

1. The Science Council

- 1.1. The Science Council was established in 2004. It is an umbrella organisation of learned societies and professional bodies, and currently has 41 member organisations drawn from across science and its applications: a list of current member bodies is attached. In addition to providing a mechanism for the sector to work collectively, the Science Council develops and leads collaborative projects working with member bodies and the wider scientific community: examples include the Future Morph website¹ designed to provide young people with information about careers opportunities, and LMI analysis of the UK Science Workforce².
- 1.2. The Science Council works to advance the professional practice of science and since 2004 has awarded the professional qualification of Chartered Scientist (CSci) with 15,000 individuals registered. A current key project is the development of new professional registers (Registered Scientist and Registered Science Technician), which aims to raise the profile, aspirations and retention of scientists at graduate and technician level.
- 1.3. Collectively our member bodies represent almost 500,000 individual members, including scientists, teachers and senior executives in industry, academia and the public sector.
- 1.4. In preparing this submission we have consulted member bodies to identify areas of common interest and the issues they raised form the content of this submission. In addition a number of member bodies will be responding individually to the inquiry. For clarification we understand the term 'international student' to mean all non-UK students.

2. The Science Council is concerned that current immigration policies risk destabilising the UK's existing competitive advantage as a world-leader in science, and inhibiting the translation of science into technology for global markets.

- 2.1. Modern science is a global activity. The scale and immediacy of the issues the world faces, together with the pace of change in science and technology, and the interconnectivity of nations and markets, demands increasing interaction and cooperation between disciplines and between countries. The markets for technological innovation driven by science are global. With the support of governments and global businesses, scientists are working in international multi-disciplinary teams to address the major issues and opportunities, and to develop new technologies. The UK government has repeatedly stated its understanding that investment in science is globally competitive and has sought to establish the UK as a 'great place to do science. This has included fostering the international co-operation necessary to expand scientific knowledge and attracting leading global businesses to locate research establishments in the UK and getting the right level of regulation. For example:

"Indeed I am up for the challenge set by Brian Cox and others of making Britain the best place in the world to do science." George Osborne, Royal Society, Nov 2012³

"We have achieved our ambition of being the best place in the world to do science." David Willetts, Policy Exchange, Jan 2013⁴

"We are throwing everything we have at making the UK the place to invest and locate and work in life sciences." David Cameron, Dementia Summit in Dec 2013⁵

- 2.2. While the Science Council supports the UK government's drive to eliminate illegal immigration, it is important to understand the unintended consequences these immigration policies are having on the potential of UK science and technology, by creating the impression

¹ www.futuremorph.org

² *The current and future UK science workforce* TBR, Sept. 2011 <http://www.sciencecouncil.org/content/science-workforce>

³ <https://www.gov.uk/government/speeches/speech-by-the-chancellor-of-the-exchequer-rt-hon-george-osborne-mp-to-the-royal-society>

⁴ <http://www.policyexchange.org.uk/modevents/item/tomorrow-s-world-eight-great-technologies-with-david-willetts>

⁵ <https://www.gov.uk/government/speeches/g8-dementia-summit-prime-ministers-speech>

that UK science is primarily for UK scientists and is not welcoming to those who wish to learn, train and develop their skills in the UK. Achieving the goal of establishing the UK as a great place to do science includes encouraging and facilitating the world's brightest and best scientists to come to the UK, creating lifelong links with UK science that will form the basis of future interactions. International STEM students are thus a vital part of this ambition.

