



Comhshaol, Pobl agus Rialtas Áitiúil
Environment, Community and Local Government

ENVIRONMENTAL PROTECTION AGENCY
An Ghníomhaireacht um Chaomhnú Comhshaoil

Science, Technology, Research & Innovation for the Environment
(STRIVE) Programme

EPA Research Call 2013: Water

Technical Description
June 2013

The STRIVE Programme is funded by the Irish Government

Environmental Protection Agency Research Call 2013: Water

This document provides the Technical Description for the Environmental Protection Agency Water Research Call 2013. Applicants should read the following carefully and also consult the other documentation provided (i.e. Guide for Applicants, Terms and Conditions for support of grant awards).

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Additional Documentation

Additional Documents available at: www.epa.ie:

- 2013 STRIVE Guide for Applicants
- 2013 STRIVE Terms and Conditions for support of grant awards
- 2013 Quick Guide to the EPA Online Portal (How to make an application)

1. Introduction

The Science, Technology, Research & Innovation for the Environment (STRIVE) Programme has been allocated funding of approximately €100m for the period 2007-2013. The purpose of the Environmental Protection Agency (EPA) Research Programme is to protect and improve the natural environment, by addressing key environmental management issues, by the provision of high quality scientific knowledge generated through a vibrant, competitive programme of research developed supported and co-ordinated by the EPA.

The overall aim of the EPA Water Research Pillar is to support Ireland's commitments under the EU Water and Marine Strategy Framework Directives and other relevant water policy and legislation. In order to ensure these directives are adhered to, the research needs to focus on investigating significant fundamental knowledge gaps, measures to support relevant water policy and the development of novel methods to protect our water environment. The EPA Water Research Pillar is focussed on the following areas:

- Area-1. Improve our Knowledge on the State of our Water Resources and Pressures;
- Area-2. Impacts on Ecosystems & Human Health (including Drinking Water);
- Area-3. Protecting our Water Resources; and
- Area-4. Governance Framework and Socio-Economic Considerations in Water Management.

New research projects to be undertaken in the Water Research Pillar will aim at improving knowledge & understanding, and at addressing information gaps in key areas for improved and better water quality management in Ireland. The main focus of the new projects, which will start in 2013, will be to support priority national policy legislation in the area of Water (e.g. Water Framework Directive, drinking water, waste water treatment, science communication etc.).

An approximate € 1.5m has been allocated to this call. The EPA invites research proposals under the specific topics listed in the table below. These include 3 Research Fellowships and 11 Project-based awards (Desk Studies and Medium-Scale Studies).

All research proposals must **build on findings and recommendations** from past and current research projects (where relevant) and **demonstrate value for money**. Depending on the scope and quality of research proposals received, no more than one project will be funded under each of the proposed topics detailed in this document, unless otherwise stated. Where project outputs include data and/or technical solutions (websites, developed software, database solutions etc.), then the format of same must be agreed with the EPA to ensure that they can be installed on the EPA infrastructure and maintained by EPA staff after the completion of the project.

Pillar - Water - Research Topic	Maximum Budget (€)	Project Type	Expected Duration	
Area 1: Improve our Knowledge on the State of our Water Resources and Pressures				
Water Call Project-1	Review of Eflow Methodologies and Recommendations for Eflow Standards to be adopted for Irish Rivers and Lakes	75,000	Desk Study	6-12 months
Water Call Project-2	Use of Irish Saltmarsh as a Biological Quality Element for WFD Assessment	75,000	Desk Study	6-12 months
Water Call Project-3	Lake Hydromorphology	75,000	Desk Study	6-12 months
Water Call Project-4	River Typology	160,000	Research Fellowship	24 months
Water Call Project-5	The Development of WFD Compliant Biological Assessment Methods to assess the Ecological Status of Tidal Freshwater Transitional Waters	200,000	Medium-Scale Study	24-36 months
Water Call Project-6	Key National Water Quality datasets & Emerging Research Needs	75,000	Desk Study	6-12 months
Area 2: Impacts on Ecosystems & Human Health (including Drinking Water)				
Water Call Project-7	A National Pollution Mass-Balance Model	160,000	Research Fellowship	24 months
Water Call Project-8	Quantify the Effect of Lead Pipe Removal on Lead Concentrations in Drinking water	75,000	Desk Study	6-12 months
Water Call Project-9	Investigation into Natural Organic Matter in Waters	200,000	Medium-Scale Study	24-36 months
Area 3: Protecting our Water Resources				
Water Call Project-10	Agriculture and Water Quality, with Emphasis on Mitigation Measures	75,000	Desk Study	6-12 months
Water Call Project-11	An Investigation and Evaluation of the Hydrodynamics of Small Catchments	75,000	Desk Study	6-12 months
Water Call Project-12	Suitability of Municipal WWTPs for the Treatment of Leachate from Landfills in Ireland	160,000	Research Fellowship	24 months

Pillar - Water - Research Topic	Maximum Budget (€)	Project Type	Expected Duration
Area 4: Governance Framework and Socio-Economic Considerations			
Water Call Project-13	A Case Study of a Major Water Quality Incident in the Past placing a Money Value on the Costs and lost Benefits arising 75,000	Desk Study	6-12 months
Water Call Project-14	Develop a Framework for Preparing & Monitoring Large Scale Engagement Strategy to Communicate Risk based Environmental Regulation 50,000	Desk Study	6-12 months

Application Process

Making an application on-line:

Applications must **ONLY** be made on-line <https://epa.smartsimple.ie>.

Guide to the EPA on-line application system:

The guide to the EPA on-line application system, '2013 Quick guide to the EPA on-line portal (making an application)', is available for download at www.epa.ie.

What to include in the application form:

To make the best application possible, it is recommended that you read the '2013 STRIVE guide for applicants' before drafting and submitting an application, available at www.epa.ie.

To make an application under any of the topic areas:

Applicants must use the correct **Call Topic Reference**, as indicated in this document, from the drop down menu on the EPA on-line system e.g. Water Call Project 1

It is the responsibility of the Applicants to ensure:

Proposals are submitted before the **call deadline**, and of the relevant Grant Authoriser (i.e. Research Offices / Managing Directors for companies) to ensure that the proposals are authorised before the **organisation approval deadline**.

2. Call Content

Area-1. Improve our Knowledge on the State of our Water Resources and Pressures

Water Call Project 1. Review of Eflow Methodologies and Recommendations for Eflow Standards to be adopted for Irish Rivers and Lakes

Project Type: Desk Study

To make an application under this topic area, you must use the following Call Topic Reference: **Water Call Project 1**

Background

Environmental Flows (Eflows) refer to the quantity and timing of water flows (low, medium and high flows) required to sustain and protect the status of aquatic ecosystems, while also promoting sustainable water use. Hydromorphological elements, including the hydrological flow regime, are important elements in the assessment of the ecological status or potential of a water body in relation to the Water Framework Directive (WFD) objectives. Eflows are also necessary when defining the quantitative status of groundwater bodies.

