



Comhshaoil, Pobal 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: Sustainable Environment

Technical Description
(Revised: 5th July 2013)

The STRIVE Programme is funded by the Irish Government

Environmental Protection Agency Research Call 2013: Sustainable Environment

This document provides the Technical Description for the Environmental Protection Agency Sustainable Environment 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 & Conditions for Support of Grant Awards*
- *2013 quick guide to the EPA on-line 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 STRIVE programme is structured around three research pillars: Water, Climate Change and Sustainable Environment.

The core areas of research carried out by the EPA Research Programme under the Sustainable Environment pillar are:

- *Impacts on Biodiversity*: The EPA funds research that gives a better understanding of what the impacts of the different pressures on biodiversity are and also identifies possible mitigating measures.
- *Environment and Human Health*: This research theme was set up to improve knowledge to assist in the development and implementation of effective policy actions to reduce environmental impacts on human health.
- *Land Use, Soils and Transport*: Research is being carried out to establish baseline information about soils and changing land-use practices in Ireland and also ensure that proposed investments in transport infrastructure do not negatively impact on the surrounding environment.
- *Socio-Economic Considerations*: This research programme aim to investigate the potential economic tools for environmental protection and examine the costs/benefits of good environmental management
- *Waste and Resource Management*: This research area contributes to more effective waste and resource management in Ireland and seeks to address the environmental impacts of waste generation and management by taking into consideration the whole life cycle of resources.

The EPA invites research proposals under the specific topics listed in the table below. These include:

- 7 Project-based awards (Desk studies and Medium scale projects);
- 4 Research Fellowships; and
- 2 Doctoral Scholarships

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 are compatible with EPA IT infrastructure and can be maintained by EPA after the completion of the project.

	Thematic Area and Project Titles	Budget (€)
	Biodiversity	
1	Integrated environmental management and monitoring system for estuarine ecosystems (Doctoral Scholarship)	€75,000
2	Constructed wetlands - a comparison with natural wetland ecosystems in terms of biodiversity richness, water quality management and flood attenuation in a River Basin District context. (Doctoral Scholarship)	€75,000
3	National Environmental Sensitivity Mapping Tool (Research Fellowship)	€160,000
	Environment and Health	
4	Impact on health of air quality in Ireland with a focus on specific measures that impact air quality (Research Fellowship)	€160,000
5	Composition of Particulate Matter in Rural and Urban Sites with a focus on residential emissions. (Medium-scale Project)	€200,000
6	Building a bottom-up air emission inventory (Research Fellowship)	€160,000
7	Quantification and assessment of impact of air emissions (ammonia) from intensive agriculture installations (pig and poultry) on Natura 2000 sites (SACs and SPAs) – measurement, monitoring, modelling and ecological assessment. (Medium-scale Project)	€250,000
	Land Use and Soils	
8	Define a valid Landcover Classification System and associated remote sensing detection techniques for the future implementation of this classification system as a national landcover map. (Medium-scale Project)	€200,000
9	Soils in the EU & Irish Policy Context (Desk Study)	€75,000
10	Development of SEA/AA best practice approach for the energy sector in Ireland with particular reference to renewable energy. (Desk Study)	€75,000
	Socio-Economic Considerations	
11	Behavioural Change for Sustainable Development (Research Fellowship)	€160,000
	Waste and Resource Management	
12	Determination of appropriate emission factors for dioxins and furans from emission sources. (Desk Study)	€75,000
13	Review, assess and develop waste generation models for the agriculture, fisheries and forestry sectors in Ireland. (Desk Study) [see Revised Text]	€75,000

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: Biodiversity

Integrated environmental management and monitoring system for estuarine ecosystems

Scholarship Project (PhD)

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

Description

The Water Framework Directive (WFD), Habitats and Birds Directives require the protection of estuarine water resources and ecosystems. However, development pressures can result in significant negative impacts on sensitive estuarine environments and associated habitats and species.

The application of the SEA and AA processes can highlight the potential conflicts between development and environmental protection of estuaries. Estuarine monitoring programmes are not systematically applied and complete baseline datasets for estuaries is frequently unavailable. The proposed project would develop an Integrated Environmental Management and Monitoring system (EMMS) and associated Environmental Management and Monitoring Plan Template for Irish estuarine ecosystems using relevant case study/studies. The methodology for the EMMS/EMMP would be applicable on a national scale, and would set a framework for establishing national estuarine ecosystem monitoring systems, incorporating the requirements of the WFD, Habitats, Birds and Floods Directives.

