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RESEARCH TENDER CALL

TENDER INFORMATION DOCUMENT

Project Reference No.: 07-2015


Project Title: "Investigation into the potential food safety, economic, and environmental impacts of climate change on the dairy production chain on the island of Ireland"

1. Objective/Knowledge Gap

- To ascertain what is currently known about the potential food safety, economic and environmental impacts of climate change on the dairy production chain on the island of Ireland.
- To comprehensively investigate the dairy production chain on the island of Ireland for climate change vulnerabilities in this regard.
- To clarify potential mitigation strategies and develop a mitigation strategy for the dairy production chain on the island of Ireland and proffer recommendations in this regard.

2. Background

Scientists continue to predict changes in the Earth's climate in the coming decades, and the subsequent impacts on society, with greater accuracy. These predictions are of particular significance in the areas of food production and food safety as any changes will impact on both the economy and public health. The island of Ireland is a particularly apt case study in this regard. In 2013, agricultural production accounted for 2.4% and 1.5% of gross value added while total gross turnover in the food and drinks processing sector was approximately €24 and £4.5 billion in ROI and NI, respectively^{i,ii,iii,iv}. Also in the same year, employment in the agri-food sector accounted

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for approximately 175,000 (9.2% of total) and 48,000 (6.2% of total), respectively^{i,ii,iv}. In 2013, the value of dairy products and ingredients in the Republic of Ireland was €3 billion while in Northern Ireland, milk and milk product turnover was £947 million^{v,vi}.

Researchers have predicted the changes that are likely to happen to the climate on the island of Ireland in the coming decades. This included a focus on the potential impacts on agriculture including an estimation of the associated economic, environmental and social costs, and possible mitigation strategies to offset these impacts. The individual impacts have been ranked in order of severity for both arable and livestock farming. Further research from **safefood** identified the potential impacts of climate change on food safety and public health for the island of Ireland and highlighted those areas of the food chain where these impacts are most likely to occur and what could be done to potentially ameliorate their effects.

To date, there has been little if any research focus on specific agri-food sectors as identified in the agri-food development strategies in both the Republic and Northern Ireland. Some of these sectors, such as dairy or red meat, are economically very important and vulnerable to climate change. Some research has been done elsewhere to ascertain how climate change will impact on specific parameters along a particular production chain: for instance, a Dutch study in 2011 investigated the effects of climate change on emerging food safety hazards in the dairy production chain. To our knowledge, this has not been carried out for any of the food production sectors on the island of Ireland.

3. Approach

This project seeks to identify the potential food safety, economic and environmental impacts of climate change on the dairy production chain on the island of Ireland. The dairy production chain will be comprehensively investigated for vulnerabilities in this regard and potential mitigation strategies, including possible mitigation models, will be investigated. The outcome will be a report detailing exactly where, according to expert opinion and analysis, the vulnerabilities lie and what stakeholders along the dairy production chain should/could be doing to redress these.

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4. Technical Specification

- (a) Scope of research
- (b) Literature review
- (c) Qualitative and quantitative work
- (d) Analysis
- (e) Data handling and Reporting
- (f) Quality assurance

a) Scope of research

This project will require:

- i. a comprehensive review of the scientific literature and
- ii. a direct interrogation of relevant expert opinion with regard to the vulnerabilities in the dairy production chain and other aspects of the predicted climate change impacts.


b) Literature review

Applicants will be expected to conduct a comprehensive review of the peer reviewed and grey scientific literature to ascertain the research findings from other countries in this regard, the actions being taken to ameliorate potential impacts, and the policy ramifications, if any. Applicants will also be expected to determine if other agricultural sectors on the island of Ireland could benefit from similar research.

c) Qualitative and quantitative work

Expert opinion and analysis will be obtained through in-depth interviews based on a standardised questionnaire (approved by **safefood**) with different stakeholders in the dairy production chain in both jurisdictions on the island of Ireland, including but not limited to:-

- i. Climate change experts in academia, government, industry, insurance and other areas on the island of Ireland and internationally;
- ii. Multinational food producers and manufacturers;

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- iii. Regulators, e.g. Food Safety Authority of Ireland, Food Standard Agency in Northern Ireland, Department of Agriculture, Food and the Marine (ROI), Department of Agriculture and Rural Development (NI), Environmental Protection Agency, Northern Ireland Environment Agency, Department of Environment ROI and NI, etc.;
- iv. Representative bodies such as the Irish Farmers Association, Ulster Farmers Union, Irish Grain and Feed Association, Northern Ireland Grain Trade Association, etc.;
- v. Economic analysis institutes including relevant departments of economics in third level institutes, the Economic and Social Research Institute (ESRI).


The successful applicant will determine the potential economic impacts of climate change on the dairy production chain on the island of Ireland and estimate the financial ramifications of these impacts.

d) Analysis

- i. The successful applicant will clarify potential mitigation strategies for the impacts of climate change on the dairy production chain on the island of Ireland that will include the development of a mitigation strategy and proffer recommendations in this regard. Furthermore, the successful applicant will ascertain if the methodology used in the research could be applied to address knowledge gaps regarding the potential impact of climate change in other agricultural sectors on the island of Ireland. This will include recommendations for possible further developments including IoI-specific research gaps.

e) Data handling and reporting

- i. After five months, the contractor will submit to **safefood** an interim report detailing progress for each deliverable of the project.
- ii. The contractor is responsible for collating all outcomes and a final report will be submitted to **safefood** on completion of the study after 10 months.

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- iii. All forms, documentation and electronic files must be retained by the contractor until further notice from **safefood** in case of issues arising after the completion of the research.

f) Quality assurance

- i. The report must specify the sources of information, whether peer-reviewed/grey literature, expert consultations and correspondence, official policy material, etc.
- ii. **safefood** will meet with the contractors during the course of the research to assess progress.

5. Proposed Activities/Deliverables


The key deliverable from this project will be a final report to **safefood**. This will detail:-

- i. a comprehensive review of the peer reviewed and grey scientific literature;
- ii. full details of all interviews conducted as part of the research;
- iii. a full description of the mitigation strategies and proposed mitigation strategies;
- iv. recommendations including other agri-food sectors that could benefit from similar research;
- v. the recommendations for possible further developments including IoI-specific research gaps.

6. Evaluation of Tenders

Quality of the proposal:

- ✓ Anticipated deliverables;
- ✓ Research method and facilities;
- ✓ Value for money;
- ✓ Potential for application;
- ✓ Work plan, including the overall timeframe.

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Quality of Applicants:

- ✓ Experience in subject area;
- ✓ Quality Assurance and Quality Control measures in place.

7. **Duration of Project**

Estimated duration of the project: primarily desk-based research for a period not exceeding 10 months.

8. **Tender Application Forms and Guidelines**

The Tender Application Form and associated Guidelines can be downloaded from www.safefood.eu. They can also be obtained by emailing research@safefood.eu, quoting the project reference number **07-2015**. Alternatively please contact **safefood** as per the details below.

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