Objectives and Expected Outputs

There are numerous methodologies implemented worldwide for the estimation of environmental flows and the approach to the development of flow standards. It is proposed that a literature review be undertaken of the various methods to investigate which methods would be suitable to adopt in the Irish context. It is also proposed that a study be conducted on two catchments to assess the proposed standards, to ensure that an evidence-based approach is utilised in the selection of an Eflow methodology that can be adopted under Irish conditions with measureable indicators. A recommended methodology should be backed up by desk-based investigations (on a small number of catchments), utilising historic flow, ecological and water quality data.

This study will provide a better understanding of methodologies currently in use to develop Eflow standards for rivers and lakes. This is a requirement under the WFD. The hydrological regime is part of the hydromorphological quality elements in the WFD classification of surface water bodies and is used in defining high ecological status across all categories of water bodies (rivers, lakes, transitional waters). It is also used when defining the quantitative status of groundwater bodies.

Groundwater is a major component of river flows and lake waters, particularly in dry weather, and provides up to 25% of public and private drinking water supplies nationally. Therefore, a good understanding of recharge to groundwater and of 3-D conceptual models of catchments is required. The existing Geological Survey of Ireland (GSI) recharge map and their conceptual models of groundwater bodies provide a good starting point for considering the groundwater aspects. In addition, the outcomes from the EPA-funded STRIVE “Pathways¹” provide relevant background information for considering Eflows.

This project will provide the methodology for setting flow standards in Irish rivers as part of a future abstraction licensing regime. Eflows can also be used as a catchment management tool and therefore relevant stakeholders would also include Inland Fisheries (IFI), NPWS, Waterways Ireland, Local Authorities, the GSI and the Department of the Environment, Community & Local government (DECLG).

¹ <http://www.qub.ac.uk/research-centres/eerc/UsefulLinks/Pathways-EPASTRIVEProject/>

Proposals are invited for a research project to undertake the following:

- A literature review of the various Eflow Standards to investigate which methodology would be suitable to adopt in the Irish context.
- A study on a small number of catchments to assess the proposed standards to ensure that an evidence-based approach is used for the selection of an Eflow methodology that can be adopted under Irish conditions with measureable indicators.
- Recommend a methodology, backed up by investigations utilising historic flow, ecological and water quality data, for setting flow standards in Irish rivers as part of a future abstraction licensing regime.

Expected outputs² for this project include:

- Final Report, which should provide a clear and detailed account of all the steps and methodologies used during the project and ensure that the objectives, set out above, are met – including recommendations.
- Synthesis Report (20-30pp), which provide a clear non-technical summary of the research and of the recommendations.
- Dissemination 2-pager, which will be used to disseminate the findings of the research to the key stakeholders.
- Workshop/Dissemination event to all stakeholders in the relevant arena (e.g. policy, monitoring, regulatory, NGOs, media, public, etc.) arena.

The list provided above is indicative and relevant alternatives will be considered. A dedicated website/webpage should be created and maintained, presenting the project and work carried to-date. It is also expected that a number of dissemination outputs, such as policy briefs, peer-reviewed publications and presentations, will arise from this project.

Project Structure and Funding

This project is a **Desk Study** which will run for **6-12** months. The maximum funding available is **€75,000** (which includes 2% for post-completion publicity/dissemination³). Please refer to the 2013 Guide for Applicants for further details.

Water Call Project 2. Use of Irish Saltmarsh as a Biological Quality Element for WFD Assessment

Project Type: *Desk Study*

To make an application under this topic area, you must use the following Call Topic Reference: *Water Call Project 2*

Background

The Water Framework Directive (WFD) requires Member States (MSs) to use Angiosperm communities as indicators of ecological status in Coastal and Transitional waters. Currently for Northeast Atlantic Waters, the only element of this community, which has been developed for assessment, is intertidal seagrass. Data on Irish saltmarshes has been collected for the purposes of the Habitats Directive but no work on

² Final Reporting requirements may be amended in agreement with the grantees.

³ For example, a €100,000 grant award is made up of €98,000 for project costs, and €2,000 for post-completion publicity

developing a status assessment tool has been undertaken to date. The proposed project would collate the available Irish saltmarsh data and, in cooperation with the EPA, National Parks and Wildlife Services (NPWS) and other EU MSs, attempt to develop assessment tools for Irish waters.

Objectives and Expected Outputs

The deadline for WFD intercalibration is 2016. Therefore, this project is seen by the EPA as a priority area of research. Cooperation with NPWS will allow for better assessment of these communities and guide the formulation of guidance for future WFD monitoring, with the aim of Ireland being WFD-compliant. The assessment tool should be tested against other EU tools to ensure that Ireland can participate in the final phase of the EU Commission Intercalibration process.

Proposals are invited for a research project to undertake the following:

- Collate available current and historical records on Irish saltmarshes.
- Collate associated information on possible environmental pressures acting on the saltmarsh communities.
- Assess applicability for Irish communities of current WFD-compliant assessment tools in use in other MSs.
- Develop an Irish assessment tool.
- Apply tool to representative Irish transitional and coastal waters.
- Calculate an ecological quality ratio for Irish water bodies based on the saltmarsh communities.

Expected outputs⁴ for this project include:

- Final Report, which should provide a clear and detailed account of all the steps and methodologies used during the project and ensure that the objectives, set out above, are met – including the assessment tool and recommendations to ensure WFD compliance.
- Synthesis Report (20-30pp), which provide a clear non-technical summary of the research and of the recommendations.
- Dissemination 2-pager, which will be used to disseminate the findings of the research to the key stakeholders.
- Workshop/Dissemination event to all stakeholders in the relevant arena (e.g. policy, monitoring, regulatory, NGOs, media, public, etc.) arena.

The list provided above is indicative and relevant alternatives will be considered. A dedicated website/webpage should be created and maintained, presenting the project and work carried to-date. It is also expected that a number of dissemination outputs, such as policy briefs, peer-reviewed publications and presentations, will arise from this project.

Project Structure and Funding

This project is a **Desk Study** which will run for **6-12** months. The maximum funding available is **€75,000** (which includes 2% for post-completion publicity/dissemination⁵). Please refer to the 2013 Guide for Applicants for further details.

⁴ Final Reporting requirements may be amended in agreement with the grantees.

⁵ For example, a €100,000 grant award is made up of €98,000 for project costs, and €2,000 for post-completion publicity

Water Call Project 3. Evaluate the Usefulness of Substrate Records and Investigate Preliminary Links with Lake Hydromorphological Type, Ecological Status and Biological Metrics

Project Type: Desk Study

To make an application under this topic area, you must use the following Call Topic Reference: **Water Call Project 3**

Background

A number of hydromorphological elements supporting the biological elements are listed as part of the quality elements for the classification of ecological status in the Water Framework Directive (WFD) among these are:

- Quantity, structure & substrate of the lake bed; and
- Structure of the lake shore

Annex V of the WFD provides a definition of morphological conditions for the purposes of classification as: lake depth variation, quantity & structure of the substrate, and both the structure and condition of the lake-shore zone corresponding totally or nearly totally to undisturbed conditions.

Whilst the structure of the lake-shore is somewhat addressed in Lake Habitat Surveys (LHS), currently there is no assessment made of the quantity, structure and substrate of the lake bed. Some cursory observations of substrate composition are made during invertebrates, macrophytes and LHS surveys. The usefulness of these observations has never been investigated.