The Integrated EMMS developed will allow environmental assessment and monitoring of estuarine ecosystems and will contribute to SEA, AA and WFD related monitoring requirements. The Integrated EMMS approach, once established, will also inform development plans and the assessment of development applications in estuarine environments. This will minimise conflict between the competing interests of development and environmental protection.

The development of Integrated EMMSs on a national scale will contribute to developing site specific actions for estuaries, which has been highlighted as a 'pressing need' in the EPA State of Environment Report 2012 (Chapter 4, Conclusions and Challenges). The EMMSs could also contribute to achievement of WFD objectives, i.e. good water status by 2015. Other stakeholders with an interest in the project include DECLG, NPWS, Local Authorities, Port Authorities, NGOs, Coastwatch.

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

- Collate information on environmental pressures acting on estuarine ecosystems.
- Review of WFD, Floods, Habitats and Birds Directives, Marine Strategy Framework Directive etc. and relevant best practice notes to determine environmental monitoring requirements and recommendations for estuarine environments.
- Development of an Integrated EMMS for estuarine ecosystems, incorporating the requirements of EU and national environmental legislation.
- Pilot the application of the Integrated EMMS.
- Development of guidelines for applying the methodology to other national estuarine ecosystems.
- Development of a EMMP template reflecting the key components of the EMMS.
- Development of a GIS interface to inform development assessment and authorisation.

Expected outputs for this project include:

- Survey of representative number of wetlands in a River Basin District
- Minimum two peer-reviewed research papers
- Presentation at regional/national workshop of relevant stakeholders
- PhD thesis

Project Structure and Funding

This project is a **Doctoral Study** which will run for **36 months**. The maximum funding available is **€75,000** (which includes 2% for post-completion publicity/dissemination¹ please refer to the 2013 Guide for Applicants for further details).

Constructed wetlands - a comparison with natural wetland ecosystems in terms of biodiversity richness, water quality management and flood attenuation in a River Basin District context.

Scholarship Project (PhD)

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

Description

Natural wetlands have the capacity to cleanse through-flowing water. This is achieved through a combination of physical, chemical and biological processes. In addition wetlands provide life support for a wide diversity of plants and animals.

A constructed wetland is an artificial wetland created as a new or restored habitat for native and migratory wildlife, for anthropogenic discharge such as wastewater, stormwater runoff, or sewage treatment, for land reclamation after mining, or other ecological disturbances such as required mitigation for natural areas lost to a development.

The focus of this research is to work with a relevant stakeholder(s) to compare constructed wetlands with natural wetland ecosystems in terms of biodiversity richness, water quality management, and flood attenuation in a River Basin District context.

Expected outputs for this project include:

- Survey of representative number of wetlands in a River Basin District
- Minimum two peer-reviewed research papers
- Presentation at regional/national workshop of relevant stakeholders
- PhD thesis

Project Structure and Funding

This project is a **Doctoral Study** which will run for **36 months**. The maximum funding available is **€75,000** (which includes 2% for post-completion publicity/dissemination² please refer to the 2013 Guide for Applicants for further details).

¹ For example, a €100,000 grant award is made up of €98,000 for project costs, and €2,000 for post-completion publicity

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

National Environmental Sensitivity Mapping Tool

(Fellowship Project)

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

Description

Specific aspects of the Irish environment are protected under various international and national legislation and conventions including the Water Framework Directive (WFD), Habitats and Birds Directives, etc. However, development can put pressure on the environment if it not carried out in a sustainable way. In order to promote environmentally sustainable development, easy access to relevant and spatially specific baseline data is required.

The SEA and AA processes highlight potential conflicts between development and environmental protection. The development of a National Environmental Sensitivity Map/ Mapping Tool would contribute to these assessment processes and highlight areas of high environmental vulnerability which need to be protected.

The tool would have potential application in the area of cumulative effects assessment/ in -combination effects assessment as required by SEA and Appropriate Assessment (AA).

This mapping tool would allow Plan/ Programme-makers and developers/ industry for specific sectors (e.g. land use, energy, forestry, water etc.) to systematically assess environmental sensitivity within a Plan/ Programme area/ development area and would ensure decisions are evidence based. As a result environmentally sustainable development would be promoted by:

- directing development away from the most sensitive areas;
- taking into account potential cumulative/ in -combination effects; and,
- where necessary implementing mitigation measures to reduce the impact of development.

