

Scotland's Educational and Cultural Future
A contribution from the Society of Biology to the
Education and Culture Committee

March 2014

The Society of Biology is a single unified voice, representing a diverse membership of individuals, learned societies and other organisations. We are committed to ensuring that we provide Government and other policy makers - including funders of biological education and research – with a distinct point of access to authoritative, independent, and evidence-based opinion, representative of the widest range of bioscience disciplines.

The Society welcomes the interest of the Committee and is pleased to offer these comments in relation to the inquiry's further and higher education theme, focused around two broad topics; research funding and immigration. Our response has been gathered in consultation with our members, member organisations and advisors and therefore focuses on future implications for the bioscience community in Scotland.

Overview

- To allow an informed choice on the implications of independence for science research, it is vital that the impact on research funding mechanisms is made clear. These include funding from Government, charities, the European Union and private sector sources.
- Current funding levels should be maintained (or increased) to maintain competitiveness and research leadership. Continuity of such funding should be guaranteed in the event of a Governmental transition period.
- The UK science base relies on the free movement of staff, students and ideas across the UK. This must be retained should Scotland become independent.
- Currently, immigration policies are reserved to Westminster and there have been concerns that increasing restrictions limit the opportunities to attract and retain talented international scientists. An independent Scotland may set its own immigration policies in line with Scotland's needs.

Research Funding

Scotland has a vibrant and productive science research base, ranking first in the world in terms of the rate its research papers are cited relative to GDP, and second in the world in terms of impact. The life sciences industry alone contributes more than £3.1 billion to the Scottish economy.¹ The Society of Biology believes it is vital that this beneficial situation is maintained irrespective of the outcome of the referendum.

Scotland's universities and research institutes attract around 14% of UK research funding annually - £230m from UK research councils; £130m from UK-based charities; £100m from the UK Government; and £47m

¹ Society of Biology, *Possible Implications for Science and Engineering in Scotland in the Independence Debate: A Response to the Scottish Science Advisory Council*, May 2013

from industry, commerce and public corporations. Scotland has about 8.5% of the UK's population but attracts, on a competitive basis, around 14% of the public and charitable research funding allocated throughout the UK.²

Scientific research takes time, and research projects often require sustained funding in order to be built up and developed over a number of years. Therefore it is vital that Scottish researchers do not experience reduced access to funding in the event of Scotland becoming an independent nation. To maintain performance it will be essential that funding for research and infrastructure is protected during any transition period.

The Society is concerned about the possible implications of the Scottish Government's proposal to continue funding the science community through Research Councils UK (RCUK) in an independent Scotland. Two potential models have been envisaged by which the proposed 'fair funding formula' to calculate Scotland's contribution could be implemented:

- Firstly, an integrated research council approach could work akin to the current EU funding system, with the Scottish Government dedicating a monetary contribution to RCUK, and Scottish researchers able to bid for funding. Naturally this could result in Scotland gaining more or less funding than contributed, and possibly to tensions with the rest of the UK.
- Alternatively, the Scottish Government could buy into certain research funding areas within the RCUK portfolio. Such a model presents a number of concerns. Firstly, the areas 'bought' into could be in line with the priorities of the Scottish Government at the time and resulting in increased Scottish Governmental control of science funding. As the Westminster and Holyrood Parliaments develop over time, their research priorities could differ widely; as such this could raise difficulties for equitable funding allocation. This could be at odds with the highly respected 'Haldane Principle' which dictates that decisions about allocation of funds should be made by researchers, rather than Government. Secondly, the Society is concerned that this may result in a reduction and restriction of the Scottish science research portfolio. An integrated research portfolio which funds the research pipeline from end to end (i.e. from basic, blue-skies research to applied and translational projects) is vital to ensure a balanced economy and research capability in an international arena.

As well as funding from RCUK, researchers in Scotland gain a large amount of funding from medical research charities. UK charitable organisations invest approximately £1.1 billion in UK research per annum, 13% of which is spent on research in Scotland.³ The Scottish Government has indicated that this funding would remain unchanged in an independent nation. However it has been highlighted that charities could face regulatory and constitutional challenges when attempting to fund research in a separate Scotland.⁴ The Wellcome Trust in particular have noted that their future commitments and the eligibility of Scottish institutions for their support would have to be reviewed.⁵ It is vital that the Scottish Government works to ensure that charitable funding is not lost to Scottish research and that disadvantageous barriers are not faced by UK charities.