Alteration of substrate due to increasing pressures (e.g. siltation, as a result of enrichment) does take place. Furthermore, sensitivity to abstraction pressure may be exacerbated by substrate composition and structure combined with lake shape (e.g. exposure of littoral habitats types due to lake level drawdown following over-abstraction) may lead to loss of fish spawning beds (gravel beds) and consequently of sensitive fish species; or alter the composition of the macrophytes community.

Objectives and Expected Outputs

The inclusion of the morphology aspect in the ecological assessment of lakes ensures WFD compliance. It will also aid in the interpretation of the distribution and composition of biological elements. Currently, this aspect is only covered a little across Europe. This desktop project could provide preliminary information to determine whether or not a larger scale project should take place to better inform field recording, substrate sampling and address this gap in hydromorphology.

Proposals are invited for a research project to undertake the following:

- Collate substrate records from field sheets.
- Evaluate the consistency and usefulness of the records held.
- Link records to bathymetry data and metrics.
- Determine whether linkages can be made with ecological status and/ or other biological metrics using existing data.
- Make at least preliminary linkages with lake hydromorphological type.

Expected outputs⁶ for this project include:

- Final Report, which should provide a clear and detailed account of all the steps and methodologies used during the project and ensure that the objectives, set out above, are met – including

⁶ Final Reporting requirements may be amended in agreement with the grantees.

- preliminary linkages with hydromorphological type and with recommendations for future monitoring or research.
- Synthesis Report (20-30pp), which provide a clear non-technical summary of the research and of the recommendations.
 - Dissemination 2-pager, which will be used to disseminate the findings of the research to the key stakeholders.
 - Workshop/Dissemination event to all stakeholders in the relevant arena (e.g. policy, monitoring, regulatory, NGOs, media, public, etc.) arena.

The list provided above is indicative and relevant alternatives will be considered. A dedicated website/webpage should be created and maintained, presenting the project and work carried to-date. It is also expected that a number of dissemination outputs, such as policy briefs, peer-reviewed publications and presentations, will arise from this project.

Project Structure and Funding

This project is a **Desk Study** which will run for **6-12** months. The maximum funding available is **€75,000** (which includes 2% for post-completion publicity/dissemination⁷). Please refer to the 2013 Guide for Applicants for further details.

Water Call Project 4. WFD River Typology Gaps

Project Type: *Research Fellowship*

To make an application under this topic area, you must use the following Call Topic Reference: ***Water Call Project 4***

Background

There are a number of remaining gaps in assessing biological reference conditions for certain river typologies, for example: groundwater-fed rivers, highly calcareous travertine-type rivers, lake-outflow river sites. Transitional waters are also problematic but this aspect is covered by another project in this Call.

Objectives and Expected Outputs

Improved ecological assessment is required, now that the main typologies have been intercalibrated at EU level. This will assist in improving the accuracy of assessment at sites that are not fully intercalibrated and should provide better integration for the ecological assessment of groundwater-fed rivers, and between lakes & their outflowing rivers.

Proposals are invited for a research project to undertake the following:

- Examination of existing records for macroinvertebrates and plants plus associated water chemistry, habitat structure, and, in the case of lake-fed rivers, an analysis of existing ecological status of the lakes.
- Selection of sites to include a range of pressures from pristine to impacted.
- The main output should be a suggested reference community for macroinvertebrates, macrophytes and phytobenthos.

⁷ For example, a €100,000 grant award is made up of €98,000 for project costs, and €2,000 for post-completion publicity

Expected outputs⁸ for this project include:

- State of Knowledge Report (month 9).
- Final Report, which should provide a clear and detailed account of all the steps and methodologies used during the project and ensure that the objectives, set out above, are met – including suggested reference community for macroinvertebrates, macrophytes and phytobenthos.
- Synthesis Report (20-30pp), which provide a clear non-technical summary of the research and of the recommendations.
- Dissemination 2-pager, which will be used to disseminate the findings of the research to the key stakeholders.
- Workshop/Dissemination event to all stakeholders in the relevant arena (e.g. policy, monitoring, regulatory, NGOs, media, public, etc.) arena.

The list provided above is indicative and relevant alternatives will be considered. A dedicated website/webpage should be created and maintained, presenting the project and work carried to-date. It is also expected that a number of dissemination outputs, such as policy briefs, peer-reviewed publications and presentations, will arise from this project.

Project Structure and Funding

This project is a **Research Fellowship** which will run for **24** months. The maximum funding available is **€160,000** (which includes 2% for post-completion publicity/dissemination⁹). Please refer to the 2013 Guide for Applicants for further details.

Water Call Project 5. The Development of WFD-Compliant Biological Assessment Methods to Assess the Ecological Status of Tidal Freshwater Transitional Waters

Project Type: *Medium-Scale Study*

To make an application under this topic area, you must use the following: Call Topic Reference: **Water Call Project 5**

Background

One of the main gaps, that remain in our ability to provide an overview of ecological status in transitional waters, as required by the EU Water Framework Directive (WFD), is the absence of appropriate biological assessment methods for tidal freshwater zones that occur in these waters. These tidal freshwater zones are different to rivers due to the influence of diurnal tidal flow, and to brackish transitional waters due to the absence, for the most part, of salinity. As such, the ecological assessment methods that have been developed and applied in rivers and brackish transitional waters are unlikely, in most cases, to be appropriate for tidal freshwater transitional waters (TFTW).

Objectives and Expected Outputs

The absence of appropriate assessment methods for tidal freshwater zones, which are a significant feature of many transitional waters in Ireland, leaves a major gap in the assessment of the ecological status of this water category. This gap makes it difficult to properly characterise these waters and to set environmental

⁸ Final Reporting requirements may be amended in agreement with the grantees.

⁹ For example, a €100,000 grant award is made up of €98,000 for project costs, and €2,000 for post-completion publicity

objectives, which in turn hinders their environmental protection and sustainable use. This is one of the last gaps in the national implementation of the Directive in Ireland and is therefore a major research priority, as identified by the WFD implementation group on monitoring. Therefore, the aim of this research is to develop assessment methods which can be used to assess the ecological status of TFTWs. These assessment methods must be based on the list of biological quality elements in transitional waters listed in Annex V of the WFD (i.e. phytoplankton, macroalgae, angiosperms, benthic invertebrates and fish) and consistent with the normative definitions also given in Annex V. Biological elements listed in other water categories, such as phytobenthos in rivers, should also be considered if deemed appropriate for the assessment of TFTWs.

Proposals are invited for a research project to undertake the following:

- A global literature review of biological assessment methods used in the ecological assessment of tidal freshwater transitional waters.
- Develop and test assessment methods for each of the biological quality elements listed in Annex V of the Water Framework Directive.
- Evaluate which of these assessment methods can be used effectively in the ecological assessment of tidal freshwater transitional waters. This evaluation should focus on how consistent these methods are with the normative definitions given in Annex V of the directive. A clear justification for omitting any of the biological quality elements listed in the directive must be given.
- The output of this research would be a set of biological assessment methods that can be used to assess the ecological status of tidal freshwater transitional waters.

