

## International STEM students

A response from the Society of Biology to the Lords Science and Technology Select Committee

February 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 alongside the Science Council's response, which includes contributions from the Society and other pan-science bodies.

### Summary Recommendations:

**International students are vital to the culture and economic viability of Higher Education Institutions (HEIs), in the UK; however the number of non-EU students entering the UK to study the biosciences and related disciplines has been in decline since 2010. This is true for both undergraduate and postgraduate degrees where non UK/EU STEM students provide considerably more tuition fee revenue than the comparative fees than UK/EU students.**

The visa system must be sufficiently adaptable for researchers, to avoid the disruption of research programmes and waste of research funding. Messages regarding the UK's visa policies and processes must be communicated more clearly and the UK must work to reinstate its reputation as a welcoming destination for international STEM talent. We recommend that:

- i. Communications from the Home Office are consistent and visa guidelines are clear. The Home Office must work to communicate effectively the openness of the UK to international students and academics (e.g. to education agencies, institutions and others) to tackle the perception of the UK as a less attractive destination. Responsibility for this communication function should be assigned appropriately by/within the Home Office.
- ii. The Home Office leads constructive engagement with HEIs, learned societies and academies, and STEM-based industries. HEIs are working to address the decline in international students; Government also needs to act to support stable and sustainable international recruitment.
- iii. The Home Office and HEIs work together to improve the enforcement of visa restrictions without hindering legitimate immigrants or placing unnecessary administrative burdens on HEIs.
- iv. The academic visitors' route be made sufficiently flexible so that researchers can attend academic conferences and overseas meetings with ease. It is also suggested that the one year maximum time line be reviewed to provide some flexibility.

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- v. The 'exceptional talent' route is to be publicised more widely by government and the scientific community with improved communication of its purpose and criteria.
- vi. The Home Office ensures visa charges are kept as low as possible for non-EU students and academics that are employed in the UK on government-funded and charity-funded grants.
- vii. The Home Office develops online resources and guidance for international students visiting the UK. For example, Germany has created an online resource<sup>1</sup> for international students that list all available postgraduate scholarships programmes and other information needed.

## The need for International STEM Students

Science is by its very nature a global enterprise. Many challenges are internationally relevant, and 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 the excellence of its science. A well communicated access policy and an accessible student visa system are vital parts of this process, yet data shows that there has been a reduction in international STEM students coming to the UK, following reforms to student immigration policies since 2011<sup>2</sup>.

### Training

STEM professionals often work internationally and attend overseas conferences. A second language is increasingly expected of candidates within top STEM professions and to work at sites of international infrastructure such as CERN. International exchange provides students with early experience of an international working environment, and offers the opportunity for improved language skills and cultural exchange.

### Skills

It is well recorded that there is a shortage of sufficiently skilled domestic STEM graduates to fulfil the UK's future workforce requirements<sup>3 4</sup>. Initiatives such as the Society of Biology's Accreditation Scheme aim to address this need in the long term; however in the shorter term the UK's leading science and technology sectors need access to international talent through the immigration of skilled STEM students and workers.

### Funding

International students at undergraduate and Masters level provide vital funding for the UK's Higher Education Institution (HEI) system, and contribute to the UK's economy as a whole. The average fee for non-EU international undergraduates studying laboratory based degrees in the 2013-14 academic year was £13,425 (the figure for classroom degrees was £11,289 and £24,228 for clinical degrees)<sup>5</sup>. The average fee for a non-EU international postgraduate studying a laboratory-based degree in 2013-14 was £13,841 (£11,589 for classroom, £21,795 for clinical degrees). This provides considerably more revenue than the comparative fees for UK/EU undergraduate students (£8,610) and UK/EU postgraduate taught students (£5,948).

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<sup>1</sup> <http://www.studying-in-germany.org/>

<sup>2</sup> Q2 The Select Committee on Science and Technology Inquiry on International STEM Students Evidence Session No.1.

<sup>3</sup> Education and Skills Survey 2013, Confederation of Business and Industry.

<sup>4</sup> The STEM human capital crunch, The Social Market Foundation, 2013

<sup>5</sup> Annual Tuition Fee Data for Full-time courses at UK Institutions 2013-14, Times Higher Education, 2013.

<http://www.timeshighereducation.co.uk/Pictures/web/j/i/g/annual-tuition-fee-data-for-full-time-courses-at-uk-institutions-2013-2014-02.jpg>

A 2013 BIS report<sup>6</sup> estimates that in 2011/12 alone overseas students (STEM & non-STEM) studying in UK HEIs paid £10.2bn in tuition fees and living expenses. Non-EU student course fees contributed 11.6% of total income for UK institutions<sup>7</sup>.

HESA data<sup>8</sup> shows there is a decrease of non-EU (both postgraduate and undergraduate) students enrolled in courses in the *biosciences and related disciplines*\* in the last few years. The number of these students in 2010/11 was 31,470, falling to 31,070 in 2011/12 and to 29,220 in 2012/13. This represents a drop of 2,250 in these two academic years combined. This contrasts with an increase in the number of these students by 1,135 between 2009/10 and 2010/11. Figure 1 shows the HESA data split between undergraduate and postgraduate student numbers, which shows decreases at the postgraduate level of 1,860 students between 2010/11 and 2012/13 and a decrease at the undergraduate level of 805 students between 2011/12 and 2012/13.