The tool should be piloted in the context of a specific sector(s) e.g. land use, energy, forestry, water etc. in consultation with the project Steering Group.

Expected outputs for this project include:

- Final Report, which should provide a clear and detailed account of all the steps and methodologies used during the project including the National Environmental Sensitivity Map/ Mapping Tool.
- 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 dissemination outputs such as policy briefs, peer-reviewed publications and presentations will arise from this project.

Project Structure and Funding

This project is a **Fellowship Study** which will run for **24** months. The maximum funding available is **€160,000** (which includes 2% for post-completion publicity/dissemination³ please refer to the 2013 Guide for Applicants for further details).

Area 2: Environment and Health

Impact on health of air quality in Ireland with a focus on specific measures that impact air quality

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

Description

Certain regulatory instruments have proven in the past to have a positive impact on the air we breathe in Ireland. e.g. the smoky coal ban in Dublin. However there have been a number of other changes, which indirectly may have affected the ambient air quality in their vicinity.

To increase knowledge on impact of outdoor air quality on health in Ireland, we are interested in the impact of specific measures/situations, for example

- Smoky coal ban
- Urban vs rural (traffic vs domestic solid fuel use)
- Amendments to vehicle speed limits e.g. Dublin city centre, M50 etc.
- Port tunnel / Heavy goods vehicle ban

Expected outputs for this project include:

- Detailed Literature review;
- Final Report, which should provide a clear and detailed account of all the steps and methodologies used during the project.
- 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 dissemination outputs such as policy briefs, peer-reviewed publications and presentations will arise from this project.

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

Project Structure and Funding

This project is a **Fellowship Project** which will run for 24 months. The maximum funding available is **€160,000** (which includes 2% for post-completion publicity/dissemination⁴ please refer to the 2013 Guide for Applicants for further details).

Composition of Particulate Matter in Rural and Urban Sites with a focus on residential emissions.

(Medium scale project)

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

Description

Ireland has seen a significant improvement in its ambient air quality since the introduction of a number of legislative measures, beginning in the early 1990s. These measures were driven by the European Union in an attempt to combat air quality issues that existed Europe-wide at the time, such as acid rain and smog. Despite the improvements in air quality since that time, Ireland faces new challenges in maintaining its high standard of air quality. One area of concern with respect to impacts on human health is the concentration of coarse and fine particulate matter in ambient air and in particular, an understanding of the domestic / residential sources of particulate matter from an Irish perspective. Recent studies have shown variation into the speciation of PM from country to country at a European level, although limited speciated datasets are available throughout EU27. The work should build on previous Irish research in the area

The primary goals of the research are:

- speciation of particulate matter project investigating urban and rural areas with an emphasis on areas with high usage of peat, coal and wood
- Source apportionment study of particulate matter in the rural and urban residential areas.(Include relevant CAFÉ Parameters as a minimum)
- Assessment of biomass contribution in different areas
- Assessment of the spatial and temporal variation in indicator compounds for domestic waste burning

This research would most likely fulfil source apportionments elements of CAFÉ. It may also offer some insight into the domestic fuel usage habits in rural zone D that are heavily dependant on solid fuel use. It may also offer insights, when compared to previous urban PM studies, about the impacts of fuel switching in areas where choices exist .

Expected outputs for this project include:

- Final Report, which should provide a clear and detailed account of all the steps and methodologies used during the project
- 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

⁴ For example, a €100,000 grant award is made up of €98,000 for project costs, and €2,000 for post-completion publicity

also expected that a number 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 Project** which will run for **24 months**. The maximum funding available is **€200,000** (which includes 2% for post-completion publicity/dissemination⁵ please refer to the 2013 Guide for Applicants for further details).

Building a bottom-up air emission inventory

(Fellowship Project)

To make an application under this topic area, you must use the following Call Topic Reference: Sustainable Environment Call Project 6

Description

There is increasing pressure on member states to implement a modelling plan in line with CAFÉ Directive requirements. At FAIRMODE 2013 (Forum for ambient air modelling in Europe), a presentation by the European Topic Centre on the subject identified the following areas as key drivers to implementing among member states:

- Scenario Analysis (Air quality planning)
- Assessment / reporting
- Mapping to demonstrate areas of exposure
- Forecasting
- General public pressure

Ireland currently does not have a model. A presentation at the same meeting, regarding the Air Implementation Pilot, highlighted Dublin as being the only city without a model. Questionnaires on the subject by all members revealed that a detailed spatial and temporal emission inventory is a pivotal step in the development of any air modelling plan.

