

Migration Advisory Committee Consultation Science Council Response



The Science Council

1. The Science Council is an umbrella organisation of 40 learned societies and professional bodies in the UK drawn from across science and its applications: a list of member organisations is attached. It is a leading voice on the skills and professionalism of scientists in the UK and works to advance the professional practice and application of science at all levels. Since 2004 the Science Council has awarded the professional qualification of Chartered Scientist (CSci) and earlier this year extended the registers to include graduate scientists (Registered Scientist) and technicians (Registered Science Technician).
2. Science and the practice of science are becoming increasingly important across all sectors of the UK economy and society with increasing demand for workers with science skills. The Science Council undertakes research and analysis into the nature of the UK science workforce to understand more about where and how science skills are currently used in the economy and how this is likely to change in the future.
3. Collectively our member bodies represent more than 400,000 individual scientists in teaching, industry, academia and the public sector. Professional bodies in science support the continuing professional development of scientists through the provision of training, information and support and the management of registers underpinned by standards of professional practice and competencies. The Science Council's registers provide a common framework across the disciplines and sectors of science and at all levels in the science workforce.

Introduction

4. The UK's economic success has been predicated not just on the skills of the UK workforce but also on its ability to attract highly skilled and talented individuals from across the world: this is particularly true for science based industries. There is a developing evidence base indicating that highly-skilled migrants make an important contribution to UK enterprise, innovation and economic growth. A report by the National Institute of Economic and Social Research in 2012 highlighted that skilled migrants are instrumental in generating economic growth and placing additional limits on Tier 2 could have adverse impacts on UK business and economic growth¹. This view has been endorsed by the Secretary of State for Business, Vince Cable who recently stated that UK economic growth is depended on attracting highly talented people to learn, work and invest in the UK.²
5. The use of high level STEM (science, technology, engineering, mathematics) knowledge and skills are essential across all UK economic sectors and not just within academic and research sectors. In addition to the growing high value manufacturing and other technology sectors such as biotechnology, digital, energy generation and low carbon industries there is increasing demand and competition for STEM skills as scientific knowledge and expertise are applied in all sectors of the economy and society. The Science Council's recent workforce survey³ highlighted the fact that 20% of the UK workforce is employed in science roles: 1.2m primary science

¹ *Skilled immigration and strategically important skills in the UK economy, February 2012*
http://www.niesr.ac.uk/pdf/290212_151752.pdf

² Vince Cable, CBI Conference 2012 <http://www.bis.gov.uk/news/speeches/vince-cable-cbi-conference-2012>

³ *The current and future UK science workforce*. TBR, Sept. 2011 <http://www.sciencecouncil.org/content/science-workforce>

workers⁴ and 4.6m secondary science workers⁵. This is projected to rise to more than 7 million by 2030.

6. The workforce survey also identified that nearly 1.4m science workers in the UK are qualified to post-graduate level, equating to 25% of the science workforce. In comparison, only 9% of the total workforce is qualified to the same level. This demonstrates that there is tremendous demand for high-level STEM qualifications across the entire economy.⁶
7. The Science Council is concerned that the message the UK is “open for business”⁷ is not being consistently applied across government departments. While the Prime Minister has stated his aspiration to make the UK one of the best places in the world to do business⁸, conflicting announcements in other areas of government policy has led to a perception that non-EU workers and students are not welcome. For example the Minister for Immigration recently said that it was the Government’s policy to reduce immigration to less than one hundred thousand⁹.
8. In addition to conflicting policy announcements there is a lack of transparency on how the net migration figures and the current annual quota of 20,700 visas for non-EU applicants in Tier 2 have been determined and how the distribution of places between the Tiers and occupations was agreed. Given the potential impact of these policies it is important that long-term skills planning policy is more closely joined-up across government and that decisions on immigration quota policy are discussed with key stakeholders and are totally transparent.

The Sunset Clause

9. The Science Council is concerned with the implications that a proposed two-year Sunset Clause for shortage occupations would have for the UK economy. The UK Government must ensure that the country has a workforce with the appropriate knowledge, skills and experience to enable it to compete internationally, and create an environment which helps businesses to flourish. This will require a long term commitment across government, to ensure that programmes are effective in addressing issues of recruitment, retention and training. Furthermore a number of sectors and particularly those in secondary science occupations have a impending problem with an ageing workforce. STEM occupations in agriculture and aquaculture, energy and environmental sectors, public sector, professional organisations and consultancies have an above average proportion of workers in the 55+ age group.¹⁰ Many of the occupations in these sectors are currently on the shortage occupation list and there is thus a real danger that removal from the shortage occupation list after two years will leave the UK economy without high-level skills, knowledge and experience in a number of economically vital sectors.
10. The UK must attract more young people to study STEM subjects for longer if it is to address the STEM skills demands for the future. While there is some evidence that there is an upward trend in the take-up of STEM subjects post-16 in the UK it is unlikely that supply will meet demand for

⁴ Workers in occupations that are purely science based and require the consistent application of scientific knowledge and skills in order to execute the role effectively

⁵ Workers in occupations that are science related and require a mixed application of scientific knowledge and skills alongside other skill sets, which are often of greater importance to executing the role effectively.