- 2.3. It is a concern within the science community that a decline in exposure to and interaction with international graduates will, in the long term be detrimental to UK STEM students' ability to work abroad and work in international teams. UK STEM students' lack of foreign languages is a particular concern as increasing numbers of leading global science and technology companies have their HQs located outside the UK. Science-based global companies need science and technology graduates with the ability to work in multi-cultural, multi-lingual teams with an understanding of different cultures and practices. Thus UK students' exposure to working and living alongside international students is one way to increase their awareness of the globally competitive market for skills and in preparing them to operate in a global workforce.
 - 2.4. While the UK government has been slow to promote the social and professional benefits of studying abroad to UK students, this is not true of other nations where a high percentage of top class students study abroad. Although uptake of the ERASMUS programme for example among UK students has increased recently, countries with comparable student numbers to the UK have markedly higher participation rates. Spain, France and Germany for example have two to three times the number of Erasmus students studying abroad than the UK.⁶
- 3. The UK's economic success needs the skills of the home-grown UK workforce as well as highly skilled and talented individuals from across the world: this is particularly true for science-based industries.**
- 3.1. There is evidence indicating that highly skilled migrants make an important contribution to UK enterprise, innovation and economic growth.⁷

The contribution of international STEM students to the UK

4. The UK's global reach and reputation for excellent science is underpinned by its increasing ability to attract the best international STEM students to its universities.

- 4.1. Welcoming international students to the UK enables UK universities to project their quality on a global scale by developing and maintaining strong relationships across research and business with other countries, as well as supporting the UK's own research base. In 2011/12, for example there were 150,910 international STEM students in UK HE making up 34.6% of all international students that year⁸. Our world-class higher education sector is held in high esteem by students across the world, demonstrated by the fact that the reputation of UK universities is the most significant driver for international students to come to the UK.⁹ This reputation is reinforced by 11 UK universities in the Times Higher Education World University Ranking top 100 and 31 in the top 200, second only to the USA.¹⁰ The UK's popularity among international students is also shown in the UK's global share of the overseas student market, which in 2011/12 was 13% up from 12.8% in 2006.¹¹
- 4.2. In addition to projecting the UK as an outward looking country, international students make a significant financial contribution to the UK higher education (HE) sector as well as bringing wider economic benefits. The Government estimates that in 2011/12 approximately £3.9 billion in tuition fees were paid to English higher education institutions (HEIs), and that in 2011/12 they contributed approximately £6.3 billion in non-tuition fee expenditure to the

⁶ <http://www.britishcouncil.org/organisation/press/record-number-uk-students-go-europe-erasmus>

⁷ <http://www.ukba.homeoffice.gov.uk/sitecontent/documents/aboutus/workingwithus/mac/research-skill/niesr-skilled.pdf?view=Binary>

⁸ <http://www.ukcisa.org.uk/Info-for-universities-colleges--schools/Policy-research--statistics/Research--statistics/International-students-in-UK-HE/#International-student-numbers-by-subject-area-2011-12>

⁹ http://www.heacademy.ac.uk/assets/documents/postgraduate/PTES_Report_2013_Final.pdf p.4

¹⁰ <http://www.timeshighereducation.co.uk/world-university-rankings/2013-14/world-ranking>

¹¹ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/229844/bis-13-1081-international-education-global-growth-and-prosperity.pdf

economy¹². At the institutional level, a study for the University of Sheffield for example determined that international students would make a net total contribution to its Gross Domestic Product of £120 million in 2012/13.¹³

4.3. What is clear is that the UK has until now been a highly desirable destination for international students to come and study. The Government's own figures state that in 2012/13 there were 435,000 international students in publicly funded higher education institutions and 53,000 international students in alternative providers in the UK.¹⁴

5. **The Science Council is concerned that the message that the UK is welcoming of international students is not being consistently applied across government departments. Despite the Prime Minister stating that there is “no cap on the number of genuine students coming from across the world to study in this country”¹⁵, announcements in other areas of government policy, such as the Home Office statement that the Immigration Bill is designed to “reduce the pull factors which encourage people to come to the UK”¹⁶ sends a message to prospective overseas students that they are not welcome in the UK.**

