House of Commons

Science and Technology Committee

Strategic Science Provision in English Universities: A Follow–up

Second Report of Session 2005–06

Report, together with formal minutes, oral and written evidence

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The Science and Technology Committee

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A list of Reports from the Committee in this Parliament is included at the back of this volume.

Committee staff

The current staff of the Committee are: Chris Shaw (Clerk); Celia Blacklock (Second Clerk); Dr Hayaatun Sillem (Committee Specialist); Dr Anne Hicks (Committee Specialist); Ana Ferreira (Committee Assistant); Robert Long (Senior Office Clerk); and Christine McGrane (Committee Secretary).

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Report

1 Introduction

1. In April 2005, our predecessor Committee published a Report on strategic science provision in English universities.[1] We share the belief of our predecessors that a continued supply of high quality graduates in Science, Technology, Engineering and Mathematics (STEM) subjects is a matter of critical strategic importance. In June 2005 we published the Government's Response to *Strategic Science Provision in English Universities*. The Response rejected the Committee's main proposal for future provision: the "hub and spokes model". To explore in detail the reasons for this rejection and the practical operation of the Government's approach, we held a follow-up evidence session on 2 November 2005 with the Minister of State for Lifelong Learning, Further and Higher Education, Bill Rammell, and the then Chief Executive of the Higher Education Funding Council for England (HEFCE), Sir Howard Newby.[2]

2. Our predecessor Committee's inquiry followed closely on the heels of the announcement in November 2004 that the University of Exeter was to close its chemistry department. This announcement, set against the backdrop of a series of other STEM department closures, prompted the then Secretary of State for Education and Skills, Charles Clarke, to write to HEFCE in December 2004 for its view on "whether there are any higher education subjects or courses that are of national strategic importance, where intervention might be appropriate to enable them to be available [...] and the types of intervention which it believes could be considered".[3] In response, HEFCE published *Strategically important and vulnerable subjects* in June 2005, which outlined how and when HEFCE might intervene to secure the provision of strategically important subjects.[4] Responding to HEFCE's report, Secretary of State for Education and Skills, Ruth Kelly, said:

> "I broadly accept the thrust of the Council's advice […] We respect institutions' freedom to decide what courses they teach, or stop teaching. But I am also conscious of national expectations and the potential national consequences of individual decisions. So I hope you will continue to monitor whether there are areas where current provision seems out of step with the national need; consider whether action is needed; and if so, advise me on what might be done, and who is best placed to do it".

The Minister urged HEFCE to promote collaboration between institutions and "encourage early conversations between institutions where strategic and vulnerable subjects are at risk".[5]

3. On 12 March 2006 the University of Sussex issued a press release announcing plans to "refocus" its chemistry department, in essence a proposal to close the department and

1 Eighth Report from the Science and Technology Committee, Session 2004–05, *Strategic Science Provision in English Universities*, HC 220–I

2 *Strategic Science Provision in English Universities: follow–up,* HC 576–i

3 HEFCE, *Strategically important and vulnerable subjects*, June 2005, p 3

4 http://www.hefce.ac.uk/pubs/hefce/2005/05_24/

5 As above

replace it with a smaller department of chemical biology. The announcement was greeted with dismay by many in the academic chemistry community, particularly in view of the department's strong track record: it had achieved a five rating in the 2001 Research Assessment Exercise (RAE) and produced two Nobel Laureates.

4. We announced our intention to hold an evidence session on the changes to chemistry provision at the University of Sussex with the University's Vice-Chancellor and Head of Chemistry, as well as the Acting Chief Executive of HEFCE, on 15 March 2006.[6] The University of Sussex is an independent body—it is not for the Committee to interfere with its decision-making process. However, the proposed changes to chemistry provision at Sussex also provide a test case for the effectiveness of HEFCE's new role in protecting strategically important and vulnerable subjects. Our objective has therefore been to examine the processes which led to the proposal to refocus chemistry at Sussex, with particular reference to HEFCE's involvement. In undertaking this investigation, we have also sought to draw out lessons of general relevance to strategic provision of STEM subjects, in recognition of the fact that the problems faced by Sussex in relation to chemistry provision are by no means unique to that institution.

5. The transcript of the oral evidence session held on 27 March 2006 with the University of Sussex and HEFCE is published with this Report, along with the written memoranda submitted by these two organisations. We would like to place on record our thanks to the University of Sussex and to HEFCE for their prompt and helpful responses during this short inquiry.

6 http://www.parliament.uk/parliamentary_committees/science_and_technology_committee/scitech150306a.cfm

2 Proposed changes to chemistry provision at Sussex

Development of proposal

6. The proposal to close the chemistry department at the University of Sussex was announced in a press notice, released on 12 March 2006, entitled *Development of biosciences and changes to chemistry provision*. The press notice describes the changes in life science provision as follows:

> "New posts are proposed for biochemistry and genome research, and biology and environmental science […] The plans in biosciences involve retaining organic chemistry and chemical biology—areas of chemistry where Sussex is strong. Sussex would no longer offer straight chemistry degrees, but would continue to run programmes in chemical biology, which is a leading area of research and development. From 2007 the department would be renamed the Department of Chemical Biology".[7]

The Vice-Chancellor, Professor Alasdair Smith, explained in oral evidence that the genesis of the proposals lay in a new strategic planning process at the University:

> "We had at the meetings of the Senate and Council at the end of December wide ranging, strategic discussions […] From January onwards, initially in my executive team of half a dozen or so, […] we spent three days looking in great detail at all the areas of university provision, deciding at this crucial point in time as we come up towards the next research assessment exercise, to the new fee regime in 2006, to the introduction of full economic costing of research, which were the areas of the University's activity that we should give the highest priority to in making academic investment and therefore which were areas that we needed to cut back on to create room for investing in strong areas".[8]

The resulting plans for the future academic profile of the University—including the proposal to refocus chemistry—were then presented to, and approved by, the new Strategy and Resources Committee, including representatives of Council and Senate, Deans and the President of the Student Union, on 10 March. The press notice outlining these proposed changes was released two days later.[9] The proposals were then considered by the University Senate on 17 March.

7. Following the Senate meeting, Sussex issued a further press notice stating that although the Senate had endorsed the proposals for the strategic direction of "investing in excellence", it had also "proposed to Council that Sussex should hold off making decisions on plans in relation to the School of Life Sciences—including the planned additional investment in Biochemistry, Biology and Environmental Science, Psychology, Genome,

7 http://www.sussex.ac.uk/press_office/media/media546.shtml

8 Q 1

9 http://www.sussex.ac.uk/press_office/media/media546.shtml

and refocusing the Department of Chemistry".[10] The press notice further stated that "the Dean of Life Sciences will now be working with his academic colleagues, in consultation with staff and students, and with external advice, to look urgently at and review all the options for the way forward across the Life Sciences, which will be presented to future meetings of Senate and Council". The timescale for the review was 6–7 weeks. The sequence of events is summarised in Box 1.

Box 1: Overview of the development of the proposal to refocus chemistry at Sussex

December 2005: New approach to strategic planning approved by the University's Senate and Council. Deans for each school working with Vice-Chancellor's Executive Group start to create academic development plans in line with the new planning process.

2 March 2006: Sussex University informs HEFCE of its proposals.

10 March 2006: Plans are presented to, and approved by, the new Strategy and Resources Committee. Plans included additional investment in biosciences and 'refocusing' of chemistry.

17 March 2006: Plans are presented to the Senate. The Senate endorses the overall proposals for the new strategic direction but proposes that any decision on changes to the School of Life Sciences be postponed, including refocusing of chemistry. Dean of Life Sciences commences 6–7 week review to explore all the alternatives. Special meeting of Senate to be called at the start of the new academic term.

4 May 2006: Strategy and Resources Committee to meet to consider the results of the Dean of Life Sciences' review.

12 May 2006: Planned meeting of the Senate to consider the review.

15 May 2006: Planned meeting of the Council to consider the review.

Rationale behind proposal

8. In its press notice of 12 March, the University made the following observations in support of the proposed changes to chemistry provision:

- Sussex has lost some leading researchers to larger chemistry departments in recent years and now has a very small department (14 academics) with a small student intake (around 20 new undergraduates per year)[11];
- There is no certainty of achieving a similar rating in the 2008 RAE to the five rating [the second highest rating possible] obtained in the 2001 RAE—and even if it did, the smaller size of its staffing numbers being submitted this time would significantly reduce future funding;
- Although student applications for chemistry at Sussex have risen this year, applications do not translate into offers being accepted by students who achieve the required A-Level grades (out of 300 offers made, it expects an intake of 35–40 at most).[12]

10 http://www.sussex.ac.uk/press_office/media/media547.shtml

11 The figures for undergraduate chemistry intake at Sussex are as follows: 2000–01, 43; 2001–02, 29; 2002–03, 35; 2003–04, 23; 2004–05, 21; 2005–06, 21.

12 http://www.sussex.ac.uk/press_office/media/media546.shtml

The University concluded with the assertion that "Overall, retaining a chemistry department in its present form for the long-term would cost an extra £750k, with no guarantee of long-term success in recruitment or research activity".[13] These arguments are considered further below.

Student demand

9. Our predecessor Committee's Report *Strategic Science Provision in English Universities* highlighted the pivotal role of student demand in securing strategic provision of STEM subjects, noting that "Only by addressing the root cause of the decline in student numbers can further departmental closures be prevented".[14] The proposed changes to chemistry provision at Sussex need to be seen in the context of a number of other departmental closures in England and Wales in past years (see Box 2). These closures have coincided with a significant decline in the number of students graduating with an undergraduate degree in chemistry, which fell by 27 per cent between 1994–95 and 2001–02, and by a further 7 per cent between 2002–03 and 2004–05.[15]

Box 2: Some recent closures of chemistry departments

University	RAE rating in 2001
Exeter	4
King's, London	4
Queen Mary, London	3a
Swansea, Wales	4

10. Professor Smith was candid about the influence of student demand on strategic decision making, telling us that because "universities have to look at the provision for student demand", no STEM department at any university could be considered "safe".[16] However, despite the national trends, the numbers applying to study chemistry at Sussex have been on the increase. Dr Gerry Lawless, Head of Chemistry at the University, told us that not only were the total numbers rising, student quality had remained strong:

> "Applications for chemistry have increased 45 per cent from 2003 to 2004, 27 per cent for 2005 and 40 per cent for 2006. Our market share of the national applications for chemistry has increased from 1.2 to 1.4 to now 1.8 per cent. Overall, our university only has a market share of 0.8 per cent. We are attracting high quality chemists to Sussex".[17]

13 http://www.sussex.ac.uk/press_office/media/media546.shtml

14 HC (2004–05) 220–I, p 3

15 HM Treasury, Department of Trade and Industry, Department for Education and Skills, Department of Health, *Science and Innovation Investment Framework 2004–2014: Next Steps*, March 2006, para 6.12

16 Q 34

17 Q 57

Yet the University memorandum was sceptical about the sustainability of this trend, stating: "While applications have shown a welcome growth this year […] there is no guarantee this would lead to sustained and viable numbers in the department".[18] **The declining popularity of chemistry at undergraduate level is without doubt a national concern. The department of chemistry at the University of Sussex should be applauded for countering this trend and securing an increase in the numbers of students applying to study chemistry. It is disappointing that the University has taken such a negative view of the sustainability of this achievement, rather than seeking to build on this success.**

Financial considerations

11. As indicated above, the press notice announcing the proposed changes implied that the financial situation of the chemistry department played a role in undermining its viability, particularly when forecast income from the 2008 RAE was taken into account. Despite this, both Professor Smith and Dr Lawless were adamant that the decision to refocus chemistry was not taken on the basis of financial expediency. Professor Smith admitted that the University's financial situation was "difficult" but insisted that "the proposals for chemistry are not driven by the overall financial position of the university".[19] Dr Lawless also told us:

> "This is not a financially driven proposal. Of the five departments of life science, we have one of the smallest deficits, circa 80K. The others deficits range from 120K to 300K".[20]

However, financial performance is cited in the University's memorandum as one of the factors underpinning decisions made within the new strategic planning framework. **The University's efforts to downplay the part played by financial considerations in the decision to refocus chemistry are at odds with the importance it has attached to the expected income of the department in the next RAE. Although the decision may ultimately be strategic, it is one that is clearly rooted in financial concerns. The University need not have sought to deny this reality.**

12. HEFCE provides universities with funding for research, so-called QR (quality related) funding awarded on the basis of RAE performance, and for teaching, calculated on the basis of institutional expenditure. HEFCE funding is allocated to universities as a block grant; Vice-Chancellors are free to administer the funds as they see fit, which means, for example, that QR income earned by a high-scoring department may be used to subsidise a department with a lower RAE score. During this inquiry, we heard assertions that financial decisions taken by the University regarding income earned by the chemistry department had played a significant role in weakening the department. Dr Lawless described the department as "under-resourced" and argued that if the full QR grant won by chemistry in the 2001 RAE had been available to the department, the department would have been able to make appointments to replace the staff who had left, thereby avoiding the anticipated

18 Ev 17

19 Q 74

20 Q 75

loss in QR income due to the smaller size of the department.[21,22] Professor Smith refuted this, saying: "I do not accept that QR grant has been taken away from chemistry".[23] Similar accusations were made about appropriation by the University of income earned by the chemistry department from intellectual property (IP). Accounts provided to us in confidence by the University indicate that the department is likely to generate around £100,000 over two years, divided between the department and University according to a set formula. We have not sought to resolve the extent of any redistribution of funding at Sussex—these are decisions for the University. The adequacy of existing funding arrangements to support the provision of expensive science subjects has been questioned by our predecessor Committee and remains unresolved.[24] Irrespective of the decisions at Sussex and the wider arguments, **the fact remains that Vice-Chancellors are fully entitled to use income from one department to subsidise another—a principle that continues to play a role in the demise of STEM departments.**

13. In view of the significance being attached to the small size of the department, we asked Professor Smith why he had not taken steps to make funds available for the recruitment of new staff to replace the key staff who had retired or moved elsewhere. He told us: "I did not go out to get others because it is very hard, looking across the full range of provision in the institution, to justify replacing staff in a department that is recruiting 20 undergraduate students a year when I have a Department of English that is recruiting 300 students a year, and where the students and their parents are complaining about staff/student ratios of 25:1 or 30:1".[25] **Financial management has played a role in the declining fortunes of chemistry at Sussex—historical levels of investment in the department will inevitably have impacted on its attractiveness to both staff and students. The small size of the department (in terms of both faculty and students) is now singled out as a significant factor in determining its future. However, responsibility for the shrinkage of the department rests squarely with the Vice-Chancellor, who has made no attempt to replace key staff.**

14. We were interested to note that Professor Smith was far from enthusiastic at the prospect of the RAE being replaced after 2008 by a metrics-based quality assessment process, as mooted in the 2006 Budget. He told us:

> "I believe a switch from a QR system based on RAE to a QR system based on metrics is likely to be systematically unfavourable to institutions like Sussex. That is, relatively small, research based universities".[26]

Whilst the Government's decision to conduct a fundamental review of the RAE is welcome, it is essential that the review involves thorough and detailed consideration of the potential implications of any replacement system, including any unintended effects on the sustainability of STEM departments. Professor Smith also agreed that the

21 Q 12

22 Q 82

23 Q 85

24 HC (2004–05) 220–I, chapter 5

25 Q 7

26 Q 83

introduction of full economic costing was "an issue" in terms of its potential impact on commercial research contracts.[27] **We urge the Government to be proactive in evaluating the impacts of the introduction of full economic costing to ensure that emerging problems are identified at an early stage.**

Chemical biology

15. A key element of the proposed changes to chemistry provision was the creation of a small department of chemical biology. The University described chemical biology as "a leading area of development at the interface between chemistry and biology where exciting new opportunities exist" and told us that by focussing on this area it would be playing to its strengths. However, it transpired that the concept of a chemical biology department was the main reason for the Senate's deferral of the decision on the proposed changes to the School of Life Sciences. Professor Smith told us:

> "The key concern was that our proposal to reshape chemistry was to focus chemistry on the area of chemical biology, the biological end of chemistry. The concern which was expressed, particularly by the Dean of Life Sciences, was that it may not be easy to focus the activity of the chemistry department on one area like that. Chemical biology is a set of applications of chemistry and to do chemical biology you need support from other areas, not just organic chemistry".[28]

Dr Lawless was also highly critical of the idea, saying that he had sought "a lot of external reports on the proposed refocusing" and "without exception, they all thought this was a crazy idea, absolute madness to propose that you could have a department of chemical biology in the absence of a chemistry programme".[29] According to Dr Lawless, there was "not a single example of such a department that merely delivers chemical biology".[30]