⁶ *The current and future UK science workforce*. TBR, Sept. 2011 <http://www.sciencecouncil.org/content/science-workforce>

⁷ <http://www.bis.gov.uk/news/speeches/vince-cable-science-openness-internationalisation>

⁸ Prime Minister’s speech at Global Investment Conference, July 2012 <http://www.number10.gov.uk/news/speech-at-global-investment-conference/>

⁹ <http://www.publications.parliament.uk/pa/cm201213/cmselect/cmbis/uc425-i/uc42501.htm>

¹⁰ Ibid

some time as it will take many years for these individuals to gain the knowledge and experience required. To qualify for Chartered Scientist (and similarly for other Chartered professions in STEM) would be typically eight or more years from the start of an undergraduate course enabling individuals to acquire the combination of high-level scientific knowledge and experience (typically demonstrated by an accredited Masters qualification) together with four years of post-graduate level experience.

11. In this context, a two-year time frame does not adequately take into account the length of time required to attract, educate and train a resident workforce for the highly skilled roles that the UK economy will need in the future. The Science Council fully supports the Government's desire to reduce unemployment in the resident workforce, but it would caution against any notion that the current level of unemployment automatically means that there is under-utilised resident capacity to fill shortage occupations.
12. Generating economic growth in the UK requires the employment of highly skilled individuals. Restricting or preventing companies from appointing talented individuals from outside the UK to fill vacancies - until such time that they can be filled by the resident population - will be detrimental to the development of the UK economy in the near future. Although it is essential that we attract, educate and train UK citizens to fill shortage gaps, such action will not take care of the UK's immediate problem of low economic growth.
13. We are not aware of any evidence which suggests that the longer an occupation remains on the shortage list, the less incentive employers have to train the resident workforce. If this is the case then it is the responsibility of Government to provide businesses with the right incentives to invest in training and continuous professional development of the resident workforce for those occupations that have remained on the list for more than two years.

Science Workforce

14. Science is in itself an international activity and many professional scientists will have experience of working internationally. Chartered Scientists are an international community with 13% of those on the register being overseas professionals. Many scientists take pride in the international nature of their work and enjoy working in international multi-disciplinary teams, recognising that the scale and immediacy of the issues the world faces, together with the pace of change in science and technology and its increasing multidisciplinary nature and global competitiveness, demands greater interaction and cooperation between scientists from across the world now and in the future.
15. A recent CBI study¹¹ found that the quality of the UK's scientific research base is one of the most significant factors encouraging international companies to bring high-value investment to the UK. This is borne out by the fact that the largest areas of industry R&D investment in the UK and investment globally are currently focused in areas of intense global competition: pharmaceuticals, biotechnology, aerospace and defence, and software and computer services¹². This concern has been articulated by the Association of the British Pharmaceutical Industry:

¹¹ Making the UK the best place to invest. CBI, April 2011 <http://www.cbi.org.uk/media/934670/making-the-uk-the-best-place-to-invest-report.pdf>

¹² The 2010 R&D Scorecard. Department for Business, Innovation and Skills, November 2010 http://webarchive.nationalarchives.gov.uk/20101208170217/http://www.innovation.gov.uk/rd_scoreboard/downloads/2010_RD_Scoreboard_analysis.pdf

“Companies have invested in the UK, in many cases making the UK their European headquarters or European research and development hub. International headquarters of global companies and centres of research excellence need to employ staff from around the world and, where necessary, recruit globally”.¹³

16. High-tech commercial ventures, including spin-out enterprises, also tend to cluster in regions where high-quality research is accomplished, usually also in a globally competitive and international environment: examples in the UK include Oxford and Cambridge, and ‘Silicon Roundabout’ in London. The geographical proximity of these companies facilitates the exchange of ideas and collaborations between academia and commerce, and when seeking to fill vacancies or expand, the commercial sector has immediate access to a talented and qualified pool of suitably qualified personnel.
17. To maintain its competitive advantage in its research and development activities, the UK will need to attract the international companies that are seeking to establish internationally competitive research centres: such companies will wish to draw the necessary skills and knowledge from beyond the UK workforce. UK immigration policy must therefore value and encourage the contribution made by highly-skilled workers from overseas to the generation of economic growth in the UK.

