society for general Microbiology

OFFICE OF SCIENCE AND TECHNOLOGY (OST) REVIEW OF SCIENCE IN THE DEPARTMENT FOR ENVIRONMENT, FOOD AND RURAL AFFAIRS (DEFRA)

EVIDENCE SUBMITTED BY THE SOCIETY FOR GENERAL MICROBIOLOGY (SGM)

Introduction

The Society for General Microbiology, founded in 1945, is an independent professional scientific body dedicated to promoting the 'art and science' of microbiology. It has now established itself as one of the two major societies in the world in its field, with some 5,500 members in the UK and abroad.

Responses to posed questions

1. *Has DEFRA developed a clear, overall science strategy;*

While DEFRA's stated remit is one of sustainable development, it is still not clear if the underpinning science policy of DEFRA is yet fully consistent with this goal. Does the science aim to support the public at large, e.g. as food consumers and users of the countryside, or the food producers?

2. *Does DEFRA 'horizon scan' to identify future science-related issues;*

DEFRA's level of preparedness for the outbreak of Foot-and-Mouth Virus in 2000, where nearly four million farm animals were slaughtered, suggests that there has been scope for improvement in its horizon-scanning activities in the recent past. While the situation has improved recently it is still unclear if the Department's performance would be markedly better if a similar outbreak (e.g. avian influenza) occurred this year. Necessarily, much of the current horizon-scanning activity to date has been concerned with 'coping with threats'. While more needs to be done in this area, other priorities, e.g. the provision of safe and nutritious food, should not be neglected.

3. *How effectively does DEFRA review and harness existing research and identify gaps and opportunities for future research;*

DEFRA tends to be highly conservative in the type of research it seeks to employ to address its priorities. In part, this is because a substantial proportion of its research is allocated to a relatively limited subset of UK researchers (see response in next section). It has been particularly slow to exploit genomic approaches. For example, it is puzzling that the Department has not commissioned the Sanger Institute to sequence the genomes of more pathogens of agricultural importance (e.g. phytopathogens), given the enormous cost-effectiveness of such research and its impact.

4. *Does DEFRA commission and manage new research effectively;*

Given that DEFRA spends about a third of a billion pounds annually on underpinning science, the output is remarkably 'low profile'. To some extent this is due to the nature of much science it commissions. Equally, however, it reflects the way in which science is prioritised and the way in which researchers are chosen to carry out studies.

Traditionally, much of the science commissioned by DEFRA is carried out by its agencies. While this ensures continuity it also creates complacency and stifles innovation. Thus, the approaches applied to scientific problems are not always 'state-of-the-art'.

To compound matters, university-based researchers find it increasingly difficult to bid for DEFRA-commissioned research. In part, this is because the baroque application and selection procedures have been set up with the agencies in mind. Additionally, undertaking such research can be difficult to reconcile with the pressures generated by the Research Assessment Exercise, e.g. the need to publish in journals with high impact factors. Moreover, a major current impediment is the implementation of the Joint Code of Practice for Research. In contrast to other major research funders such as the research councils, DEFRA is insisting on full implementation of all the quality assurance criteria. This effectively disenfranchises most university-based laboratories and narrows the available pool of expertise still further.

The management of commissioned research is also heavily weighted towards DEFRA agencies. Thus, university-based researchers are often given unrealistically short deadlines for recruitment of post-doctoral research associates. An added consideration is that the 'milestone' system used to monitor commissioned research is regarded as highly inflexible.

5. *Does DEFRA ensure the quality and relevance of the work it carries out and sponsors;*

As indicated in the last section, the Joint Code of Practice for Research commissioned by DEFRA is unduly bureaucratic and cumbersome. Even where it can be implemented, it places researchers at a competitive disadvantage relative to laboratories situated elsewhere in the world.

About the SGM

Society membership is largely from universities, research institutions, health and veterinary services, government bodies and industry. The Society has a strong international following, with 25% of membership coming from outside the UK from some 60 countries.

The Society is a 'broad church'; its members are active in a wide range of aspects of microbiology, including medical and veterinary fields, environmental, agricultural and plant microbiology, food, water and industrial microbiology. Many members have specialized expertise in fields allied to microbiology, including biochemistry, molecular biology and genetics. The Society's membership includes distinguished, internationally-recognised experts in almost all fields of microbiology.

Among its activities the Society publishes four high quality, widely-read research journals (*Microbiology*, *Journal of Medical Microbiology*, *Journal of General Virology* and *International Journal of Systematic and Evolutionary Microbiology*). It also publishes a highly respected quarterly magazine, *Microbiology Today*, of considerable general educational value. Each year the Society holds two major scientific meetings attended by up to 1500 microbiologists and covering a wide range of aspects of microbiology and virology research.

The governing Council of the SGM has a strong commitment to improving awareness of the critically important role of microbiology in many aspects of human health, wealth and welfare. It has in this connection recently initiated a 'Microbiology Awareness Campaign' aimed at providing information to the government, decision makers, education authorities, media and the public of the major contribution of microbiology to society.

An issue of major concern to the Society is the national shortage of experienced microbiologists, particularly in the field of clinical microbiology and in industry. To attempt to improve this situation long-term, the Society runs an active educational programme focused on encouraging the teaching of microbiology in university and college courses and in the school curriculum, including primary schools. Some 320 schools are corporate members of SGM.

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