Emission inventory is the task of quantifying atmospheric releases of pollutants and forms a key input to ambient air modelling. The key goals of this project would be to:

- Develop bottom up spatial and temporal emission inventories at urban and regional scale which would form key inputs to a national ambient air model (Resolution min: 5km x 5km)
- Focus on CAFÉ Directive Pollutants to include at a minimum NO₂ / NO, PM₁₀ / PM_{2.5}, ozone / ozone precursors

This research would need to overlap with current modelling fellowship and other EPA research projects and to be validated against total emissions submitted to the European Commission.

Expected outputs for this project include:

- An emission inventory that would be developed bottom up in a format that is usable in ambient air modelling requirements of CAFÉ Directive.
- Final Report, which should provide a clear and detailed account of all the steps and methodologies used during the project.

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

- 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 dissemination outputs such as policy briefs, peer-reviewed publications and presentations will arise from this project.

Project Structure and Funding

This project is a **Fellowship** which will run for **24 months**. The maximum funding available is **€160,000** (which includes 2% for post-completion publicity/dissemination⁶ please refer to the 2013 Guide for Applicants for further details).

Quantification and assessment of impact of air emissions (ammonia) from intensive agriculture installations (pig and poultry) on Natura 2000 sites (SACs and SPAs) – measurement, monitoring, modelling and ecological assessment.

(Medium Scale Project (24-36 months))

To make an application under this topic area, you must use the following Call Topic Reference: [Sustainable Environment Call Project 7](#)

Description

The background to this research is the need to provide reliable data on ammonia emissions from pig and poultry installations with particular focus on impact of these emissions on designated conservations sites.

This research will assist the EPA licensing of intensive agriculture installations, in particular to support *Appropriate Assessments* under the Habitats Directive; contribute to national inventory reporting and PRTR reporting; assist in the assessment of developments under *Food Harvest 20/20* and support work on transboundary air pollution.

This research is also potentially very valuable to the following stakeholders: EPA and planning authorities – assist in regulation of intensive agriculture installations; intensive agriculture installation operators; National Parks and Wildlife Service – competent authority for Natura 2000 sites; Department of Agriculture, Food and the Marine, Irish Farmer’s Association and Teagasc. In addition, other regulatory authorities in UK (EA, SEPA and NIEA), developing screening tool for intensive agriculture installations and Natura 2000 sites.

Objectives and Key Outputs include

- Reliable emissions data for pig and poultry installations which are representative of the production systems in Ireland.
- Ambient monitoring data (ammonia) for pig and poultry installations.
- Emissions measurements from pig and poultry installations.
- Compare emission monitoring results with relevant emission factors (ammonia) used for pigs and poultry in national inventory reporting.
- Advanced air dispersion model for pig and poultry installations, using local met data and regional met data to confirm appropriate met data. Predict impact at nearest SAC/SPA.

⁶ For example, a €100,000 grant award is made up of €98,000 for project costs, and €2,000 for post-completion publicity

- Assess impact on SAC/SPA with respect to critical levels (ammonia) and critical loads (nitrogen and acid deposition), and include ecological assessment.

Expected outputs for this project include:

- Final Report, which should provide a clear and detailed account of all the steps and methodologies used during the project.
- 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 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 Project** which will run for **24-36** months. The maximum funding available is **€250,000** (which includes 2% for post-completion publicity/dissemination⁷ please refer to the 2013 Guide for Applicants for further details).

Area 3: Land Use and Soils

Define a valid Landcover Classification System and associated remote sensing detection techniques for the future implementation of this classification system as a national landcover map.

(Medium scale project)

To make an application under this topic area, you must use the following Call Topic Reference: [Sustainable Environment Call Project 8](#)

In Ireland there is a recognised data gap in the availability of Landcover datasets, such datasets are critical to a wide range of environmental legislation, reporting and assessment activities such as WFD, Climate Change, SEA, Biodiversity etc. Currently the most detailed national dataset is the EEA Corine data which is a pan European product with poor spatial resolution (25ha minimum mapping unit). The lack of access to detailed landcover data is limiting the implement of environmental legislation.