16. In oral evidence on 2 November 2005, the then Chief Executive of HEFCE, Sir Howard Newby, told us: "my personal view, which is perhaps a slightly old-fashioned one, is that I believe students need to be grounded in a discipline before they can then be multi-disciplinary".[31] We agree. **Success in interdisciplinary subjects relies on foundations laid by strong core disciplines. The idea that chemistry can be replaced with a stand-alone chemical biology department is highly dubious and certainly unsupported by any evidence.** Our predecessor Committee also expressed concern in its Reports *Strategic Science Provision in English Universities* and *Forensic Science on Trial* about the move away from the core sciences to more "student-friendly" courses such as forensic science.[32] Dr Lawless was sceptical about their value too:

27 Q 73

28 Q 23

29 Q 26

30 Q 95

31 Q 12

32 HC (2004–05) 220–I; Seventh Report from the Science and Technology Committee, *Forensic Science on Trial,* Session 2004–05, HC 96–I

> "We have had numerous meetings with the RSC [Royal Society of Chemistry], with UK pharmaceutical groups, and there is a clear message out there. What they require are chemists, chemists with maybe an interest in chemical biology".[33]

We have seen very limited evidence of employer demand for non-core STEM subjects and students embarking on such courses may be unaware of the careers for which these degrees will realistically equip them. **By working together with the Sector Skills Councils, Regional Development Agencies, learned societies, employers, careers advisory services and universities, HEFCE could play a useful role, both in leveraging student interest in non-core STEM subjects to promote the uptake of core STEM subjects, and in ensuring that the employment prospects associated with different STEM degrees are communicated to prospective students.**

Consultation and communication

17. Another target of criticism in the development of the proposals to refocus chemistry was the University's approach to consultation and communication. Professor Smith admitted to us in oral evidence that "there was a very limited amount of consultation with the Department of Chemistry until we went public with the proposals at the very beginning of March" so that although "there was very full consultation" with the Dean of Life Sciences, "it was at quite a late stage that people like Gerry, the head of the Department, were brought into the discussion". [34] The Vice-Chancellor argued that this was a necessary precaution to prevent the proposals from being leaked to the press: "we needed to control very carefully the early stage of discussion so that we could have sensible discussions in private before the discussion went public".[35]

18. Despite the Vice-Chancellor's reticence about publicity, a press notice describing the proposed changes was issued shortly after the Strategy and Resources Committee meeting on 10 March[36]. Letters containing this information were also sent to students who had received offers to study chemistry at Sussex. Professor Smith described the resulting "huge wave of publicity" that greeted the University's proposals as "unfortunate", conceding to that it would "be harder to roll back from" the plans as a result of this.[37, 38] **Although the University's desire to ensure that anyone affected by the proposed changes was informed directly is understandable, the decision to make public proposals that had not even been approved by the Senate made it look as though the changes in chemistry provision were inevitable. Moreover, there was a high risk that this could become a self-fulfilling prophesy, by catalysing the departure of staff in the department and putting off prospective students.**

19. It seems that the lack of consultation undertaken during the development of the proposals was also a factor in the Senate's decision to order further reviews of the options

33 Q 95

34 Q 3

35 Q 3

36 http://www.sussex.ac.uk/press_office/media/media546.shtml

37 Q 19

38 Q 18

for changes to chemistry provision. Professor Smith was quoted as saying after the Senate meeting on 17 March:

> "there is a trade-off between giving plenty of time for open discussions and having a long period of planning blight during which staff and prospective students are unsure what is going to happen. We have [now] decided we do need a longer period".[39]

In addition, the Dean of Life Sciences was quoted as saying the proposals which he had played a major part in developing were "intellectually unviable" and "unworkable"—admissions which can only enhance the impression that the process of developing the proposals was fundamentally flawed.

20. The detrimental consequences of the lack consultation were highlighted by Dr Lawless. Firstly, he drew attention to the lack of expert input regarding the idea of a chemical biology department:

> "My first knowledge that this process was underway was when the Dean invited me to his office but, under the constraints of secrecy, asked me if I would enter discussions without having any expertise from the chemical biologists in my department. I thought it was unwise to discuss the future of a chemical biology department without having any external input from chemical biologists".[40]

Secondly, Dr Lawless noted that proper involvement of his department at an earlier stage could have obviated the need to re-evaluate the options following the Senate meeting: "if we had been allowed during the last six months to make some of these proposals, we could have come up with a very financially viable plan to save chemistry at Sussex, but we were not given the opportunity". [41] **The fact that the Senate demanded a re-evaluation of the options for changes to the School of Life Sciences must be taken as an admission that the proposals presented to them had not been properly thought through, and as a reflection of the lack of consultation undertaken during their development. Indeed, we find it extraordinary that the Head of the department concerned was not consulted on the proposals at the outset and no less extraordinary that the proposals could be so criticised by the Dean of Life Sciences, a principal contributor. In our view, the process followed by the University's senior administration was seriously flawed.**

Future of department

21. Looking forward, Professor Smith explained that the review being undertaken by the Dean of Life Sciences was exploring three main options:

> "One would be to maintain a broad based chemistry department […] that had the prospect of developing back to the absolutely first rate chemistry department. The second option would be closure […] That is, accepting that the chemical biology department would not work. The third option is to look at some intermediate option

39 "Chemistry closure 'unviable'", *Times Higher Education Supplement*, 24 March 2006

40 Q 13

41 Q 29

> where chemistry at Sussex is refocused, concentrates on the relationship between chemistry and the other biomedical, biological sciences and where a smaller scale of operation can operate with excellence in teaching and research and recruit an adequate number of students to make it viable".[42]

We were encouraged to hear that neither Professor Smith nor Dr Lawless felt that closure was inevitable. Indeed, Dr Lawless was optimistic that the publicity surrounding the proposed changes could be used to good effect: "I also think it is very possible to use the media to turn this around and, by making some very senior appointments in chemistry at no expense to the university, to confirm that chemistry is alive and well and has a future in Sussex, simply because we have had so much media attention".[43]

22. Professor Smith and Dr Lawless diverged, however, on the significance of chemistry to the University. Professor Smith told us: "I would prefer Sussex to have a chemistry department but I do not accept the position that a serious science university must have a chemistry department".[44] By contrast, Dr Lawless told us: "I completely reject that", emphasising the interdependence of STEM subjects and the significance of chemistry for medicine:

> "People who are applying to study a degree in biochemistry want a first class degree delivered to them. That must involve some chemistry. If we consider the pre-med programme, a very lucrative programme at Sussex, 40 per cent of that programme is delivered by chemistry".[45]

Dr Lawless also pointed out the contribution made by the chemistry department to teacher training, telling us that the department had the potential to deliver 300 chemistry teachers over a five year period—a significant consideration in light of the Government's commitment to "step up recruitment, retraining and retention" of specialist teachers in STEM subjects so that by 2014 "31 per cent of science teachers have a chemistry specialism".[46,47] We have not sought to test the reliability of these figures.

23. **Ultimately, it is up to the University to decide the fate of its chemistry department. However, the University would be advised to consider whether its future as a serious science university would be sustainable without this department. The Vice-Chancellor and his colleagues would also be well advised to take account of the Government's announced intention to enhance STEM provision. Universities have every right to choose whether and how to invest in STEM subjects, but these individual choices in turn impact on regional and national provision. Given the Government's current approach to higher education policy, we regret that further closures of STEM departments will be inevitable.** We address this subject, and HEFCE's role in safeguarding strategic science provision, in the next chapter.

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42 Q 27

43 Q 29

44 Q 38

45 Q 39

46 Q 40

47 HM Treasury, Department of Trade and Industry, Department for Education and Skills, Department of Health, *Science and Innovation Investment Framework 2004–2014: Next Steps*, March 2006, para 6.13

3 Role of HEFCE

Strategically important and vulnerable subjects

24. The Government has repeatedly emphasised the importance of STEM skills to the UK. Most recently, it stated in the *Science and Innovation Investment Framework 2004–2014: Next Steps* report published alongside the Budget 2006:

> "To support the UK's ambition to move to a higher level of research and development (R&D) intensity, it is crucial to ensure that the UK has the right stock and flow of skilled scientists, technologists, engineers and mathematicians. A highly skilled and diverse workforce will drive innovation and growth. A strong supply of science, technology, engineering and mathematics (STEM) skills will enable UK businesses to exploit new technologies and scientific discoveries, achieve world-class standards and compete globally".[48]

The Government also recognised in the *Next Steps* report that progress towards the ambition expressed in the Science and Innovation Investment Framework 2004–2014 for a "step change in the level of science skills in the UK economy" had been "relatively slow in some areas" and acknowledged the "scope for further action to improve the quality of STEM education and increase the supply of STEM skills".[49]

25. HEFCE is a major source of income for English universities and plays an important role in fulfilling the Government's ambition to increase the supply of STEM graduates. Following the Secretary of State for Education and Skills' request in December 2004, HEFCE's role in safeguarding the provision of strategically important and vulnerable subjects was made more explicit. *Strategically important and vulnerable subjects*, the output of the HEFCE advisory group led by Sir Gareth Roberts, concluded that HEFCE should focus its attention "on subjects which are both strategically important and vulnerable", noting that "Departmental closures do not of themselves mean vulnerability".[50] The report also warned "against an overly interventionist role in the market" on the grounds that "Second-guessing the market may ultimately reduce the dynamism of the English HE sector".[51] However, the advisory group identified a clear role for HEFCE in taking an overview and identifying situations where "the aggregate individual interests of higher education institutions do not match the national or regional interest".[52]

26. HEFCE sees its role in safeguarding strategic STEM provision as "a broker to sustain or develop human and/or physical capacity within higher education".[53] *Strategically important and vulnerable subjects* argued that this should rely on heads of institutions

48 HM Treasury, Department of Trade and Industry, Department for Education and Skills, Department of Health, *Science and Innovation Investment Framework 2004–2014: Next Steps*, March 2006, para 6.1

49 As above, paras 6.4, 6.10

50 http://www.hefce.ac.uk/pubs/hefce/2005/05_24/

51 As above

52 As above

53 Ev 24

having informal early discussions with HEFCE when considering closing departments in strategically important subjects, rather than the approach suggested in the *Science and Innovation Investment Framework 2004–2014* whereby universities would be required to give a formal 12-month notice period prior to closure. HEFCE has not issued written guidance on the need for universities to contact it prior to closing STEM departments. Instead it has worked with the sector's representative bodies, Universities UK (UUK) and the Standing Conference of Principals (SCOP), so as to prevent its interventions from creating "greater turbulence", relying on these organisations to disseminate the message to their members.[54] The letter issued by UUK on this subject simply stated that it sought to "encourage" Vice-Chancellors who were planning to close a department in a strategically important or vulnerable subject "to contact HEFCE on a strictly confidential basis at an early opportunity".[55] **We believe that it is both inappropriate and ineffective for HEFCE to rely on UUK to disseminate important information relating to the process of reorganisation in universities.**

HEFCE's involvement in the proposed changes at Sussex

27. The proposed changes to chemistry provision at the University of Sussex provided the first test of HEFCE's new mandate to safeguard the provision of STEM subjects. HEFCE was informed by the University of Sussex of its proposals on Thursday 2 March 2006, approximately a week before the Strategy and Resources Committee meeting at which the plans were to be considered. Once contacted by the University of Sussex, HEFCE's regional consultant for the South East of England entered into discussions with the University Registrar and then visited the University the day before the Strategy and Resources Committee meeting. HEFCE told us that its priority in these discussions was to "ensure that the interests of the students, current and prospective, were being catered for in the proposals and […] to consider, if the proposals were to go ahead, what we would need to do in order to […] protect the supply of chemistry in the south east region".[56] This involved reaching "a provisional agreement" with three other universities in the region to "ensure no loss of capacity of overall student undergraduate numbers".[57] **HEFCE seems to have done what it could in the circumstances to maintain present regional chemistry provision in the short term, but this last minute damage limitation does not amount to regional strategic provision.**

28. The Acting Chief Executive of HEFCE, Steve Egan, told us that he "would like to have been involved earlier" and was "disappointed" at being contacted by the University so late in the day.[58,59] Mr Egan said that, as a result of this, he would be "asking Universities UK, who provide advice to institutions, to reiterate that advice, that we would require earlier notification".[60] **It is disappointing that the University of Sussex contacted HEFCE so late**

54 Ev 24

55 Ev 26

56 Q 50

57 Ev 23

58 Q 50

59 Q 55

60 Q 55

in the day, but it also highlights the severe disadvantages of an arrangement where HEFCE is entirely dependent on universities alerting it to potential closures at an appropriate stage, with no power to reprimand universities that do not do this. The softly, softly approach adopted by HEFCE has failed its first test. We recommend that universities be required to alert HEFCE to proposed departmental closures in STEM subjects not less than 18 months before the changes in provision are due to come into effect.

HEFCE's powers of intervention

29. HEFCE told our predecessor Committee that it would only consider intervening in internal decisions taken by universities "where there was an exceptional case in national policy or gross market failure".[61] This sets the bar for intervention so high as to be ineffectual. **In isolation, few departmental closures in themselves would qualify as the gross market failure that HEFCE uses to define situations meriting its intervention, even though the cumulative impact of these closures on regional and national provision may be extremely damaging.** Mr Egan suggested that the threats to chemistry provision were sufficient to qualify as a "gross problem", telling us that HEFCE was now "seriously concerned".[62,63] In practice, the tools available to HEFCE when addressing potential departmental closures are inadequate. Mr Egan told us: "the help we could provide is to say, 'If you want to work in collaboration with another institution to ensure that you have a viable chemistry department' we may be able to broker that kind of arrangement".[64] He subsequently conceded that departments were fully capable of developing such collaborations independently, calling into question the value of HEFCE's involvement in this process.[65] It remains to be seen what steps HEFCE will take when faced with the potential closure of the last department in a particular STEM subject within a region. **The Government has recognised that the market is imperfect as a means of matching graduate output to the country's need for STEM graduates. It has asked HEFCE to intervene when necessary to support its policy aims but has failed to give it the powers or political support necessary to enable it to fulfil this function effectively.**

30. HEFCE also plays a wider role in promoting strategic science provision and Mr Egan was keen to draw attention to the proactive measures initiated by HEFCE:

> "We have a feasibility study in the south east region concerning physics and how physics providers in the south east region can work together. We have a similar arrangement developing in the east and west Midlands for physics and we are having discussions through regional associations at all regions across all strategic and vulnerable subjects as to how we can develop consensus around what can be done and how collaboration can improve and protect the supply".[66]

61 HC (2004–05) 220–II, Ev 89

62 Q 60

63 Q 67

64 Q 69

65 Q 70

66 Q 51

Mr Egan nevertheless accepted the criticism that HEFCE did not undertake horizon scanning to identify potentially vulnerable departments: "we do not do analysis of the sort which says which are the likely departments to close […] that is something we need to look at to strengthen that process".[67] **HEFCE must be proactive in horizon scanning and collection of relevant data. The Government can only exercise proper strategic oversight of STEM capacity if it has access to comprehensive data sets, including trends in student demand, uptake and quality, and employer demand for different STEM subjects, where appropriate at institutional as well as regional and national level. We recommend that the Government ensures that such data is maintained and published periodically.**

31. Mr Egan was refreshingly open with us regarding the constraints facing HEFCE. He commented on HEFCE's lack of planning powers: "there is only so much we can do on geographical proximity because we are not a planning body; we are a funding body", and admitted that while "in many cases the market is efficient and does deliver the policy objectives", in "STEM subjects, it does not".[68,69] **It is extremely unfortunate that in an area of higher education so crucial to the nation's future industrial strength there is now an acknowledged policy failure.** Furthermore, Mr Egan told us that "under certain circumstances HEFCE would like more powers" to enable it to intervene.[70] However, HEFCE later qualified this statement in a supplementary memorandum:

> "Those circumstances would be if we could not rely on higher education institutions to work with us at an early stage in the development of their thinking to ensure adequate provision of a subject at a regional or national level […] We will work with the sector to see how we might strengthen the existing voluntary guidance. If, as we suspect, we are successful then there would be no need for further powers".[71]

HEFCE seems to be cautious to an extreme about impinging on the autonomy of higher education institutions. In view of the Government's own timidity on this front, it is perhaps not surprising that it is so resigned to its own impotence.

32. **The Government is evidently committed to preserving—indeed cultivating—a market in higher education, although we note that it does not appear to have ever consulted Parliament specifically on this matter. We invite the Government to rectify this situation. In our view, there is a fundamental disconnect between the Government's desire for strategic provision of STEM subjects and its desire to maximise the autonomy of universities. As a result, the Government has no effective lever to control its strategic science policy in terms of undergraduate provision.** This lack of strategic vision in Government policy could have significant ramifications for the future supply of home-grown STEM personnel. In recognition of this threat, our predecessor Committee proposed a "hub and spokes" model of regional collaboration

67 Q 57

68 Q 53

69 Q 108

70 Q 103

71 Ev 24

between universities.[72] The Government has rejected this model without putting forward a viable alternative to secure regional provision of STEM subjects. The University of Sussex example has illustrated the weakness of existing safeguards. In the absence of any new measures, the Government's target to expand significantly the national cohort of STEM graduates looks increasingly unrealistic.

