



**Government Response to the  
House of Commons Science & Technology  
Select Committee Report:  
“The Impact of Spending Cuts on  
Science and Scientific Research”**

Presented to Parliament by the Secretary of State for  
Business, Innovation and Skills  
By Command of Her Majesty  
July 2010

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The Coalition Government welcomes the Committee's report on spending on science and scientific research.

Many of the recommendations refer to problems caused by sudden changes in budget provision. The Coalition Government agrees that it is important to have a stable framework for the science and research budget.

Even in a period where the priority needs to be to reduce the budget deficit, the Coalition Government recognises that it is important to ensure we have:

- a financially sustainable HE system, and
- a research base which has a positive impact on the UK economy and society.

The Coalition Government is therefore considering the recommendations made in James Dyson's review on increasing the effectiveness of knowledge transfer from Universities.

The Coalition Government supports the Haldane principle and the dual support system. These create the environment for a high performing research base. The Coalition Government is committed to removing unnecessary bureaucratic burdens on the research community and the Minister of State for Universities and Science is discussing this issue with Research Councils and HEFCE.

Please note that throughout the document below, the term "Committee" is used to refer to the House of Commons Science and Technology Select Committee from the previous Parliament which conducted the inquiry.

## Introduction

1. **"The announcement of a £600 million cut across higher education and science budgets was most unwelcome. Not only does it appear to be an entirely arbitrary figure imposed by Treasury diktat, but it undermines the Government's previously good record on valuing science and higher education. (Paragraph 5)"**

and

## Funding science in the UK

2. **"These issues – the ring fence, tracking spend on science, etc. – are extremely important and we regret that we have not had time to devote a full and detailed inquiry to them. Our successor committee may – especially in the context of a new Parliament – consider exploring the full breadth of science funding in detail. (Paragraph 8)"**

## Response

The government agrees that spending on science and research is important. Questions about future funding will be addressed as part of the Government's Spending Review.

# The Government's ambition and international comparators

- 3. "Although gross expenditure on research and development has increased since 2004, the Government is some way off its target of 2.5% of GDP being spent on R&D by 2014. Indeed, the annual rate of change would have to double between 2009 and 2014 compared to 2004 and 2008 if the target were to be met. Such a doubling could only be met if public sector investment were to increase dramatically. Any cuts to the rate of increase, with the attendant decline in private sector investment, would be seriously damaging. (Paragraph 21)"**

## Response

The Government's priority is providing ongoing support of Britain's best science and research, and that science and research should make the best possible contribution to economic growth. The quality of research in the UK is a key driver for Foreign Direct Investment, with the quality of research talent available an important driver for attracting global business and driving growth.

The ambition of spending 2.5% of GDP in R&D would require joint public and private investment to reach over £40 Billion in 2014. Joint public and private investment is currently £25.6 bn (1.79% of GDP). This ambition will clearly be difficult to realise given the current levels of public and private investment and the pressures to reduce the budget deficit.

# The Research Excellence Framework

- 4. "We commend the lengths to which HEFCE has gone in order to consult and seek to meet the concerns of the academic community with regard to the inclusion of a retrospective assessment of impact within the Research Excellence Framework. We fear that their efforts may be in vain. It is our view that however meritorious the idea of awarding funding on the basis of past impact may or may not be, the difficulties associated with capturing past impacts effectively and allocating funds fairly on the basis of them will be insurmountable. (Paragraph 31)"**

## Response

The Coalition Government with the UK's HE funding bodies has announced the delay by 12 months of the introduction of the Research Excellence Framework (REF) to allow the concerns of the Committee and others to be taken into account. Excellent research of all kinds has major benefit for the economy, society, public policy, equality, culture and quality of life. It is right to recognise the contribution that researchers are making through the wider benefit of their work, and it is important to have a robust methodology to assess that benefit. The Coalition Government has noted the outcome of the recent consultation on the REF, which was announced by the four UK higher education funding bodies on 26 March. The Coalition Government recognises that work is underway to develop a methodology for assessing the impact of research across all disciplines, but the Committee has highlighted concerns in the academic community about the implementation of the REF. The next stage will be consideration of the outcomes of the pilot impact assessment exercise to review whether the concerns of the committee and others can be addressed.