The Society is also concerned about Scottish researchers' access to funding from the European Union. From the launch of FP7 on 1 January 2007 until to 21 June 2013 Scotland was awarded approximately €505 million (about £434 million), an average of around €84 million (£71.5 million) per year.⁶ Of this total,

² Royal Society of Edinburgh, *Possible Implications for Science and Engineering in Scotland in the Independence Debate: A Response to the Scottish Science Advisory Council*, May 2013.

³ HM Government, *Scotland Analysis: Science and Research*, November 2013.

⁴ Association of Medical Research Charities, retrieved July 2013, <www.amrc.org.uk/news-policy--debate_pawg-scotland>.

⁵ Wellcome Trust, submission to the House of Commons Business, Innovation and Skills Committee enquiry into the implications of Scottish independence for higher education and research, June 2013.

⁶ European Commission, FP7 grant agreements and participants database, version 14.0, released 1 July 2013.

around €415 million (£353 million) was awarded to HEIs, the rest going to other forms of research organisations, private commercial ventures and public bodies. The European Research Council (ERC), which funds curiosity-driven research, forms a significant part of the FP7 total with Scotland receiving €131 million out of the UK's total €1.3 billion for this scheme. As with RCUK funding, Scotland's research base performs well compared with the UK overall, securing 11.2% of the €4.5 billion total awarded to the UK over this period. Until such a time as Scotland is accepted into the EU, researchers could be ineligible, or dependent on the Scottish Government 'buying into' EU funding streams. We reiterate that many scientific research projects operate over long timescales and stress that continuity of funding must be ensured.

As well as Governmental, charitable and EU funding, Scottish researcher's access to funding from private sources and businesses, must be ensured. Scotland has a thriving biotechnology community and many SMEs and CROs rely on funding from these sources.⁷

Immigration

Science is by its very nature a global enterprise. Many challenges are internationally relevant and both problem-solving and innovation are rarely country-specific; to be successful science relies on free movement of experts and information. The UK must attract the brightest minds if it is to maintain a global reputation for scientific excellence, and this applies equally to Scotland or any other region.

The cultural variety achieved when recruiting students from a global pool can serve to enhance research teams; the experience and shared knowledge that comes with a diverse group of people can be beneficial in the development of new processes and techniques. However data has shown that there has been a reduction in international STEM students coming to the UK, following reforms to UK-wide student immigration policies since 2011.⁸

The Society is concerned that current UK immigration policies are restrictive for international students and researchers⁹. In an independent nation, the Scottish Government could set its immigration policy to facilitate a more international research community in Scotland.

It is well recorded that there is a shortage of sufficiently skilled domestic STEM graduates to fulfil both Scotland's, and the rest of the UK's, future workforce requirements.^{10,11} Scotland's leading science and technology sectors need access to international talent through the immigration of skilled STEM students and workers.

Studentships are critical entry-points for skilled scientists with the potential to contribute to the economy of the nation. A robust research community must attract the right talent at each stage of the pipeline. Ambitious and able students studying at undergraduate and Master's level understand that making connections will enable them to pursue PhDs and then post docs at high-achieving institutions and to develop the skills needed for a successful career. It has been noted that international students with first class degrees from UK HEIs struggle to return to the UK to further their education and careers. For the economy of Scotland and the rest of the UK to benefit from such individuals they must see these countries as potentially offering a future. To retain skilled individuals who can contribute to international competitiveness, it must be apparent that continued residency is a possibility. Changes in the post-study work visa since 2012 have not been reported favourably and so could have had a negative impact on the pipeline.

retrieved August 2013.

⁷ Scottish Enterprise, *Scottish life sciences research base*, October 2013.

⁸ Q2 *The House of Commons Select Committee on Science and Technology Inquiry on International STEM Students Evidence Session No. 1*.

⁹ [Society of Biology response to the Lords Science and Technology Select Committee inquiry into International STEM students](#), February 2014.

¹⁰ *Education and Skills Survey 2013, Confederation of Business and Industry*.

¹¹ *The STEM human capital crunch, The Social Market Foundation, 2013*

We have made the following recommendations to the UK Government to improve the nation's ability to attract and retain international students and researchers. These remain valid options:

- The post-work study visa could be reviewed; the one-year maximum time line could be extended or altered to allow a level of flexibility.
- The academic visitors' route could be made sufficiently flexible so that researchers can attend academic conferences and overseas meetings with ease.
- Visa charges could be kept as low as possible for non-EU students and academics who are employed in Scotland on government-funded and charity-funded grants.
- Online resources and guidance could be developed for international students visiting the UK akin to resources that Germany¹² has created for international students that list all available postgraduate scholarships programmes and other information needed.

