

Moderator says: John Denham, Secretary of State for Innovation, Universities and Skills, will take part in a live webchat in Downing Street on 13 March 2008 at 13:30 GMT.

John's remit includes increasing the supply of people in science, technology and engineering as well as developing a world-class research base in the UK.

John will take questions focusing on science and technology as the country celebrates National Science and Engineering Week from 7 to 16 March.

Moderator says: Good afternoon and welcome to today's webchat with John Denham. John has been held up at a previous appointment, but we should be starting in a few minutes.

John says: The [New White Paper Innovation Nation](#) sets out how government can make Britain the best place in the world to run an innovative business or public service. We will build on the work we have already done to build up our research base, improve skills and develop new technologies by developing power of government procurement, regulation and public services to increase the demand for innovation.

John Dainton: How does the government intend to repair the growing damage to the physics base of the country given that, in the first 6 months of DIUS, the mismanagement of research funding by DIUS and RCUK is now reversing rapidly the huge benefits of the new investment in the UK science in the last decade under his predecessors? Having become one of the best places in the world to do science - physics - since autumn 2007, government and research council ineptitude has been such that talented people now no longer wish to come to the UK to work, and young people in the UK are now again turning away from physics. I know for sure that they are because I am losing staff who find what is now happening as no reason to stay, and certainly good reason to no longer contemplate coming.

John replies:

The Science and Technology Facilities Council (STFC) has a budget of £1.9 billion over the next 3 years with an overall increase in funding of 13.6%. It's worth bearing in mind that, including the contribution towards the full economic costs of research in universities spending on particle physics grants will be 43% higher next year than in 2005/6, nuclear physics grants will be 78% higher than in 2005/6 and there will be a 67% increase in overall funding for astronomy grants.

The STFC has to decide the scientific priorities for its future investment but these figures give the lie to claims that British science is being fundamentally damaged. What is more, because of concerns expressed by the parts of the physics community, Professor Bill Wakeham has been asked to carry out a review of the health of physics.

The STFC tell me that, other than some minor changes in the number of astronomy grants, there will be no significant changes in the number of grants given in astronomy or particle physics before Wakeham's report is received. We should also remember that the UK is making a massive investment in major new facilities such as CERN and Diamond which will be used by the British physics community and which will sustain our world position in these disciplines.

Whilst I appreciate the strength of feeling expressed by some physicists, it is important not that the reputation of British science is not damaged at home and abroad by the way in which these concerns are expressed.

Megan: "Increasing the supply of people in science, technology and engineering" is going to be very hard to do when there are such high profile issues as the current funding problems within the Science and Technology Facilities Council. Do you accept that such problems will lead to the perception that there is a low chance of a long-term career in STEM subjects, and therefore both a reduction in the number of students taking these subjects at A-level, and an increase in the number of young, qualified researchers taking jobs overseas?

John replies:

It is important to increase the number of young people choosing to study STEM subjects. There was a very welcome increase in the number of applicants to university this year. It is important that the debates around the STFC programme are not conducted in a way that gives the impression that British science is in anything but good health.

In my view too little attention is being given to the real increases in research budgets across the science

disciplines, and the major investments that are being made in new research facilities. [Diamond](#), for example, has recruited 300 scientists and engineers in that past year or so.

Richard Melville Ballerand: Is the DIUS committed to increasing the overall level of real funding for the various research bodies? Would it be possible for the Secretary to quantify the increase?

Richard Melville Ballerand -
Member of Council: the Royal Institution (Ri) and the Royal United Services Institute for Defence and Security Studies(RUSI)

John replies: Yes, the overall level of funding for the research councils will rise in real terms over the next three years. The detailed figures are on the [DIUS website](#).

Di Sutton: What measures would you suggest the government could take to increase and maintain the number of high calibre researchers in the scientific field, given how few funded places are available on masters degree courses, the next stepping stone for many aspiring professional scientists. New graduates already have large debts from their undergraduate courses. Self-funding a masters degree excludes many with great potential.

John replies:

The responsibility for the remuneration of post graduate researches lies primarily with the universities and the research councils. It is important that they keep the issues in your question in mind. The Government commissioned the [Council on Science and Technology](#) to report more widely on research careers and they made a number of recommendations that universities in particular should consider carefully.

