
An Fóram Uisce

Early-Stage Researcher Bursaries

Call for Applications

Closing Date: 5pm Monday 6th September 2021

Queries to be addressed to:

Dr Triona McGrath
Research Lead
An Fóram Uisce
triona@nationalwaterforum.ie
087 9858738

www.thewaterforum.ie

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1. INTRODUCTION TO AN FÓRAM UISCE

An Fóram Uisce (the Water Forum) was established on a statutory basis in June 2018, in accordance with the Water Services Act 2017. An Fóram has advisory roles in relation to the Minister for Housing, Local Government and Heritage, Irish Water, the Commission for Regulation of Utilities and the Water Policy Advisory Committee.

An Fóram is the only statutory body representative of all stakeholders with an interest in the quality of Ireland's water bodies. Consisting of 26 members including representatives from a wide range of organisations with direct connection to issues relating to water quality and also public water consumers. Approximately 50 different organisations were involved in the nomination of members.

An Fóram provides an opportunity for stakeholders to debate and analyse a range of issues with regard to water quality, rural water concerns, issues affecting customers of Irish Water and the implementation of the Water Framework Directive and the River Basin Management Plan for Ireland 2018-2021. As an independent entity, An Fóram has discretion to determine its own work programme and means of communicating its views and analysis.

Dr Tom Collins, our Chairperson, was previously the Chair of the Public Water Forum and a former Chair of the National Rural Water Monitoring Committee.

Its work is supported by an executive team including: Senior Executive Officer: Donal Purcell; Research Lead, Dr Triona McGrath; Communications and Education Lead, Dr Gretta McCarron. Technical support, Post-doctoral researcher (DkIT), Dr Angelos Alamanos; Administrative support, Martina Ryan.

Further information on the work of An Fóram Uisce is available at www.thewaterforum.ie

An Fóram Uisce's Role in Research

The Water Services Act 2017 provided the statutory basis for An Fóram. In accordance with the provisions of the Water Services Act 2017, An Fóram is required to advise the Minister for Housing, Local Government and Heritage in relation to water services and the water environment. Article 26 of the Water Services Act 2017 outlines the function of The Forum, including *“(e) to examine such other water-related matters [concerning the management of the inland aquatic environment and water resources], including the carrying out of research concerning those matters, as the Minister requests the Forum to examine and to advise the Minister accordingly.”* To this end, An Fóram is committed to working with stakeholders to fill water-related knowledge gaps and inform policy to deliver on the Forum's Strategy.

2. EARLY-STAGE RESEARCHER BURSARIES OVERVIEW

An Fóram Uisce offers the opportunity for Early-Stage Researchers to apply for individual bursaries to undertake short, desk-based research around four specific topics, the details of which are outlined in Section 3.

These bursaries aim to:

1. Address key topic areas of importance to An Fóram Uisce to inform the Forum's policy positions on these topics, and to identify future foci for further research by the Forum.
2. Increase awareness of the role of An Fóram Uisce and its aim to bridge any gaps between science and policy.
3. Provide funding support to Early-Stage Researchers in Ireland.
4. Increase the policy relevance of scientific research undertaken by Early-Stage Researchers in Ireland and to provide the linkages for such research to inform the policy process.
5. Provide further opportunities for Early-Stage Researchers to develop experience in competitive funding application processes.
6. Increase the visibility of Early-Stage Researcher research activity.

Applicants may apply for a bursary under any of the listed topics. Any applicant may apply for more than one topic but no more than one award may be made to any individual applicant. If an applicant wishes to apply for more than one topic, a separate application must be made for each topic.

2.1 ELIGIBILITY

The Irish Research Council Career Development Policy Statement¹, categorises Early-Stage Researchers “as researchers up to the point of achieving PhD and PhD holders that are not fully independent.” This corresponds to categories R1 “First Stage Researcher (up to the point of PhD)” and R2 “Recognised Researcher (PhD holders or equivalent who are not yet fully independent)” of the European Framework for Research Careers².

For the purpose of these bursaries, applicants must either:

1. Be registered for a level 10 degree³ at an Irish Higher Education Institution⁴ with the aim of pursuing a PhD qualification; OR
2. Have been awarded a PhD (level 10 qualification) no more than 2 years prior to the bursary application submission deadline (see Section 6); AND currently be employed at an Irish Institute of Higher Education.