72 HC (2004–05) 220–I, chapter 6

4 Conclusion

33. We have examined the process by which the University of Sussex developed its proposed changes in chemistry provision, focussing on the role of HEFCE and the implications for STEM provision at a strategic level. We conclude that the University of Sussex has handled the proposed changes to chemistry provision particularly ineptly, but recognise that it is ultimately a decision for the institution. The situation at Sussex is, however, symptomatic of a wider problem. If the circumstances at Sussex were judged to warrant proposals for effective closure of the chemistry department it is inevitable that other STEM departments will face similar threats. Current higher education policy is unable to deliver the Government's commitment to safeguard strategic provision of STEM subjects. The Government supports the concept of a market in higher education but it needs to recognise that there is a serious failure of the market to deliver in terms of STEM provision. HEFCE is supposed to identify and address instances where the individual interests of universities do not coincide with the national interest. In practice, it has not the teeth, the tools, nor the will to do this effectively.

34. This test case has provided a warning that the initiatives taken as a result of the Secretary of State for Education and Skills' concerns about strategically important subjects are not sufficient. Failure to take action to remedy this is likely to have significant consequences for future STEM provision and, ultimately, the future competitiveness of the UK.

Conclusions and recommendations

Student demand

1. The declining popularity of chemistry at undergraduate level is without doubt a national concern. The department of chemistry at the University of Sussex should be applauded for countering this trend and securing an increase in the numbers of students applying to study chemistry. It is disappointing that the University has taken such a negative view of the sustainability of this achievement, rather than seeking to build on this success. (Paragraph 10)

Financial considerations

2. The University's efforts to downplay the part played by financial considerations in the decision to refocus chemistry are at odds with the importance it has attached to the expected income of the department in the next RAE. Although the decision may ultimately be strategic, it is one that is clearly rooted in financial concerns. The University need not have sought to deny this reality. (Paragraph 11)

3. The fact remains that Vice-Chancellors are fully entitled to use income from one department to subsidise another—a principle that continues to play a role in the demise of STEM departments. (Paragraph 12)

4. Financial management has played a role in the declining fortunes of chemistry at Sussex—historical levels of investment in the department will inevitably have impacted on its attractiveness to both staff and students. The small size of the department (in terms of both faculty and students) is now singled out as a significant factor in determining its future. However, responsibility for the shrinkage of the department rests squarely with the Vice-Chancellor, who has made no attempt to replace key staff. (Paragraph 13)

5. Whilst the Government's decision to conduct a fundamental review of the RAE is welcome, it is essential that the review involves thorough and detailed consideration of the potential implications of any replacement system, including any unintended effects on the sustainability of STEM departments. (Paragraph 14)

6. We urge the Government to be proactive in evaluating the impacts of the introduction of full economic costing to ensure that emerging problems are identified at an early stage. (Paragraph 14)

Chemical biology

7. Success in interdisciplinary subjects relies on foundations laid by strong core disciplines. The idea that chemistry can be replaced with a stand-alone chemical biology department is highly dubious and certainly unsupported by any evidence. (Paragraph 16)

8. By working together with the Sector Skills Councils, Regional Development Agencies, learned societies, employers, careers advisory services and universities,

HEFCE could play a useful role, both in leveraging student interest in non-core STEM subjects to promote the uptake of core STEM subjects, and in ensuring that the employment prospects associated with different STEM degrees are communicated to prospective students. (Paragraph 16)

Consultation and communication

9. Although the University's desire to ensure that anyone affected by the proposed changes was informed directly is understandable, the decision to make public proposals that had not even been approved by the Senate made it look as though the changes in chemistry provision were inevitable. Moreover, there was a high risk that this could become a self-fulfilling prophesy, by catalysing the departure of staff in the department and putting off prospective students. (Paragraph 18)

10. The fact that the Senate demanded a re-evaluation of the options for changes to the School of Life Sciences must be taken as an admission that the proposals presented to them had not been properly thought through, and as a reflection of the lack of consultation undertaken during their development. Indeed, we find it extraordinary that the Head of the department concerned was not consulted on the proposals at the outset and no less extraordinary that the proposals could be so criticised by the Dean of Life Sciences, a principal contributor. In our view, the process followed by the University was seriously flawed. (Paragraph 20)

Future of department

11. Ultimately, it is up to the University to decide the fate of its chemistry department. However, the University would be advised to consider whether its future as a serious science university would be sustainable without this department. The Vice-Chancellor and his colleagues would also be well advised to take account of the Government's announced intention to enhance STEM provision. Universities have every right to choose whether and how to invest in STEM subjects, but these individual choices in turn impact on regional and national provision. Under the Government's current approach to higher education policy, we regret that further closures of STEM departments will be inevitable. (Paragraph 23)

Strategically important and vulnerable subjects

12. We believe that it is both inappropriate and ineffective for HEFCE to rely on UUK to disseminate important information relating to the process of reorganisation in universities. (Paragraph 26)

HEFCE's involvement in the proposed changes at Sussex

13. HEFCE seems to have done what it could in the circumstances to maintain present regional chemistry provision in the short term, but this last minute damage limitation does not amount to regional strategic provision. (Paragraph 27)

14. It is disappointing that the University of Sussex contacted HEFCE so late in the day, but it also highlights the severe disadvantages of an arrangement where HEFCE is

entirely dependent on universities alerting it to potential closures at an appropriate stage, with no power to reprimand universities that do not do this. The softly, softly approach adopted by HEFCE has failed its first test. We recommend that universities be required to alert HEFCE to proposed departmental closures in STEM subjects not less than 18 months before the changes in provision are due to come into effect. (Paragraph 28)

HEFCE's powers of intervention

15. In isolation, few departmental closures in themselves would qualify as the gross market failure that HEFCE uses to define situations meriting its intervention, even though the cumulative impact of these closures on regional and national provision may be extremely damaging. (Paragraph 29)

16. The Government has recognised that the market is imperfect as a means of matching graduate output to the country's need for STEM graduates. It has asked HEFCE to intervene when necessary to support its policy aims but has failed to give it the powers or political support necessary to enable it to fulfil this function effectively. (Paragraph 29)

17. HEFCE must be proactive in horizon scanning and collection of relevant data. The Government can only exercise proper strategic oversight of STEM capacity if it has access to comprehensive data sets, including trends in student demand, uptake and quality, and employer demand for different STEM subjects, where appropriate at institutional as well as regional and national level. We recommend that the Government ensures that such data is maintained and published periodically. (Paragraph 30)

18. It is extremely unfortunate that in an area of higher education so crucial to the nation's future industrial strength there is now an acknowledged policy failure. (Paragraph 31)

19. The Government is evidently committed to preserving—indeed cultivating—a market in higher education, although we note that it does not appear to have ever consulted Parliament specifically on this matter. We invite the Government to rectify this situation. In our view, there is a fundamental disconnect between the Government's desire for strategic provision of STEM subjects and its desire to maximise the autonomy of universities. As a result, the Government has no effective lever to control its strategic science policy in terms of undergraduate provision. (Paragraph 32)

Formal minutes

Monday 24 April 2006

Members present:

Mr Phil Willis, in the Chair

Mr Jim Devine	Bob Spink
Dr Evan Harris	Dr Desmond Turner
Dr Brian Iddon	

Draft Report (Strategic Science Provision in English Universities: a Follow–up), proposed by the Chairman, brought up and read.

Ordered, That the Chairman's draft Report be read a second time, paragraph by paragraph.

Paragraphs 1 to 34 read and agreed to.

Resolved, That the Report be the Second Report of the Committee to the House.

Ordered, That the Appendices to the Minutes of Evidence taken before the Committee be reported to the House.

Ordered, That the Chairman do make the Report to the House.

Ordered, That embargoed copies of the Report be made available, in accordance with the provisions of Standing Order No. 134.

[Adjourned till Wednesday 26 April at a quarter to nine o'clock.

Witnesses

Written Evidence

Reports from the Science and Technology Committee

Session 2005-06

First Report	Meeting UK Energy and Climate Needs: The Role of Carbon Capture and Storage	HC 578-I
First Special Report	Forensic Science on Trial: Government Response to the Committee's Seventh Report of Session 2004-05	HC 427
Second Special Report	Strategic Science Provision in English Universities: Government Response to the Committee's Eighth Report of Session 2004-05	HC 428
Third Special Report	Meeting UK Energy and Climate Needs: The Role of Carbon Capture and Storage: Government Response to the Committee's First Report of Session 2005-06	HC 1036

Oral evidence

Taken before the Science and Technology Committee

on Monday 27 March 2006

Members present:

Mr Phil Willis, in the Chair

Adam Afriyie
Dr Evan Harris
Dr Brian Iddon
Dr Desmond Turner

Witnesses: **Professor Alasdair Smith,** Vice-Chancellor, and **Dr Gerry Lawless,** Head of Chemistry Department, University of Sussex; **Mr Steve Egan,** Acting Chief Executive, Higher Education Funding Council for England, gave evidence.

Chairman: Could I welcome our three witnesses today: Professor Alasdair Smith, vice-chancellor at Sussex, Dr Gerry Lawless, the head of Chemistry, and Mr Steve Egan, the acting chief executive of HEFCE. May I also welcome so many people into the public gallery. It is lovely to see you coming to watch the machinery of a select committee. You are very welcome indeed to this session. Before we start, a couple of my colleagues wish to declare an interest and I invite them to do so now.
Dr Iddon: I have a registered interest in that I am a Fellow of the Royal Society of Chemistry and I have an unregistered interest in that I am a Member of the Association of University Teachers.
Dr Turner: It is a totally non-pecuniary interest. The University of Sussex is my local university and I used to work in the department many years ago.

Q1 Chairman: This is a serious issue looking at the changes to Chemistry provision in Sussex University. The reason the select committee is very anxious to have an evidence session is that the last committee did a major report about strategic science in UK universities. It is important that, having done that piece of work and made recommendations to the government which were by and large accepted apart from the major recommendations of the Hubbard spoke model and indeed some of the regional structures which were put in—I am not criticising that; I am just making an observation—we continue to keep an eye on the terms of strategic science and particularly capacity in terms of UK science, again particularly in the stem subjects. We are anxious to look at the process for closures to make sure that the closures can be examined, justified and verified in scientific terms. Our remit is not to get involved in the machinations of a individual university or the decisions of HEFCE; it is to look at that process to make sure it means what the government is trying to do. That is the background. Professor Smith, where did the proposals to close Chemistry at Sussex come from? Who was involved in developing them and when were they first proposed? Was it your idea?
Professor Smith: Yes, I accept responsibility for it. The process was that we were entering a new phase in strategic planning of provision at the university. We had at the meetings of the Senate and Council at the end of December wide ranging, strategic discussions about the strategy of the university. From January onwards, initially in my executive team of half a dozen or so, in my senior team, we spent three days looking in great detail at all the areas of university provision, deciding at this crucial point in time as we come up towards the next research assessment exercise, to the new fee regime in 2006, to the introduction of full economic costing of research, which were the areas of the university's activity that we should give the highest priority to in making academic investment and therefore which were areas that we needed to cut back on to create room for investing in strong areas. The Senate and Council of the university endorsed two key principles, as a university we strive for excellence in research and in teaching and, in order to build excellence, we need to invest in strength.

Q2 Chairman: In terms of consultation, you wrote this paper in December and took it to the Senate in December?
Professor Smith: Yes. The paper was a general strategy paper.

Q3 Chairman: How much consultation was there with the department of chemistry? Any?
Professor Smith: There was a very limited amount of consultation with the Department of Chemistry until we went public with the proposals at the very beginning of March. Obviously there was very full consultation with the Dean of the School of Life Sciences from early on, but it was at quite a late stage that people like Gerry, the head of the Department, were brought into the discussion. Frankly, part of the reason why that first stage of the consultation had to be conducted among a relatively small number of people is we know from past experience—and it has been confirmed—that once a discussion about the future of Chemistry anywhere goes beyond a small number of people it hits the press and we needed to control very carefully the early stage of discussion so that we could have sensible discussions in private before the discussion went public.

Q4 Chairman: The Dean of the School of Life Sciences is fully involved in the discussions but the head of the department that the threat of closure hangs over is not consulted at that time?
Professor Smith: He is not consulted in the first stage of the discussion.

Q5 Chairman: Is this not a *fait accompli*?
Professor Smith: No, it is not a *fait accompli* even now. It is still a proposal and when we put the initial proposal to Senate some 10 days ago, on the advice of the Dean, the Senate unanimously agreed that we needed an extended period in which we would look at the options. The proposal that went to the Senate was not a closure proposal; it was a proposal to focus the work of the department in one area of Chemistry. It has been presented in the media of course as a closure, but that was not and never has been the intention.

Q6 Chairman: You make the point and your written evidence to us suggests that the Department of Chemistry has been in decline for some time. The conclusion I have come to—tell me if I am wrong—is that what we have here is a self-fulfilling prophecy. You have concerns about the department of Chemistry; no investment is made in it. You have then announced that it is going to close and the inevitability of its closure or restructuring, whichever way you want to describe it, is just an inevitable conclusion of the actions of the university over a period of time. Is that fair or unfair?
Professor Smith: I think that is unfair. Over the last two years, the department has lost a number of key, senior staff.

Q7 Chairman: What did you do to replace them? Why did you not go out and get others?
Professor Smith: I did not go out to get others because it is very hard, looking across the full range of provision in the institution, to justify replacing staff in a department that is recruiting 20 undergraduate students a year when I have a Department of English that is recruiting 300 students a year, and where the students and their parents are complaining about staff/student ratios of 25:1 or 30:1. One has to make these choices. One cannot replace every post that becomes vacant or decide that in every department where faculty leaves they must be replaced.

Q8 Chairman: What we cannot understand as a Committee—I think I speak for the whole Committee here—is that this was a five star department at the last RAE.
Professor Smith: Five.

Q9 Chairman: My apologies. It was a five department, which is pretty good. How, in such a short space of time has it gone from that, to you having no confidence in it to expand and therefore to be able to create a better base on which to move forward?
Professor Smith: At the last RAE it was a relatively small five rated department. The loss of six key people has had a huge impact on the strength of the department in that period of time.

Q10 Chairman: Were you not confident of recruiting people of equal quality or did you just not want to?
Professor Smith: It is not a question of recruiting faculty of quality. We have in that period recruited junior faculty of very high quality, who are doing extremely well, but they are junior faculty. It is very difficult to justify the kind of investment that would be required to restore the department to the position that it was in six or seven years ago on the back of the kind of student recruitment that we have had in the last three or four years.

Q11 Chairman: Dr Lawless, I would like to know how much warning you were given of the proposed changes to the provision and when you were first notified of it. How much have you been involved? The main question I would like to ask you before that is why have you allowed the department to decline so badly?
Dr Lawless: I have been head of department for two years and during those two years I have repeatedly asked for posts to be filled.

Q12 Chairman: It was a rhetorical question.
Dr Lawless To represent the department as it stands now, we have six scientists across the entire university who are candidates for election to the Royal Society. Three of those are in Chemistry. This is not a department that is withering. It is a department that is under-resourced.

Q13 Chairman: We will come back to resourcing. Could you answer the first part of my question? When were you first notified and how have you been involved in the consultations?
Dr Lawless: My first knowledge that this process was underway was when the Dean invited me to his office but, under the constraints of secrecy, asked me if I would enter discussions without having any expertise from the chemical biologists in my department. I thought it was unwise to discuss the future of a chemical biology department without having any external input from chemical biologists.

Q14 Chairman: When was that?
Dr Lawless: It was four weeks before the announcement was made.

Q15 Chairman: As short as that? Either with yourself or your predecessor, when some of the leading figures left, could you tell me where they went? Did they retire? Did they go to other departments? What efforts did the university make to replace them?
Dr Lawless: There were nine members of faculty who retired. A further six left to go to other universities, Nottingham, Sheffield and Durham.

Q16 Chairman: What effort was made to replace them?

Dr Lawless: They were replaced by a younger faculty, although the RAE income was there to support the additional nine retirees.

Q17 Chairman: In your view, the university could have gone out to recruit in the market place senior faculty members?
Dr Lawless: Given the international standing of the Chemistry department of Sussex, it would have been easier than in some other departments which we are trying to recruit into at the moment.

Q18 Dr Turner: I should have said I was a member of Sussex University Court. Is it not a fact that the manner in which this proposal has emerged has been so damaging to the department that, if Senate and Council were to decide that the refocusing option is not a runner, it would be that much more difficult and need that much more investment to put Chemistry back together again, would it not?
Professor Smith: Yes. One would speculate about those hypotheticals but it certainly is the case that having this kind of discussion taking place in the kind of publicity that we have had over the last two weeks does tend to have effects which will be harder to roll back from. I hope it does not close our options, because all options are still open, as I said at the meeting in the University Court last week. Chemistry is not well served by the Royal Society of Chemistry in this respect. When we went public within the institution with our proposals, ready to have an open discussion with the chemists and the chemical biologists and everyone else, we had statements ready for the press if they were needed but we did not go out and seek publicity. The afternoon of the day that the initial proposal went through our Strategy Resources Committee the Royal Society of Chemistry put out a press release, which frankly I found extraordinary, saying it had heard rumours that Sussex was thinking of closing its chemistry department.