## Pathways to Impact

- 5. "If the Research Councils were not encouraging researchers to think about potential impact then it would be necessary for a select committee to recommend that they did. However, misconceptions persist about the role of impact in grant applications and it seems that many assessors and those being assessed think that they are being asked to 'predict' impacts, when in fact the purpose is to stimulate thought about how impact might be developed. It is up to the Research Councils to improve the guidance they provide, and we urge them to act to clear up the misunderstanding. We do not believe that the consideration of pathways to potential impacts should be used as a tie-breaker in grant applications. (Paragraph 36)"**

## Response

The Coalition Government recognises that there are continued concerns about how impact is assessed. The Research Councils have already responded to concerns raised by the academic community and produced clear guidelines on Pathways to Impact. These are intended to enhance and enrich the research funded by the Councils, but do not signal a change in policy in the type of research funded by Research Councils. This change will not disadvantage basic research – excellence will continue to be the primary criterion for funding. The highest quality research will, over time, result in the greatest benefit to the economy and society. Pathways statements are one of a number of existing secondary criteria. Excellent research without obvious or immediate impact will continue to be funded.

- 6. "Given that the very best literature on the subject concludes that reliable quantification of the economic impact of investment in science and research is deeply problematic at best, the suggestion that the Treasury is waiting for 'hard figures' on the benefits of research causes us great concern. (Paragraph 37)"**

## **Response**

The case for investment in science and research, and the positive impact this has on society is continuously developing. The UK uses a more comprehensive range of techniques to evaluate economic impact than any of our major competitors and independent experts have concluded that the UK is ahead of the US and Canada in assessing the economic impact of research (*Metrics for the Evaluation of Knowledge Transfer Activities at Universities*, Library House (2009)).

- 7. "If funding does not increase, UK-based researchers and institutions may find it harder to participate in projects requiring collaboration and the sharing of international facilities, if commitments to medium and long-term funding cannot be made. If there is even a perception that British science is suffering as a result of cuts, the UK will become a less attractive place for academics to work. A similar consequence could very well be that science will 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 HE, it would be an enormous waste of past effort and future potential were cuts to be visited upon the sector. (Paragraph 39)"**

## **Response**

The Coalition Government agrees with the Committee that it is important to be able to make medium and long term commitments to funding for science and research. The UK will continue to invest in key international collaborations in science and research within the limits of affordability.

The excellence of the UK research base is recognised internationally and attracts some of the world's most talented researchers to work in this country. As the Royal Society highlighted in its recent report *The Scientific Century*: "Earlier generations worried about a brain drain from the UK. We are now a net importer of scientists and innovators, and these people are more highly-skilled than ever before". We recognise that there have been long standing difficulties attracting sufficient high calibre students to study science and maths and related disciplines like engineering. But entrants to first-degrees in STEM subjects in 2008/09 increased by 7% on the previous year and this has been supported by the Government's decision to enable universities to recruit an additional 10,000 HE places for 2010/11, many of which are in STEM subjects.

## Picking winners and losers?

8. **"Maintaining a broad portfolio of excellent research need not be mutually exclusive with the Government identifying and seeking to capitalise upon areas in which the UK has the potential for world-leading science, provided that it is done in a transparent and accountable way. Where such areas are identified at a national level, they should be funded at a national level. We note the importance of the work of the Technology Strategy Board in this respect. (Paragraph 43)"**

### Response

The Coalition Government agrees with the Committee on the value of a broad portfolio of research. It is important to have a breadth of capacity and excellence across disciplines because it is not possible to predict in advance which areas of research will be important in the future, or which research will lead to the greatest benefits. Research Councils work closely with the Technology Strategy Board (TSB); and between 2008/09 and 2010/11 the TSB and its partners will invest well over £1 billion with the aim of catalysing business innovation in those areas which offer the greatest scope for boosting UK growth and productivity. The Coalition Government is considering the recommendations made in James Dyson's review on increasing the impact of the Technology Strategy Board and Dr Herman Hauser's report on Technology and Innovation Centres.

