ii) Establishment of indicators and tracers that achieve identification of sources and pathways of contamination/pollution.

Subtheme 1.2 - Understanding and predicting the environmental and cumulative behaviours of emerging pollutants and pathogens including antimicrobial resistant bacteria

Proposals should aim at: Modelling of transport processes and fate of emerging pollutants and pathogens; Understanding the processes involved in the increase and degradation of pollutants of emerging concern and pathogens and degradation/transformation products; Assessing the transfer time of different pollutants, as well as understanding the processes during transfer within the various compartments and from inland water to oceans; Assessing retention and degradation capacity of aquatic ecosystems; Identification of cumulative effects and mixtures, Assessing the biodegradation of antibiotics to estimate and anticipate antibiotic resistance transmission rates and assessing gene transfer; Evaluation of the transmission and changes of AMR and pathogens in aquatic ecosystems.

Theme 2 - Risk Assessment and Management of emerging pollutants, pathogens and antimicrobial resistant bacteria from aquatic ecosystems (inland and marine) to human health and environment (“Evaluating”)

Subtheme 2.1 - Characterising the exposure routes and effects of emerging pollutants and pathogens including antimicrobial resistant bacteria on aquatic ecosystems and on human health

Key objectives in this area are in relation to: Estimation of the transmission of pollutants and pathogens to and from the aquatic environment, biota and humans as well as through the food chain (trophic transfer) and via water exposures; Understanding the factors that control the bioavailability and fate of emerging pollutants, pathogens and antimicrobial resistant bacteria in organisms such as uptake, mode of action, biological end-points.

Subtheme 2.2 - Development of integrated risk assessment and risk management procedures

Proposals should cover: Identification and selection of the main pollutants of emergent concern most widely distributed in aquatic environments, in order to establish a priority list of pollutants to be included into the risk management and monitoring plans; Including the effect of long-term exposure, the cumulative effects and the interplay between different pollutants acting with adverse impacts (on aquatic ecosystems as well as on human health) and antibiotics selecting for resistance in the environment; Assessing the occurrence and the toxicity of emerging pollutants in aquatic ecosystems; Expanding our knowledge base on antibiotic resistance in aquatic ecosystems; to establish thresholds values in continental, marine ecosystems and biota; Determination of the incremental health risk caused by environmental exposure to antibiotic resistant bacteria; Development and application of an integrated approach (chemical and biological); Determination of the incremental health risk caused by environmental exposures to antibiotic resistant bacteria; Assessing the occurrence of emerging pollutants in seafood, developing strategies to remove/reduce contaminants from seafood.

Subtheme 2.3 - Parameters and strategies for monitoring potential antimicrobial resistant bacteria

Proposals should aim at the definition and validation of parameters and strategies for monitoring potential antibiotic resistant bacteria in aquatic environments from different sources and in relation with potential uses, and for defining threshold values and local guidelines for emitting sources and their organisations on maximum permissible contamination levels in aquatic ecosystems.

Theme 3 - Strategies to reduce emerging pollutants, pathogens and antimicrobial resistant bacteria in aquatic ecosystems (inland and marine) (“Taking Actions”)

Subtheme 3.1 – Implementation of strategies to reduce emerging pollutants and pathogens including antimicrobial resistant bacteria at the source

Strategies should consider reduction at the source and/or downstream mitigation actions. Both technical options and management aspects contributing to reduction at the source - such as end products, effects and acceptance, reduction of consumption, improve prudent and rational use of antibiotics - should be considered.

Subtheme 3.2 – Development of methods for preventing the spread of emerging pollutants and pathogens including antimicrobial resistant bacteria

Key questions to address by applicants are: Developing a better understanding of the extent to which emerging pollutants and pathogens are removed or modified, e. g. through water treatment plants or natural processes in soils, sediments and aquatic systems; Improvement of combined treatments and sustainable treatment solutions leading to lower prevalence and spread of antimicrobial resistance, not only focussed in the removal of emerging pollutants.

Subtheme 3.3 – Assessment of management measures and technologies to reduce the impact of emerging pollutants and pathogens including antimicrobial resistant bacteria on water quality

Proposals should consider: assessment of already implemented management measures and technologies to reduce the impact of emerging pollutants and pathogens including antimicrobial resistant bacteria; Developing suitable indicator sets of established parameters for monitoring treatment processes; Assess the contribution of management practices and treatment technologies in the formation of by-products or additional antimicrobial resistant bacteria during the processes, especially in wastewater treatment and reuse processes.