5.1. The combination of a world-class higher education system and world-class science base provides the UK with a tremendous opportunity to take advantage of the rapid growth in tertiary education across the world, and to market itself as *the* prime destination for international STEM students. The British Council has estimated that the average growth in global tertiary education is 5% per annum, and that it will grow from 178 million to 199 million between 2011 and 2020 with much of the growth coming from developing countries.¹⁷ The OECD also estimates that by 2020 there will be approximately 7 million internationally mobile students. The Department for Business, Innovation and Skills expect the UK's share to increase stating that it is “realistic for numbers of international students in HE in the UK to grow by 15-20% over the next 5 years”¹⁸. Indeed, recently published UCAS data for the academic year 2012/13 has also show an increase of 9.6% in non-EU higher education applications and an increase of 4.9% in EU applicants.¹⁹ Current perceptions about UK immigration policies risk destabilising this growth.

5.2. The House of Commons Business, Innovation and Skills Select Committee's 2012 report on overseas students and net migration were “concerned to hear that the Government's visa regime was having a negative impact on UK universities' ability to attract Chinese students”.²⁰

5.3. The Institute for Measurement and Control (IMC) reported testimony from a student at City University London:

“I have thoroughly enjoyed paying exorbitant fees while being treated like a criminal on bail whilst I was in the UK. Please be assured that I will strongly discourage any potential students from Asia to study in the UK for as long as you should choose to treat your highest paying customers like criminals”.

And a senior Associate Dean of Postgraduate Studies reported:

“Throughout my visits to India I have observed an overwhelming dissatisfaction by Indian students who considered the post-graduation one year visa as a major disincentive to come to the UK”.

¹² https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/229844/bis-13-1081-international-education-global-growth-and-prosperity.pdf

¹³ http://www.shef.ac.uk/polopoly_fs/1.259052!/file/sheffield-international-students-report.pdf

¹⁴ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/229844/bis-13-1081-international-education-global-growth-and-prosperity.pdf

¹⁵ <http://www.parliament.uk/documents/commons-committees/business-innovation-and-skills/Reply%20from%20the%20PM%2020130308.pdf>

¹⁶ <https://www.gov.uk/government/news/immigration-bill-laid-in-parliament>

¹⁷ https://the.britishcouncil.org/sites/default/files/going_global/session_attachments/GG2012%202012.1%20Janet%20Ilieva.pdf

¹⁸ <http://www.oecd.org/edu/skills-beyond-school/educationataglance2011oecdindicators.htm>

¹⁹ <http://www.ucas.com/news-events/news/2014/ucas-reports-4-cent-increase-number-applicants-higher-education>

²⁰ <http://www.publications.parliament.uk/pa/cm201213/cmselect/cmbis/425/425.pdf>

The potential impact on specialist STEM courses

6. The current immigration policies have had a number of unintended consequences, one of which is on the supply of postgraduate courses. The Science Council is concerned that combined with decisions to withdraw funding from many STEM higher education courses, the perception of current immigration policies threatens the sustainability of many postgraduate courses, thereby also restricting options for UK students and STEM based industries.

- 6.1. There have been reductions in funding for UK postgraduate students in areas where there are already skills shortages. The decision by the Engineering and Physical Sciences Research Council to halt studentship funding in all disciplines except statistics and applied probability, and the decision by the Natural Environment Research Council to discontinue funding for nearly 400 full-time studentships or equivalent from 2012 are examples of where withdrawal of funding will have an impact on the long-term viability of postgraduate courses. The removal of public funding for postgraduate training will inevitably reduce the number of international STEM students coming to study in the UK, and reduce the ability of UK universities to fund a wide range of course choices to UK students. Combined with the impact of immigration on international STEM students, these short-term decisions will have long-term negative impact on the skill and knowledge acquisition of the UK science workforce as a whole, on strategically important research areas and on the ability of the UK to strengthen its research base and attract global talent.
- 6.2. In turn this increases the competition to recruit international STEM students from countries such as China and India. Last year, while there was an 8% increase in the number of study visas issued to Chinese students, there was a 24% drop in the number issued to Indian students²¹.
- 6.3. The Royal Society of Chemistry (RSC) reported that the UK's immigration policies have caused problems in the recruitment and retention of international students at some higher education institutions. One University has been forced to close an MSc programme in Molecular Biotechnology and one MRes programme in Bio-sensing Technology as they were aimed at the international market, particularly India. The same University is concerned that immigration policies threaten the continuation of its MSc Science Communication and MSc Advanced Forensic Analysis courses. It commented that:

“The changes have also meant that some international partnerships with HEIs, especially in India, have been scrapped. These took much academic and admin staff time to set up, plus considerable costs for international visits, validation events etc - a complete waste of already limited resources”.