There would be a balance to be struck between the potential benefits that adopting a more open immigration policy could have on the science and HE communities in Scotland, versus a potential detrimental knock-on effect in terms of Scotland's relationship with the rest of the UK. There could be implications for the ease of movement between Scotland and England. Collaborative research and the sharing of facilities across the border are crucial for the future of science in both Scotland and the rest of the UK. Scotland possesses a number of centres of scientific excellence that are used by research teams from across the UK as well as from overseas. Negotiations between Holyrood and Westminster may be required in the event of Independence to ensure that access to facilities across the border remain readily accessible. This is critical for researcher mobility and institutional collaboration.

An example of how current immigration policies impact on the ability of Scottish universities to attract and retain international students is described in a Case Study included as Supplementary Information.

The Society of Biology is pleased for this report to be publically available. For any queries, please contact The Society of Biology Policy Team at Society of Biology, Charles Darwin House, 12 Roger Street, London, WC1N 2JU. Email: policy@societyofbiology.org

¹² <http://www.studying-in-germany.org/>

Supplementary Information: Immigration Case Study

This case study, which illustrates how current immigration policies impacts on the ability of Scottish universities to attract and retain international students, was provided by one of our members at the University of Aberdeen:

The University of Aberdeen runs a Wellcome Trust Strategic Award (WTSA) in Medical Mycology and Fungal Immunology (MMFI) as a programme of training for international students. Its objective is to provide bespoke biomedical training via an MRes and PhD programme so that participants - without much or any prior expertise in this subject - are able to return to influential jobs in their countries of origin where there are significant local medical problems in medical mycology. However, a number of challenges have been faced by those at the University when recruiting students from developing countries.

Students recruited to the WTSA MMFI International Research Scholarship are targeted from low-and middle-income countries. Students are fully funded for 4 years and require a Tier 4 student visa and, as of 2013/2014, a Biometric Residence Permit (BRP). The International Research Scholarship is composed of two phases; firstly a 12 month MRes at University of Aberdeen and secondly a 3 year PhD at either Aberdeen or another UK University. As such, both stages are treated as standalone courses (since some of the students will move to different UK universities) and hence the students have to apply for the Tier 4 student visa and BRP twice.

A number of issues have been encountered with these processes. The first of these highlighted involves the **timescale**. To applying for a Tier 4 visa and have it approved and issued can take up to three months depending on the country of origin. Before prospective students can even apply for such a visa they must have a Certificate of Acceptance from a UK University (this itself can take 30 working days after issuing the offer to the student), an Academic Technology Approval Scheme Certificate (this can take up to 20 working days to obtain from date of application) and an English Language Proficiency Certificate (if the student's country of origin is not on the exemption list and /or the student's existing certificate is older than 2 years the student has to sit this test at designated times and it can take up to 14 working days for the results and certificate to be issued). Overall, the timescale from issuing the offer of a student place to the student obtaining a Tier 4 student visa and BRM (so the student is permitted to travel to the UK university to start the course on the official start date) is very tight. The Course Organisers at the University of Aberdeen have encountered a situation where the University advised that the student would not obtain the Tier 4 visa in time to start the MRes course. The University requested the student not submit the visa application as the UKBA would take a dim view to a late application and would most likely reject the application which could reduce the student's chances of getting the visa in a second application. This had the potential to greatly affect the ability of the University of Aberdeen to recruit foreign students.

The second issue highlighted to the Society involves **English Language Proficiency**, particularly given that the list of countries whose residents are exempt from having to take an English Language Proficiency test has been reduced. For example, Uganda was listed in 2012 but was removed in 2013. The Course Organisers recruited a Ugandan clinical doctor to the MRes course in the academic year 2012/2013 at the University of Aberdeen. Midway through the MRes course, the student was offered a PhD studentship at the University of Newcastle. However, Newcastle would not issue an official offer of a PhD place until the student sat and passed an English Language Proficiency test as Uganda had been removed from the exemption list during the course of the candidate's MRes studies. This delayed the issuing of the official offer and subsequent Tier 4 student visa application process by approximately two months.

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