## The Science and Technology Facilities Council

9. **"We remain to be convinced that 'indicative planning' over future CSR periods for the use of large facilities will be meaningful if the standard principle of planning on the basis of 'flat cash' allocations continues. (Paragraph 50)"**

### Response

The new arrangements for running large UK facilities involves STFC agreeing with other Research Councils at the start of a spending period what level of usage is planned for the three years of the spending period and the level of usage that is envisaged for the three year afterwards. This "3 + 3" year planning horizon will give STFC the certainty it needs to run these facilities effectively, whatever its budget turns out to be in the next three year spending period.

10. **"The structure of the STFC as established in 2007 left much to be desired. We are concerned that the proposals are extremely provisional, depending as they do upon further consultation between BIS, the Bank of England and HM Treasury and the outcome of the next CSR period. (Paragraph 51)"**

## Response

The new arrangements described in response to recommendation 9 above will identify a budget for running large UK facilities that will be managed by STFC separately from its budget for grants and international subscriptions.

For international subscriptions, it is envisaged that for the next spending review period new arrangements will be made to manage currency exchange rate fluctuations better.

These new arrangements will address the structural tension of the STFC's grant-giving function being financially prioritised against international subscriptions and large UK facilities. This will provide greater certainty that will allow STFC to plan longer-term investments in the UK science infrastructure.

**11. "We are not satisfied with the outcome of the STFC's reprioritisation exercise, and consider that any withdrawals from programmes should be suspended at least until such time as the next CSR allocations are known. Otherwise, the budgetary fall-out from the unsatisfactory merger of CCLRC and PPARC will be set in stone. (Paragraph 52)"**

## Response

The bulk of STFC's problems following its formation were due to a legacy of over commitment across the entire programme STFC inherited from PPARC and CCLRC. Consequently, STFC found it difficult to rein in its commitments to live within its increased CSR07 budget. The recent reprioritisation exercise, undertaken independently of Government and involving the scientific community, has addressed this.

STFC planned a sustainable programme that reflects the reality of the economic situation in the UK. Like all public bodies, it needs now to deliver its programme within its currently agreed budget. No decisions have been made on the STFC budget for the next spending period. However, by taking corrective action now, STFC will enter the next spending period with a balanced budget.

# Increasing demand for and supply of STEM students

**12. "Whilst it would be unrealistic to expect every PhD student to become a Professor, we are concerned that academia is losing some of its brightest and best to alternative careers. The life of a young research scientist needs making more attractive when compared to the bright lights of industry and commerce. (Paragraph 59)"**



## Response

Students should have the best possible information on the potential career options available to them. This is why, in line with the Coalition Government's belief in transparency, we have asked HEFCE to write to higher education institutions and further education colleges that teach HE degrees, inviting them to publish "employability statements".

It is clear that the UK needs excellent individuals to stay in research, in order to maintain our position as a world leader. People with a background in science also have significant contributions to make across society, including areas such as business, education, Government and public policy. The recent Royal Society report *The Scientific Century* suggests that, while many graduates move out of research following a PhD in a STEM subject, they go on to use their skills valuably in a wide range of other sectors.

STEM skills are in high demand in the workplace, with science graduates more likely to gain employment, and secure higher average earnings than other graduates. As the UK moves towards a knowledge intensive economy the demand for highly qualified individuals is increasing and PhD students are vital to filling these gaps.