Expected outputs¹⁰ for this project include:

- Final Report, which should provide a clear and detailed account of all the steps and methodologies used during the project and ensure that the objectives, set out above, are met.
- Synthesis Report (20-30pp), which provide a clear non-technical summary of the research and of the recommendations.
- Dissemination 2-pager, which will be used to disseminate the findings of the research to the key stakeholders.
- Workshop/Dissemination event to all stakeholders in the relevant arena (e.g. policy, monitoring, regulatory, NGOs, media, public, etc.) arena.

The list provided above is indicative and relevant alternatives will be considered. A dedicated website/webpage should be created and maintained, presenting the project and work carried to-date. It is also expected that a number of dissemination outputs, such as policy briefs, peer-reviewed publications and presentations, will arise from this project.

Project Structure and Funding

This project is a **Medium-Scale Study** which will run for **24-36** months. The maximum funding available is **€200,000** (which includes 2% for post-completion publicity/dissemination¹¹). Please refer to the 2013 Guide for Applicants for further details.

¹⁰ Final Reporting requirements may be amended in agreement with the grantees.

¹¹ For example, a €100,000 grant award is made up of €98,000 for project costs, and €2,000 for post-completion publicity

Water Call Project 6. Key National Water Quality Datasets & Emerging Research Needs

Project Type: Desk Study

To make an application under this topic area, you must use the following Call Topic Reference:

Water Call Project 6

Background

The overall aim of the EPA Water Research Programme is to focus on significant fundamental knowledge gaps to support relevant water policy; and on the development of new technologies to protect our water environment, contributing to ensuring excellent water quality in Ireland. A key indicator of success for this area is the evidence of increased research capability & capacity building, support provided towards meeting the requirements of the various policies, and enhanced dissemination & synergies with the various funding bodies in the water research area.

While there is a high-quality water research sector in Ireland, it needs to be further strengthened if we are to meet the major economic and environmental challenges ahead. Areas requiring further attention include, for example:

- Level of dissemination;
- Level of participation in EU funding programmes; and
- Uptake of research outputs could be improved.

Objectives and Expected Outputs

This research project aims at identifying emerging research needs for Ireland in the water area. It aims also at improving communication, working towards an increased level of dissemination of water research findings and uptake of the research outputs. In addition, the critical review of available water-related data (e.g. monitoring, research outputs, etc.) will bring added value to existing and on-going assessment and will support the Water Framework Directive and the EPA State of the Environment reporting process. This aspect of the project should be undertaken in close collaboration with the relevant EPA sections.

Proposals are invited for a research project to undertake the following:

- Critical review of existing online databases of research projects (internationally (e.g. ERAnets related to Water such as (but not limited to): CRUE¹², IWRM-net¹³, recommendations and findings from ERA-learn¹⁴) and nationally (e.g. SEAI¹⁵ project database, etc.)) with the aim of making recommendations towards developing, implementing and maintaining such a dynamic database for Water-research in Ireland, with a view to cataloguing relevant and significant research (both in the context of the various relevant policies & their implementation). This task will need to build on the existing EPA Research Searchable database (<http://erc.epa.ie/smartsimple>). It will support EPA activities with the Water Research Coordination Group and Water Joint Programming Initiative (Water JPI¹⁶).
- Identify emerging research needs of relevance to Ireland in support of the development of the water research sector and of the Water Research National Coordination Group. This task should build on the outputs from the EPA Water Research Planning Workshop (28th June 2013) and consider the strategic research agendas relevant to Water from other Irish funding organisations

¹² <http://www.crue-eranet.net/cruise.asp>

¹³ <http://iwrn-net.eu/>

¹⁴ www.era-learn.eu

¹⁵ <http://research.seai.ie/>

¹⁶ <http://www.waterjpi.eu/>

(e.g. identify possible areas of collaboration and/or synergies) and from other relevant international activities (e.g. WssTP¹⁷, recommendations from the CSI-SPI¹⁸, Water JPI, etc.).

- Make recommendations towards developing structures and systems for communication and dissemination of water research (building on existing resources, where relevant) in Ireland¹⁹ and for improving the uptake of research outputs and results.
- Identify available water-related datasets (e.g. monitoring, research outputs²⁰, etc.) including quality control, compatibility, format, gaps, availability, etc.

Expected outputs²¹ for this project include:

- Final Report, which should provide a clear and detailed account of all the steps and methodologies used during the project and ensure that the objectives, set out above, are met.
- Synthesis Report (20-30pp), which provide a clear non-technical summary of the research and of the recommendations.
- Dissemination 2-pager, which will be used to disseminate the findings of the research to the key stakeholders.
- Workshop/Dissemination event to all stakeholders in the relevant arena (e.g. policy, monitoring, regulatory, NGOs, media, public, etc.) arena.

The list provided above is indicative and relevant alternatives will be considered. A dedicated website/webpage should be created and maintained, presenting the project and work carried to-date. It is also expected that a number of dissemination outputs, such as policy briefs, peer-reviewed publications and presentations, will arise from this project.

Project Structure and Funding

This project is a **Desk Study** which will run for **9-12** months. The maximum funding available is **€ 75,000** (which includes 2% for post-completion publicity/dissemination²²). Please refer to 2013 Guide for Applicants for further details.

Area-2. Impacts on Ecosystems & Human Health (including Drinking Water)

Water Call Project 7. A National Pollution Mass-Balance Model

Project Type: Research Fellowship

To make an application under this topic area, you must use the following: Call Topic Reference: Water Call Project 7

Background

Licensing of wastewater discharges, IPPC²³ discharges and smaller point sources is complex when multiple discharges occur along a river channel. Diffuse pollution sources add to the complexity of deciding upon

¹⁷ Water supply & sanitation Technology Platform

¹⁸ WFD Common Strategy Implementation Science Policy Interface

¹⁹ This task should be carried out in close collaboration with the EPA & the *National Water Research Coordination Group*, set up in 2010; and link with the EPA SAFER (<http://erc.epa.ie>) facility.

²⁰ See research outputs available from the EPA SAFER (<http://erc.epa.ie>) but should also consider other data sources from other funding agencies or EU-funded projects, etc.

²¹ Final Reporting requirements may be amended in agreement with the grantees.

²² For example, a €100,000 grant award is made up of €98,000 for project costs, and €2,000 for post-completion publicity

programmes of measures to achieve good or high ecological status in river water bodies and in the lakes, estuaries and groundwater bodies into which they flow or interact with.

Objectives and Expected Outputs

This research project is envisaged as an on-going characterisation and risk assessment for the Water Framework Directive (WFD) purposes. The project should build on existing mass balance approaches and pathway modelling approaches used by the EPA essentially for individual discharges. Scaling-up to complete river systems from source to sea across hydrometric areas will allow a better understanding of the interactions between point sources and diffuse at a macro-level and help to inform programmes of measures.

Proposals are invited for a research project to undertake the following:

- Decide upon a modelling approach – e.g. SIMCAT²⁴, MONERIS²⁵ – that is suitable for national or River Basin District (RBD) scale.
- Gather the data required – discharges, flow rates, abstractions, etc., from existing EPA databases and GIS layers.
- Construct, calibrate and validate the model.
- Demonstrate utility of the approach for a number of ‘real life’ situations.
- Incorporate into WFD Programmes of Measures decision making process.

