

House of Lords Science and Technology Committee
Call for Evidence:
Setting science and technology research funding priorities

Response from the Sustainable Development Group of The Institute of
Materials, Minerals and Mining

1. Summary

The response attempts to address the focus of how decisions for research priorities to meet societal needs are made in the some of the areas of professional interest to the members of The Institute of Materials, Minerals and Mining (IOM3).

Currently, open consultations to determine research priorities address technical needs and each Executive Agency focuses on its own technical or scientific area. The problem is that many of the current important societal issues require the interaction between several interest groups and there are few mechanisms for ensuring cooperation and dialogue between the different research funding agencies and different government departments.

IOM3 welcomes these open consultation processes and is improving its internal processes and resources to be able to respond to these consultations on behalf of the materials engineering profession. However, in our opinion, there is a need for an inter-disciplinary and cross sector approach to the current strategic challenges in order to achieve sustainable development and to provide more robust and longer lasting solutions.

2. Review of consultation processes

The Government supports several admirable consultation actions to try to gain consensus on research priorities and publishes the results in publicly available reports. These results are then used to establish priorities for actions and funding by Executive Agencies such as: EPSRC, NPL, the National Measurement Office and the Technology Strategy Board. IOM3 has contributed to many of these consultations in the recent past and some examples of the outcomes are discussed in the sections below, particularly where these outcomes relate to currently important problems of sustainability, energy utilisation and carbon emissions.

2.1 Foresight Programme

The contributions of IOM3 to the Foresight Programme are summarised at <http://www.iom3.org/foresight> . The most recent contributions were made in 2003. The titles of the topics that were investigated then appear to be focused on the needs for the developments of specific sections of materials science but there were no subject titles that relate to important issues for society that currently have repercussions for the materials engineering industry: e.g. sustainability of resources, substitutions for scarce or regulated elements, reducing environmental degradation, energy production and utilisation. These issues cross several scientific and engineering subject boundaries and the Foresight Programme did not seem to be set up in a manner to allow this cross fertilisation and consider these admittedly complex problems. These reviews also did not address the issue of ensuring a supply of engineers and scientist qualified to degree level to deal with these issues.

2.2 EPSRC

The framework for the current programmes of EPSRC is contained in the Strategic Plan 2003-2007

(<http://www.epsrc.ac.uk/CMSWeb/Downloads/Publications/Corporate/Strategic%20Plan%202003-07.pdf>)

Page 19 of this Plan outlines the priorities for Engineering for Science and Sustainability and the list of topics covers every important aspect of sustainability and environmental impacts.

However the main programme of funding for research is called Living with Environmental Change (<http://www.epsrc.ac.uk/ResearchFunding/Programmes/EnvironmentalChange.htm>) and is concentrated on the built and urban environment and transport. How much of the issues of sustainability and environmental impact identified in the Plan are built into other funding programmes is not clear. Each submission for support for funding in the European Commission Framework programmes has to show how the research will have an impact on societal issues such as the environment.

2.3 The National Measurement Office

The National Measurement Office (NMO) recently issued a strategy consultation document (<http://www.nmo.bis.gov.uk/>) and IOM3 responded with a written submission. The proposals from the NMO included new research into measurements related to climate change and carbon emissions as well as the measurement of more fundamental scientific property values such as the 'second' and fundamental atomic parameters. A series of 'road maps' have also been published in 2009 by NPL, on behalf of DIUS, for a series of measurement schemes for several areas of science, including materials. IOM3 broadly welcomed and supported the proposals in the consultation document.

2.4 The Technology Strategy Board

The Technology Strategy Board (TSB) holds several workshops to gain consensus on the topics for new competitions for funding and IOM3 has hosted several of these events as part of its support for Materials UK. A recent TSB workshop on proposals for standards to support the sustainable use of materials was very successful: it attracted participants from a wide range of industry sectors and was oversubscribed. One result has been a firm commitment from BSI to develop a new British Standard to support this topic. There is also a need to address the development of methodologies and support tools to enable sustainable decision making: particularly ones which adopt a whole life cycle approach to social, economic and environmental assessments.

The TSB, supported by Materials UK and the RDAs, has commissioned a review of the UK's capabilities in Nuclear Engineering as part of the on-going support for the new build programme.

2.5 Chief Scientific Advisors

IOM3 recently provided a statement to a meeting between the professional engineering institutions and the Departmental Chief Scientific Advisors on the successful actions that the Divisions and Committees of IOM3 are taking to deal with the challenges of climate change, sustainability and other environmental issues.

3. Discussion

These consultations have addressed technical needs and each Executive Agency focuses on its own technical or scientific area. The problem is that many of the current important issues require the interaction between several interest groups and there are few mechanisms for ensuring cooperation and dialogue between the different research funding agencies and different government departments.

However, in our opinion, there is a need for an inter-disciplinary and cross sector approach to the current strategic challenges in order to achieve sustainable development and to provide more robust and longer lasting solutions.

IOM3 has created three multidisciplinary groups for energy materials, construction materials and sustainable development that are now able to respond to the new societal challenges facing materials engineers. These groups are well placed to be able to respond to the consultation exercises from the Government and its Executive Agencies. Many of these

agencies have provided opportunities for public consultation of new research proposals of relevance to IOM3 recently. IOM3 has been able to respond positively to these consultations and has seen its efforts acknowledged.

4. Conclusions

IOM3 welcomes these open consultation processes and is improving its internal process and resources to be able to respond to these processes on behalf of the materials engineering profession. However attention should be given by the Government and its Executive Agencies to how to achieve a cross-disciplinary, cross-cultural and cross-departmental approach to the setting of research funding priorities in order to meet current societal needs.

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