- 6.4. The number of international STEM students pursuing postgraduate study in the UK has increased steadily over recent years, and the income and critical mass generated from this increase has been crucial for maintaining the viability of specialist courses across science and technology disciplines.
- 6.5. The importance of international postgraduate students to UK higher education has been previously highlighted by the House of Lords' Select Committee inquiry into higher education in STEM subjects, which noted that within STEM subjects in 2009-10 13% of first degree qualifiers, 55% of Masters degree qualifiers and 42% of PhD qualifiers were from overseas²². The viability of postgraduate programmes at the Jodrell Bank Centre for Astrophysics is an example of an institution that is significantly dependent on the financial contribution of overseas students. Since 2007, although only 15.3% of their postgraduate students were registered as non-EU students, 45% of their income from postgraduate students came from those students.
- 6.6. There is a concern that UK postgraduate students do not possess the same level and quality

²¹ <https://www.gov.uk/government/publications/immigration-statistics-july-to-september-2013/immigration-statistics-july-to-september-2013>

²² <http://www.parliament.uk/business/committees/committees-a-z/lords-select/science-and-technology-sub-committee-i/news/stem-report-published/>

of training that overseas students demonstrate with regard to high-level technical and practical skills. The skills deficit of UK postgraduates combined with the need for high-level STEM qualifications therefore increases the need for international STEM students to study and work in the UK.

Failures in the current visa information and application system

7. The Science Council does not wish to inhibit the government's determination to deal with illegal immigration but it is concerned that the immigration application process lacks nuance to decide between those who seek to enter the UK illegally and genuine international students.

- 7.1. Testimony from our members has shown that students from what the government might consider 'high risk' countries are less likely to be allocated visas than those from 'low risk' countries. Examples given include India, Pakistan, Iran, Sudan, Nigeria and other parts of Africa. There is a concern that the UK is determining visa applications from international students more on the basis of the country they are from than for their personal attributes.
- 7.2. Since the introduction of Tier 4 visas as a 'fast-track' process for genuine students coming to study at trusted institutions, the Science Council understands that universities have been under substantial pressure from government to comply with their obligations as Tier 4 sponsors. As a result significant resources have been invested in Tier 4 compliance at the expense of investment in supporting international students and helping to make the process more transparent.
- 7.3. Across different HEIs, the advice, information and guidance available on immigration policies and the visa application process is mixed, poorly explained and inconsistent, and in some cases the web links held on universities websites to the UK Border Agency (UKBA) and Home Office are out of date.
- 7.4. Our members have further concerns that many employers are either not aware of or reluctant and confused about the current visa system and do not understand the possibilities of recruiting international graduates in the uncapped Tier 2 route. Our consultation revealed concerns that some HEIs felt that immigration rules for students have become overly prescriptive and in some cases our member bodies have had to highlight concerns to HEIs regarding the quality of their current information and guidance on student visas:

"The frequency of the changes to the Tier 4 immigration rules, the contradiction between the Immigration Rules and Home Office Policy Guidance, and the reduction of staff within the Home Office has left us with a system which is confusing, messy and difficult to navigate. We see numerous visa refusals for fairly spurious reasons due to the inflexibility of the system and lack of discretion in casework decision-making".