A number of initiatives are in place to attract and retain individuals in research. Following the Roberts' Review (2002), there have been increases in both PhD stipends and postdoctoral salaries in the UK, which remain competitive across Europe. Additional funding is now given specifically for the career development and transferable skills training of all Research Council funded postgraduate and postdoctoral researchers. There are also several initiatives aimed at attracting and retaining women in both education and careers in the STEM sectors. The UK Government also funds a number of dedicated fellowship schemes (Newton International Fellowships, Dorothy Hodgkins Fellowships) which seek to attract the best early career researchers from around the world to UK institutions.

## Funding science within higher education

**13. "The allocation of teaching funding by HEFCE for STEM subjects should adequately reflect the higher costs of teaching science, so that departments do not require cross subsidisation within universities. In order to deliver the number of science graduates that the UK needs, the Government should in its letter to HEFCE, require that universities deliver the necessary numbers of STEM graduates. (Paragraph 61)"**

## Response

The HEFCE funding scheme recognises the higher cost of delivering science based subjects. These subjects receive a premium of up to 70% over the resource allocated to class room based equivalents. Our 10,000 additional places in 2010/11 are focused on STEM subjects. HEFCE's funding scheme is kept under regular review and is based on surveys of the actual costs of delivering different subjects.

**14. "HEFCE's decision to cut capital grants will disproportionately affect science teaching in universities. We were frustrated by the fact that, when asked about the future, the Minister for Higher Education gave us answers about the past. Decisions about 'different missions' are forced upon universities when the Government, through HEFCE, fails to invest adequately in higher education. If the Government is committed to increasing the number of STEM graduates, it can little afford the closure of science departments within universities. (Paragraph 63)"**

and

**15. "We put our concerns over unfunded and unsustainable growth in the number of science places to the Minister, who told us that "there has always been unfunded growth in and around the system". As an observation, that is undoubtedly the case, but for the Government actively to encourage unfunded and unsustainable growth in a period immediately before cuts in investment as a matter of policy is something entirely different. Sir Alan Langlands's description of the move as "fairly hastily contrived" was, in our view, accurate. (Paragraph 67)"**

## Response

Questions about future funding will be taken as part of the Government's Spending Review. The Government is committed to supporting sustainable growth.

**16. "We are in principle in favour of the concentration of research on the basis of excellence, provided that it is concentrated wherever excellence is found. (Paragraph 68)"**

## Response

The Government is committed to consolidating the global excellence of research in our universities. A commitment to supporting research excellence means that excellence should remain the primary driver of research funding.

In the face of international competition and in a world of finite resources, there appear to be strong arguments for supporting larger groups of researchers, especially in areas where researchers need to collaborate across disciplines.

**17. "We urge the Department to press the Treasury to make it easier and more financially viable for universities to collaborate and cut costs where they can. (Paragraph 71)"**

## **Response**

Recognising the efficiencies that can be achieved by organisations such as charities sharing services and the potential VAT barrier that exists, the Coalition Government has started discussions with charities and other affected sectors to consider options for implementing the EU cost sharing exemption. It will continue those discussions and launch a formal consultation in the autumn.

## Conclusion

**18. "At a time when, according to the Government's previous arguments, public investment in science should be increasing, the prospect of cuts looms large over the UK's science base. The Government is committed to supporting business investment in research and development through the taxation system, but the very existence of such businesses depends upon the size and strength of the science base underpinning them. If the Government fails to properly support the science base, there will be no companies to give tax breaks to. (Paragraph 72)"**

and

**19. "Failure to continue to increase investment in science would be both counterintuitive and counterproductive. Much good progress will be lost and the size of cuts to science is unlikely to make a significant dent in the deficit. We cannot at present reconcile the Government's policy ambitions with its actions, and call upon the Government to increase spending on science within the next Budget, if it truly is committed to the principle of a knowledge-based economy. (Paragraph 73)"**

## **Response**

The Government has made clear its commitment to reducing the deficit and supporting economic growth, including fostering knowledge creation and partnerships between universities and businesses. The Government will ensure that public funding mechanisms for university research safeguards its academic integrity.



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