Q19 Dr Turner: You had not told them so it was a rumour for them, was it not?
Professor Smith: I did not succeed in getting hold of the Royal Society of Chemistry that afternoon. Frankly, I think they would have gone off with a press release anyway. That is one of the things that makes this kind of discussion difficult, particularly in the area of chemistry, but any discussion of the chemistry provision leads to this huge wave of publicity and I think it is unfortunate.

Q20 Dr Turner: You do not seriously think that you could have carried out this process without attracting public attention?
Professor Smith: There are other areas, other than chemistry and the sciences, where there are significant changes in student demand. Foreign languages are one. We, like many other institutions, have had significant changes in our foreign language provision. At the last RAE, we submitted four separate foreign language departments. These departments do not exist any more. We have been through a process of reshaping provision in modern languages at Sussex to deal with a very sad decline in demand, another national problem just like the decline in demand for some of the sciences. We were able to have that discussion in a civilised fashion within the institution, looking at all the options, not having the glare of publicity. I think it is a better decision making process and the Royal Society of Chemistry should reflect on that.

Q21 Chairman: It is their fault?
Professor Smith: No.

Q22 Chairman: I find it unbelievable that you could blame the Royal Society of Chemistry for a set of proposals when you did not even have the courtesy to speak to your head of chemistry.
Professor Smith: I was not blaming them for the proposals. I was saying that they create a climate of publicity which puts constraints on institutions that are trying to plan for the future.

Q23 Dr Turner: You put the proposals to the Senate meeting on the 17th, one week after that, and the Senate deferred. What were the key concerns that the Senate had in coming to that judgment?
Professor Smith: The key concern was that our proposal to reshape chemistry was to focus chemistry on the area of chemical biology, the biological end of chemistry. The concern which was expressed, particularly by the Dean of Life Sciences, was that it may not be easy to focus the activity of the chemistry department on one area like that. Chemical biology is a set of applications of chemistry and to do chemical biology you need support from other areas, not just organic chemistry.

Q24 Dr Turner: It is not viable on its own?
Professor Smith: That is right. The Dean advised that the initial proposal that we were working with required further discussion and required us to look at other options for focusing the chemistry department. We happily as an institution are now proceeding to look at a wider range of options. I think that is a perfectly healthy way to proceed. Having started down one road, the discussion having opened up among the institution and the full range of life scientists having got involved in it, their advice was we need to look at this further and we are doing that.

Q25 Dr Turner: Why did the Dean of Life Sciences retract his initial proposal? Was it because of the reaction? Had he had second thoughts of his own? Did the wave of shock and horror that went through the British scientific community, when it was suggested that the chemistry at Sussex of all places should close, concentrate his mind and your mind?
Professor Smith: It was the response from the chemistry department and others that said, from an academic perspective, this proposal may not be a sensible way to refocus chemistry. We need to give that further consideration. Most of the external response from the scientific community and elsewhere was to a perceived closure decision, but we

were not proposing closure. A lot of the external view was based on a misapprehension of what we were trying to do. What influenced the Dean and influenced me in believing that we needed a further period of consideration was that the initial proposal for a refocusing of chemistry needed further study.
Dr Turner: Gerry, what is your take?
Chairman: What will this entail? What is going to happen?

Q26 Dr Turner: I am coming to that.
Dr Lawless: We did seek a lot of external reports on the proposed refocusing, not simply the closure of chemistry. Without exception, they all thought this was a crazy idea, absolute madness to propose that you could have a department of chemical biology in the absence of a chemistry programme.

Q27 Dr Turner: Can we look at the options that are being studied? Can you set them out for us, please, Alasdair?
Professor Smith: The options that are now being looked at fall under three broad headings. One would be to maintain a broad based chemistry department. Given that university policy is one of achieving excellence in research and teaching, that would have to be a broad based chemistry department that had the prospect of developing back to the absolutely first rate chemistry department. The second option would be closure. By "closure" I mean closure. That is, accepting that the chemical biology department would not work. The third option is to look at some intermediate option where chemistry at Sussex is refocused, concentrates on the relationship between chemistry and the other biomedical, biological sciences and where a smaller scale of operation can operate with excellence in teaching and research and recruit an adequate number of students to make it viable. In broad terms, those are the three options.

Q28 Dr Turner: Why did you only consider those options at this stage rather than from the very beginning?
Professor Smith: We did consider all three options from the very beginning. My belief, in making the initial proposals that we made, was and is that the level of investment required to sustain a broad based chemistry department in Sussex, to restore chemistry at Sussex to excellence in a broad based department covering all the major branches of chemistry, given the scale of the faculty losses that we had suffered in recent years, would be a very large investment indeed with no assurance that it would pay off in research assessment terms in two years' time. That would be a very risky option and one that would denude the rest of the university of much needed investment. The other option, if I can go to the other extreme, the closure option, I did not put forward because I am very strongly committed to the future of science at Sussex and Sussex remaining a strong science based university. I am very impressed, as everyone is, by the quite extraordinary quality of the work that has been done in chemistry at Sussex in the past. I was therefore and remain desperately keen to find a way of retaining chemistry at Sussex and not going for closure.

Q29 Dr Turner: That is very encouraging. Gerry, can you give us your take on the options and their achievability?
Dr Lawless: I was presented with five options on Friday. Things change quickly in the world of academia. It is possible to almost immediately generate five posts in chemistry without any additional expense on behalf of the university. We are also seeking in the next six weeks some imaginative solutions to having entrepreneurial investment in posts in chemistry. If we had been allowed during the last six months to make some of these proposals, we could have come up with a very financially viable plan to save chemistry at Sussex, but we were not given the opportunity. I also think it is very possible to use the media to turn this around and, by making some very senior appointments in chemistry at no expense to the university, to confirm that chemistry is alive and well and has a future in Sussex, simply because we have had so much media attention.

Q30 Dr Turner: You think it is possible, even in the context in which the department has been seriously damaged by the process?
Dr Lawless: Absolutely, provided we make a strong commitment to chemistry in the future.

Q31 Dr Turner: Can we take it that chemical biology, as such, is off the agenda now?
Professor Smith: As such it is off the agenda. There is no difference between Gerry and me as far as three to five options. I was, with apologies, over-simplifying somewhat by running together various middle options. The original chemical biology proposal is off the agenda because it clearly did not command the support of the faculty of life sciences, but a more general option of looking for a future of chemistry where it focuses on the relationship between chemistry and the biological sciences is very much still on the agenda.

Q32 Dr Turner: Can you tell me whether the concerns surrounding chemistry which will have sent shock waves through other scientific disciplines as well make the future of physics doubtful at Sussex as well? What implications does it have for the whole structure of science at Sussex, because after all chemistry is integral to the teaching of medicine, biochemistry and biology. Need I go on? What are the wider implications, even on the campus, and for the future viability of science at Sussex?
Professor Smith: I have emphasised all along that this proposal to restructure and rescale chemistry is part of a wider university plan which involves making positive investment in other areas of science. We are not proposing to reduce the number of students taking the sciences at Sussex. We are proposing to make substantial investments in the research capacity in other science areas. I am doing my best to get that message across. As it happens, at

lunch time today, I was meeting a visiting panel from PPARC who were looking at the renewal of a major rolling grant in physics and naturally they wanted to talk to me about the proposals that we were making about chemistry. I was able to reassure them that it is not part of a plan to run down the overall science effort at Sussex and I think the PPARC panel went away reassured about the broad policy of Sussex towards science.

Q33 Dr Turner: Physics is safe?
Professor Smith: I am afraid nothing is safe.

Q34 Chairman: Nothing is safe in Sussex?
Professor Smith: Nothing is safe anywhere. Universities have to look at the provision for student demand. I am very happy with the progress that physics has made in recruiting students and with the strength of physics at Sussex, but it would be a mistake for any vice-chancellor to say of any subject that it is safe. One has very strong commitments to the maintenance of a broad academic base. I have always made it clear that my vision of Sussex is that it is a university which remains strong in the sciences as well as arts. I have put a huge amount of effort in the eight years of being vice-chancellor to doing the very best a university can for physics, chemistry and other subjects that face difficult student recruitment decisions.

Q35 Dr Harris: You said that no department can be described as safe. Is the corollary of that that all departments are potentially vulnerable, in a sense?
Professor Smith: Yes, but please do not read anything into that.

Q36 Dr Harris: Are you saying that in any university it is fair to say that, at least in science because of the issues there, a whole load of departments might be considered not safe in that sense?
Professor Smith: Yes, but please do not read anything into that other than a most banal observation. Sussex is extraordinarily strong in English, another five rated, big department that currently recruits 300 well qualified students a year. Is the future of English at Sussex safe? Of course it is safe as long as it remains a five rated department recruiting 300 students a year, but if students wishing to study English decide that Sussex is no longer the place for them the future of English at Sussex will no longer be safe.

Q37 Chairman: Would you not concede that, to be taken seriously as a university that is serious about science, the idea that you can do that without a major chemistry department is laughable?
Professor Smith: No.

Q38 Chairman: You think the two things are compatible? You can talk about a major science facility at a British university without chemistry?
Professor Smith: Yes. I would prefer Sussex to have a chemistry department but I do not accept the position that a serious science university must have a chemistry department.

Q39 Chairman: Do you, Dr Lawless?
Dr Lawless: I completely reject that. If we consider the other sciences, physics is probably not as directly involved with chemistry but consider biochemistry, for example. People who are applying to study a degree in biochemistry want a first class degree delivered to them. That must involve some chemistry. If we consider the premed programme, a very lucrative programme at Sussex, 40% of that programme is delivered by chemistry. We also have a programme that we deliver with the TTA, a teacher enhancement programme. We train almost 20 chemistry teachers a year. We could not deliver that without chemistry.

Q40 Chairman: We need another 3,500 of them?
Dr Lawless: If we are successful in a five year roll out of that programme we will deliver almost 300 of them. You are going to get rid of a chemistry department that may deliver 300 chemistry teachers.

Q41 Dr Turner: I take it from the tenor of your remarks, Alasdair, that as far as departments are concerned there is no difference between English, media studies, a science department. They are all the same if they cannot pay their way. Is that a fair thing to say?
Professor Smith: No. I think it is not a fair thing to say. There are some areas of activity that universities make very special efforts to maintain because they see them as very desirable to having a balanced academic portfolio. If universities wished to manage themselves on purely market criteria and simply follow where the student market goes, we would all specialise much more than we do. There are many institutions that could fill up virtually all of their places with students doing business and management studies or creative writing or whatever. We do not do that because we have a view of the kind of institution we want to be. We cannot fulfil that vision completely independently of the world in which we live and decide this is what a university is and this is what a university is going to be. It is much more sensible to have a view of the kind that says Sussex wants to be a university that is strong in a wide range of disciplines covering the arts and sciences and work within that framework, rather than say that means we must have disciplines X, Y, Z, A, B and C.

Q42 Dr Turner: Immediately you went public I understand that the academic registrar wrote to all the student applicants who had accepted places. Am I right that even at this early stage 33 applicants had accepted offers and they were qualified with at least three straight A levels? We are talking well qualified students. What response did you get when you wrote to them? Are they going to consider coming under these circumstances?
Professor Smith: It was very important for us to write to applicants because we knew it was very likely that stories about chemistry in Sussex would appear in the newspapers over the weekend, as indeed they did. We felt it essential to get in touch with them in advance of that happening. I think

there were not 35 applicants sitting on unconfirmed offers. Sitting on accepted offers I think it was more like ten. We got in touch with them then and we are now continuing to keep in touch with them, to keep them informed about the fact that there is a discussion going on about the future of chemistry at Sussex because that would be germane to their decisions. Since all the options are open, we are doing our best and the chemistry department is doing its best to keep these applicants warm as well as well informed. I am not going to pretend to the Committee that everything is done perfectly. In this kind of situation you do lots of things that in retrospect you could have done better. I think we were absolutely right to get in touch with the applicants on the Friday afternoon when the initial proposal was announced. It would probably have been better had we got the chemistry department involved in that communication rather than it going from the Academic Registrar of the University, but I know the academic registry are now working with the chemistry department in the continuing communication with these prospective students.

Q43 Dr Turner: Have you noticed any effect on applicants for, say, biochemistry who this affects almost equally?
Professor Smith: It does not affect applicants for biochemistry almost equally. We have not noticed a significant effect. No doubt other people have had information from other sources but we do not have any indications currently of significant adverse effect on other applicants. There was a higher education fair on the Sussex campus, although not geared to Sussex University, at the end of last week. My colleagues who were involved in the fair said the interest in attending Sussex was running at something like twice the level that we have seen at previous events of that kind in previous years. In previous years, applications for Sussex have been very strong. I think there were four questions from the many, many hundreds of students there about chemistry.

Q44 Chairman: They would not be going, would they, if they thought the chemistry department was closed? What on earth would they go for?
Professor Smith: This was a higher education fair for students in Sussex schools and colleges interested in higher education.

Q45 Chairman: They are hardly likely to go asking about chemistry when they know from radio, television and the newspapers that it is closing.
Professor Smith: A prospective student interested in Sussex and coming up to the Sussex stand might well, whatever the subject, say, "What is all this I hear about chemistry in Sussex?" We had very little sense of that.
Dr Turner: I was going to ask about the Royal Society but it is obvious they have got under Alasdair's skin already anyway.
Chairman: I do not think there is any point in pursuing the Royal Society.

Q46 Dr Iddon: I want to bring Steve Egan in because I want to deal with the relationships between the Higher Education Institutes and HEFCE, if I may. I would like to ask Professor Smith first at what point did he contact HEFCE when he was thinking about the closure or changing the shape of the chemistry department at Sussex.
Professor Smith: I have the letter somewhere in my files but it was at the end of February when we got in touch with HEFCE.

Q47 Chairman: This year?
Professor Smith: Yes.

Q48 Dr Iddon: That was before the department were informed or even the Dean?
Professor Smith: No. It was long after the Dean had been involved in the discussions.

Q49 Dr Iddon: What kind of response did you get from HEFCE?
Professor Smith: We got a very rapid response from HEFCE and we got into telephone discussion. There was a meeting with the regional consultant within a very few days to look at the issue of how HEFCE would respond if Sussex withdrew from teaching a chemistry degree in 2007. I need to remind the Committee that the proposal being put to the Senate was a proposal to stop teaching chemistry at Sussex from 2007 onwards.

Q50 Dr Iddon: Mr Egan, did you feel that the approach by Sussex was early enough for you to be able to enter into constructive discussions with the university and the department?
Mr Egan: We would like to have been involved earlier and I made that point to Alasdair. Having been involved, we were keen to ensure that the interests of the students, current and prospective, were being catered for in the proposals and we did that. We wanted to consider, if the proposals were to go ahead, what we would need to do in order to do what we can to protect the supply of chemistry in the south east region in a similar way we did with the Exeter closure.

Q51 Dr Iddon: This Committee and a lot of other organisations, professional or otherwise, have been very concerned about the loss of the science base in the way that we are discussing this afternoon. As you know, the Secretary of State for Education, who was at the time the right honourable Member for Norwich South, asked HEFCE to try and protect vulnerable and strategic subjects in the universities. Is this the first time that you have been approached for help with a strategic science subject in a higher education institution?
Mr Egan: Since the Exeter closure, this is the first time that an institution has come to us. We have taken proactive measures which I can go through if you wish to engage institutions to collaborate more with each other so that they determine options before issues get to this point. For instance, we have a feasibility study in the south east region concerning physics and how physics providers in the south east

region can work together. We have a similar arrangement developing in the east and west Midlands for physics and we are having discussions through regional associations at all regions across all strategic and vulnerable subjects as to how we can develop consensus around what can be done and how collaboration can improve and protect the supply. Here is another range of measures we are taking, but we will be producing a report at the end of June that says exactly what we have done since we have provided the advice to the Secretary of State and the Secretary of State said, "Yes, go ahead and do this."

Q52 Dr Iddon: HEFCE in the past has taken the attitude that universities themselves as independent organisations must determine their own future. Obviously, the Secretary of State intervened, as I just mentioned. Do I detect therefore that HEFCE is changing its strategy with respect to vulnerable and strategic subjects? Have you a strategy now?
Mr Egan: We do have a strategy. It is in our strategic plan that is going to be published in the next week or so. We have a plan against which that strategy shall be achieved and we will be reporting against that plan in June. That will be a public document which we would be very happy for the Committee to see and examine. We still respect the autonomy of institutions and the way that they exercise that autonomy. We believe that to be an important part in what Sir Gareth Roberts called a healthy and vibrant higher education sector. However, he also identified that there are times when there are supply or demand side issues that demand intervention, in particular on stem subjects. We have developed a series of interventions that allow us to deal with demand side issues or, in this particular case, supply side issues. There is quite a list of those and I would be happy to go into those if you wish.