¹ http://research.ie/assets/uploads/2017/05/IRC-Researcher-Career-Development-Policy-Statement_29Sept2017.pdf

² https://cdn5.euraxess.org/sites/default/files/policy_library/towards_a_european_framework_for_research_careers_final.pdf

³ Irish National Framework of Qualifications: <https://nfq.qqi.ie/>

⁴ <https://hea.ie/higher-education-institutions/?v=1>

3. PROJECT TOPICS

Table 1 provides the titles for each topic with the proposed outputs/impact for each. This is followed by a breakdown of each topic, including the background and key research questions.

Table 1 Provides topics included in the ESR Bursary call and proposed outputs/impact for each.

Topics	Proposed Outputs
1. Nutrient recovery and recycling from wastewater in Ireland, with associated policy gaps and recommendations.	Summarise available technologies for nutrient recovery and recycling from wastewater in Ireland. Identify policy gaps in Ireland for wastewater nutrient recovery and recycling.
2. Nature-based solutions to rural wastewater treatment for septic tanks, hamlets and small villages (<500 population equivalent).	Provide an overview of nature-based solutions to rural wastewater treatment in Ireland. Provide policy recommendations for planning decisions for wastewater treatment in small villages and support developers implementing such measures on small estates.
3. Pharmaceutical pollution in waterbodies in Ireland, learnings and policy recommendations from international policies implemented to reduce pharmaceutical pollution.	Highlight international policy changes to address pharmaceutical pollution. Provide policy recommendations to reduce pharmaceutical pollution to waterbodies in Ireland.
4. Pesticide pollution in Ireland; learnings and policy recommendations from international strategies and policies to reduce the threat of pesticides to the environment.	Provide an overview of international strategies to address pesticide pollution. Provide an overview of alternative methods for the use of pesticides. Provide policy recommendations to reduce pesticide use and transition to alternative methods.

3.1 Nutrient recovery and recycling from wastewater in Ireland, with associated policy gaps and recommendations.

Background

Nutrients such as nitrogen, phosphorus and ammonium are environmental stressors of aquatic systems, often entering waters from human wastewater and following agricultural application of fertilisers. Recovery of nutrients from wastewater and recycling back to agricultural application will assist in achieving the goals for a circular economy, increase the sustainability of nutrient management in agriculture and reduce nutrient pollution from wastewater to local water courses.

There have been developments in recent years into recycling of non-toxic phosphorus and nitrogen from municipal wastewater. Sustainable phosphorus management is being highlighted within Europe due to concerns over a future global supply shortage of recycled fertilisers to meet growing consumer food demand^{5,6}. Research from an EPA project in 2016 highlighted phosphorus recovery technologies in an Irish context⁷, and Irish Water has recently announced the signing of a contract for the first facility in Ireland to recover phosphorous from wastewater, as part of the Ringsend Wastewater Treatment Plant Upgrade Project⁸.

Research Question

The main aim of this research is to provide an overview of the technological, legislative, policy and social opportunities and limitations to implementing wastewater nutrient recovery and recycling in Ireland. The key questions that should be addressed in this project are;

- What is the current status of nutrient recovery from wastewater in Ireland; what are the available technologies? How does this compare with the situation in other European countries?
- What are the biggest obstacles for nutrient recovery from wastewater (costs, available technologies, social acceptance).
- Give an overview of how recovered nutrients can be used in Ireland.
- Provide an overview of opportunities for recovering nutrients from domestic households in Ireland (urine separating/composting toilets, re-use of nutrients from septic tank sludge).
- What are the legislative gaps or obstacles for nutrient recovery from wastewater in Ireland, how do they align with international strategies and policies?
- Provide a list of key policy recommendations in relation to nutrient recovery from wastewater in Ireland.

⁵ <https://ec.europa.eu/environment/consultations/pdf/phosphorus/EN.pdf>

⁶ <https://www.phosphorusplatform.eu/links-and-resources/p-facts>

⁷ [EPA-RR-189-final-web.pdf](#)

⁸ [Works progress on the Ringsend Wastewater Treatment Plant Upgrade Project | News | Irish Water](#)

3.2 Nature-based solutions to rural wastewater treatment for septic tanks, hamlets and small villages (<500 population equivalent).

