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Dear John

**Addressing Treasury Challenge 5, a submission to the Government's  
Comprehensive Spending Review 2007.**

I am writing in my capacity as Chair of the Environment Research Funders' Forum (ERFF) to inform you about the work of the Forum and how it will be seeking to address Treasury Challenge 5 through the development of an interdisciplinary initiative for CSR 2007 from Research Councils, government and business.

A short document, outlining the economic benefits of environmental research, the role of the Forum in coordinating this research in the UK and how ERFF members aim to address Treasury Challenge 5 is attached. ERFF member organisations will work together to implement a new initiative for CSR2007 'Living with Environmental Change'. This will bring together natural, engineering, social and economic scientists with policy makers and business to tackle the increasing pressures on natural resources and global climate. ERFF member organisations will be diverting existing resources to address this priority over the short timescale required to start to address this issue but there is a need for additional resource from Government.

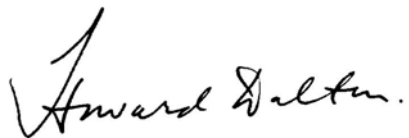
The ERFF was formed in 2002 and its primary role is to ensure that public money for environmental research is well spent. Its members include government departments (e.g. Defra, DfID, DfT) agencies (e.g. Environment Agency, Scottish Environment Protection Agency, Met Office) and Research Councils (e.g. NERC, ESRC, EPSRC). By early 2007, the Forum will have assessed the research funded by its member

organisations, providing for the first complete picture of how environmental priorities are being addressed and completed a review of how the UK environment is currently being monitored to ensure it is clean, safe, biologically diverse, sustainable and productive.

Following the Stern Review the Government is obviously well aware of the potential economic impacts of climate change. Further evidence for economic benefits of environmental research is presented here and a case made for why continued and enhanced support for environmental research will benefit the UK economy and society.

The Environment Research Funders' Forum would be pleased to provide further information to Treasury if required and looks forward to a positive outcome from CSR2007 for environmental research.

Yours sincerely

A handwritten signature in black ink that reads "Howard Dalton." The signature is written in a cursive style with a large initial 'H'.

Howard Dalton  
Chief Scientific Adviser, Defra  
Chair of the ERFF

Cc: Paul Johnson, Director Public Services  
Claudia Arney, Director Enterprise and Growth

## **Environmental research contributes to a successful and sustainable UK economy:**

### **A submission to the Government's Comprehensive Spending Review from the Environment Research Funders' Forum**

#### **Why do we need environmental research?**

The UK population is living beyond its environmental means, consuming natural assets at three times the sustainable rate.<sup>1</sup> Dangerous climate change, and damage to our natural resources (including clean air and water, healthy soils and biodiversity) threaten the UK. The Stern Review on the Economics of Climate Change<sup>2</sup> discusses the investment required to avoid the adverse impacts of climate change over the next 10-20 years. The Review estimates that 5-6°C warming will on average result in a 5-10% loss in global GDP. Environmental research provides a way to understand and predict how to best manage our ecological systems, and their contribution to economic prosperity and quality of life. Environmental research, involving natural, engineering, social and economic sciences, must be the UK's top priority for a sustainable future. The costs of disregarding the environment would be substantial. For example, studies estimate that the hidden annual costs of environmental damage to China's economy are now around 10% of the country's GDP (see <http://www.usembassychina.org.cn/sandt/CostofPollution-web.html>).

Environmental research brings substantial economic benefits. The DTI expects the market for environmental products and services to exceed £315 billion by 2010 (excluding green products/process design and renewable energy). This is equal to the global pharmaceutical or IT industry markets.<sup>3</sup> However, the UK currently has only 4% of the global market for environmental technology and services (compared with Germany, at 15%). The UK has enormous opportunities to exploit its strengths in environmental science, which rank second only to the USA in global assessments (see <http://www.erff.org.uk/documents/Finalversion.pdf>).

#### **How is environmental research organised in the UK, and what role does the Environmental Research Funder's Forum play?**

Many public sector organisations fund environmental research in the UK, including government

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<sup>1</sup> WWF/ BioRegional Programme 'One Planet Living' ([http://www.wwf.org.uk/filelibrary/pdf/opl\\_brochure.pdf](http://www.wwf.org.uk/filelibrary/pdf/opl_brochure.pdf))

<sup>2</sup> Stern Review on the Economics of Climate Change 2006 ([http://www.hm-treasury.gov.uk/independent\\_reviews/stern\\_review\\_economics\\_climate\\_change/sternreview\\_index.cfm](http://www.hm-treasury.gov.uk/independent_reviews/stern_review_economics_climate_change/sternreview_index.cfm))

departments, agencies and the research councils. Jointly, they spend £900M per year. In 2002, these organisations joined with others that use environmental research or trained scientists to establish the Environment Research Funders' Forum (ERFF) ([www.erff.org.uk](http://www.erff.org.uk)). The Forum's objective is to *'maximise the coherence and effectiveness of UK environmental research funding'*.

ERFF's primary role is to ensure that public money is well spent. The Forum supports all levels of research from curiosity-driven strategic studies, through policy-related research, to applied and operational research, with members also able to deliver practical pilot studies. Effectively, ERFF creates a co-ordinated approach of support from pure science to projects that implement new knowledge.