Q53 Dr Iddon: As everyone in this room knows, I am sure the government is heading towards a 50% participation rate in higher and further education. This Committee is very concerned that in all areas of the country we have a department which students can attend without being involved in too much travel. In other words, it would be preferable if they lived at home. We are also getting very worried about the strategic provision of chemistry in the south and south east of England. One of the Ministers in the DFES has made the point that students who would attend locally to Sussex could go to Reading. Reading is a tremendous distance away. Are you trying to preserve, as one of the funding organisations on departments like chemistry at Sussex, the geographical proximity so that students can study from home?
Mr Egan: There is only so much we can do on geographical proximity because we are not a planning body; we are a funding body. We can attempt to get institutions to work together as we are doing with physics, to enable provision to continue in places that do not have provision at the moment. We are working with the Open University to ensure that there is distance learning provision available for students in various places. We are developing life-long learning networks connecting further education colleges with higher education institutions so that students both have access to education and in particular access to progression routes into education. I do not think it is possible to provide every individual in this country with easy access to chemistry provision.

Q54 Dr Iddon: Would you look again at the proposal in one of our recent reports on strategic science provision, the hub and spoke model that this Committee proposed?
Mr Egan: The answer Sir Howard gave this Committee still stands. That is one of recognising the importance of the collaborative ethos that you propose, emphasising that we will pursue that. We have tried to do that already in physics. We will try to do that in other subjects.

Q55 Chairman: That does not square with me with the remit of HEFCE, in terms of trying to preserve stem subjects. Sir Howard was quite keen about that. He did talk to us about a collaborative model but if a university does not even tell you that its chemistry is in difficulty until it rings you up to say, "I want to close this department" how on earth is that back seat driving, as Sir Howard once described it? Is it now out of the car or are you out of the car? I know he is out of the car.
Mr Egan: I have said that we were disappointed with the fact that the university did not tell us ahead of the one week notice that we had. We will be asking Universities UK, who provide advice to institutions, to reiterate that advice, that we would require earlier notification. Our assessment of individual institutions would include our confidence in their strategic planning processes. We are privy to what is going on in the institutions and we take account of the turn of events in this particular case.
Dr Iddon: You are one arm of the dual funding mechanism. Is there going to be in future a strategic approach to university which would involved yourselves, universities, the government and the research councils as the other major arm of dual funding provision, because it seems to me at the moment as if we are adopting an approach of letting the market take its course, *laissez faire,* if you like, which is very detrimental to the science base in this country. We have a Chancellor of the Exchequer standing up in Parliament quite regularly, including last week, saying, "I am putting more money into science. Science and innovation are the future for this country" and yet the dual funding mechanisms of the universities do not seem to be cooperating with one another to protect the science base.

Q56 Chairman: Is it just the market? We just have the market now and that is it?
Mr Egan: We do have a market but we are making interventions to try to address the very serious issues which this Committee is concerned with. We are making interventions in the demand and the supply side and we are working with the research councils to ensure that there is capacity in order to carry out

the research and produce the postgruaduates that this country needs. That is a joint scheme between ourselves and the research councils based on an analysis of the situation which we both agree on, so we are intervening. Yes, there is a market. There always will be a market but that is not enough.
Chairman: You can only intervene if somebody tells you something needs intervening on. You have no mechanism for doing that. We are very frustrated.

Q57 Dr Iddon: Do you have adequate intelligence together with the research councils about the strengths of all the departments you are funding in the universities? Do you do some horizon scanning to see where and which departments might be under such pressure that they may be announcing closures?
Mr Egan: We do not do analysis of the sort which says which are the likely departments to close. We do have regular meetings with universities and talk these subjects through and we expect a response on those lines. In this case, we did not receive that and that is something we need to look at to strengthen that process. I accept that criticism. There is analysis on a forward looking basis that we carried out with the research councils, for instance, looking at the age profile and demographics of academic staff within each of the discipline areas, saying, "What will happen if nothing happens to improve that?" We have a look at the trends in demand for particular subjects and say, "What will happen if we do not do anything to alter that?" Then we take action accordingly. We do not take action on our own. We work with partners. We have worked with the Chemistry Learned Society, the Institute of Physics and others so that we can develop schemes, for instance, that make interventions on the demand side.
Dr Lawless: I would like to present some intelligence on the market. I am a chemist and I have studied our market very well in the last two years. The market is for hard core chemistry programmes. We have slashed the number of degrees we provide to a fraction of what we provided—about four—and we have seen a sustained increase despite the slashing of these programmes. Applications for chemistry have increased 45% from 2003 to 2004, 27% for 2005 and 40% for 2006. Our market share of the national applications for chemistry has increased from 1.2 to 1.4 to now 1.8%. Overall, our university only has a market share of 0.8%. We are attracting high quality chemists to Sussex. It is not a question of supply; it is a question of demand now.

Q58 Dr Harris: On the issue of the market, you only intervene, I am told, in cases of gross market failure.
Mr Egan: Yes.

Q59 Dr Harris: Gross market failure sounds like something that is gross rather than something that is just a failure. You said you would intervene in the market. I am suggesting you should have made it clear that you only intervene in "cases of gross market failure". Is that a very high threshold?
Mr Egan: It is, because we believe that the higher education sector has performed well overall and that intervention carries risks as well as potential benefits.

Q60 Dr Harris: One chemistry department is never going to be a gross market failure, is it?
Mr Egan: I agree with you and that is the point that I was about to make. Gross can sound like acute—ie, a chemistry department closing—and that is the only time we get involved. That is not the case. What we have established here, prompted by this Committee and others as well as by the analysis we have carried out, is that there is a problem with chemistry. There was a 20% decline in student numbers and that needed attention and intervention. That is the kind of gross problem that I would refer to.

Q61 Dr Harris: You say you have a role as a broker to facilitate the provision of strategically important and vulnerable subjects. In fact, you say "only as a broker". How would you judge failure in that role?
Mr Egan: We would judge failure if the trends that we see in terms of the amount of graduates coming out of the system nationally rather than from the individual institution, or within a system within a region, were not to respond to the interventions that we made. In other words, if there was a continued decline in chemistry graduates or stem graduates, we would say that part of that responsibility must rest with us. That is not all down to us. That is our objective, to put right some of the problems we see at the moment in the stem subjects.

Q62 Dr Harris: You must recognise there is a problem therefore and that the closure of another department which is not big enough to be a gross market failure in itself is, three or four years later, going to have an impact on the metric you have chosen as your measure of failure. I am wondering whether your judgment of criteria for failure and your very high threshold for doing anything substantive other than informing the decline, if you like, with information is a mismatch.
Mr Egan: It is true that a closure of a department will reduce the supply of chemistry graduates as it did in Exeter. We can take mitigating actions to deal with that, as we did in Exeter, to ensure that the provision on the teaching side is maintained. We can work with the research Councils as we are doing to make sure that the provision on the research side is maintained. Every time a chemistry department is closed that makes it more difficult for us. By working at the demand side, we are effecting basic economics that will influence institutions' decision making as to whether or not to close the department. We are expecting those initiatives to come through as well.

Q63 Dr Harris: Do you know of any other closures in the pipeline?
Mr Egan: No.

Q64 Dr Harris: Are you planning to get involved in the Dean of Life Sciences review?

Mr Egan: No.

Q65 Dr Harris: You do not see yourself as having a role to play in this particular decision?
Mr Egan: The decision as to whether to close the department, to continue the department or to follow any of the other options is a matter for the institution itself. We are interested in ensuring that, whatever path it does follow, the interests of the students are maintained and that whatever action we need to take to ensure that the totality of provision of chemistry, particularly in the south east but also nationally, is maintained both in teaching and research.

Q66 Chairman: The closure of Exeter, Kings, Queen Mary's and Swansea and now Sussex does not come into your gross category in terms of four or five chemistry departments?
Mr Egan: I am not saying that that is not—

Q67 Chairman: I just wonder at what point you will become seriously concerned about chemistry in the UK.
Mr Egan: We are seriously concerned now, which is why we are taking the actions that we are taking. The individual institutions are autonomous bodies that have the right to decide for themselves what subjects they provide and whether or not to continue, expand or close any of those subjects.

Q68 Dr Turner: If an institution asked you for help, in the case of Sussex—I have no idea what the university asked you for a week before the proposed decision was announced—to keep a department going through a difficult time, what would you do and what were you asked? What do you offer to do?
Mr Egan: We would have a discussion with the institution and find out exactly what that meant and what help we may or may not be able to provide.

Q69 Dr Turner: What sort of help can you provide? I am finding it very difficult to pin you down, if you do not mind me saying so.
Mr Egan: The help we could provide is to say, "If you want to work in collaboration with another institution to ensure that you have a viable chemistry department" we may be able to broker that kind of arrangement.

Q70 Chairman: They do not need you for that. They can do that themselves. Loads of departments work together internationally.
Mr Egan: That is true.

Q71 Dr Iddon: Can I ask if you are aware of this report from the Royal Society of Chemistry which is now in the public domain? It has examined eight chemistry departments across Britain from a leading international five star department down to the lower RAE ratings. I do not want to précis this report but I will. What this report tells me is that, taking all the funding mechanisms that are in place to fund chemistry departments, particularly the dual funding mechanism, there probably is not a single chemistry department in Britain, certainly of these eight according to this report, that can paint a black line instead of a red line. In other words, sciences—it is not just chemistry in my opinion—and engineering with the very expensive workshops and laboratory facilities are not properly funded by the government through the dual support mechanisms. Are you aware of this report?
Mr Egan: Yes, I have seen that report. The teaching provision within institutions across a number of subjects is under-funded, using full economic costing. There is an issue which the government has addressed through substantial investments on the research side, making research sustainable and there have been many improvements there. For instance, the amount of money that has gone into chemistry on research since 2002 has gone from 39 million to 51 million, a substantial increase. There have been increases in the unit of funding, the absolute amounts that we have provided for chemistry, and of course there are increases due to the introduction of tuition fees along the way. We will be introducing, with the agreement of the sector now, the trac methodology to understand better the full economic costs, not just of chemistry but of all subjects, and that will give us all a much clearer view of what amount of funding is required in order to ensure that the individual subjects are sustainable into the future because, of course, people can make do and mend from one year to another but that will be at the expense of infrastructure.
Dr Iddon: Full economic costing is okay and I fully support the exercise you have gone through. It has highlighted the under-funding of science and engineering in Britain, but the problem is that if we are to exert full economic funding on industry they are probably going to go to Germany or any other country for the research because they are not prepared to provide the full economic funding, at least in the case of small and medium enterprises. They cannot provide the full economic funding and there lies a major difficulty for science and engineering in Britain, in my opinion.

Q72 Chairman: Professor Smith and Dr Lawless, could you comment as well?
Professor Smith: On the specific issue of full economic costing of commercial research?
Dr Iddon: This reveals a major problem now for British science and engineering.

Q73 Chairman: In higher education.
Professor Smith: There is a major problem of the under-funding of teaching and research across the whole spectrum of higher education. On the specific issue of the full economic costing of commercial research contracts, yes, it is an issue but it is not the policy under full economic costing that every commercial contract has to be priced at full economic costing. What universities are expected to do is to understand what the full economic costs are and then to do business in the market place in the light of knowledge of the full economic costs. That means that a university would be unwise to undertake a vast amount of commercial contract work at less than full economic costing because then

one is making a loss, but there may be strategic relationships or contract work that has academic spin-off effects or other situations where a university makes a decision that the market will not bear a price that covers full economic cost but it is nevertheless right for that business to go ahead.

Q74 Dr Turner: I would like to ask Alasdair and Gerry for their view on the thought that, while we agree it is clear that financial problems motivated these proposals, are these financial problems at the university specific to chemistry or are they the result of haemorrhaging of funds in other directions that give rise to red line problems in universities' accounts? Can you throw any light on that aspect?
Professor Smith: The proposals for chemistry are not driven by the overall financial position of the university. The overall financial position of the university is difficult at the moment. There is no secret about that, but we are planning to make, notwithstanding the financial constraints, a substantial investment in building up academic excellence in both research and teaching across a number of areas of the University's provision. The judgments about which areas to invest in are driven by academic judgments of which areas have the strongest potential to grow their strength in research and teaching. These options about chemistry are not driven by considerations of the overall financial position of the institution; they are driven by a sensible strategic policy of investing selectively in the strength.

Q75 Dr Harris: There is a question about the financial situation of chemistry at Sussex. Is it the case, as has been said, that the QR funding, for example, going to chemistry has been used effectively to subsidise other parts of the University, including very closely related to chemistry perhaps, which means that has put chemistry at a disadvantage compared to what they would otherwise have had it had the full share of the QR funding under the RAE that it had attracted? Dr Lawless?
Dr Lawless: Yes, that is certainly the case. This is not a financially driven proposal. Of the five departments of life science, we have one of the smallest deficits, circa 80K. The others deficits range from 120K to 300K. It is not a financially driven proposal. Alasdair is 100% correct.

Q76 Dr Iddon: Is your department getting all the QR funding that it would get as a five rated department from the RAE? Yes or no?
Dr Lawless: Not at the moment.

Q77 Dr Iddon: Do you know how much you are missing of that?
Dr Lawless: Approximately 700K.

Q78 Dr Turner: That is quite a large slice. That would pay for a lot of faculty.
Dr Lawless: Indeed.

Q79 Dr Harris: You do not think it would make a difference to the proposal because you are saying it is not a financially driven proposal.
Dr Lawless: Not at all.

Q80 Dr Harris: Whether or not you had the 700 would not, you say, make any difference. Is that what you are telling us?
Dr Lawless: No. The proposal is to invest in other areas of the University.

Q81 Dr Harris: The 700,000 that you are not getting of the QR funding that you have attracted, which is going to other areas, however legitimate, if you were getting that, it would not affect the judgment that the University has made in respect of this proposal because it is not about the financial viability of chemistry.
Dr Lawless: That is correct.
Professor Smith: I do not accept that interpretation. We have looked at the funding of all of our departments in a new resource allocation mechanism that is fully transparent. When in that model Chemistry is attributed with the full QR funding of £1.4 million that it currently gets on the back of the 2001 RAE, and when it pays its share of various central costs, Chemistry roughly speaking is in a small deficit or a small surplus, depending on how one attributes some issues. It is absolutely not a financial problem as far as the current year is concerned. When all of the QR funding for Chemistry is attributed to Chemistry, Chemistry on its current faculty is more or less at financial equilibrium. The real issue about QR funding is that, as I am sure you know, QR funding is related to the volume of faculty submitted in the last RAE. The number of Chemistry faculty at Sussex is now approximately half of what it was in 2001 and therefore, if there were no change in the funding per unit of quality and if Sussex Chemistry in 2008 were judged to be of roughly the same level of quality as it was in 2001, on volume alone, half of that QR grant would go. A major consideration for the University in thinking forward, as I am sure you agree universities ought to do in planning for the future, is that Chemistry at the moment is roughly speaking in financial balance but after the 2008 RAE it will lose three quarters of a million pounds of its current income.

Q82 Dr Iddon: That is where we get the figure of 800,000 from. Do you want to respond, Dr Lawless?
Dr Lawless: If that sum had been available since the last RAE and had been invested in Chemistry, we would have been able to make those appointments and we would have the volume factor that I was worried about losing in the next RAE.

Q83 Dr Iddon: Does the fact that the RAE is going to be slimmed down and therefore the metrics will presumably be altered, because they are going to be measuring the same metrics on a different approach

which we heard last week, make any difference to your planning for the next RAE. Is that a factor you will bear in mind?
Professor Smith: It is. However, looking at some of the key metrics in relation to Chemistry at Sussex the metrics would not encourage one to think that switching from the existing RAE to a new metrics based system would favour this. I believe a switch from a QR system based on RAE to a QR system based on metrics is likely to be systematically unfavourable to institutions like Sussex. That is, relatively small, research based universities.

Q84 Dr Iddon: Mr Egan, does it concern you that the QR funding that is identified with a department has systematically over the years, as Dr Lawless says, been used to support other areas causing, as he would see it, the risk to the department that leads to the potential vulnerability of this department? Are you relaxed about that?
Mr Egan: The money that we give to institutions for research is a block grant with teaching. It is for institutions to determine how they stand and allocate that money. In certain circumstances, it would be entirely appropriate for institutions to invest in one area and disinvest in another. Otherwise, you have an ossified system that is not dynamic that responds to the needs of its stakeholders. We believe that the institution is in the best place to make those judgments rather than us in the centre. Our approach is that institutions should make those decisions.

Q85 Dr Iddon: I am flabbergasted. Are you telling us that the department works its guts out for five, six or seven years to get itself in a five star or five position, to get itself the funding to be financially viable and then that funding can be awarded by a vice-chancellor or a Senate to another department and let that vital department collapse? That is what I am hearing.
Mr Egan: Yes.
Professor Smith: I do not think it would be sensible for the Committee to go down this route under a misapprehension. I simply do not accept what Gerry said, that in the past the QR grant was somehow being filched to support other activity. If I can repeat what I said about the current allocation of resources, when we transparently allocated to Chemistry all of its QR and all of its income from teaching, subtracting its share of central costs and so on, at the moment chemistry is roughly speaking in balance. Two years ago we had many more faculty, more or less the same number of students and the same QR grant. A little bit of simple arithmetic will establish that we had a much larger salary bill and larger research income. Research income, as this Committee well knows, does not pay the full costs of the research activity. We can be confident that if we work back a fully transparent budgetary model from this year, where chemistry is covering its costs, roughly speaking, to previous years we would find that in previous years chemistry had been in deficit, even allowing for the full QR grant being attributed to it. I do not accept that the QR grant has been taken away from chemistry.