Background

In 2020 43% of rivers in Ireland were in unsatisfactory condition under the EU Water Framework Directive, with nearly half (47%) of river sites with unsatisfactory nitrate concentrations, and a third (29%) of sites with unsatisfactory phosphate concentrations⁹. After agriculture, wastewater discharges are the most significant threat to water quality in Ireland; treatment at 19 of Ireland's 172 large urban areas (equivalent to more than half of Ireland's sewage) failed the mandatory EU treatment standards set to protect the environment, while raw sewage is released into our waters every day from 35 towns and villages¹⁰. The unsafe management of wastewater presents a major risk to public health and the environment.

Forests, wetlands and grasslands, as well as soils and crops, when managed properly, play important roles in regulating water quality by reducing sediment loadings, capturing and retaining pollutants, and recycling nutrients. These nature-based solutions use or mimic natural processes to enhance water availability (e.g., soil moisture retention, groundwater recharge), improve water quality (e.g., natural and constructed wetlands, riparian buffer strips), and reduce risks associated with water-related disasters and climate change (e.g., floodplain restoration, green roofs).¹¹ There is increasing recognition for the use of nature-based solutions for wastewater treatment through filtering and removing high levels of nitrogen and phosphorus from wastewater before it reaches local water bodies, and can generate further social, economic and environmental co-benefits.

Constructed wetlands are one example of a nature-based solution for treating wastewater from small, rural communities in an environmentally friendly way before allowing it to return to the water system safely. Irish Water have supported a number of constructed wetlands, e.g. Co. Waterford and Lixnaw, Co. Kerry¹².

Research Question

The focus on this research will be on nature-based solutions for septic tanks and small wastewater treatment facilities (<500 population equivalent) in small villages and housing developments. The key questions that should be addressed in this project are;

- Provide a summary of case studies of proven nature-based solutions to rural wastewater treatment in Ireland, and internationally.
- Outline the limitations for their development and use (cost, space, availability, management, planning obstacles etc).
- Provide policy recommendations on how such measures could be applied on a national basis, with considerations for future planning requirements and regulations.

⁹ [EPA Water Quality 2020 indicators-report.pdf](#)

¹⁰ [Monitoring & Assessment: Wastewater | Environmental Protection Agency \(epa.ie\)](#)

¹¹ [The United Nations world water development report 2018: nature-based solutions for water; executive summary - UNESCO Digital Library](#)

¹² [Wetlands and Wastewater | Help | Irish Water](#)

3.3 Pharmaceutical pollution in waterbodies in Ireland, learnings and policy recommendations from international policies implemented to reduce pharmaceutical pollution.

Background

Pharmaceutical residues in the environment are an increasing concern for environmental and public health; they enter local water courses and drinking water supplies, they are taken up by wildlife and can subsequently bioaccumulate in the food chain in plant crops, fish, meat and dairy products. Psychiatric drugs have been shown to alter fish behaviour, endocrine disrupting pharmaceuticals can cause reproduction toxicity in fish and increased risk of breast or prostate cancer in humans, while the overuse of antibiotics is linked to antimicrobial resistance – a global health crisis.¹³

The main sources of pharmaceuticals to surface waters are (1) through veterinary pharmaceuticals used in agriculture and aquaculture which can directly enter local watercourses or (2) from human medications through wastewater effluent in domestic or municipal wastewater treatment plants.

According to the recent report by the DHLGH, Significant Water Management Issues in Ireland¹⁴, a National Aquatic Environmental Chemistry Group (NAECG) has been established in Ireland to bring together national expertise on hazardous chemicals in the aquatic environment, and to bring a new smarter strategic approach to the management of hazardous chemicals in the aquatic environment into the future. Furthermore, an EPA funded project in 2014 investigated a selection of pharmaceuticals in surface waters in Ireland and recommended that pharmaceutical companies should consider the environmental persistence and impact of the products they produce.

Research Question

The focus on this research is to give an overview of the current status of pharmaceutical pollution in Irish water bodies, along with how the risks can be minimised. The research should review what policies are being implemented internationally to reduce pharmaceutical pollution, and subsequently produce policy recommendations for their management in Ireland.