Expected outputs²⁶ for this project include:

- State of Knowledge Report (Month 9).
- Final Report, which should provide a clear and detailed account of all the steps and methodologies used during the project and ensure that the objectives, set out above, are met.
- Synthesis Report (20-30pp), which provide a clear non-technical summary of the research and of the recommendations.
- Dissemination 2-pager, which will be used to disseminate the findings of the research to the key stakeholders.
- Workshop/Dissemination event to all stakeholders in the relevant arena (e.g. policy, monitoring, regulatory, NGOs, media, public, etc.) arena.

The list provided above is indicative and relevant alternatives will be considered. A dedicated website/webpage should be created and maintained, presenting the project and work carried to-date. It is also expected that a number of dissemination outputs, such as policy briefs, peer-reviewed publications and presentations, will arise from this project.

Project Structure and Funding

This project is a **Research Fellowship** which will run for **24** months. The maximum funding available is € **160,000** (which includes 2% for post-completion publicity/dissemination²⁷). Please refer to 2013 Guide for Applicants for further details.

²³ Integrated Pollution Prevention and Control

²⁴ Monte Carlo Mass Balance modelling over Catchments = SIMCAT (SIMulation of the water quality of CATchments)

²⁵ MONERIS (MOdelling Nutrient Emissions in River Systems)

²⁶ Final Reporting requirements may be amended in agreement with the grantees.

²⁷ For example, a €100,000 grant award is made up of €98,000 for project costs, and €2,000 for post-completion publicity

Water Call Project 8. Quantify the Effect of Lead Pipe Removal on Lead Concentrations in Drinking Water

Project Type: Desk Study

To make an application under this topic area, you must use the following Call Topic Reference: **Water Call Project 8**

Background

According to the World Health Organisation (WHO, 2011²⁸), lead is a general toxicant that accumulates in bone. Infants, children up to 6 years of age and pregnant women are the most susceptible to its health effects. It is toxic to both the central and peripheral nervous systems. Lead is present in drinking water primarily from its dissolution from lead pipes or lead-containing lead solder. All homes built pre-1970 are at risk of containing internal lead piping. Under the 2007 Drinking Water Regulations, the lead parametric limit will decrease from 25 μgL^{-1} to 10 μgL^{-1} on 24th December 2013. Meeting this new limit presents a huge challenge for the Water Services Authorities (WSAs).

Replacement of lead piping is the most effective measure of reducing lead concentration in drinking water. Lead piping falls into two categories: piping that is in the ownership of the WSA (up to the stopcock), which the WSA is responsible for replacing; and piping that is in the ownership of the householder (post stopcock), which the householder is responsible for replacing. Evidence shows that the lead levels drop below safe limits when both categories of lead piping (if present) are replaced. However, if both categories of pipework exist in a particular instance, there is no clear evidence to suggest that removing only one category of piping will reduce lead concentrations at the tap. As the WSAs continue to replace lead piping with the aim of meeting the new lead parametric limit later this year, guidance on the effect of the removal of specific sections of lead pipework, in addition to other variables, will assist the WSAs in making informed decisions when carrying out lead replacement works with the overall aim of ensuring that consumers are protected.

Sampling technique is critical to determining the effect of lead pipe removal has on lead concentrations in drinking water. Different sampling techniques may produce vastly different results. The EPA cannot definitively say which sampling methods have been used in historical lead surveys carried out by the WSAs. Therefore, it is difficult to compare different result sets (i.e. before and after lead pipe removal) as variations may be due to the variance in sampling techniques rather than the removal of a section of lead piping. This makes it difficult to quantify the effect of the removal of a specific length of lead piping.

Stakeholders include the EPA, the WSAs, the Department of the Environment, Community and Local Government (DECLG), Irish Water, the Health Service Executive (HSE), community-run private water supplies and the Public.

Objectives and Expected Outputs

The research will greatly enhance the ability of the EPA to provide advice and guidance to the WSAs on the issue of lead pipe removal and to provide clarity on the potential variance that different sampling techniques can have on the final result. The research will also assist the WSAs in meeting the new parametric limit of 10 μgL^{-1} and will ensure greater protection for consumers.

Collaboration (in relation to sampling and analysis pre and post lead pipe removal) with Louth County Council/Dundalk Town Council, who are planning major lead replacement works in 2013, is essential in this project. As Louth County Council/Dundalk Town Council have agreed to provide all necessary sampling and analysis, the potential cost of this study could be greatly reduced. It is therefore vital that this research is

²⁸ World Health Organisation "Guidelines for Drinking Water Quality (4th Ed)

progressed without delay; otherwise the opportunity to work with Louth County Council/Dundalk Town Council may be lost as the replacement works will be carried out.

Proposals are invited for a research project to undertake the following:

- Quantify the effect of lead piping removal on the concentrations of lead in drinking water.
- Determine the critical factors that affect lead concentrations at the tap.
- Quantify the effect that the various sampling techniques used will have on results.
- Produce guidance for the WSAs which should lead to improve parametric compliance and greater protection for consumers.

Notes to applicants:

The EPA has prepared two advice notes with regard to lead;

- Advice Note 1: Lead Compliance Monitoring and Surveys²⁹; and
- Advice Note 2: Action Programmes to restore the quality of drinking water impacted by lead pipes and lead plumbing³⁰.

These advice notes would be revised based on the outcome of this study.

It is envisaged that the project outputs will be formulated into relevant EPA advice/guidance as soon as it is practical to ensure that the WSAs can make informed decisions regarding lead pipe removal.

Expected outputs³¹ for this project include:

- Final Report, which should provide a clear and detailed account of all the steps and methodologies used during the project and ensure that the objectives, set out above, are met (e.g. Evaluation of process performance and technical guidance document(s); Options and technologies available; etc.).
- Synthesis Report (20-30pp), which provide a clear non-technical summary of the research and of the recommendations.
- Dissemination 2-pager, which will be used to disseminate the findings of the research to the key stakeholders.
- Workshop/Dissemination event to all stakeholders in the relevant arena (e.g. policy, monitoring, regulatory, NGOs, media, public, etc.) arena.

The list provided above is indicative and relevant alternatives will be considered. A dedicated website/webpage should be created and maintained, presenting the project and work carried to-date. It is also expected that a number of dissemination outputs, such as policy briefs, peer-reviewed publications and presentations, will arise from this project.

Project Structure and Funding

This project is a **Desk Study** which will run for **6-12** months. The maximum funding available is **€ 75,000** (which includes 2% for post-completion publicity/dissemination³²). Please refer to 2013 Guide for Applicants for further details.

²⁹ <http://www.epa.ie/downloads/advice/drinkingwater/name,27127,en.html>

³⁰ <http://www.epa.ie/downloads/advice/drinkingwater/name,27129,en.html>

³¹ Final Reporting requirements may be amended in agreement with the grantees.

³² For example, a €100,000 grant award is made up of €98,000 for project costs, and €2,000 for post-completion publicity

Water Call Project 9. Investigation into Natural Organic Matter in Waters

Project Type: Medium-Scale Study

**To make an application under this topic area, you must use the following Call Topic Reference:
Water Call Project 9**

Background

The presence of natural organic matter (NOM) causes many problems in drinking water treatment processes, including:

- i. Negative effect on water quality by colour, taste and odour problems;
- ii. Increased coagulant and disinfectant dose requirements (which in turn results increased sludge and potential harmful disinfection by-product formation);
- iii. Promoted biological growth in distribution system; and
- iv. Increased levels of complex heavy metals, adsorbed organic pollutants and possible toxins.