Q86 Dr Turner: What about the income from IP and other sources? What is that income stream that is generated by the chemistry department for Sussex and how much of that does the department see? As far as I can tell from the accounts, it is 108,000.
Professor Smith: The IP income earned by the chemistry department is fully attributed to the chemistry department in our resource allocation system.
Dr Turner: I am told it is rather more than 108,000.

Q87 Dr Iddon: We are getting conflicting evidence on this. I am picking up vibrations from members of that department e-mailing me that the whole of the intellectual property earnings for the department, which I gather is probably the largest, if not the largest, IP income for University of Sussex, is not being credited to the department. We need to know as a Committee whether this is true or not.
Professor Smith: The table I have in front of me showing the detailed, full economic financial statements for chemistry for 2005–06 attributes £50,000 of income from intellectual property exploitation to the chemistry figures so they are included.

Q88 Dr Turner: What is the total figure that comes to the whole institution from IP that has been generated by the department? Gerry, do you know that figure?
Dr Lawless: Approximately, for one grant alone, half a million. The amount allocated to the chemistry department last year was 4K rather than 50K.
Dr Iddon: I wonder if we could sort this out because I have conflicting evidence here. I have heard that there is considerable intellectual property going into the university as a result of patents or whatever that chemistry has generated and that it is not feeding its way into the department. It is being used elsewhere in the university. That is what we are picking up. We need to be sure about that.

Q89 Chairman: Could you write to us on this?
Professor Smith: I would be very happy to do that.
Chairman: We are in a confusing situation and we need to have the answers. We will write to you with the questions.
Dr Turner: It would help if we had audited accounts.
Chairman: We will write to you with the information that we want.

Q90 Adam Afriyie: What evidence do you have that chemical biology will be more popular with students than chemistry?
Professor Smith: We do not expect that chemical biology will be more popular with students than chemistry. The proposal to focus chemistry onto areas of chemistry related to the biological sciences was a proposal driven by a belief that the University, for the reasons I have already talked about, was not

in a position where we could support a full, across the board Chemistry department. This seemed to be the strongest area in which to build research strength with a reduced student load. We never imagined that a chemical biology department would recruit students at the same rate that the chemistry department did.

Q91 Adam Afriyie: Is that your view?
Dr Lawless: Yes. We had approximately 350 applicants for chemistry and 15 for chemical biology .

Q92 Adam Afriyie: That is a major reduction in demand.
Dr Lawless: Five%.

Q93 Adam Afriyie: What is the evidence that employers are demanding graduates in chemical biology as opposed to chemistry?
Professor Smith: We have to wait and see because the direction in which Sussex has been looking in relation to the future of Chemistry is a direction that other institutions have also been looking at. Faced with declining demand for Chemistry degrees and difficulty in keeping a full scale Chemistry department going, different institutions have looked at different options. We do not yet have a very clear picture of how successful these options are. In the discussion at Sussex over the last few weeks, there have been some things said about the direction in which Exeter has gone, focusing its remaining Chemistry on areas related to biology. Some people say that has not worked; some people say it has. Kings College is also looking at going in that direction. It is a relatively new direction for institutions. I think it would be very helpful—Des noticed I got perhaps a bit over excited about the Royal Society of Chemistry earlier on in the discussion—if the Royal Society of Chemistry possibly supported by HEFCE or other otherwise, would ask on behalf of the wider academic community some hard questions about the future shape of chemistry. Is it really the case that if a university wants to maintain chemistry in the future it has to be in the traditional mode of having physical organic and inorganic chemistry; or whether there are ways of making more focused chemistry departments work by focusing in particular areas. The relationships between chemistry and biology are perhaps one of the most encouraging ways of going forward now.

Q94 Adam Afriyie: In a way, you are taking a bit of a punt here. If that is the case, fewer students and uncertainty about the demand in this area, what risk assessments have you carried out not just for the course in its own right or the department in its own right but, if this department fails—and there are some big risks here—what would be the impact on the rest of the university?
Professor Smith: The risks are manageable. We are looking here at a relatively small part of the university's provision. All the activities of a higher education institution are at risk. Student demand goes up and down. Research grant income goes up and down. RAE results are unpredictable. Some of them turn out better, some of them worse, than you expected. The scale of risks that would be associated with making a reduced chemistry operation focused on biological, biomedical science is containable within a reasonable university.

Q95 Adam Afriyie: Chemical biology is an interdisciplinary subject. How can you have an interdisciplinary subject if you do not have the core foundation of chemistry or biology underpinning it?
Dr Lawless: It is absolutely impossible. There is not a single example of such a department that merely delivers chemical biology. We have had numerous meetings with the RSC as the head of chemistry, with UK pharmaceutical groups, and there is a clear message out there. What they require are chemists, chemists with maybe an interest in chemical biology. In designing the chemical biology programme which I did, we had 75% of those courses delivered by chemists. The other 25% were by biochemists or chemical biologists. That is the market Chemical biology is chemistry but with an interest in biology or an application for biological problems.

Q96 Adam Afriyie: Judging from some of the comments that you have made, would you favour a complete closure of the chemistry department rather than this alternative? If closure of the chemistry department is on the cards, would you favour complete closure and not bother to open up this biological chemistry option?
Dr Lawless: No. I hope that within the next six weeks we will be able to come up with a very financially viable plan that allows a vibrant, young, forward looking chemistry department to exist at Sussex, because without it I fear that the university as a whole will suffer.

Q97 Adam Afriyie: You are hopeful?
Dr Lawless: I am very hopeful.

Q98 Adam Afriyie: Professor Smith, are you hopeful that you will have a vibrant chemistry department?
Professor Smith: I am always optimistic. If that were the outcome of the discussions over the next six weeks, I would be delighted.

Q99 Adam Afriyie: What role does HEFCE play in these discussions? Are they instrumental in whether or not chemistry survives?
Professor Smith: No. This is an issue we have to sort out for ourselves. HEFCE are very helpful in dealing with the cross-institutional issues when one looks at closure or major changes of programmes but institutions have to take the lead themselves in looking at making the kind of provision they want to have viable. If I can backtrack one step and draw attention to what I see as quite an important difference between chemistry and some other sciences, which is quite relevant to this discussion, lots of sciences are under pressure. You asked earlier about physics. Physics in Sussex has very successfully reshaped itself. It did so primarily when

five years ago it was faced with declining student numbers. It reshaped itself by completely withdrawing from some areas of physics. Sussex does not do any solid state physics or any material science. Physics in Sussex concentrates on astronomy, particle physics and atomic physics. The physics community is happy with that. It will look at the Sussex operation and say that it is specialising at the high brow end of physics; it is really good at it and that is fine. At least the initial response from the chemistry community to a proposal to focus chemistry in one particular area of specialism within chemistry is to hold up its hands in horror and say, "That is impossible: Chemical biology requires to be supported by the rest". If that is objectively the case, then it is objectively the case, but it does imply it seems to me that managing chemistry is inherently more difficult than managing the other sciences. The other sciences seem to be more flexible; issues of critical mass are less pressing. The traditional view of chemistry is, because we need the full range of chemistry in a functioning chemistry department and each of them needs to operate at a level of critical mass, a good chemistry department must therefore be a reasonably big department. That poses real challenges to institutions that are not recruiting enough students to support a big department. It is a more difficult problem than exists in physics. It would be quite good for the chemistry community to reflect on those issues and look hard at the question whether it is possible to look for the kind of flexible approach to excellence in teaching and research that has been achieved in other subjects.

Q100 Chairman: Surely if the academic leading this change—in this case it was the Dean of Life Sciences—says about the plans they are intellectually unviable and unworkable, you would simply drop it, would you not?
Professor Smith: No. We look at alternatives. The original plan for a department of chemical biology—

Q101 Chairman: That is now dropped?
Professor Smith: Yes, but we are still looking for other flexible solutions which would include solutions in which a reduced size of chemistry department focused on a more limited range of areas of chemistry.
Dr Iddon: I do not think you can directly compare chemistry with physics. We would support physics as well on this Committee. The fact is that chemistry, like engineering in a way, requires a lot of expensive space for its undergraduate and postgraduate laboratories. You mentioned astronomy and particle physics carried out at your university. Many of those physicists carrying out that kind of research go externally to do their work, to CERN or CCLRC facilities.
Chairman: I do not want to get into particle physics. It is bad enough with chemistry.

Q102 Dr Harris: The main point is that you are graduating students in physics, not astronomy, not astronomical physics, but physics. Gordon Brown has just announced that he wants 3,000 more science teachers. Presumably on the basis of what HEFCE's policy is, you are going to have to write to him and say, "You are not going to get that because the market is not interested." He can say what he likes. If the market is not interested in turning out science graduates, it is mere sloganising and aspiration, is it not?
Mr Egan: No. I have said that we will intervene in order to correct the market so that it can deliver what is required when we are able to do so. It is not always in our gift to do that. We have a series of joint schemes with the research Councils to increase the supply of—

Q103 Dr Harris: I understand that but I think you misunderstand my question. Your idea of the market is what the student demand is to study and what the sector supplies in terms of places. I hesitate to say it but I take perhaps a similar view to Gordon Brown. We should be looking at what the policy objective is in terms of the output for the UK, given that this is almost all taxpayer funded, and therefore the market—if you want to call it the market—is supposed to work to deliver that policy of stem graduates, not have a match of whatever students want being matched. You are more prepared, it seems to me, under the current policy—maybe the letter you get from the Secretary of State for Education tells you this and not your own view—to see policy failure than market failure.
Mr Egan: No, that is not the case. Where the market does not deliver the policy objective, I am suggesting that we would intervene in order for that policy objective to be achieved. In many cases the market is efficient and does deliver the policy objectives but in these cases, in the stem subjects, it does not.

Q104 Dr Harris: I have not seen a policy objective for media study student output. It may be that is what the market produces but I have not seen—and I do look at government policy—anything on psychology and media studies. I have seen year after year a decline in chemistry graduates for years and years. If you are now redefining that as failure as far as you are concerned, what have HEFCE been doing? I put it to you that you have only seen it in terms of matching student demand to places and you are not looking at what you should be looking at. Maybe your sponsoring department is not looking at it.
Mr Egan: I think we are looking at it in those policy terms. We are taking a number of initiatives in order to achieve those policy objectives. We are very pleased with the announcements that Gordon Brown made about the interventions in schools. That will have an important knock-on effect to higher education and will enable a throughput of students that will then take up postgraduate work and help with the academic supply of staff in stem subjects.

Q105 Dr Harris: There are some students who are not that well off and do not want to get into as big a debt as they might under current policies. They

might want to live near their university. If they live near the University of Sussex, if these schemes work, they will say, "Great. I am going to study chemistry and I am going to study at my home university. Oops, no. I cannot." Are not all your grand schemes to encourage student demand, if this department closes, shutting the stable door after the horse has died?
Mr Egan: If Sussex University closes its chemistry course, the availability of chemistry in that locality is reduced. What we need to do is to find other methods of individuals being able to pursue a chemistry career should they wish to do so. The options open to us are limited because we are not a planning body; we are a funding body. We cannot force any institution to teach a subject that it does not wish to.

Q106 Chairman: In 2004, the Secretary of State was quite clear that he was concerned about the closure of departments of strategic importance, particularly in the stem subjects. He made that absolutely clear. I think he asked HEFCE to do something about it. What you have said to us today is that you have no powers to do anything to intervene at all. You just allow the market to take place. If a university asks for help you will give it, but you have no way of diagnosing what is going on within the whole system. When the Chancellor of the Exchequer says he wants 3,500 more science teachers, it is purely at the whim of the market as to whether that is going to happen. Sussex can close its chemistry department and we will lose the ability to train future chemistry teachers to graduate level. You seem to be totally powerless to do anything about that. Is that yes or no?
Mr Egan: It is not a simple yes or no. We cannot force institutions to teach subjects that they are not willing to teach.

Q107 Chairman: You have not done anything.
Mr Egan: We have taken a wide range of measures in order to mitigate the effects of the market that are not producing the policy objectives that this country needs.

Q108 Chairman: Do you need more powers?
Mr Egan: If we had more powers, we would be able to intervene.

Q109 Chairman: Would you like more powers? We will give you the job if you answer this right.
Mr Egan: In certain circumstances, yes, we would.
Professor Smith: The issue is not about whether HEFCE have the right powers but about the kind of policy intervention needed in order to address the fundamental issue we are looking at here, which is not about whether one particular department in one particular location should be opened or closed. It is an issue about the demand for places in the subject. There are a wide range of policies which the government has adopted in recent years, for example, in relation to attracting students into teaching, that are the right kind of policies because they are policies to attract students into these subjects and into teaching these subjects. I thought it emerged rather clearly from your previous analysis of these issues that that is the kind of policy intervention that we want to have, policy intervention that encourages more students to come into these subjects. That is where we want to focus rather than focusing on whether HEFCE should or should not intervene in the supply of provision. It is student demand, not provision of supply, that is the real issue.
Dr Lawless: I would like to reassure Dr Harris that applications for media studies are down 10% this year. Applications for psychology—

Q110 Dr Harris: I am not going to cheer because the media are present.
Dr Lawless: Applications for psychology are down 6%, whereas applications for chemistry are up 6%.

Q111 Dr Turner: I did trace almost a hint of optimism a little while ago. Gerry, what sort of size do you think the chemistry department can be reconstituted to, albeit with a few biological tinges, which will not stretch the university's own finances? What size would that department be? Can I ask Alasdair to tell us whether he is not determined—perhaps he is determined—to downsize chemistry and whether he would be prepared to back such a proposition if it emerges, bearing in mind that if it is going to work it has to have long term commitment from the university?
Dr Lawless: A department comprising 23–25 academics would be viable financially. You are absolutely right. Without commitment on the part of the university to long term sustainability, we would be wondering from one year to the next whether we were the next to shut this year, the following year and the year after. Yes, there would have to be some commitment on the part of Alasdair to something long term, provided it was a financially robust plan. We are not asking for charity here. We are saying, "We will present you with a financially viable plan for chemistry. Will you accept it?"
Professor Smith: Des, you are not going to expect me to accept a plan I have not seen yet?

Q112 Dr Turner: Assuming it is a financially viable plan.
Professor Smith: It would have to be compared with proposals from other parts of the university for investment. A plan to invest 10 additional posts now into chemistry to take it from its current size to the size that Gerry would like to see in one step would be most unlikely to be feasible because it would deprive us of the opportunity of making significant investments in other areas of provision within the sciences. If the plan that comes forward is a more phased plan that gets there eventually, then yes, we could look at it.
Dr Lawless: I was not proposing any disinvestment in other departments at all. I was proposing that the income for these posts would be sought outside the normal university funding.

Chairman: On that note of relative harmony where this plan will emerge in the next few weeks for all and sundry to look at, could I thank you enormously, Mr Egan, Dr Lawless and Professor Smith, for what has been an interesting and enlightening session. I hope you have enjoyed it as much as the Committee has. Thank you for being so honest and for keeping your temper whilst the questioning has been going on.

APPENDIX 1

Memorandum from the University of Sussex

INVESTING IN EXCELLENCE AT SUSSEX

SUMMARY

The University of Sussex has been developing strategic proposals to invest in excellence in research and teaching. These plans are driven by forward-looking academic strategy, informed by a firm understanding of the University'sunderpinning financial position.

This note sets out:

— the context for the development of those plans;
— the overall position for investment plans at Sussex;
— the changes originally proposed for Life Sciences (including chemistry);
— the next stages in reviewing those plans;
— commentaries (supported by statistical information in the tables) on the research, staffing, student recruitment and financial position of the department of chemistry; and
— communications and media handling around this planning process.

1. *Context for the strategic planning process*

The University of Sussex has over the last 6 months been putting in place a new strategic planning process for the long term academic and financial health of the University. That process focuses on academic excellence in teaching and research, within a framework that is financially robust and sustainable. The planning process and resource allocation model were approved by the University's Senate and Council in December 2005.

The approach is explicitly evidence-based, looking for example at research performance, teaching performance, student recruitment, third stream income and financial performance. The process is supported by a new resource allocation model, which allocates income earned and costs incurred to Schools and departments, clearly and transparently, and incentivises performance improvement.

The plans which have been created are based on key principles which Senate and Council approved including:

— investing in areas of excellence in teaching and research, and disinvesting in areas of relative weakness;
— continuing and strengthening our position as a research-led institution;
— maintaining a broad-based position across the sciences and the arts;
— identifying and removing unplanned cross-subsidy between subject areas; and
— increasing our income from non-HEFCE sources, to strengthen our academic mission.