Scope of the Call

- ✓ Emerging pollutants, pathogens and materials linked to antimicrobial resistance, their risks for human health and aquatic ecosystems, and the transfer between inland and marine environments will be the main topic of the call.
- ✓ **Micro-plastics will not be subject to the call as they are covered by other calls (EU, JPIs).**

Eligibility criteria

All partners within a consortium must comply with all the eligibility criteria (general & national criteria) as described in the two sections below. Before submitting an application, the Consortium Coordinator should verify that all partners of the consortium have read their corresponding national/regional regulations and/or contacted their National Contact Points to confirm eligibility issues.

Proposals passing the eligibility check will be forwarded to the evaluators for assessment. The Call Secretariat (CS), on behalf of the Call Steering Committee (CSC), will communicate the results of the eligibility check and the decisions taken to the coordinator of each consortium.

Proposals, which are not meeting all 2020 Joint Call general and national/regional eligibility criteria, will be declined without further review. Non-eligibility of a partner in a proposal will cause to the rejection of the entire proposal without further review after the decision of the CSC.

General eligibility criteria

Scope

- All proposed scientific projects must be fully relevant to the scope and objectives of this call;
- Proposals should be novel or build on on-going research activities funded by other instruments, programmes or projects. For latter cooperation with these activities is of high importance;
- Proposals shall go beyond the state of the art by providing high quality R&I, and when appropriate, to make use of innovative technologies, approaches and concepts to do so;
- Allow for cross-cutting issues, such as socio-economic and/or capacity development aspects.
- Closely collaborate with the parallel running Transfer Project during execution.

Project duration

Project duration must be 36 month.

Submission

- The pre-proposal and the full proposal must be submitted correctly and completely before the respective deadlines via the Submission Tool (<https://aquaticpollutants.ptj.de>) according to the Application procedure (Chapter **Error! Reference source not found.**) and the Guidelines for Proposal Submission (published on the submission tool website). Applicants should note that failure to comply with the submission rules will cause ineligibility of the project and therefore exclusion from the application process.
- All proposals must be received before the deadlines.
- All proposals must be written in English language.
- All proposals shall integrate the **gender dimension** of R&I activities.

The above criteria apply to all partners. These represent the minimal requirements and do not exclude more specific criteria. Partners from countries/regions participating in the call must also meet the national criteria as outlined in the national regulations.

Partners:

Country/ Region	Funding Partner Organisation	National Contributions (tentative budget,
Germany (DE)	Jülich	3.000.000 €
Belgium (BE)	BELSPO	500.000 €
Belgium (BE)	F.R.S.-FNRS	200.000 €
Belgium (BE)	FWO	700.000 €
Brazil (BR)	CONFAP	100.000 €
Cyprus (CY)	RPF	400.000 €
Czech Republic (CZ)	TACR	1.000.000 €
Denmark (DK)	IFD	1.000.000 €
Egypt (EG)	ASRT	300.000 €
Estonia (EE)	ETAg	100.000 €
Finland (FI)	AKA	850.000 €
France (FR)	ANR / AFB	2.000.000 €
Greece (GR)	GSRT	1.000.000 €
Ireland (IE)	EPA	500.000 €
Israel (IL)	CSO-MOH	300.000 €
Italy (IT)	ARPA	100.000 €
Italy (IT)	MIUR	500.000 €
Moldova (MD)	NARD	100.000 €
Norway (NO)	RCN	500.000 €
Poland (PL)	NCBR	600.000 €
Portugal (PT)	FCT	300.000 €
Romania (RO)	UEFISCDI	600.000 €
South Africa (ZA)	WRC	130.000 €
Spain (ES)	AEI	1.000.000 €
Spain (ES)	ISCIII	500.000 €
Sweden (SE)	FORMAS	1.500.000 €
Sweden (SE)	SRC	1.500.000 €
Taiwan (TW)	MoST	500.000 €
Tunisia (TN)	MHSER	150.000 €
Turkey (TR)	TUBITAK	750.000 €
United Kingdom (UK)	SCOTENT	500.000 €
TOTAL in €		21.180.000 €

EU member states	Associated countries	Third countries
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