The Corine classification system was designed for Continental European landcover types and fails to map and categorise Irish landcover types in sufficient detail. Within Ireland, the Fossitt Habitats Classification System maps habitats down to individual species and assemblage type. This is too detailed for generating landcover maps using the latest remote sensing (RS) techniques, which is now the standard means of producing national landcover inventories. Therefore there is a requirement for an Irish national landcover classification system at a level which enables the production of a national landcover dataset for Ireland at regular intervals using RS techniques.

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

A landcover technical working group of these organisations, chaired by the EPA, has been set up to bring proposals forward in a Memo to Government. This Memo will highlight the need for such a datasets within the national spatial data infrastructure and outlining the technical requirements for its development. At this stage there are two main technical obstacles for the technical working group. The first is the provision of a valid landcover classification that can be implemented at a national scale using a valid remote sensing methodology. The second is the subdivision and classification of large unenclosed and upland areas.

Please note that the successful research team will be expected to work closely with the EPA GIS unit over the course of the project duration. This could include placement of a researcher on-site at EPA Headquarters in Johnstown Castle, Co Wexford for a period of time.

Expected outputs for this project include:

- A comprehensive review of existing national landcover classification systems
- Develop a valid national landcover classification system that can be used to implement a national landcover map using remote sensing methodologies at the land parcel level using OSi Prime 2 data
- Full agreement on the classification system with national landcover stakeholders via workshops or similar forums
- Develop a valid object oriented remote sensing methodology for future implementation of this landcover classification system into a national map
- Develop a valid object oriented remote sensing methodology for the sub-division and classification of unenclosed upland areas
- Develop a valid methodology for the generalisation of this detailed landcover product up into 1ha, 5ha and CORINE products
- Delivery of a report to include full discussion of rationale behind landcover classification system and the technical detail for the implementation of this classification into a national landcover map via a remote sensing methodology.
- 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 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 months**. The maximum funding available is **€200,000** (which includes 2% for post-completion publicity/dissemination⁸ please refer to the 2013 Guide for Applicants for further details).

⁸ For example, a €100,000 grant award is made up of €98,000 for project costs, and €2,000 for post-completion publicity

Protection of Soils (Policy & Research State of Knowledge)

(Desk Study)

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

Background

In Ireland, national legislation indirectly covers aspects of soil protection. A number of regulations include soil in their context. This however is in an unsubstantial and fragmented manner. The EPA is the competent authority in the implementation of a number of EU regulations that cover certain aspects of soil protection. Generally, Ireland's soils are considered to be in good condition, with the exception of peat areas, which are particularly vulnerable to external pressures. However, the information available on land and soil is currently not sufficient. It is vital to improve our evidence base, which is required in order to accurately assess and protect these vital resources and to provide information and guidance to policy and decision makers. It is vital to take stock of current and past research to overcome the fragmentation and to support the efficient dissemination of soil research in Ireland and prepare a basis towards the establishment of a longer-term strategy for the next EPA research programme 2014-2020.

Objectives and Expected Outputs

The research project will review existing EU and Irish legislations, policies and strategies focusing on provisions for soil protection. The project will aim at identifying the principal data needs, sources & gaps in existing soils monitoring obligations in Ireland under the implementation of other regulations, as well as review the potential interactions between soil protection and strategic sectoral initiatives (e.g. Food HARVEST 2020⁹). Strong evidence-based scientific knowledge is key to informed and positive policy making. The project will review the status of soils research in Ireland, make recommendation towards the integration of key national soils datasets and research outputs; and identify emerging research needs of relevance to Ireland.

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

- Identify and review existing or pending EU & Irish legislations which have provisions for the direct or indirect protection of soils.
- Identify the principal data sources, formats, availability and gaps in existing soils monitoring obligations in Ireland under the implementation of regulations.
- Assess how delivering the objectives of various sectoral policies and strategic plans (e.g. Food Harvest 2020) can be achieved in the context of protecting and maintaining soils productivity and ecosystem services.
- Review soils research both nationally & internationally (where relevant to Ireland) with a view to cataloguing relevant and significant research (i.e. What information is out there, What format it is in i.e., reports, datasets, databanks, maps, GIS physical soil archives, Holders of the information, Commonalities & differences, etc.).
- Make recommendations towards the integration of key national soils datasets and research outputs (e.g. NSDB¹⁰, Soil C¹¹, Soil H, CreBeo¹², Teagasc/EPA Indicative Soils and Subsoils Map, ISIS¹³, models used for EC JRC/SOER reporting, etc.).