Postgraduate Students

18. The number of international students pursuing postgraduate study in the UK has increased steadily over recent years and the income and critical mass generated from this has been crucial for maintaining the viability of specialised courses across science and technology disciplines, a concern also expressed in a recent House of Lords Select Committee inquiry into higher education in STEM subjects.¹⁴ Consultation with our member bodies indicates concern that reduced funding for UK postgraduate students in areas where there are already skills shortages will have a long-term negative impact on the skill and knowledge acquisition of the resident workforce, and thus on strategically important research areas. The removal of public funding for post-graduate training in the UK has increased the competition to recruit from countries such as China and India. Unless this issue is tackled the number of appropriately skilled home post-graduates will not increase.
19. There seems to be little evidence of private companies offering support on the same scale, as individual graduates may not be retained in employment by their sponsoring company for long enough to justify the investment. Small and medium-sized employers are especially vulnerable in this situation as they tend to lack the financial clout and time resource to support the types of training schemes that larger organisations do: it is important to note that many of the important emerging technology sectors are also led by SMEs. Current research being undertaken by the Science Council identifies that 54% of STEM graduates are employed in SMEs.

¹³ Evidence given to the Home Affairs Select Committee, September 2010 <http://www.abpi.org.uk/our-work/policy-parliamentary/Documents/Home%20Affairs%20Committee%20Inquiry%20into%20the%20Immigration%20cap.pdf>

¹⁴ *Higher Education in STEM subjects*. House of Lords Science & Technology Committee, July 2012. <http://www.parliament.uk/business/committees/committees-a-z/lords-select/science-and-technology-sub-committee-i/news/stem-report-published/>

The applicability of the MAC's shortage indicators to particular occupations or job titles

20. The question of whether occupations that are on the shortage list should be automatically removed after two years will not address the underlying difficulty of correctly identifying shortage occupations. The current mismatch between labour market analysis and skills terminology has led to misconceptions regarding the employment destinations of STEM graduates and there is a need to develop a better understanding of the different roles and skills for scientists that are currently required, and will be required, in the various employment sectors. Most current labour market information and surveys classify by core science discipline, education level or employment sectors. As the Science Council's workforce research shows STEM skills area valuable across the entire economy, and often required in "hidden sectors" not normally considered STEM employers, such as food and drink or textiles. In such an environment where multi-disciplinarity is valued, it is increasingly difficult to pin-point exact occupations.
21. Many of the STEM occupations currently on the shortage list have been there for a number of years, indicating a deeper underlying problem with the UK's ability to attract, train and retain a resident workforce in these roles. For the UK to compete successfully in a global economy it is vital that detailed and up-to-date information and awareness of employment opportunities is readily available for students studying science, technology, engineering, and mathematics.

We would be happy to discuss further any of the issues outlined above.



Member Bodies of the Science Council November 2012

1. Association for Clinical Biochemistry*
2. Association of Neurophysiological Scientists*
3. Association for Science Education**/ ***
4. British Academy of Audiology
5. British Association of Sport and Exercise Science
6. British Computer Society*
7. British Psychological Society*
8. British Society of Soil Scientists*
9. Chartered Institution of Water and Environmental Management*
10. College of Podiatry
11. Energy Institute*
12. Geological Society of London*
13. Institute of Biomedical Science*/ **
14. Institute of Brewing and Distilling*
15. Institute of Clinical Research*
16. Institute of Corrosion*
17. Institute of Food Science and Technology*/ **
18. Institute of Marine Engineering, Science and Technology*
19. Institute of Materials, Minerals and Mining*
20. Institute of Mathematics and its Applications*
21. Institute of Measurement and Control
22. Institute of Physics and Engineering in Medicine*/ **
23. Institute of Physics
24. Institute of Science and Technology**
25. Institution of Chemical Engineers*/ **
26. Institution of Environmental Sciences*
27. London Mathematical Society
28. Mineralogical Society*
29. Nuclear Institute*
30. Oil and Colour Chemists' Association*
31. Physiological Society
32. Royal Astronomical Society
33. Royal Meteorological Society
34. Royal Society of Chemistry*/ **
35. Royal Statistical Society*
36. Society for Cardiological Science and Technology
37. Society for General Microbiology
38. Society of Biology*/ **
39. Society of Dyers & Colourists

* Licensed to award Chartered Scientist (CSci)

** Licensed to award Registered Scientist (RSci) and Registered Science Technician (RSciTech)

***Licensed to award Chartered Science Teacher (CSciTeach)