By early 2007 ERFF will have assessed the research funded by its member organisations, providing the first complete picture of how environmental priorities are being addressed. The Forum will also have reviewed how the UK environment is currently monitored to ensure that it is clean, healthy, safe, biologically diverse, sustainable and productive.

ERFF is helping prioritise training, skills, research, knowledge transfer, monitoring and infrastructure needs by making decisions better-informed and more efficient. It is co-ordinating activities that generate environmental knowledge in support of better policy-making and regulation. This will improve well-being in the UK population by promoting more sustainable services and economic growth.

### **How does environmental research benefit the economy?**

Environmental research provides three types of benefits to the UK economy.

- It increases the effectiveness of public services and the impact of policy making on society by providing **strategic qualitative benefits**. For example, the British Antarctic Survey's monitoring of the ozone layer enabled the UK Government to make important contributions to the Montreal Protocol on Substances that Deplete the Ozone Layer<sup>4</sup>. Research on environmental policy instruments has helped to inform the development of environmental taxes (such as landfill and carbon tax) and to carbon trading regimes.

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<sup>3</sup> DTI Key technology information on sustainable production and consumption 2006

<sup>4</sup> NERC- A case study approach 2006 (unpublished)

- It improves efficacy and competitiveness in the public and private sectors, providing **direct and quantifiable benefits**. For example, NERC’s Flood Estimation Handbook and its supporting software provides flood risk information by post-code throughout the UK. It will save the UK between £7 and £34 million (present value) over 25 years (the full amount varies depending on estimates of the cost and the number of hydrologists carrying out flood assessment). In England, economic activities connected with managing the natural environment add £67.6 Bn per annum in gross value to the economy, and support 2.68 million full-time-equivalent jobs.<sup>5</sup> This sector employs some 400,000 people in the UK, in around 17,000 companies, generating revenues of £25 billion (according to the joint Defra/DTI Environmental Industries Unit, [www.dti.gov.uk/sectors\\_environment](http://www.dti.gov.uk/sectors_environment)).
- Better decision-making also brings positive and often quantifiable benefits to society as a whole. An example of such **wider benefits** is the subsidence data provided by the British Geological Survey. This should help reduce costs of subsidence. Saving just 1-5% of costs would be worth between £3M and £11M on average each year (at present value).

### **What is the ERFF contributing to Treasury objectives?**

The Forum addresses the UK Treasury’s key long-term challenges, set out as part of the framework underpinning the 2007 Comprehensive Spending Review. The Forum specifically contributes to:

- making the UK better-prepared for environmental change, placing the UK in a prime position to develop commercial opportunities and investments from fundamental science
- improving the Government’s ability to shape international and domestic policy in a way which helps to create a high quality environment, which in turn contributes to a high performing economy.

The Forum is implementing the UK Treasury objective to “protect and improve the environment by using instruments that will deliver efficient and sustainable outcomes through evidence-based policies”.

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<sup>5</sup>European Regional Policy Group, “The environment, economic growth and competitiveness”, August 2005

Our objectives will also contribute to the Lisbon strategy for the EU to achieve, by 2010, “the most dynamic and competitive knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion and respect for the environment”.

### **How will ERF help meet Treasury Challenge 5?**

The Treasury sees the “increasing pressures on natural resources and global climate, from rapid economic and population growth in the developing world and sustained demand for fossil fuels in advanced economies” as a crucial challenge (HMT Public Policy Challenge 5).

ERFF is coordinating the development of an interdisciplinary science initiative for CSR2007, from Research Councils, government and business, to address this challenge.

The *Living with Environmental Change* initiative will maximise benefit to the environment, UK economy and society. It brings together natural, engineering, social and economic scientists with policymakers and business to tackle the challenge of increasing pressures on natural resources and global climate. Interdisciplinary scientific prediction and analysis of the opportunities from, and threats to, ecosystem services — which include clean water, food, energy, healthy air and soils, and protection against flood, drought and disease — will be integrated with policy development to provide politically and socially acceptable sustainable solutions, within and between generations. The UK’s international pre-eminence in relevant science disciplines makes it well-placed to lead in this area, and deliver outcomes that will protect our quality of life and help the developing world. The initiative will also boost the UK economy – for example through advances in the environmental service and technologies sector, and economic or regulatory instruments to control energy use.

ERFF has developed the tools and mechanisms needed for implementing *Living With Climate Change*.

- The Forum has analysed the strengths/weaknesses/opportunities/threats (SWOT) to

environmental research and knowledge within the UK. The outcomes focused ERFF's work programme

- The Forum's database of environmental research in the UK will allow, for the first time, an overview of the work funded by ERFF members and enable greater strategic coordination of effort between funders to maximize synergies.
- ERFF's members are identifying and addressing future priorities (gaps, opportunities and training needs) for delivering the science needed to underpin Treasury Challenge 5, in collaboration with other expert groups such as the Global Environmental Change Committee.
- The Forum has developed (together with the Defra-led Sustainable Development Research Network) a prospectus of the research required to deliver the UK Sustainable Development Strategy.
- The Forum has reviewed environmental monitoring in the UK, providing real evidence for deciding whether monitoring requirements are being met, and how a framework for improving environmental monitoring can be developed.

Details of ERFF's membership, its vision, its operation and its work plan for 2004-2006 can be found at <http://www.erff.org.uk/about/currworkplan.asp>.