In my [recent speech to the Wellcome Trust](#) I set out my ambition to develop with universities a 10-15 year framework for the development of higher education. One of the key elements of this strategy should be to maintain Britain's research strength so I accept that further discussion of the issues you raise will be necessary.

Brigitte Francois: As a winner of both the British and European Union Women Inventors and Innovators Awards 2007 in recognition of our work pushing back the frontiers incorporating technological advances in the provision of sign language services through live video links, I find that the public procurement actually stifles rather than encourages innovation. It does this through rejecting smaller businesses and social enterprises in favour of larger and more established businesses. It is proven that micro and smaller businesses lead the way in innovation and how do you and your department see the way forward in addressing this obstacle? Thank you.

John replies: You are right to say that Government procurement can stifle innovation. Even buying the "industry standard" may seem like a good idea but may prevent a better approach coming to market and establishing its value. The White Paper sets out proposals for departmental innovative procurement plans which will set out how each department can build the scope for innovative procurement into their future purchasing.

jdmh: Earlier today on BBC, you said that government should lead the way in procurement. Can you give an example of what the government should be procuring?

John replies:

In my own department we want to ensure that our £2 billion investment in new further education college buildings are built to high environmental standards.

We will want colleges to consider how they can invite innovative design approaches to meeting these standards. In principle however, there are few things procured by central and local government which are not open to innovative solutions.

Emily Pacey: What actual measures will you be taking to stimulate the demand for innovative design and technology, in the public, the private and the third sectors?

John replies:

The main tools available to government are regulation, procurement and the way we deliver public services. Regulation can create new markets (for low carbon energy for example), procurement can seek

new technologies in everything from transport to government communications and public services can find better ways of allowing front line staff to develop new ways of working and spread them to others in their field.

In addition a revised [small business research initiative](#) (SBRi) will mean that each department will dedicate part of its research budget to work with innovative research based small companies.

Andy Mulhearn: When Mr Denham said "Whilst I appreciate the strength of feeling expressed by some physicists, it is important not that the reputation of British science is not damaged at home and abroad by the way in which these concerns are expressed."

Was he trying to imply that our complaints about these changes are more damaging than the cuts themselves?

John replies:

I am concerned that the impression is being given that there is a general and sustained cut back in the level of investment in British science. This is of course not true. It is important to debate research priorities, but the debate should be carried out in full recognition of the real increase in investment in science, including in the resources available to the STFC.

In total DIUS will be spending almost £6 billion on research by 2010-11.

Lee Jones: Given the Government's often-stated position on the apparent bright future of Daresbury Laboratory, and the excellent work being undertaken there by the Accelerator Science and Technology Centre on the ERLP/ALICE prototype 4th generation particle accelerator light source, what comments will the Minister make on the abject lack of funding available from the STFC to even complete this facility. Furthermore, how can Government and the STFC continue to claim that the Cockcroft Institute model is a success when neither party appears prepared to commit the funds required to permit any form of long-standing prosperity at Daresbury through the completion and exploitation of the ERLP/ALICE facility, or to guarantee the long-term future of Daresbury Laboratory as the centre-piece of the Science & Innovation Campus by guaranteeing that the UK's Next Generation Light Source Facility will be built there, where the expertise to design and operate electron accelerators has resided for the last 45 years ?

John replies:

The Government is committed to the [Daresbury Science and Innovation Campus](#) and this commitment is repeated in today's White Paper. The decision of the STFC not to proceed with the 4GLS was taken after a scientific review but I am pleased that the STFC has just initiated a new light source project which will draw on the substantial scientific expertise and technology capability of the Daresbury laboratory.

The STFC will complete the ERLP as a technology demonstrator for accelerator science. Because the 4GLS project had been part of the future vision at Daresbury I have asked Sir Tom McKillop to review how best to take forward the science and innovation campus but there should be no doubt about our commitment to future success and our desire to see further investment in Daresbury as a Science and Innovation Campus.

Sarah Greaves: How can the government possibly justify shutting down Jodrell Bank - especially given the Secretary of State's own remit?

John replies:

Government has not proposed to shut [Jodrell Bank](#). It is important to understand that ministers do not seek to intervene in individual funding decisions taken by the Research Council.