In line with the approved planning process, over the spring term, Deans for each school working with members of the Vice-Chancellor's Executive Group (VCEG) started to create academic development plans, after taking a comprehensive evidence-based look across all academic activity at Sussex.

2. *Academic development plans*

Outline plans for the future academic size and shape of the University—showing areas for investment and development and areas for reduction or removal of activity—were presented on 10 March to the new Strategy and Resources Committee, which included members of Council, members of Senate, Deans and the President of the Students Union. Those plans were approved by the SRC and then presented to Senate on 17 March 2006.

The University's plans proposed to make an immediate investment to start recruitment from April to 40 academic posts across a range of subjects in which Sussex is a strong and leading institution nationally—in areas such as English, history, media, music, the biosciences, psychology, informatics, maths, engineering, education, international and development studies, and economics.

The University plans to make a further investment across the University to bring in staff in 35 posts, with recruitment starting from the late summer in areas of strength and excellence. This is contingent on making savings in each School, which across the University as a whole would be equivalent to around 45 posts. We would look to make changes as far as possible on a voluntary basis.

The Senate endorsed proposals for the strategic direction of investing in excellence and the plans to strengthen our teaching and research. The proposals going to Council on 24 March include plans to press ahead with significant immediate investment in posts across the arts and sciences.

3. *Proposed changes in relation to Life Sciences, including chemistry*

The plans presented to Senate on 17 March also included proposals to focus the work of the Department of Chemistry in the areas of chemical biology and organic chemistry—areas in which we have strong research activity—and, from October 2007, to rename it as the Department of Chemical Biology.

The Senate proposed to Council that Sussex should hold off making decisions on plans in relation to the School of Life Sciences—including the planned additional investment in Biochemistry, Biology and Environmental Science, Psychology, Genome, and refocusing the Department of Chemistry.

The Dean of Life Sciences will now be working with his academic colleagues, in consultation with staff and students, and with external advice, to look urgently at and review all the options for the way forward across Life Sciences which will be presented to future meetings of Senate and Council.

The aim is to have this review completed in the next 6–7 weeks, and to call a special meeting of Senate near the start of the new academic term.

4. *Initial proposals for focussing on chemical biology*

The committee will want to understand the context and intention for the initial proposals to retain chemistry at Sussex which were presented to Senate on 17 March.

Our strong research position across the biosciences should ensure that we can continue to develop leading-edge research and teaching in this field, alongside the research we undertake in our department of Biochemistry and our world-leading Centre for Genome Damage and Stability.

Chemical Biology is a leading area of development at the interface between chemistry and biology where exciting new opportunities exist. Chemical Biology seeks to employ chemical techniques to answer biological questions and to develop new small molecules to intervene in biological processes.

We have recently made four new appointments in this area. Research applications totalling over £1 million are being made from this Chemical Biology grouping at Sussex.

We also have strong possibilities for developing the intellectual property within our current Chemical Biology research, since these are areas-where potential real world applications in health and medicine abound.

In relation to teaching programmes, alongside our new Chemical Biology degree we had been considering the scope for new programmes in areas such as Pharmaceutical Chemistry or biomolecular science.

Potential academic developments of this kind will have further discussion and scrutiny as options are reviewed for the way forward for chemistry at Sussex.

5. *Position of chemistry at Sussex*

Chemistry at Sussex has an outstanding academic history, having had two Nobel prize winning members and a five rating in the Research Assessment Exercise (RAE) for 2001. The current research position for Sussex is set out in tables 1 and 2—showing changes in research income and research metrics from RAE 2001 and currently, with national comparisons.

We have lost some leading researchers to larger Chemistry departments in recent years, which is reflected in the decline in research income and in the number of research only staffing contracts. Sussex now has a relatively small department (14 academics) with a small student intake (around 20 new undergraduates per year). Fuller information on the staffing position at Sussex is set out in table 6.

Nationally, Chemistry is a difficult recruitment area at undergraduate level, reflected in the decision by other leading research universities to make changes to Chemistry provision in recent years, including Exeter, Kings College London and Queen Mary's, London, and Dundee. Sussex's undergraduate numbers for chemistry compared to other universities is set out in table 5a.

While applications have shown a welcome growth this year, due to a lot of hard work and effort by chemistry admissions team, combined with our league table standings, there is no guarantee this would lead to sustained and viable numbers in the department. Despite a rise in applications each year over the last three years, we have seen final intakes admitted—ie numbers of students finally deciding to come to Sussex and meeting our final offer levels—stick at around 20 each year.

Our league table standings of course reflect underlying quality at Sussex, but are boosted by the low student-staff ratio in chemistry which is a product of low student intake numbers. Further detail on Sussex's student numbers at undergraduate and postgraduate level in Chemistry is set out in tables 3, 4 and 5. (table 3 not printed)

Extensive financial commentary on the position of chemistry is set out in section 6 below and in tables 7 and 8 (not printed).

However, a key financial dimension is that, despite the RAE rating of 2001, even if we were to achieve a similar rating in the 2008 RAE, and there is no certainty we would do so, the smaller size of our staff numbers submitted is expected to impact significantly on subsequent funding, and reduce sustainability.

Overall, retaining a chemistry department in its present form, operating across the full discipline, would cost us an extra £750k with no guarantee of long-term success in recruitment or research activity.

6. Financial Considerations Behind Decision to Restructure Chemistry

The financial background

Before addressing the detail of the current position of Chemistry it is necessary to look at the recent financial history of the subject, which is shown in summarised form in Table 7. (not printed)

However, there is a number of health warnings that should be taken into account when reading this table;

- The figures included in Table 7, (not printed), are those represented in the Management Accounts of the University, and therefore exclude accounting adjustments; they are not therefore easily reconcilable to the Higher Education Statistics Agency return for the Chemistry cost centre, but we believe give a more accurate picture of the financial position of the department.
- Chemistry has never been a stand alone budgetary unit at Sussex, but has always been part of a larger unit—Chemistry, Physics and Environmental Science (CPES) until 2003–04 and since then the School of Life Sciences (which, in addition to Chemistry, includes Biochemistry, Biology and Environmental Science, Psychology and the Genome Damage and Stability Centre). Whilst every attempt has been made to allocate costs and expenditure appropriately to the subject group, the need to formulaically allocate costs held at School level may lead to immaterial inaccuracies at the edges.
- There have also been three changes in the methodology used to allocate the HEFCE block grant funds received by the University to the subject group over this period (through the "Resource Allocation Model", or "RAM"); a minor tweak in 1997–08, a more major overhaul in 2003–04 to tie in with the establishment of the new Schools at Sussex, and a fundamental review of the model that has been implemented in shadow form for 2005–06 (and is shown for 2005–06 in Table 8) (not printed).

Ignoring the "allocation" figures for 2003–04 and 2004–05 (as they are based on a very different methodology to the other years), then the overall picture for the past ten years is one of declining student income (which accounts for the majority of the changes in the University's allocation over this period—the HEFCE Research element (QR) has stayed fairly level at £1.2 million—£1.3 million) and rising research income until 2001–02, followed by a decline as the number of academic staff reduce (evidenced in this table by the Academic Staff Expenditure line).

Other staff expenditure (mostly technicians, but also some administrative staff) has not fallen to same extent in real terms, indicating that the support costs of the department have not reduced in line with declining activity. However, non-salary costs have fallen as financial realities have become clear to budget holders over this period.

2005–06 Resource Allocation and Full Economy Statement

The Strategic Review undertaken by the University during the academic year 2005–06 necessitated the development of a new Resource Allocation Model to enable University management to gain an indication of the true financial position of each of the academic departments. This model has not been used to make actual budget allocations for 2005–06, but it will be implemented in full from 2006–07.

The new model allows a transparent and consistent way of allocating resource to departments and schools. It is heavily informed by the *way* in which money in block grants and fees has been earned by individual areas of the University. Thus departments are credited with fee and HEFCE grant income based on the student load taught, and QR research income is allocated according to the way in which the total sums granted have been calculated by HEFCE; likewise, costs for support and services are based on the volume of

space used, and the numbers of staff and students serviced within the department. The model has been endorsed by University committees and academic and non-academic managers in allowing a shared view of the performance of departments and schools to be created.

In addition to the RAM allocation, departments are credited with directly earned income, principally research grants and contracts, consultancy and other services rendered, and charged with the direct costs of those activities.

Collating this information in a robust process has allowed the University to consider the financial performance of departments and schools for 2005–06 as if we had used the RAM to set budgets for the current year. Furthermore, known changes, (such as new courses which are still growing, staff retiring or returning from research leave and so on) have been included in the assessment of financial health.

This assessment of financial performance was aggregated into a "Full Economy Statement"; the statement for Chemistry has been attached as Table 8, (not printed). The figures for 2005–06 indicate a deficit of around £84,000. This figure does not include Chemistry's contribution to teaching and administration on the successful Premedical course, or income that the University receives from patents filed on behalf of members of the Chemistry department (currently £50k a year, and likely to continue at this level until 2007–08).

The future

Strategic decision-making does not just involve looking at the current position, and the University must react to known future changes. In the case of Chemistry the largest impact is in the fact that in arriving at the financial position above, the department is credited with the annual QR grant received in 2005–06 relating to Chemistry, which in total amounts to £1.2 million. This is largely based on 24.16 FTE staff returned in the Chemistry Unit of Assessment at the 2001 RAE, which received a Grade 5.

However, we know that there are currently only around 12 staff who may be returned to the RAE in 2008. Leaving aside changes in the profiling of departments in RAE 2008 and the possibility that grading or funding for the same grade may vary from RAE 2001, this leaves the University with a difficult reality to face.

— Assuming the same grade and funding regime, but reduced volume, the University would stop receiving up to £750,000 per annum from 2009–10. This would turn a £84,000 annual deficit into a deficit of over £800,000 per annum. (It is arguable that a small Chemistry submission representing only current staff numbers would be proportionately worse than this pro-rata reduction, since the perception of a small department in terms of esteem and other metrics would be less favourable compared to larger competitors. This situation means that the University does not believe that such a submission is tenable and the University would be better advised to include relevant staff in other RAE Units of Assessment such as the Biochemistry panel of the Biological Sciences unit of assessment. Thus this financial outcome is in practice likely to be an over-optimistic and a hypothetical one, but one which can be costed).

— Alternatively, it is theoretically possible that the University could choose to increase its academic staff volume back up to RAE 2001 levels. Replacement academic staff would need to be taken on with research profiles at the same senior levels as those who left. A conservative estimate of the additional cost per annum of such posts would be in the region of £750,000; it would be highly likely that expensive equipment set-up packages would be required to entice staff to Sussex, further adding to the costs (leaving aside the issue of how easy it would be to attract staff to a small Chemistry department with a small UG population before the October 2007 deadline for RAE submissions). This alternative strategy would leave the Chemistry department alone with a deficit again of some £850,000 per annum, after making the assumption that the existing QR allocation could be defended and retained through such a strategy.

— Both strategies even if feasible would therefore mean that the Chemistry department would be a significant deficit department and require substantial cross-subsidy from other academic areas of the University.

Indeed, it is argued that irrespective of the scale of the deficit arising (such numbers are to an extent a function of assumptions and are not exact, although they do give an important indication of scale and direction), the decision to persist with a mainstream Chemistry offering would be untenable at the current stage of the University. Making available £750,000 per annum (ignoring one off set-up costs) to invest in one department would require a large proportion of the funds the University has available for investment. In addition the Chemistry department which we would be choosing to invest in has low student intakes and in a discipline which has been found to require large volumes of staff, students and research to function at the highest levels of international excellence in terms of staffing and infrastructure. Ultimately, though informed by financial background, the decision to refocus Chemistry is a strategic one informed by the financial impact of the various options on what to do about the impending fall in QR income from our current position. The decision to refocus arises from the difficult choices on how to best invest the relatively small sums available to us for the best impact on the academic future of the University as a whole.

The University's proposal has sought to retain as much of the existing Chemistry operation is feasible in academic and financial terms. Risks will remain depending on staff retention and development of student numbers in different areas. However, the plan being promoted to Senate and Council replaces the vulnerability of the University to a major decrease in income and / or increase in costs with a smaller risk. The proposed strategy builds on research strengths and links with other Sussex areas of scientific excellence and continues to develop and expand the ground-breaking Pre-Medical Foundation course.

7. Impact on Staff and Students

We are of course supporting staff and students through any changes in this department. As noted above, there are currently 13 academic staff in the Department, a number of technical and support staff, 20 undergraduate students in each year, 6 taught postgraduates and 33 PG research students on the books. We are committed to providing a full teaching programme for all current students on our chemistry undergraduate and postgraduate degrees within the department through to successful completion. We are also committed to admitting a final intake of students in October 2006, although if proposals for change were approved this would be the last cohort taking mainstream chemistry degrees.

The University has been actively working with HEFCE and in discussion with UCAS to ensure that plans are in place nationally to support staff and students through whatever changes might ultimately be agreed in relation to chemistry provision at Sussex.

8. Communications Process

The University's fundamental approach to communications for the whole planning process has been to ensure throughout that staff and students are informed about developments and that no statements or information are made available externally before they have been presented to staff and students. As far as this has been in the University's control, this has been successfully done.

Information about the new strategic planning process and the resource allocation model were taken through working groups and committees in the autumn term and discussed in full and approved at Senate and Council in December. Information about the process was presented to staff and students through the Bulletin and the badger in December and during the spring term.

The proposals in relation to specific academic plans were developed on an informed but confidential basis. The reason for this was that options for change across all departments were considered and open discussion of changes could have undermined staff and students in departments where the final proposals were for academic development and investment.

The University is pleased that it managed the process in such a way that information was not released or leaked prior to the meeting of the Strategy and Resources Committee— a committee which included Council, Senate and student representatives. Once the committee had considered the plans— and approved them— the proposals in relation to chemistry were presented to staff on Friday 20 March at 1 pm, literally as soon as the SR committee had met. Current students were then immediately informed and invited to meetings in the following week.

On Friday evening, information was sent to academic and professional services managers across the university and school plans available to be presented to Schools by their Deans.

Open meetings had been arranged to be held for staff on the next working day (Monday 13 March) and on the day before Senate (Thursday 16 March). The full SRC report was due to go live on the internal website from Monday 13 March for access by Sussex staff and students.

Briefing discussions with the Students Union were also held, supplementing the full access and briefing which President had had as a member of the committee.

School meetings were also arranged at which plans for the schools were to be presented, as well as management discussions with VCEG and the School management groups. Throughout, the campus trades unions have been kept informed and involved with the process.

Information was also sent immediately on Friday evening to students who had applied to study chemistry at Sussex and had received offers from the University, explaining what the position was and the next steps in the decision-making process inside the University and offering them a named contact to call. The purpose here was to ensure that potential students and their families did not first read about proposals in the press, should the news be leaked.

In relation to the wider community, letters were immediately sent on Friday to local MPs, councils and other bodies explaining the position and offering to provide further information. Calls were also placed to a number of individuals including former staff and to the Royal Society of Chemistry.

9. Press reporting

On evening of Friday 10 March, following the first meeting with chemistry staff, the University received a call from a national daily newspaper asking about restructuring plans in relation to chemistry. We had a press notice ready to release, but the newspaper decided it was past deadline and we did not release the statement.

On Saturday morning we received a call from the press association saying they had seen a press statement from the Royal Society of Chemistry reporting rumours about the closure of chemistry, and strongly criticizing that decision if true.

Calls from Sussex to the Royal Society of Chemistry press officer revealed that the RSC had on Friday issued a press statement without any notice or discussion with the University. The RSC press office were unable to send a copy to the University, but read the statement to the University.

Faced with a partial public statement from the RSC, the University immediately placed fuller information on the internal website for Sussex staff and students and then issued a statement to those media outlets which had contacted us (PA, Sunday Times, Observer, Mail and Sunday Telegraph) setting out our position in relation to the investment plans and the position in relation to chemistry.

Thankfully, because we had actively communicated first with our own staff and students, and with student applicants, we were able to ensure the Sussex community received a clear picture from the University, could access initial information on the website and had access to full information internally from Monday. However, because of the speed of events over the weekend, precipitated by the RSC statement, some staff and students first read information in the press.

The approach taken by RSC to release partial and misleading information unchecked with the University and without consideration or reflection as to its impact on staff, students and potential students is at best thoughtless.

March 2006

Annexes: Summary of Factual Information

Attached to this document are annexes which set out detail on the research position of chemistry at Sussex, student intakes and applications, staffing numbers and the financial position of the department.

Research position

— Table 1: research income for chemistry at Sussex 2000–01 to 2004–05.
— Table 2: research indicators for chemistry at Sussex.

Student numbers

— Table 3: undergraduate applications admissions 2001–2006 (not printed).
— Table 4: chemistry student numbers 2000–01 to 2005–06.
— Table 5: chemistry HEU intake 2000–01 to 2005–06.
— Table 5a: full-time first degree chemistry numbers at UK HEIs.

Staffing numbers

— Table 6: chemistry faculty numbers 2000–01 to 2005–06.

