

17 May 2007

Malcolm Wicks MP

MINISTER OF STATE FOR SCIENCE
AND INNOVATION

Professor Sir John Beringer CBE
Council for Science and Technology
1 Victoria Street
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Dear Sir John

Thank you for your comprehensive report on the Government's progress on its policy commitments in respect of nanosciences and nanotechnologies. I welcome your conclusion that although there is still progress to be made we have achieved much in the two years since the Government's response to the report by the Royal Society and Royal Academy of Engineering.

As Minister for Science & Innovation, my role is to ensure that the UK is well-placed to fully exploit the real and potential benefits of nanotechnologies and nanoscale materials. To achieve this, we must support the development of the research base and promote innovation and, as you note, the Government has done much in this area. But we also need a proportionate regulatory framework that commands broad international and public support, and a balanced discussion that recognises the benefits as well as the potential risks.

I welcome your recognition that the UK has played a leading role in engaging with international bodies to develop standards, regulation and collaborative research. We have also initiated public dialogue. However, I appreciate that we need to do more to champion the issues surrounding nanotechnologies in the UK. I am therefore accepting your challenge to be a champion for nanotechnologies across Government.

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Championship of nanotechnologies

Accordingly, I am establishing and will chair a small group, comprising Ministers from the Departments of Health (DH); Environment, Food and Rural Affairs (Defra); and Work and Pensions (DWP). The group will bring together those Ministers with responsibility for the research base, innovation, health, safety and the environment. Together I intend that we should consider how departments should prepare to maximise the considerable benefits that nanotechnologies may offer, while ensuring that the risks are minimised. The purpose of the group will be to agree and regularly review the Government's overall approach on nanotechnologies, develop a communications strategy and monitor progress of delivery against our objectives.

The Ministerial group will be supported by a small group of officials who will be tasked with coordinating activities across Government and overseeing delivery of our objectives. The current coordinating group, the Nanotechnology Issues Dialogue Group (NIDG), will continue to operate as a forum for exchanging information across Government and the Research Councils, but may meet less frequently.

Defra currently chairs a Nanotechnologies stakeholder forum which has proved valuable as a way of informing industry, non-Governmental organisations, academics and others of developments. I am keen that the Ministerial group should also hear the views of those stakeholders and propose to ask Defra to ensure that reports on the views of stakeholders are made available to the Ministerial group.

The existing Nanotechnologies Research Coordination Group (NRCG) will continue as at present. It will continue to advise on priorities for each of the five broad areas of research needed to inform the responsible development of nanotechnologies. The NRCG will report to the group of officials and, through them, to the Ministerial group. It will also maintain a close dialogue with the stakeholder forum, so that stakeholder interests inform the UK's programme of research into nanotechnologies. This will complement recent moves to increase the representation of industry and academics on the NRCG.

We consider that responsibility for funding research into the health, safety and environmental implications of nanotechnologies should remain with the appropriate department, agency or Research Council and not be held by a single department or body. We do not wish to remove responsibility for funding the research from those departments and agencies that hold the policy lead. However, we do agree that there is a need for improved coordination and communication activities in the research area and are exploring with stakeholders how this might best be achieved. We are also considering options for sharing research resources.

Benefits

As well as considering how to ensure the responsible development of nanotechnologies, the Ministerial group will consider potential applications and the role that Government might play in exploiting them. For example, on 17 May Defra published a study into the environmental benefits of nanotechnologies. The report investigates promising environmental applications of nanotechnologies, in particular those which may bring about reductions in greenhouse gas emissions. Another potential area for exploitation is healthcare, which could be revolutionised by technologies that will enable illness to be diagnosed even before the onset of clinical symptoms, allowing for healthcare to begin earlier and leading to more personalised, targeted treatment.

Research into health, safety and environmental implications

Our understanding of the health, safety and environmental implications of nanotechnologies is still limited and more research is needed. But the work needed exceeds the capability of any one country. International collaboration is essential if we are to generate the amount of information needed to inform policy as quickly and efficiently as possible and minimise duplication of work. But it is also important that we establish a common terminology and methodologies for measuring and characterising nanoscale materials, so that we can have confidence in the research results.