The key questions that should be addressed in this project are;

- Give a brief summary of pharmaceutical pollution in Irish water bodies based on available literature.
- Highlight what monitoring is carried out in Ireland in surface, drinking and wastewaters.
- Provide an overview of policies being implemented internationally to reduce pharmaceutical pollution to water bodies.
- Provide policy recommendations for the management of pharmaceutical pollution to water bodies in Ireland.

¹³ Pharmaceuticals-residues-in-freshwater-policy-highlights-preliminary-version.pdf (oecd.org)

¹⁴ <https://assets.gov.ie/78373/30d96d3b-a09c-431c-a3ee-790668e35e57.pdf>

3.4 Pesticide pollution in Ireland; learnings and policy recommendations from international strategies and policies to reduce the threat of pesticides to the environment.

There has been growing concern over the threat of pesticides to environmental and public health; in addition to killing insects or weeds, they can be toxic to other organisms including birds and fish and can have a range of effects on humans, from skin irritations to cancer.

The EPA Drinking Water Report for Public Water Supplies 2018 indicated that pesticides have been detected above water quality standards in 42 public water supplies. The Joint Position Paper published by the EPA and the HSE on Pesticides in Drinking Water (2019)¹⁵, indicated while treatment for the removal pesticides is an option available to drinking water providers towards achieving compliance, this should only be considered when efforts to prevent contamination of source waters fail.

Within Europe, the European Communities (Sustainable Use of Pesticides) Regulations 2012¹⁶ aims to reduce the risks and impacts of pesticide use on human health and the environment, and to promote the use of integrated pest management and of alternative approaches and techniques to pesticides. The Pesticide Registration and Control Division of the Department of Agriculture Food and Marine control the pesticides that are used in Ireland as well as implementing the Sustainable Use of Pesticides Directive through the National Action Plan for the Sustainable Use of Pesticides¹⁷. The National Pesticides in Drinking Water Action Group (NPDWAG) provides a platform for collaboration across state bodies, industry and farming bodies in protecting natural waters and drinking waters from pesticide contamination.

With increasing pressures to reduce the risks associated with pesticide contamination there is a need to further develop alternative strategies to pesticides. The focus on this research is to provide an overview of national and international examples of alternative strategies for pesticide use and to highlight the challenges and policy recommendations to transition to these alternative methods.

Research Questions

- Provide an overview of pesticide use in Ireland and the risk it poses to Irish waterways.
- Provide a summary of successful national and international strategies to reduce pesticide use and the adoption of alternatives to pesticides.
- Discuss the limitations of these strategies and alternatives to pesticides (e.g. price, availability, success, legislative controls).
- Provide a summary of policy recommendations to reduce pesticide pollution to Irish waterways and support the transition to the use of alternative methods for pesticides (e.g. awareness initiatives, incentives and disincentives).

¹⁵ [EPA_HSE_JPP_Pesticides_DrinkingWater---FINAL.pdf](#)

¹⁶ [S.I. No. 155/2012 - European Communities \(Sustainable Use of Pesticides\) Regulations 2012. \(irishstatutebook.ie\)](#)

¹⁷ [National Action Plan \(teagasc.ie\)](#)

4. PROJECT DELIVERABLES

The following deliverables are required for **all** awarded bursaries:

- Final report, encompassing a literature review and addressing the key questions identified for each topic described under Section 3.
- A Policy Brief document identifying the key policy recommendations for the respective topic.

A template for the final report and policy brief will be provided to the successful applicant. If suitable, applicants may be invited to present their findings to members of An Fóram Uisce and the reports may be made available on the Water Forum's website.

5. BURSARY VALUE AND PAYMENT SCHEDULE

Individual bursaries will be awarded to the value of **€5,000** per successful applicant.

A payment of 50% of the value of each bursary will be made upon the signing of the Bursary Funding Agreement between An Fóram Uisce, the Early-Stage Researcher and the Host Institution. A final payment of the remaining 50% will be made upon An Fóram Uisce reviewing and accepting the final deliverables of the project.