The current public debate arises from a technology review exercise carried out on behalf of the STFC which is currently the subject of consultation. It is for the STFC to justify the decisions it takes in the light of these consultations.

Ian Holmes: I am intrigued why the only real reference to Knowledge Transfer Networks is in the section on International Innovation, an area which they are not funded to support. However the other areas which they operate in daily, knowledge transfer between Academia and industry, helping industry develop innovative solutions, and assisting the building of collaborative partnerships for the Collaborative R&D projects seem to

be duplicated in several areas by new initiatives.

John replies: Knowledge transfer networks are important and are referred to on page 34 of the White Paper in the business chapter. The importance of their role is confirmed by the commitment of the Technology Strategy Board to create two new networks in creative industries and digital communications.

Chris Megainey: Why is innovation so important for the UK?

John replies: Because the successful exploitation of new ideas will be central to our ability to create wealth and remain prosperous in an increasingly competitive global economy. It will also be essential if we are to tackle major challenges like climate change.

Vicky Hibberd: With the move towards building new nuclear power stations to meet our exacting emissions targets, how will young people be encouraged to go into this industry? Will the government be providing funding to develop educational programmes in this area, or will companies be expected to contribute as part of their investment in the industry as a whole?

John replies: The Government has worked with the nuclear industry to develop a National Skills Academy for the industry. This is part private and part publicly funded. This is the best way forward for all our network of National Skills Academies.

Anthony Miles: Given the skills shortages affecting the engineering industry, how can industry and government work together to better communicate the true value of engineering to the UK's economy and society?

John replies: We have 18,000 [STEMNET](#) ambassadors who are working scientists and engineers who visit schools to talk to young people. This is just one of the measures we have to promote engineering as a career. In the Innovation White Paper we set out plans to develop a better understanding of the labour market for engineers so that engineering can be promoted as a career even more effectively. There will be an important role for companies who employ engineers in this work.

Mark Hanlon: Defining nanotechnology as the technical ability to assemble carbon based '3-dimensional' structures to arbitrary specifications - do you think that nanotechnology can be developed? If so is it British government policy to do this?

John replies: My colleague, [Ian Pearson, recently gave a speech on the Government's approach to nanotechnology](#). This sets out how we believe the opportunities coming from nanotechnology should be taken forward, taking account of all of the issues involved.

Jon: Creating an innovative business based on science requires finance, and the UK venture capital sector has always charged disproportionately highly. With the latest credit squeeze this situation is likely to become even worse. Have you any plans to ease the cost of raising venture capital for recently formed innovative firms?

John replies: There are proposals in the White Paper and in the Enterprise Strategy published as part of the budget to help companies raise funds for innovative new ideas. For example, the [Small Firms Loan Guarantee Scheme](#) is to be extended. We will also be working to ensure appropriate finance is available for businesses at all stages of their growth, and will provide new guidance for companies seeking to raise venture capital.

Annette Smith: You have asked a question as one of National Science and Engineering Week's "Big Questions". Why do you think it is important for the public to ask questions of science and scientists?

John replies: We need to develop a higher level of engagement between the public and scientists if we are to make the full use of science in tackling the major problems affecting our society. Asking the public to think about the questions that science might help solve, is a useful way of developing in this engagement.

James Monk: Hi,

As a post-doctoral researcher of physics who graduated two years ago I am still in the early stages of my scientific career with many options and opportunities available to me. With regard to the current STFC funding situation and the generally low priority that politicians of all colours now seem to assign to basic research, how much of a future do you honestly think there is for fundamental physics in the UK? My current research contract expires in two years - can you convince me that I should not be considering a move abroad while I still can?

Best regards,

James

John replies: This Government certainly does not attach a low priority to basic research. The combined total of the research budget funded for the Research Councils is now £6 billion. This is a doubling in real terms since 1997. There is clearly a good future in the UK for fundamental physics, supported by significant government investment.

John says:

Thank you for all your questions and I hope that I have been able to answer, directly or indirectly, many of the issues you have raised. I hope you will take the opportunity to read Innovation Nation and our report also published today on the implementation of Lord Sainsbury's review of innovation.

Moderator says:

I'm afraid that's all we have time for today. Thanks to John for his time and to you for the questions..