Finance

— Table 7: summary chemistry income and expenditure 2000–01 to 2004–05 (not printed).
— Table 8: full economy statement for chemistry 2005–06 (not printed).

Table 1:

CHEMISTRY RESEARCH INCOME (£000s)

	Sussex	*UK*	*Sussex as %UK*
2000–01	**2,149**	110,191	2.0
2001–02	**2,425**	119,788	2.0
2002–03	**2,380**	121,853	2.0
2003–04	**1,557**	121,116	1.3
2004–05	**809**	120,000	0.7
% change	**−62%**	9%	

all data from HESA, UK 2004–05 estimated

Table 2:

CHEMISTRY RESEARCH INDICATORS

RAE 2001

SIZE

Sussex submitted 33 staff and was awarded a grade 5

Five of the 33 staff FTEs were not on general funds and 2.8 were Environmental Scientists

OUTCOME NATIONALLY FOR CHEMISTRY

6 departments graded 5*—minimum size 31.8 FTEs (UCL), maximum 69.8 (Oxford)

13 departments graded 5—minimum size 21 (UEA), maximum 47.1 (Leeds)

15 departments graded 4—minimum size 12 (Swansea), maximum 41.5 (Strathclyde)

9 departments graded 3a—minimum size 10 (Nottingham Trent), maximum 26.6 (De Montfort)

2 departments graded 3b

Metrics for Sussex (per submited staff FTEs)	*value at RAE*	*putative rank at RAE01*	*putative grade band*	*value now*	*putative rank at RAE01*	*putative grade band*
PGR FTEs	2.6	22	upper 4	2.5	26	mid 4
research grant income (£k)	63.0	24	upper 4	55.5	30	lower 4
RAs	1.2	15	lower 5	0.7	32	low 4
	33 staff submitted			assumes 13 staff submitted		

VOLUME FOR QR FUNDING

	Sussex			*national total for all grade 5 depts*			*national total for all grade 5* depts*		
	2002 QR	*2005 QR*	*% change*	*2002 QR*	*2005 QR*	*% change*	*2002 QR*	*2005 QR*	*% change*
RAs and RFs	44.6	19.2	−57	481	460	−4	522	512	−2
Fundable HEU PGRs	34	36.5	7	644	861	34	508	784	54
Charities research grant income (£k)	234.6	125.9	−46	3149.6	4933.8	57	1981.9	2455.3	24

2005 QR based on 2003–04 and 1 December 2004 data note, RAs and RFs currently under 10 FTEs.

Table 4:

TEACHING LOAD ON CHEMISTRY DEPARTMENT (total FTEs)

	Sussex				*UK*				*Sussex as % UK*	
	UG	*PGT*	*PGR*	*total*	*UG*	*PGT*	*PGR*	*total*	*PGR*	*Total*
2000–01	140	14	59	213	15,566	613	3,880	20,059	1.5%	1.1%
2001–02	105	7	51	163	15,755	676	3,865	20,296	1.3%	0.8%
2002–03	109	6	47	162	14,310	711	3,736	18,757	1.3%	0.9%
2003–04	85	4	45	134	13,674	765	3,687	18,126	1.2%	0.7%
2004–05	78	2	32	112	13,500	775	3,650	17,925	0.9%	0.6%
2005–06	90	6	32	128	13,250	800	3,600	17,650	0.9%	0.7%
% change	−36%	−57%	−46%	−40%	−15%	31%	-7%	-12%		

Sussex data as per 1 December 2005 censuses, UK data from HESA (2004–05 and 2005–06 estimated).

Table 5:

CHEMISTRY HEU UG INTAKE

	Sussex	*UK*	*Sussex as % UK*
2000–01	**43**	3,312	1.3
2001–02	**29**	3,059	0.9
2002–03	**35**	3,045	1.1
2003–04	**23**	3,042	0.8
2004–05	**21**	3,080	0.7
2005–06	**21**	3,464	0.6
% change	**−51%**	5%	

Sussex data as per 1 December 2005 censuses (ie what we are funded for), UK data degree accepts from UCAS.

Sussex includes Chemical Physics

Table 5a

FULL-TIME FIRST DEGREES BY INSTITUTION AND SUBJECT OF STUDY 2003–04

		Chemistry
1	The University of Oxford	645
2	The University of Central Lancashire	460
3	The University of Bristol	455
4	The University of Strathclyde	405
5	University of Manchester	400
6	The University of York	370
7	The University of Leeds	365
8	The University of Nottingham	350
9	The University of Edinburgh	325
10	Imperial College of Science, Technology & Medicine	295
11	University of Durham	280
12	The University of Sheffield	280
13	The University of Birmingham	275
14	Queen Mary and Westfield College	265
15	University College London	240
16	The University of Glasgow	240
17	The University of Warwick	230
18	The University of Bath	225
19	The University of Huddersfield	215
20	The Manchester Metropolitan University	215
21	The University of Newcastle-upon-Tyne	210
22	The University of Manchester Institute of Science & Technology	200
23	Cardiff University	200
24	Heriot-Watt University	200
25	Loughborough University	195
26	The University of Northumbria at Newcastle	175
27	The University of Hull	165
28	The University of Southampton	160
29	The University of Exeter	155
30	The University of Liverpool	145
31	The Nottingham Trent University	145
32	University of Wales, Swansea	145
33	The University of Leicester	125
34	The University of St Andrews	125
35	London Metropolitan University	120
36	The University of Surrey	120
37	The University of East Anglia	110
38	King's College London	105
39	The Queen's University of Belfast	105
40	The University of Aberdeen	100
41	The University of Sunderland	90

		Chemistry
42	The University of Reading	85
43	Sheffield Hallam University	85
44	Liverpool John Moores University	80
45	De Montfort University	75
46	Kingston University	75
47	The University of Plymouth	75
48	University of Wales, Bangor	75
49	Coventry University	70
50	The University of Brighton	65
51	Aston University	55
52	The University of Kent	55
53	The University of Sussex	55
54	University of the Arts, London	50
55	University of Glamorgan	50
56	The University of Bradford	45
57	The University of Keele	45
58	The University of Wolverhampton	40
59	Glasgow Caledonian University	40
60	The University of Paisley	40
61	The Robert Gordon University	30
62	Edge Hill College of Higher Education	25
63	The University of Salford	25
64	The University of Dundee	25
65	The University of Greenwich	20
66	The University of Lancaster	20
67	University of the West of England, Bristol	20

In this table 0, 1, 2 are rounded to 0. All other numbers are rounded up or down to the nearest 5.

Table 6:

CHEMISTRY FACULTY NUMBERS

	Sussex			*UK*			*Sussex as % UK*		
	T&R	**R only**	*total*	*T&R*	*R only*	*total*	*T&R*	*R only*	*total*
2000–01	21.3	**49.8**	71.1	1,565	1,558	3,123	1.4%	3.2%	2.3%
2001–02	18.3	**35.6**	53.9	1,508	1,525	3,033	1.2%	2.3%	1.8%
2002–03	15.7	**30.1**	45.8	1,446	1,524	2,970	1.1%	2.0%	1.5%
2003–04	13.3	**19.2**	32.5	1,284	1,517	2,801	1.0%	1.3%	1.2%
2004–05	11.3	**8.3**	19.6	1,250	1,500	2,750	0.9%	0.6%	0.7%
2005–06	11.7	**9.0**	20.7	1,200	1,500	2,700	1.0%	0.6%	0.8%
% change	−45%	**−82%**	−71%	−23%	−4%	−14%			

Sussex data as per staff records/Research Activity Survey returns, UK data from HESA (2004–05 and 2005–06 estimated).

APPENDIX 2

Supplementary evidence from HEFCE following Evidence session on Monday 27 March 2006

What specific steps did HEFCE take to seek to protect the supply of chemistry places in the south east following notification from the University of Sussex of its proposed restructuring of chemistry provision?

1. We were informed by the University of Sussex on Thursday 2 March 2006 about its plans for the restructuring of Chemistry. Our regional consultant for the South East of England, and the University of Sussex, had an initial conversation with the University Registrar on 3 March 2006, followed on Thursday 9 March 2006 by a visit to the University.

2. In order to maintain chemistry provision in the South East of England we contacted three other universities in the region and reached a provisional agreement with them that will ensure no loss of capacity of overall student undergraduate numbers in the region whatever the outcome of the review of chemistry at the University of Sussex.

3. For the academic year 2004–05 in the South-East region of England there are 405 home full-time first degree entrants to single subject chemistry and combined courses which include chemistry as a named subject. Of these 405, the Department of Chemistry at the University of Sussex currently has 20 undergraduate students in each year.

What written guidance has been provided by HEFCE to universities on the consultations that they should undertake in the event of proposed closures or restructuring of departments?

1. HEFCE published in June 2005 the Report of the Strategically Important and Vulnerable Subjects Advisory Group chaired by Sir Gareth Roberts. This Report strongly supported HEFCE's role as a broker to sustain or develop human and/or physical capacity within higher education and that this role should be further enhanced (see Annex A for an extract from the Report HEFCE 2005/24). The Report argued that this approach relied on heads of institutions having informal early discussions with HEFCE when considering closing departments in strategically important subjects. The group preferred this option to the formal 12-month notice period recommended in the 10 Year Science and Innovation Investment Framework.

2. HEFCE did not issue direct written guidance. Rather it worked with the sector's representative bodies (Universities UK and the Standing Conference of Principals—SCOP) to discuss the best way of implementing this approach. We were concerned to ensure that our interventions did not create greater turbulence and that we should act informally as a broker, respecting institutional autonomy while seeking to secure the supply of provision in strategically important and vulnerable subjects.

3. As a result of these discussions, Universities UK and SCOP wrote to their members on 30 September 2005 (copy of Universities UK letter attached as annex B). Subsequently, HEFCE staff reinforced the voluntary approach message in meetings with the Regional Associations. Generally, the sector has welcomed this approach and has followed the advice. In some cases, issues are raised as part of the meetings between by HEFCE regional teams and the senior management teams of higher education institutions. With the appropriate notice, the HEFCE is able to analyse the issues, take account of nearby provision, and, if necessary, engage in discussions with neighbouring institutions to secure the supply in the region. Where appropriate, discussions are also held with the Regional Development Agency to see whether they wish to work with the HEFCE on a joint intervention.

4. At the Committee hearing on 27 March 2006 our Acting Chief Executive, Steve Egan, said that in certain circumstances we may want planning powers. Those circumstances would be if we could not rely on higher education institutions to work with us at an early stage in the development of their thinking to ensure adequate provision of a subject at a regional or national level. We believe that we should be able to gain assurances from higher education institutions that this should happen. We will work with the sector to see how we might strengthen the existing voluntary guidance. If, as we suspect, we are successful then there would be no need for further powers.

March 2006

Annex A

Extract from the Report of the HEFCE advisory group on Strategically Important and Vulnerable subjects, chaired by Sir Gareth Roberts, June 2005 (HEFCE 2005/24)

ACTION TO SUPPORT SUPPLY

31. The group strongly supports HEFCE's role as a broker to sustain or develop human and/or physical capacity within HE. This role should be further enhanced. This relies on heads of institutions having informal early discussions with HEFCE when considering closing departments in strategically important subjects. Individually, plans may be well considered, but there may be a role for HEFCE to act as a broker, for example, if two HEIs were considering withdrawing similar provision in the same region. In order to ensure that this was not on a reactive basis, the group thought there would be benefit in HEFCE discussing with heads of institutions options and possibilities in specific subjects. The group preferred this option to the formal 12-month notice period recommended in the 10 Year Science and Innovation Investment Framework.

Example: After Lancaster University had restructured its chemistry department, the University of Sheffield, after giving HEFCE notice, transferred some of Lancaster's staff to Sheffield. Lancaster transferred its chemistry FTEs to its strong environmental science centre, and remaining staff were incorporated into a new multidisciplinary department. QR income associated with the Lancaster staff was transferred with them to Sheffield, and the University of Sheffield received some relocation costs to assist the move. The group thought that this was a good example which might be replicated in the future.

Example: Following the recent decision by the University of Exeter to close its chemistry department, HEFCE was able to support the transfer of chemistry students to the universities of Bristol and Bath. According to the vice-chancellor of the University of Exeter, HEFCE acted as: "an enormously supportive broker. They have worked with us and other universities in the region to come up with a solution which actually increases the number of funded places for chemistry in the south-west. Our analysis is that by working collaboratively through HEFCE we have been able to come to a solution which we think strengthens chemistry provision in the long term, and I welcome that role of HEFCE as a broker rather than a manager or a planner."[1]

32. While the group recognises the importance of accessibility, they do not see a need to have departments in all subjects in all regions. Student and graduate mobility should not be underestimated, and new opportunities from distance learning and short intensive courses are increasingly being explored. However, HEFCE has a valuable role in mapping provision against regional subject priorities, and taking an overall picture of the regional impact of the withdrawal of certain subject provision. The group considers that there might be occasions where, working with regional organisations, HEFCE might share the risk of providing some support to see if the market changed. But such support should be exceptional and time limited.

33. HEFCE should also take an approach to institutional vulnerability as it affects strategic subjects. For example, the group believes a review of land-based studies is appropriate, in order to establish how provision can be maintained and developed in the long term. This sort of approach could help put isolated departments and individuals on a more sustainable footing. It may be necessary to extend this approach to other subjects which are concentrated in monotechnics, such as the creative arts. Obviously, any interventions would need to be made within HEFCE's existing powers.

34. The group also considers that there is a particular role for some institutions. For example, the Open University is able to provide provision to relatively isolated pockets of student demand and can deploy centrally developed curriculum materials to a range of partners. HEFCE should consider funding some pilot projects to support institutions that want to continue to provide strategically important and vulnerable subjects, engage with partners to look at innovative ways of encouraging demand, and work with specialist institutions to enable the broad based delivery of some of the more specialist strategic subjects. HEFCE might also consider further approaches to supporting collaboration in strategic subjects.

Example: Following evidence in 1999 of declining recruitment trends in modern foreign languages, HEFCE awarded £500,000 to support ten projects that tested a range of models of collaboration between language departments in modern foreign languages, linguistics and area studies. The aim was to provide support for the departments and subjects involved, and in some cases much-needed strengthening of less widely taught languages. The positive outcomes of this initiative include new approaches to teaching, learning and research training; strengthening modern languages capacity; and, for Dutch studies, a national critical mass in this very small subject area.

Annex B

30 September 2005

Dear Member

STRATEGICALLY IMPORTANT AND VULNERABLE SUBJECTS

As you will be aware the HEFCE Chief Executive's Strategically Important Subjects Advisory Group, Chaired by Sir Gareth Roberts, was set up in January 2005 to inform HEFCE's response to a request by the then Secretary of State for Education, Charles Clarke, for the Council's view on what action may be needed in relation to strategically important subjects. The HEFCE response, based on the group's report, was sent to Ruth Kelly on 22 June 2005. A copy of this report was sent to you as I-note I/05/89.

As part of their work, the group considered the recommendation in the 10-year Science and Innovation Framework which proposed that HEFCE should consult the sector on the possibility of making it a condition of grant that there should be a notice period of 12 months before a closure of a department in certain subject areas. The group's final report proposed a move away from this idea of a formal notice period, though suggested that HEFCE does have a role "as a broker to sustain or develop human and/or physical capacity within HE", and that "this role should be further enhanced". In the light of this HEFCE are keen to develop a less interventionist way forward, whilst ensuring they are still able to have early discussions with heads of institutions looking to close a department in specific subjects.

In June, Sir Howard Newby wrote to UUK and SCOP to this effect requesting that the representative bodies ask their members to let the funding council know, on a voluntary basis, if they are planning to close a department in any areas deemed strategically important or vulnerable, in place of a formal notice period. This would allow HEFCE to explore with institutions whether there might be a role for them in supporting or facilitating solutions, for example supporting new collaborations or the movement of staff and students.

[1] House of Commons Science and Technology Select Committee, *Strategic Science Provision in English Universities*, Eighth report of session 2004–05, Volume II, (Paragraph Q403, Professor Steve Smith).

As you will know, in practice many institutions will already do this and there are a number of ways in which the Funding Council already offers support. Following discussion of this matter at the UUK England and Northern Ireland Council in June, it was agreed that this would be a more favourable approach to that outlined in the 10-year Framework. Indeed UUK has expressed concern over the 10-year framework proposal, which we felt would represent an unacceptable intrusion into institutional autonomy, and be incompatible with the process most institutions would go through when closing a department.

We would therefore like to encourage you to act in the spirit of this agreement, and if you are planning on closing a department that is deemed strategically important or vulnerable[2], to contact HEFCE on a strictly confidential basis at an early opportunity.

Diana Warwick

CH

Enc. List of subjects deemed strategically important or vulnerable, as defined by the report of the HEFCE Chief Executive's Strategically Important and Vulnerable Subjects Advisory Group, chaired by Sir Gareth Roberts'.

[2] The definition of strategic or vulnerable in this instance is concurrent with that used in the Chief Executive's Strategically Important Subjects Advisory Group report, a list is attached as an Annex to this note.

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