6. TIMELINES

The proposed preferred timeframes for project delivery are outlined in Table 1, but there can be some small flexibility in the timeframe and these will be confirmed with the successful applicants at the relevant project initiation meetings.

Table 1: Proposed timeframes for project delivery

Publication of tender	21 st July 2021
Deadline for tender submissions	6 th September 2021
Award of tender and start of project	13 th September 2021
Project initiation meeting	On or before 24 th September 2021
Draft deliverables submitted	On or before 13 th December 2021

Following review of the draft deliverables by An Fóram Uisce, completed finalised deliverables are to be submitted which take into account any proposed amendments to the drafts.

7. MARKING SCHEME

All submissions will be assessed by a panel of suitably qualified persons.

Marks will be awarded (maximum 100 marks) based solely on the information provided in the application, as follows:

- Demonstrate a clear understanding of the subject matter for the topic of application and the requirements of the project (30 marks).
- Project management arrangements, including supervisory arrangements of the Early-Stage Researcher (20 marks).

- Timeline for the project, including a GANTT chart outlining the project actions and deliverables (10 marks).
- Demonstrated relevant research track record of the Early-Stage Researcher appropriate to the subject matter, including any previous/ongoing projects delivered and scientific publications appropriate to the stage of researcher (40 marks).

8. SUBMISSION OF APPLICATIONS

Applications must be submitted no later than **5pm on Monday 6th September 2021** via email to Dr Triona McGrath, Research Lead, An Fóram Uisce: triona@nationalwaterforum.ie.

Submissions must include:

- A completed application form.
- A CV (max 4 pages) of the applicant.

An acknowledgement of receipt of applications will be issued within 48 hours of the submission deadline.

9. AWARD OF BURSARIES

A MAXIMUM OF FOUR bursaries will be awarded, with no more than one award made to any individual applicant.

Applicants will be notified of the success of their submissions no later than the 13th September 2021.

Bodies of work may be initiated immediately from the date of award, with an initial project meeting to meet with successful applicants and discuss the project to take place on or before 24th September.

10. TERMS AND CONDITIONS

- All applications must be made using the official application form.
- An Fóram Uisce will disqualify incomplete applications, applications not using the application form provided and any application received after closing time/date. Compliance with the word limitation contained on the Application Form is a requirement of the application process.
- It is a necessary requirement of the application process that each successful applicant must provide a copy of their Organisation/University/Institution's current Tax Clearance Certificate.
- An Fóram Uisce will have copyright ownership of any material developed for use by An Fóram Uisce under the terms of each bursary. The awardee may have a non-exclusive licence to use such material but only for their own purposes (to be agreed with the successful awardees).
- The principles of Ireland's National IP Protocol 2019 will be applied where there is any potential for commercial exploitation of project outputs resulting from these bursaries.
- An Fóram Uisce encourages an open access publication policy. Publications arising from bursary awards provided by An Fóram Uisce should, as a minimum, ensure open access via Green methods (depositing the peer-reviewed manuscript in an online repository before, at the same time, or after publication). Bursary Reports may be uploaded to, and publicly accessible via, The Water Forum's website: www.thewaterforum.ie.

- Any publications arising from bursary awards provided by An Fóram Uisce must acknowledge An Fóram Uisce|The Water Forum as the source of funding.
- Awardees funded by An Fóram Uisce must uphold the highest standards of research integrity and An Fóram Uisce expects all awardees to abide by the guidelines outlined in the National Policy Statement on Ensuring Research Integrity in Ireland; and the European Code of Conduct for Research Integrity.
- Data Protection and Freedom of Information – When an application is received by An Fóram Uisce, a record is created in the name of the applicant. This information will be stored by the office of An Fóram Uisce, where relevant, in paper/electronic form. Information that is collected by the Office, including information that you give us, is added to the record. You have the right, given by the Data Protection Act of 1988 and 2003, to a copy of your information at any time. The Office is also subject to the Freedom of Information (FOI) Act, 2014.

The information we record is used for the following purposes:

- Processing and assessing of applications;
- Payment arrangements;
- Auditing requirements;
- Informing and advising An Fóram Uisce in relation to the Project and using same as a basis for further consideration by An Fóram Uisce including research projects and policy analysis and recommendations;
- Publication of the Project Outcomes.

End