I welcome your recognition that the UK has been in the forefront of international collaboration –

- (a) in the International Standards Organisation, where the UK is leading the way in developing common terminology and measurement standards;
- (b) in the OECD, which offers an opportunity for member countries to share information about public engagement activities and the broad policy framework. Of particular importance is the opportunity for the sharing of information about research requirements and the results of research; and
- (c) in UNESCO, where discussions about public engagement activities have been held;
- (d) in the EU, where the UK has been influential in discussions on the priorities for the programme of research under the EU 7th Framework Programme, and in working closely with the

European Commission and other Member States in developing an appropriate regulatory response.

Funding opportunities

The NRCG has drawn up a comprehensive programme of research requirements to address the potential risks posed by engineered nanoscale materials. A progress report was published in October 2006 and will be followed by a second research report in November 2007. The latter will explain how the requirements fit with work being done in other countries and establish clearer priorities for the UK's work. In publishing the report, we will act on your recommendation that these requirements need to be given a higher profile within the research community and will seek to address your concerns about the level of research funding.

There are also huge opportunities for research under the EU 7th Framework Programme. These opportunities are in line with the UK's objectives and we hope that UK researchers and businesses will take full advantage of them. DTI has established a National Contact Point system to assist the research community to access these programmes.

Within the UK, research is funded by the Research Councils (responsive and directive mode); by Government departments and agencies; and by industry. Each funds research for different purposes -

- (a) the Research Councils fund high-quality basic research;
- (b) DTI's National Measurement Systems Programme supports the development of the measurement infrastructure to promote the development and safe use of nanotechnologies. DTI also encourages innovation and pull-through from universities into industry. From July the latter role will pass to the Technology Strategy Board;
- (c) industry funds the discovery and development of products and the associated research needed to meet the legislative requirements on the manufacturer to ensure that products placed on the market are safe under normal or reasonably foreseeable conditions of use. DTI is assisting industry by funding the Institute of Occupational Medicine to provide, from the end of May 2007, an independent and impartial information service for UK Industry (the SAFENANO Initiative). In conjunction with the Scottish Executive, the DTI is exploring the potential for, and market need of, a new consultancy service for industry in nano-toxicology and health and safety; and

- (d) Government departments and agencies fund more applied research to inform policy development and support the application of the regulatory regimes.

Research Councils

As you recognised, the Research Councils have funded much research and training and have pooled funding to support inter-disciplinary projects, including two Interdisciplinary Research Centres which have an international reputation. Much of this has come from the Engineering and Physical Sciences Research Council (EPSRC) to encourage the development of the research base for nanotechnologies. The EPSRC, in collaboration with stakeholders including other Research Council partners, industry and the Technology Strategy Board, is now implementing its strategy for nanotechnology which will enable it to provide focussed support for areas where the UK nanotechnology research base can make a significant impact on issues of societal importance such as healthcare.

The Environmental Nanoscience Initiative was established by the Natural Environment Research Council (NERC), Defra and the Environment Agency (EA) to develop a community of researchers in the fields of ecotoxicology and the environmental fate and behaviour of nanotechnologies. This Initiative is funding a significant number of projects. Other Research Councils are considering co-funding applications of relevance to their remit.

We have been disappointed by the uptake of responsive mode funding for research into the health implications of nanotechnologies. The problem is not that funding is not available. Rather, it is that the community of toxicologists in the UK is small and has not been submitting applications to the Medical Research Council (MRC). To expand the community of researchers, and encourage them to submit proposals for further work, the MRC has recently issued a notice highlighting nanotoxicology as an area of interest <http://www.mrc.ac.uk/ApplyingforaGrant/HighlightNotices/Nanotoxicology/MRC003580>. This has already elicited interest and MRC officers are currently liaising with Universities in relation to the submission of proposals. The MRC will then develop a strategy based on the response to this highlight notice to further support and develop research in this field.

In addition, the joint Environment and Human Health programme has funded eight new exploratory projects relevant to nanoscience. The programme has led by NERC and involves Defra, EA, Ministry of Defence, MRC, Economic and Social Research Council (ESRC), the Biotechnology and Biological Sciences Research Council (BBSRC), Wellcome Trust, EPSRC and the Health Protection Agency. The projects cover a range of research including the hazards of nanoparticles to health

and the environment and the impacts of inhaling nanoparticles in the atmosphere.