Objectives and Expected Outputs

Research reports have identified concerns regarding the presence of NOM in waters in a number of jurisdictions. There is a need to identify and assess the extent of NOM (and breakdown products) in a number of high risk catchments (e.g. peaty areas) across Ireland and to identify catchments where specific risks may be arising from NOM (such as toxins from bracken).

Proposals are invited for a research project to undertake the following:

- To identify and survey a small number of high risk catchments for both public and private water supplies of representative number of raw (and treated) water supplies; and
- To estimate likely concentrations of NOM and potentially hazardous breakdown products (e.g. toxins) in raw water sources using predictive modelling.

Expected outputs³³ for this project include:

- Final Report, which should provide a clear and detailed account of all the steps and methodologies used during the project and ensure that the objectives, set out above, are met.
- Synthesis Report (20-30pp), which provide a clear non-technical summary of the research and of the recommendations.
- Dissemination 2-pager, which will be used to disseminate the findings of the research to the key stakeholders.
- Workshop/Dissemination event to all stakeholders in the relevant arena (e.g. policy, monitoring, regulatory, NGOs, media, public, etc.) arena.

The list provided above is indicative and relevant alternatives will be considered. A dedicated website/webpage should be created and maintained, presenting the project and work carried to-date. It is also expected that a number of dissemination outputs, such as policy briefs, peer-reviewed publications and presentations, will arise from this project.

Project Structure and Funding

This project is a **Medium-Scale Study** which will run for **24-36** months. The maximum funding available is **€ 200,000** (which includes 2% for post-completion publicity/dissemination³⁴). Please refer to 2013 Guide for Applicants for further details.

³³ Final Reporting requirements may be amended in agreement with the grantees.

³⁴ For example, a €100,000 grant award is made up of €98,000 for project costs, and €2,000 for post-completion publicity

Area-3. Protecting our Water Resources

Water Call Project 10. Agriculture and Water Quality, with emphasis on Mitigation Measures

Project Type: Desk Study

To make an application under this topic area, you must use the following Call Topic Reference:
Water Call Project 10

Background

The EPA 2012 Ireland's Environment report³⁵ indicated that there is now a good understanding of causes of water pollution in Ireland, based on long-term pollution-monitoring fieldwork and supported by detailed risk assessments undertaken for the Water Framework Directive (WFD), as well as national and international research. Overall, while water quality in Ireland is good when compared to other EU countries, Ireland faces some considerable challenges in the coming years to meet the requirements of the WFD and other water directives. The report outlined that the three main challenges for water quality management are:

- To eliminate serious pollution associated with point sources (waste water treatment plants);
- To tackle diffuse pollution (mainly pollution from agricultural activities) and pollution from small point sources such as septic tanks and farmyards; and
- To use the full range of legislative measures in an integrated way to achieve better water quality.

Diffuse and small point agricultural sources are causing almost 50% of the pollution at EPA river monitoring sites. In addition, diffuse pollution from agriculture is the main cause behind 13% of the area of groundwater bodies being classified as 'poor' status. *Food Harvest 2020*³⁶ (FH2020) is likely to increase production of agricultural products in some areas which will lead to an increased loading of nutrients, and therefore to an increased threat to water. Yet, FH2020 is dependent on the sustainability of agricultural production, thus enabling good water quality to be linked with increased agricultural production and economic benefits. There is therefore a need to take an integrated approach to achieving satisfactory water quality and quantity outcomes, based on integrated catchment management.

Objectives and Expected Outputs

It is proposed that this project would be a scoping study to identify the needs for additional research in the area of Agriculture & Water Quality, including the aspect of engagement with farmers.

Proposals are invited for a research project to undertake the following:

- Critical Review of and Recommendations on the needs for additional research focusing on:
 - i. what the issues are;
 - ii. where measures to mitigate pollution need to be undertaken (i.e. critical source areas); and
 - iii. what these measures should be;
- Previous research, such as that undertaken by many Teagasc projects and the EPA-funded LS2 Project, and existing research, such as that already underway by the Agricultural Catchments Programme (ACP)³⁷ and the STRIVE 'Pathways'³⁸ Project, should be assessed as a precursor to critically examining the added value of this additional research. It will be essential to map out the scope of existing research projects and of the proposed new research, and to demonstrate the relationships between the two;

³⁵ http://www.epa.ie/pubs/reports/indicators/00061_EPA_SoE_2012.pdf

³⁶ <http://www.agriculture.gov.ie/agri-foodindustry/foodharvest2020/>

³⁷ <http://www.teagasc.ie/agcatchments/>

³⁸ <http://www.qub.ac.uk/research-centres/eerc/UsefulLinks/Pathways-EPASTRIVEProject/>

- Critical Review of, and Recommendations on, the needs for additional research on engagement strategies with farmers considering that success in achieving environmental objectives will depend on the support of farmers and behavioural change. In particular, the benefits of good water quality and genuinely sustainable farming could be emphasised. The project should include a review of the research work carried out by Teagasc, as the leading agricultural science research body, on behavioural change, and on how additional research could build on their work.

Expected outputs³⁹ for this project include:

- Final Report, which should provide a clear and detailed account of all the steps and methodologies used during the project and ensure that the objectives, set out above, are met.
- Synthesis Report (20-30pp), which provide a clear non-technical summary of the research and of the recommendations.
- Dissemination 2-pager, which will be used to disseminate the findings of the research to the key stakeholders.
- Workshop/Dissemination event to all stakeholders in the relevant arena (e.g. policy, monitoring, regulatory, NGOs, media, public, etc.) arena.

The list provided above is indicative and relevant alternatives will be considered. A dedicated website/webpage should be created and maintained, presenting the project and work carried to-date. It is also expected that a number of dissemination outputs, such as policy briefs, peer-reviewed publications and presentations, will arise from this project.

Project Structure and Funding

This project is a **Desk Study** which will run for **6-12** months. The maximum funding available is **€ 75,000** (which includes 2% for post-completion publicity/dissemination⁴⁰). Please refer to 2013 Guide for Applicants for further details.

Water Call Project 11. An Investigation and Evaluation of the Hydrodynamics of Small Catchments

Project Type: Desk Study

To make an application under this topic area, you must use the following Call Topic Reference:
Water Call Project 11

Background

While Ireland has a relatively extensive hydrometric network of stations capable of providing good quality flow data, there is a shortage of flow data for small river catchments in Ireland. Analysis of stream flow data for small (< 25km²) catchments, particularly where the hydrogeological setting is relatively simple, enables a better understanding of catchment hydrodynamics and also has the potential to enhance existing work carried out on larger catchments by the Office of Public Works (OPW) in the Flood Studies Update Programme⁴¹, the EPA/ESBI in the development of HydroTool, the Flow Duration Curve Estimation Model for ungauged catchments⁴².

³⁹ Final Reporting requirements may be amended in agreement with the grantees.

