



# Science and Technology Committee

House of Commons London SW1P 3JA  
Tel 020 7219 3580 Fax 020 7219 3796  
<http://www.parliament.uk/science>

From Andrew Miller MP, Chair

Rt Hon George Osborne MP  
Chancellor of the Exchequer  
HM Treasury  
1 Horse Guards Road  
London SW1A 2HQ

27 July 2010

*Dear George,*

I am writing on behalf of the Commons Science and Technology Select Committee to make a contribution to your deliberations on the 2010 Spending Review. The letter has been copied to the Minister for Universities and Science and the Director General of Science and Research at the Department for Business, Innovation and Skills.

Our predecessor Science and Technology Committees have scrutinised government spending in the areas of science, engineering, technology and innovation. We are anxious to build on their work and we plan to continue scrutiny of spending in these areas that are so vital to the UK's economy and its diversification, and contribute to solving today's most pressing global challenges.

I must put on record the Committee's welcome for the consultation exercise that the Government has initiated on the Spending Review. The timetable does not, however, sit well with the parliamentary calendar as it appears from "The Spending Review framework" that external parties have to send their contributions in by August. We may have wished to hold a short inquiry before finalising our response and we are surprised that the Government did not explicitly invite select committees to contribute to the exercise. We are, however, in the fortunate position that our predecessor Committee had the prescience to carry out an inquiry into *The impact of spending cuts on science and scientific research* (HC (2009-10) 335) and its report was published on 23 March 2010. The Committee has reviewed that report, although we have not yet had the benefit of the Government's response it, and we would like to commend the evidence received and the conclusions and recommendations in the report to the Government.

The key message in the former Committee's report was that expenditure reductions across the public sector could undermine both past governments' good record on investment in science and the economic

recovery. In 2004 the former Government produced a 10-year framework committed to increasing public expenditure on science and research, in the knowledge that the investment would be recouped in a stronger knowledge-based economy. The former Committee pointed out that there was a growing consensus that increased investment in science was essential to maintain the UK's international standing. That argument was made by the Royal Society's *The scientific century: securing our future prosperity*, and the Council for Science and Technology's *A Vision for UK Research*, both published in March 2010.

The current Committee took the opportunity when it took oral evidence today from Lord Rees, President of the Royal Society, of exploring the effects of budget reductions. He drew attention to the example of Canada in the 1990s, which the Royal Society cited in its submission to the Department for Business, Innovations and Skills on the Spending Review. The Royal Society was of the view that modest reductions would cause real damage to the UK science base, but were more likely to be reversible. In Canada science was spared the worst reductions and reinvestment began as soon as finances were rebalanced.

Drawing on the former Committee's report we would emphasise the following points.

1. The UK is excellent at science and research. For a relatively small nation, we punch well above our weight internationally. As the Russell Group pointed out to the Committee, international comparisons show that UK universities are highly efficient centres of research, with the UK generating more citations per unit of R&D spend and more citations per researcher than any other G8 country. It added that maintaining investment in the science budget—at a time when the private sector was scaling back investment in R&D and charitable funders were slowing or deferring research funding—was essential to maintain the international competitiveness of research-intensive universities and their contribution to productivity and growth.
2. UK research faces competition from abroad. President Obama's stimulus package shows significant resources going into science and he has set the objective to aim for 3% of GDP investment in science and engineering. The UK has a more modest target—2.5% of GDP—and as the report noted, although gross expenditure on research and development increased since 2004, we are some way off the target of 2.5% of GDP being spent on R&D by 2014. While we take the point that David Willetts, the Minister for Universities and Science, made when he gave oral evidence to us on 22 July, that a specific target may be questionable, the important point is the direction of travel. The key point from the former Committee's report was that the percentage was too low and that it needed to increase.
3. Our predecessor Committee pointed out to the former Government that, although it was committed to supporting business investment in research and development through the taxation system, the very existence of such businesses depends upon the size and strength of the science base underpinning them.

The Committee made the very strong point that the Government had to support the science base, otherwise there would be no companies to give tax breaks to. In addition the former Committee found evidence that there was a correlation between private sector investment and public investment in science, and therefore that public spending reductions could cause an attendant decline in private sector investment, rather than an increase.

4. On the relationship between basic research the economy, the former Committee heard evidence about the 1996 review commissioned by the Treasury of *The relationship between publicly funded basic research and economic performance* by the Science Policy Research Unit at the University of Sussex. On the issue of assessing the economic benefits arising from investment in science, the review concluded that:

Virtually all [studies of the impact of research on productivity] have found a positive rate of return, and in most cases the figure has been comparatively high. However, these attempts have been beset with both measurement difficulties and conceptual problems such as the assumption of a simple production function model of the science system.

[...]

One can attempt to estimate the rate of return to basic research but only on the basis of very questionable assumptions. [Edwin] Mansfield's work suggests that there is a very substantial rate of return, but the precise figure he arrives at (28%) is open to some doubt.

While it is difficult to measure the impact of research on the economy, we have noted the example of the 2008 report, *Medical research: what's it worth?*, commissioned by the Academy of Medical Sciences, Wellcome Trust and Medical Research Council. This report found that every £1.00 invested in public or charitable research into cardiovascular diseases in the UK between 1975 and 1992 produced a stream of health and economic benefits equivalent to earning £0.39 per year in perpetuity. This report also found, in respect of extra public medical research spending in the UK, that a £1 increase led to an increase in private pharmaceutical industry R&D spending in the range of £2.20 and £5.10.

5. The former Committee concluded that if funding was reduced and commitments to medium and long-term funding could not be made, UK-based researchers and institutions might find it harder to participate in projects requiring collaboration and the sharing of international facilities. If there was even a perception that British science was suffering as a result of reductions, the UK would become a less attractive place for academics to work. It added that a similar consequence could very well be that science would be seen once again as a less attractive destination for students contemplating higher education. With all the work that has gone into increasing the demand for science places within higher education, it would be an enormous waste of past effort and future potential were reductions to be visited upon the sector.

6. Of particular concern to us is the potential loss of skilled researchers who are a key part of our science base. As the former Committee said, whilst it would be unrealistic to expect every PhD student to become a Professor, there is concern that academia is already losing some of its brightest and best to alternative careers. Cuts to the research base may exacerbate this problem.
  
7. We agree with the former Committee that reductions in science investment would be both counterintuitive and counterproductive. Much good progress would be lost and the size of the reductions to science is unlikely to make a significant dent in the deficit. We share these views and consider that reductions in science spend may yield short-term savings at the expense of long-term damage to the UK science base which would be very difficult to recover from quickly.

As a Committee we fully recognise that tough decisions are required in public spending. We urge the Government to look beyond short term considerations and consider science and research as an investment in the country's long-term economic future.

The Committee is releasing this letter with a press notice.

*Yours ever,*  
*Andrew Miller*

**Andrew Miller**  
*Chair*