DTI/Technology Strategy Board

As you recognised, DTI has provided substantial sums to encourage innovation. This responsibility will transfer to the Technology Strategy Board from 1 July 2007. We will draw to the Board's attention your recommendation that any future funding for nanotechnologies should ring fence a portion to address potential health, safety and environmental implications and that this work might be carried out by the industry. This work might be carried out through collaborative programmes involving industry, Research Councils and the academic research base.

Industry

We welcome the willingness of the Nanotechnology Industries Association to collaborate to resolve remaining concerns about intellectual property and increase the number of submissions to the Defra-led Voluntary Reporting Scheme. This scheme provides for industry and research organisations to provide Government with relevant information on the potential risks posed by new nanoscale materials. In prioritising the toxicology and other research requirements, we intend that the NRCG should have regard to the information submitted under the Voluntary Reporting Scheme. This will enable research priorities to address those substances that are most likely to be produced in substantial quantities. Industry is now represented on NRCG and we also hope to work with them to determine whether there are areas for collaboration on research projects.

Government

In relation to the health, safety and environmental risks, the Government's focus so far has been on the areas which need to be addressed first, such as the measurement and characterisation of nanoscale materials, and the exposure of laboratory and manufacturing staff. This research informs, for example, the guidance the HSE provides to laboratory and manufacturing staff working with nanoscale materials.

We welcome your conclusions that our approach to measurement and characterisation has been successful, but doubt that industry pull-through will be sufficient to meet all our needs. For example, limited work has been done to enable the detection of nanoscale materials for hazard, exposure and risk assessment purposes, or for toxicology dose characterisation. The Government hopes to coordinate actions in this area with the industry to avoid duplication and ensure that the work is complementary.

The Government also has a role to fund research to enable us to assess whether the methodologies for identifying hazards and evaluating risks are adequate to enable reliable risk assessments to be undertaken; detection and measurement equipment is reliable and consistent; and we understand the action of nanoscale materials in the body and environment. Although we have made some progress, further work is needed in all of these areas.

We share your concerns about the lack of departmental funding for toxicology work. Departments are seeking to address this, and funding for other aspects of nanotechnologies, in the context of the Comprehensive Spending Review (CSR07) which will set priorities for Government budgets for the three years from 2008. The outcome of the CSR07 will be reflected in NRCG's second research report which will be published in November.

Public engagement

The final reports of two DTI-funded public engagement activities, Nanodialogues and the Nanotechnology Engagement Group, will be launched on 26 June. These will help us to learn lessons about the operation of upstream public engagement and dialogue, as well as about public attitudes to nanotechnologies. NRCG will evaluate the findings from that work and determine whether further public engagement is needed and, if so, what form it might take and who might undertake it. Until we have done that evaluation, it is not possible to give commitments about future activities. However, we note your recommendation that industry and NGOs should be involved in the engagement process (as was the case with the Nanodialogues project) and will seek to make progress on this. We will also take steps to ensure that policy makers are more closely involved with the process of public engagement and that the public engagement is designed to provide evidence that will be of use to policy makers as well as the wider community.

Regulation

We will continue to work with international bodies and other stakeholders to ensure that regulation is evidence based and proportionate. I welcome CST's rejection of the case for a moratorium on nanotechnologies. Departments and agencies are considering the recommendations in the report published by DTI in December 2006 providing "An Overview of the Framework of Current Regulation affecting the Development and Marketing of Nanomaterials" and the implications in terms of the possible need to adapt existing legislation. The information being submitted under the Voluntary Reporting Scheme will inform these deliberations.

Conclusion

I am grateful to you and your committee for your report, which has provided a timely incentive to assess the Government's progress and to raise the profile of nanotechnologies across Government and more widely. It has given us thoughtful and constructive recommendations on which we will aim to keep up progress.

I shall be copying this letter to Ministers at: the Department for the Environment, Food and Rural Affairs; the Department of Health and the Department for Work and Pensions.

Your sincerely,

M. Wicks
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