⁴⁰ For example, a €100,000 grant award is made up of €98,000 for project costs, and €2,000 for post-completion publicity

⁴¹ <http://opw.ie/en/FloodRiskManagement/FloodStudiesUpdate/>

⁴² <http://watermaps.wfdireland.ie/HydroTool>

Objectives and Expected Outputs

This scoping study will review and assess the existing hydrometric network and associated information for small catchments, evaluate the hydrodynamics of these catchments and make recommendations on the need for additional monitoring of small catchments.

Proposals are invited for a research project to undertake the following:

- Identify the existing monitoring network of small catchments (less than 25 km²) (e.g. OPW, Teagasc, EPA/Local Authority).
- Evaluate and characterise the hydrodynamics of these small catchments.
- Assess to what level our understanding of river hydrodynamics, particularly the hydrology of large catchments, can be improved by the evaluation of data from the small catchment data network.
- If it is concluded that results from an improved understanding of the hydrodynamics of small catchments is beneficial, describe the benefits and advise on how these benefits arise and what they are.
- If it is concluded that the network of small catchments need to be extended, identify gaps in data and catchments types that could be included in a small scale catchment monitoring project, ensuring that they are representative (as much as possible) of Ireland's physical settings.

A number of key stakeholders will need to be consulted and/or be involved in the project to a greater or lesser degree. These include (but are not limited to):

- OPW;
- EPA;
- Met. Eireann;
- Teagasc;
- Department of Agriculture, Food and the Marine; and
- Inland Fisheries Ireland.

Expected outputs⁴³ for this project include:

- Final Report, which should provide a clear and detailed account of all the steps and methodologies used during the project and ensure that the objectives, set out above, are met.
- Synthesis Report (20-30pp), which provide a clear non-technical summary of the research and of the recommendations.
- Dissemination 2-pager, which will be used to disseminate the findings of the research to the key stakeholders.
- Workshop/Dissemination event to all stakeholders in the relevant arena (e.g. policy, monitoring, regulatory, NGOs, media, public, etc.) arena.

The list provided above is indicative and relevant alternatives will be considered. A dedicated website/webpage should be created and maintained, presenting the project and work carried to-date. It is also expected that a number of dissemination outputs, such as policy briefs, peer-reviewed publications and presentations, will arise from this project.

Project Structure and Funding

This project is a **Desk Study** which will run for **6-12** months. The maximum funding available is **€ 75,000** (which includes 2% for post-completion publicity/dissemination⁴⁴). Please refer to 2013 Guide for Applicants for further details.

⁴³ Final Reporting requirements may be amended in agreement with the grantees.

⁴⁴ For example, a €100,000 grant award is made up of €98,000 for project costs, and €2,000 for post-completion publicity

Water Call Project 12. Suitability of Municipal WWTPs for the Treatment of Leachate from Landfills in Ireland

Project Type: *Research Fellowship*

**To make an application under this topic area, you must use the following Call Topic Reference:
*Water Call Project 12***

Background

Currently, municipal Waste Water Treatment Plants (WWTPs) are the main outlet for treating landfill leachates arising in Ireland today. However, this is becoming an increasingly significant issue, as effective means to determine whether particular municipal WWTPs provide appropriate treatment are not available. Also there is a lack of information on the current position in Ireland in terms of WWTPs accepting leachate, source of leachate, treatment provided, impact on WWTP performance etc.. There are a number of key factors such as effective removal of priority substances, process operational control and treatment system capacity, which have to be taken into consideration. Currently, there is an absence of the key technical information and recognised test methods to assess whether municipal WWTPs provide for appropriate leachate treatment.

Objectives and Expected Outputs

By undertaking a technical review, developing guidance and methodologies, the study will allow licensees and stakeholders to make key decisions on the on-going use of WWTPs for the treatment of leachate.

Proposals are invited for a research project to undertake the following:

- Undertake an investigation into the current position in relation to the use of WWTPs for the treatment of leachate in Ireland.
- Undertake a technical review of the treatability of landfill leachate in typical municipal WWTPs particularly conventional activated sludge plants.
- Develop methodology for assessment of WWTP infrastructure, capacity and design in relation to increased loading arising from leachate acceptance.
- Develop guidance on effective operational control measures in relation to leachate acceptance.
- Develop guidance on monitoring the effectiveness of the treatment process particularly the nature and characteristics of the effluent with respect priority organic substances.
- Develop guidance on ambient monitoring to assess the impact of municipal WWTP discharge where leachate is accepted for treatment.

Expected outputs⁴⁵ for this project include:

- State of Knowledge Report (Month 9), including status report, technical review, methodology and guidance as outlined above etc.; as well as recommendations and review of test kits.
- Final Report, which should provide a clear and detailed account of all the steps and methodologies used during the project and ensure that the objectives, set out above, are met.
- Synthesis Report (20-30pp), which provide a clear non-technical summary of the research and of the recommendations.
- Dissemination 2-pager, which will be used to disseminate the findings of the research to the key stakeholders.
- Workshop/Dissemination event to all stakeholders in the relevant arena (e.g. policy, monitoring, regulatory, NGOs, media, public, etc.) arena.

⁴⁵ Final Reporting requirements may be amended in agreement with the grantees.

The list provided above is indicative and relevant alternatives will be considered. A dedicated website/webpage should be created and maintained, presenting the project and work carried to-date. It is also expected that a number of dissemination outputs, such as policy briefs, peer-reviewed publications and presentations, will arise from this project.

Project Structure and Funding

This project is a **Research Fellowship** which will run for **24** months. The maximum funding available is **€ 160,000** (which includes 2% for post-completion publicity/dissemination⁴⁶). Please refer to 2013 Guide for Applicants for further details.

Area-4. Governance Framework and Socio-Economic Considerations

Water Call Project 13. A Case Study of a Major Water Quality Incident in the Past Placing a Money Value on the Costs and lost Benefits arising

Project Type: Desk Study

To make an application under this topic area, you must use the following Call Topic Reference:
Water Call Project 13

Background

In recent years a number of incidents have taken place, where the quality of water available to a community has suffered a serious temporary decline, e.g. the outbreaks of Cryptosporidium in Lough Corrib in 2007 and 2008. These have raised public awareness of the value of high quality water supply, the vulnerability of water quality to pressures from development, and the importance of investment in water facilities to ensure continued water quality.

Ireland's water bodies are in general at a satisfactory level of quality, and provide a high level of amenity and use to the public and to businesses. Placing a money value on this important resource would create the right context for policy making in a number of areas, such as the allocation of public funds for investment and the management of other sectors such as agriculture and industry. In many cases, decision makers must consider whether to take measures, such as making an investment or adopting a regulation, that would preserve or enhance water quality. The ideal evidence-based approach to such a decision would be to compare the costs of the measure with the benefits of enhanced water quality. Values for improvements in the quality of a water body would be needed to carry out this analysis. In many areas, such as physical planning and the management of agriculture, forestry and other natural resources, a measure may be proposed that would have a negative effect on water quality. Again, the evidence-based approach to this type of decision would be to compare the full costs and benefits of the proposed measure. The full costs of the measure would have to include the benefits of water quality foregone as a result of a decline in water quality in the relevant water body or bodies. As before, values for the increase or decrease in benefits when a water body moves from one level of quality to another would be needed to carry out this analysis.