⁹ <http://www.agriculture.gov.ie/agri-foodindustry/foodharvest2020/>

¹⁰ National Soil Database: <http://erc.epa.ie/nsdb/>

¹¹ <http://www.epa.ie/pubs/reports/research/land/strive35.html>

¹² <http://erc.epa.ie/safer/iso19115/display/SO19115.jsp?isoid=239>

¹³ Irish Soil Information System

- Make recommendations towards the development of structures and systems for communication and dissemination of information on soils research (building on existing resources, where relevant) and for improving the uptake of research outputs and results; and
- Identify emerging research needs¹⁴ of relevance to Ireland in support of future research calls and the development of the EPA Soils research priorities from 2014 onwards.

Expected outputs 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 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 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/dissemination¹⁵ please refer to the 2013 Guide for Applicants for further details).

Development of SEA/AA Best Practice Approach/ Best Practice Guidance for the energy sector in Ireland with particular reference to renewable energy.

(Desk Study)

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

Description

The EPA Report “Review of Effectiveness of SEA in Ireland” (2012) examined the effectiveness of SEA in integrating environmental considerations into Plans and Programmes in Ireland. An SEA Action Plan prioritised the key recommendations of the Review. The need for sector specific SEA Best Practice Guidance for plan makers, including for the energy sector is one of the key recommendations under Guidance.

With the proposed expansion of renewable energy industry, including proposals for export, there is a need for Plan makers to assess the potential for likely significant effects (including cumulative effects) in a systematic, coordinated and consistent manner. To assist Plan makers in the implementation of the SEA Directive for the Energy sector, there is a need for best practice guidance on the application of SEA for the sector.

¹⁴ The project should take into account the 2013 EPA stakeholders consultation (workshops, etc.) and could consider online survey for research needs (online stakeholders consultation) as part of refining key knowledge gaps.

¹⁵ For example, a €100,000 grant award is made up of €98,000 for project costs, and €2,000 for post-completion publicity

The proposed project would collate the available national and international best practice examples, Guidance/ Guidelines/ Methodologies and highlight key areas to be addressed in Renewable Energy Strategies and develop assessment methodologies.

Expected outputs for this project include:

- Final Report, which should provide a clear and detailed account of all the steps and methodologies used during the project.
- 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 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/dissemination¹⁶ please refer to the 2013 Guide for Applicants for further details).

Area 4: SocioEconomic Considerations

Behavioural Change for Sustainable Development

(Fellowship project)

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

Background

The new national sustainable development policy, Our Sustainable Future, sets out the challenges facing us and how we might address them in making sure that quality of life and general wellbeing can be improved and sustained in the decades to come. Our Sustainable Future broadly follows the thematic approach of the EU Sustainable Development Strategy and proposes measures to help meet the overall goal of achieving continuous improvement of quality of life for both current and for future generations. While the objectives and targets of this and other related policies provide a framework for achieving sustainability, it is recognised that significant changes will only be realised through buy-in from business leaders, political decision makers and the general public to enable a shift of consumption patterns

A key priority contained in the EPA's strategy for the period 2013-2015 is to "develop new and innovative ways to influence positive behavioural change". The EPA currently manages and supports a number of initiatives and Programmes (e.g. Stop Food waste, Green Homes etc.) under the "Be green" banner, as well as, operating the Cleaner Greener Production Programme (CGPP). Whilst this focus on production processes and resource efficiency is important and continues to be successful it is recognized that patterns of consumption by households also has a significant impact on current environmental, social and economic problems. To date, attempts to encourage sustainable household consumption of key resources such as food, water, transport and energy have focused mainly on information provision, economic instruments and incremental technology improvements. However focus on how to change current unsustainable

¹⁶ For example, a €100,000 grant award is made up of €98,000 for project costs, and €2,000 for post-completion publicity

behaviours has to date contained assumptions which are widely acknowledged to be simplistic. Against this background, there is need to add social science and behavioural change expertise to the enable the future development of existing and new EPA initiatives and Programmes so that we can begin to address the challenge of environmental impacts of escalating consumption demands and expectations.

Objectives and Expected Outputs

The main objective of this research will be to develop initiatives, interventions, practices and incentives that positively influence behavior change in both households and the business community and which can be incorporated into the EPA's existing Resource Efficiency Programmes or used as the foundation to develop new ones.