- 7.5. The Geological Society passed on similar concerns from Plymouth University. Their International Students Office stated that changes to the immigration system since 2010, and in particular the post-study work visa, has disproportionately affected their international STEM student population specifically those from the Indian sub-continent. Traditionally Indian students finance their studies with an educational loan which would be repaid by them from income earned in the UK post-graduation. In contrast Chinese students, in the main fund their studies from savings.

- 7.6. The Physiological Society highlighted concerns from a university with which it has close ties:

"The changes have made the current international students very angry, in terms of their monitoring. The implementation of the 'guidelines' on monitoring engagement is very different across the sector, and in some places is very draconian, and onerous on both student and academics. This is largely to make sure that the HEI is covered if they are investigated by what was UKBA as to their monitoring procedures, or so I'm led to believe. I think that this will filter back to newer students and will discourage them from considering the UK".

- 7.7. The Royal Astronomical Society (RAS) highlighted the case of an outstanding Senegalese student who wanted to study for a PhD with the Open University. The University had funding in place but wanted to invite her for interview before confirming her place. The UK consulate in Ghana that was handling the visa application insisted that she have £10,000 in a bank account before they would offer the visa. The University were willing to pay for her flight to the UK for the interview but her visa application for entering the UK was turned down 3 times. She is now studying in South Africa with a view to return to Senegal and promote astronomy education. The need to show evidence of funds at the time of the visa interview is a common issue that affects postgraduate students.
- 7.8. Delays in visa processing can lead to students missing the start of their course which can have a lasting effect on their performance on the course. Many STEM subjects also involve extensive study outside of the UK as part of their programme, at international conference, industry placements or undertaking fieldwork for example. Delays over visas arrangements can, at best, complicate international students' study and at worse, prevent participation altogether.
- 7.9. The Science Council would like to see much greater collaboration between UKBI and the UK's higher education sector in the dissemination of international student visa information and requirements. It also recommends an overhaul of the UKBA website which is not user-friendly and a simplification in the language taking account of the fact that English is unlikely to be the first language for many of the users. It may be appropriate for an existing body such as Universities UK to work closely with the UKBA to ensure that all UK higher education institutions are able to develop consistent, easy to read, up-to-date information on their websites to streamline the system.

8. The Science Council would like to see further investigation into the potential of a biometric student passport or similar to simplify the visa application and verification process for international students.

- 8.1. While we acknowledge the cost of implementing and maintaining a system such as this, as well as the civil liberties implications, it could mean that legitimate international students would not be subjected to overly-intrusive check-ups and investigation. Such a system would reduce academics' and university staff time in monitoring the status of international students, which for many is not within their field of expertise. The European Commission's European Professional Card to enable professionals to move more quickly and easily throughout the EU could provide a model for the development of an appropriate system for students.

Diana Garnham, Chief Executive
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Member Bodies of the Science Council February 2014

Association for Clinical Biochemistry and Laboratory Medicine
Association of Neurophysiological Scientists
Association for Science Education
British Academy of Audiology
British Association of Sport and Exercise Science
British Computer Society
British Psychological Society
British Society of Soil Scientists
Chartered Institution of Water and Environmental Management
College of Podiatry
Energy Institute
Geological Society of London
Institute of Biomedical Science
Institute of Brewing and Distilling
Institute of Corrosion
Institute of Food Science and Technology
Institute of Marine Engineering, Science and Technology
Institute of Materials, Minerals and Mining
Institute of Mathematics and its Applications
Institute of Measurement and Control
Institute of Physics and Engineering in Medicine
Institute of Physics
Institute of Science and Technology
Institute of Water
Institution of Chemical Engineers
Institution of Environmental Sciences
London Mathematical Society
Mineralogical Society
Nuclear Institute
Oil and Colour Chemists' Association
Operational Research Society
Physiological Society
Royal Astronomical Society
Royal Meteorological Society
Royal Society of Chemistry
Royal Statistical Society
Society for Cardiological Science and Technology
Society for General Microbiology
Society of Biology
Society of Dyers & Colourists
The Organisation for Professionals in Regulatory Affairs