⁴⁶ For example, a €100,000 grant award is made up of €98,000 for project costs, and €2,000 for post-completion publicity

Objectives and Expected Outputs

There is a need to place the cost of these incidents in perspective to justify the cost of preventive action. A retrospective study of such an incident that placed a monetary value on the costs and inconveniences imposed on the public and businesses would ensure that the lessons of such incidents were captured in a permanent way, and would provide a valuable context when decisions are being made about development or investments in water services. The potential users of the outputs from this project include, but are not limited to Irish Water, the Water Services Regulator, Local Authorities, the EPA and policy makers.

Proposals are invited for a research project to undertake the following:

- Review any similar research/approach carried out in Europe.
- Identify and examine the circumstances surrounding major water quality incidents in Ireland.
- In the case of the selected incident: Critically assess the estimated cost of the incident Vs costs of preventive action.

Expected outputs⁴⁷ for this project include:

- Final Report, which should provide a clear and detailed account of all the steps and methodologies used during the project and ensure that the objectives, set out above, are met.
- Synthesis Report (20-30pp), which provide a clear non-technical summary of the research and of the recommendations.
- Dissemination 2-pager, which will be used to disseminate the findings of the research to the key stakeholders.
- Workshop/Dissemination event to all stakeholders in the relevant arena (e.g. policy, monitoring, regulatory, NGOs, media, public, etc.) arena.

The list provided above is indicative and relevant alternatives will be considered. A dedicated website/webpage should be created and maintained, presenting the project and work carried to-date. It is also expected that a number of dissemination outputs, such as policy briefs, peer-reviewed publications and presentations, will arise from this project.

Project Structure and Funding

This project is a **Desk Study** which will run for **6-12** months. The maximum funding available is **€ 75,000** (which includes 2% for post-completion publicity/dissemination⁴⁸). Please refer to 2013 Guide for Applicants for further details.

⁴⁷ Final Reporting requirements may be amended in agreement with the grantees.

⁴⁸ For example, a €100,000 grant award is made up of €98,000 for project costs, and €2,000 for post-completion publicity

Water Call Project 14. Develop a Framework for Preparing & Monitoring a Large-Scale Engagement Strategy to Communicate Risk-based Environmental Regulation

Project Type: Desk Study

To make an application under this topic area, you must use the following: Call Topic Reference: Water Call Project 14

Background

Clean, healthy and well-protected water is essential to maintain viable and vibrant communities in unsewered areas across Ireland. These communities, which are predominantly in rural areas, need to have dependable clean sources of water and sustainable and safe ways to manage their waste waters.

According to the Central Statistics Office (CSO, 2012), on-site domestic wastewater treatment systems collect, treat and discharge wastewater from almost 500,000 households in Ireland. At a large catchment-scale, domestic systems pose much less of a risk to watercourses than urban wastewater discharges and diffuse agricultural pollution. However, if not managed and treated appropriately, domestic wastewater may contaminate private and public water supplies, groundwater, and surface water, causing harm to human health and the environment.

The European Court of Justice found that Ireland had not met the legal obligation required by the 1975 Waste Framework Directive to regulate the wastewater generated in our unsewered areas. The National Inspection Plan for Domestic Waste Water Treatment Systems responds to Ireland's failure to implement the 1975 Waste Directive.

The National Inspection Plan for Domestic Waste Water Treatment Systems⁴⁹ (DWWTS) includes an engagement strategy, with the aim of engaging, informing and communicating with stakeholder groups, including community groups and the general public. The strategy has been developed and implementation by local authorities commenced in July 2013. The DWWTS strategy must be monitored, measured, reported on, and amended as appropriate. The first review is to be carried out in Quarter 3 (July – September) of 2014.

Objectives and Expected Outputs

With limited resources, both monetary and personnel, it is essential the approaches chosen to monitor, measure, report on, and amend as appropriate the DWWTS strategy, are the most effective for the specific stakeholder group. The approach used in the National Inspection Plan may have knock-on effects on other WFD strategies. Therefore, it is essential that the approach is evaluated and fine-tuned to avoid repetitive mistakes.

Proposals are invited for a research project to undertake the following:

- Framework: Develop a step-by-step (*a-la-carte*) approach for preparing, implementing and monitoring a large-scale engagement strategy to communicate risk-based environmental regulation.
- Best Practice: Review the approaches used in other scientific/risk-based agencies (e.g. Health Service Executive (HSE), Road Safety Authority (RSA), other environment agencies, literature, etc.) and indicate how these may work for the EPA. Develop a "Best Practice/Critical Success Factor" booklet to accompany the framework.
- Guidelines: Develop guidelines (including critical success factors, time resources, cost, etc.) necessary for a successful engagement strategy.

⁴⁹ <http://www.epa.ie/pubs/advice/water/wastewater/nationalinspectionplan.html>

- Metrics: Provide options on monitoring metrics (SMART objectives and targets) that can be used to measure the success of an approach (audience, clarity, behavioural change, social group, etc.) against resource input (cost, man hours, etc.).
- Pilot Study: Evaluate the current engagement strategy for DWWTS in light of the findings of the best practice review and make recommendations. Test the framework for effectiveness by conducting a pilot study (using the engagement strategy already prepared for National Inspection Plan for DWWTS). This should include the effectiveness of the initial documentation/media/website etc. measured against new metrics.
- Lessons Learned: Use the findings from the pilot study to create a short briefing on lessons learned.

Expected outputs⁵⁰ for this project include:

- Final Report, which should provide a clear and detailed account of all the steps and methodologies used during the project and ensure that the objectives, set out above, are met.
- Synthesis Report (20-30pp), which provide a clear non-technical summary of the research and of the recommendations.
- Dissemination 2-pager, which will be used to disseminate the findings of the research to the key stakeholders.
- Workshop/Dissemination event to all stakeholders in the relevant arena (e.g. policy, monitoring, regulatory, NGOs, media, public, etc.) arena.

The list provided above is indicative and relevant alternatives will be considered. A dedicated website/webpage should be created and maintained, presenting the project and work carried to-date. It is also expected that a number of dissemination outputs, such as policy briefs, peer-reviewed publications and presentations, will arise from this project.

Project Structure and Funding

This project is a **Desk Study** which will run for **6-12** months. The maximum funding available is **€ 50,000** (which includes 2% for post-completion publicity/dissemination⁵¹). Please refer to 2013 Guide for Applicants for further details.

⁵⁰ Final Reporting requirements may be amended in agreement with the grantees.

⁵¹ For example, a €100,000 grant award is made up of €98,000 for project costs, and €2,000 for post-completion publicity

3. Indicative Timeframe

11th June 2013	Announcement of funding opportunity via national newspapers, EPA website and College Research Officers, HEANET & ESAI list server.
23rd July 2013 at 5pm	Deadline for submission of applications for authorisation by Research Offices (Managing directors for companies)
30th July 2013 at 5pm	Organisation Approval Deadline for authorisation by Research Offices.
August 2013	Evaluation Process
September 2013	Negotiation ⁵²
October/November 2013	Grant Award of Successful Projects

4. Further Information

Information on current research projects being supported by the programme is available in the Research Section of the EPA web site (www.epa.ie). Alternatively, for further information on this Call, please contact research@epa.ie.

⁵² The EPA may consider calling the shortlisted applicants for interview at this stage.