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

- Review existing research, both nationally and internationally that focuses on ways to influence behaviour change as a mechanism that will make our future more sustainable.
- Identify national and international policies and programmes that challenge current patterns of production and consumption and go beyond the use of information provision, economic instruments and incremental technological advances
- Identify the most promising practices, initiatives and interventions from these policies, programmes and research.
- Review current EPA Resource Efficiency Programmes and other relevant national programmes with the aim of making recommendations, for inclusion in these programmes, that will have a lasting positive effect on the behaviours of businesses, communities and households that are currently negatively impacting the environment
- Develop proposals for new Resource Efficiency Programmes and the enhancement of existing ones with the aim of effecting behaviour changes related to the efficient use of resources that will have long lasting positive effects on Irelands sustainability.

Expected outputs for this project include:

- Final Report, which should provide a clear and detailed account of all the steps and methodologies used during the project.
- 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 dissemination outputs such as policy briefs, peer-reviewed publications and presentations will arise from this project.

Project Structure and Funding

This project is a **Fellowship** which will run for **24 months**. The maximum funding available is **€160,000** (which includes 2% for post-completion publicity/dissemination¹⁷ please refer to the 2013 Guide for Applicants for further details).

¹⁷ For example, a €100,000 grant award is made up of €98,000 for project costs, and €2,000 for post-completion publicity

Determination of appropriate emission factors for unintentional Persistent Organic Pollutants (POPs) from certain emission sources

(Desk Study)

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

Background

Ireland's National Implementation Plan on Persistent Organic Pollutants (POPs), which was prepared in 2012, includes an assessment of POPs in Ireland and details the measures put in place to protect human health and the environment from the POPs listed under the Stockholm Convention on POPs. The Plan also outlines further planned activities which will be carried out to support the control of POPs including research related activities. For example research is required to address a number of data gaps to help improve estimated emissions of POPs in Ireland. The National Implementation Plan on POPs is available at www.pops.ie.

To assist in the implementation of Ireland's National Implementation Plan on POPs, research proposals are invited focussing on the assessment of POPs in the Irish environment. The timeline for research activities outlined in the National Implementation Plan on POPs covers the period between 2012-2015. Considering the time required to complete this research it is considered that now is an appropriate time to invite proposals.

Objectives and expected outputs

Currently emission factors for unintentional POPs such as dioxins and furans are used from international databases which some may not be appropriate in an Irish context. For example emissions from peat combustion from residential solid fuel burning are poorly characterised in current literature.

Proposals are invited to carry out emissions monitoring of dioxins and furans from residential solid fuel sources (e.g.: peat) in order to determine appropriate emission factors. Research shall also include a literature search in order to recommend the updating of emission factors for a range of emission sources to improve the accuracy of reporting of current unintentional POP emissions in Ireland and to assist with the reporting of projected emissions of unintentional POPs. This work should build on previous research carried out in this area.

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

- Sampling and analysis of dioxins and furan emissions from simulated small-scale residential solid fuel burning (e.g.: peat) to determine appropriate emission factors;
- Up to date literature search and review of emission factors in order to make recommendations to change/update the emission factors used for estimating unintentional emissions to land, air and water for certain source categories (e.g.: open burning processes) in Ireland; and
- Recommendations to assist in the development of projections of emissions of unintentional POPs from certain source categories (e.g.: open burning processes).

An expected output from this research is to produce an updated emission factor database with recommended emission factors as a result of the further research undertaken (e.g.: monitoring of emissions from residential solid fuel burning and literature search). It is intended that this updated database will be used to improve the accuracy of estimated releases from Irish sources and facilitate the regular emissions reporting under the Stockholm Convention on POPs and the Convention on Long Range Transboundary Air Pollution.

Expected outputs for this project include:

- Final Report, which should provide a clear and detailed account of all the steps and methodologies used during the project.
- 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 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/dissemination¹⁸ please refer to the 2013 Guide for Applicants for further details).

Review, assess and develop waste generation models for the agriculture, fisheries and forestry sectors in Ireland

(Desk Study)

To make an application under this topic area, you must use the following Call Topic Reference: [Sustainable Environment Call Project 13](#)

Description

The quantities of non-natural wastes arising from Agriculture, Fisheries and forestry sectors are not specifically captured as part of the national annual reporting for the National Waste Report. In order to be able to provide estimates of the waste generated for this sector, as required under EU Regulation (EC) No 2150 of 2002 on Waste Statistics (as amended), the Irish EPA decided to use the model used by the Environment Agency (England and Wales), the Scottish Environmental Protection Agency (SEPA), and Northern Ireland Environment Agency (NIEA). These waste models have been developed in the UK over a number of years. The UK Model was developed by an extensive consultation and literature review and comprises calculation methodologies for forty-one waste arisings and by-products. Each of these methodologies has been established using MS Excel and derives a 'unit waste estimate' for a specific waste stream. This value links the quantity of a specific waste or by-product generated each year to a single unit, e.g., for an agricultural unit (e.g. the quantity of agrochemical packaging per hectare, or the quantity of milk waste per dairy head). The unit weight estimates have been generated by using a combination of a mass balance approach and a bottom-up farm practice approach. To generate estimates for specific areas, such as regions or counties, the unit waste estimates are then linked to the appropriate Agricultural and Horticultural Census data for the specified year. The limitations of the models are well documented and are based on UK information and applying these models within an Irish context adds to these limitations and inherent inaccuracies.

Please see below for clarification text provided by EPA in respect of this project:

¹⁸ For example, a €100,000 grant award is made up of €98,000 for project costs, and €2,000 for post-completion publicity

This research work will provide:

1. **Waste generation models which are applicable to the agricultural, fisheries and forestry sectors in Ireland. Under the Waste Statistics Regulations, Ireland is required to provide information on waste and submit a quality report every two years. The next reporting date is 2014.**
2. **This work will help provide a more accurate assessment of the types and quantities of both hazardous and non-hazardous waste generated by these sectors which will assist in national policy development and strategies to manage this waste stream.**
3. **It will assist in informing and developing Good Practice Guides for the management of these wastes and contribute to objectives and recommendations in the National Hazardous Waste Management Plan and the National Waste Prevention Programme.**
4. **It will contribute to the EPA strategy and role in relation to knowledge, advocacy and resource efficiency.**
5. **It will support the ambitions of the Department of Agriculture, Food and the Marine Food Harvest – a vision for Irish Agri-food and fisheries 2020 policy by providing information to assist in the management of wastes generated by these sectors and contribute to the positive branding of Ireland as green and clean.**
6. **It will provide a tool to assist in the measurement of sustainable environmental practices for all stakeholders involved in these sectors.**

Objectives and Expected Outputs

The objective of this project is to carry out a review of the UK waste models for agriculture, fisheries and forestry and produce waste models for these sectors in Ireland which will more accurately estimate the types and quantities of non-natural wastes generated by these sectors on an annual basis. The models should, where appropriate derive unit weight estimates which can be used subsequently to provide updated estimates as required using national statistics on these sectors generated by the CSO. The work should examine whether a top down approach (e.g., tonnes of packaging placed on the market, tonnes of fertiliser sold in tonne of 50 kg bags or in bulk, tonnes of tractor battery/tractor/year etc.) or bottom-up approach (e.g., grams of active substance placed on the market, tonnes of farm plastics collected for recycling per year) or a combination of both should be used to derive the unit weight estimate per waste type. The waste types, both hazardous and non-hazardous generated by this sector should also be examined to identify any gaps in the current list of wastes. The outputs will be:

1. **New Irish wastes models for agriculture, fisheries and forestry sectors that can be used estimate the types and quantities of wastes generated by these sectors.**
2. **National unit weight estimates for all the waste types generated by each sector.**
3. **A detailed written report of how the models were derived, an assessment of the accuracy and limitations of the models and a list of the information sources required to populate the model for future reporting or policy requirements.**
4. **A 2-page policy-brief type document which will be used to disseminate the findings of the research to the stakeholders.**
5. **Workshop/Dissemination event to all stakeholders in the relevant arena (e.g. policy, monitoring, regulatory, NGOs, media, public, etc.) arena.**

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/dissemination¹⁹ please refer to the 2013 Guide for Applicants for further details).

¹⁹ 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.
5pm, 23rd July 2013 5 p.m.	Deadline for submission of applications for authorisation by Research Offices (Managing directors for companies)
5pm, 30th July 2013 5 p.m.	Organisation Approval Deadline for authorisation by Research Offices.
August/September 2013	Evaluation Process
September/October 2013	Negotiation ²⁰
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/researchandeducation/research). Alternatively, for further information on this call, please contact research@epa.ie.

²⁰ The EPA may consider calling the shortlisted applicants for interview at this stage.