Some STEM courses have a very high proportion of enrolled international students and the sustainability of these courses without these international students could be at risk. If some courses see a drop in non-EU overseas students then they may be forced to close if they are not financially viable for HEIs, affecting the future pipeline of properly education and trained UK scientists. Postgraduate taught masters may be particularly vulnerable as HESA data<sup>9</sup> shows that 45.0% of full-time postgraduate students in England in 2011/12 were non-EU overseas students.

For example, the numbers and demographics of students for the MSc Pharmaceutical Science course at the University of Greenwich have changed dramatically. Total numbers of students for 2009 and 2010 entry were 341 and 367 respectively; in 2012 total student numbers on this programme were 68. The number of students from India among this cohort may be noted: the numbers of overseas students from India were 189 and 299 in 2009 and 2010 respectively; in 2012 the number of overseas students from India was 35. The decrease in overseas numbers may be due, in part, to new visa regulations though further evidence is needed. This has had an impact on the income for the school.

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<sup>6</sup> *International Education: Global Growth and Prosperity*, Department for Business, Innovation and Skills, 2013.

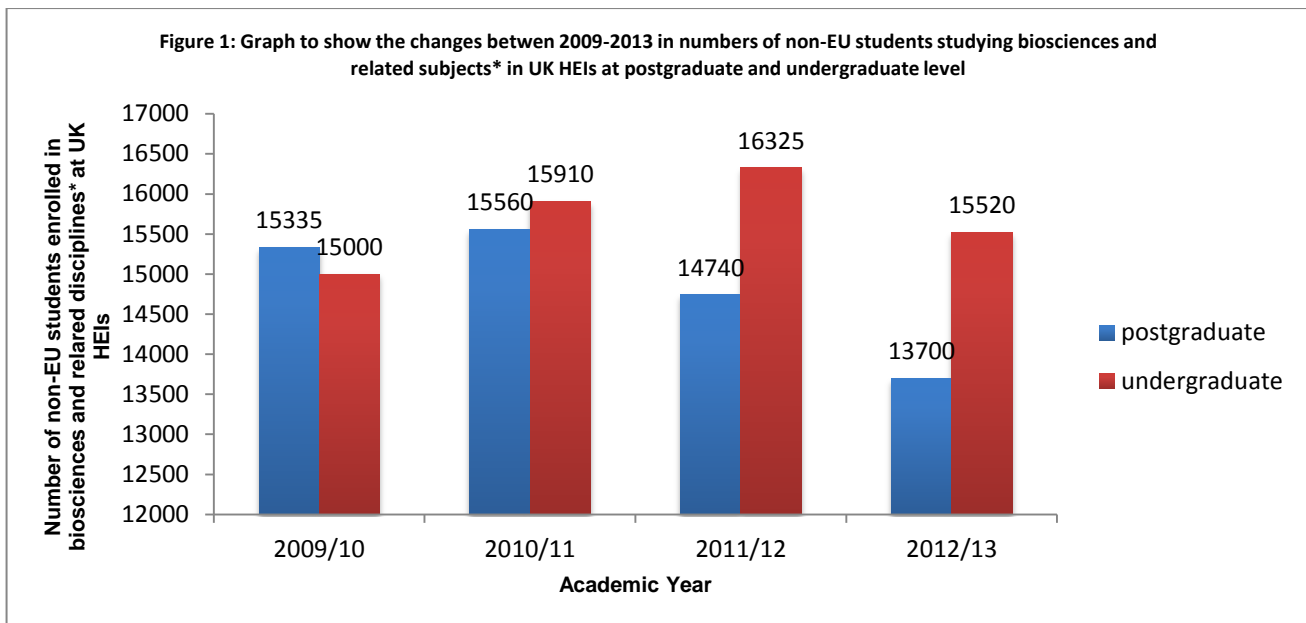
<sup>7</sup> *Non-EU domicile students' course fees*, Higher Education Statistics Authority, 2013

[http://www.hesa.ac.uk/content/view/2712/393/#non-EU\\_fees](http://www.hesa.ac.uk/content/view/2712/393/#non-EU_fees)

<sup>8</sup> Obtained on the 11/02/2014 from HESA Services Ltd. HESA does not accept responsibility for any inferences or conclusions derived from the data by third parties.

<sup>9</sup> *Students at HEI in England by domicile, level of study and mode of study 2011/12, Non-UK domicile students*, Higher Education Statistics Authority. 2013. <http://www.hesa.ac.uk/content/view/2663/393/>

\*In this document *biosciences and related disciplines* is defined according to JACS codes A (Medicine and Dentistry), B (Subjects allied to medicine), C (Biological Sciences) excluding C8 (Psychology), and D (Veterinary Science, Agriculture and related subjects)



## The STEM Pipeline

Studentships are critical entry-points for skilled scientists with the potential to contribute to the economy of the UK. 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 UK and its economy to benefit from such individuals they must see this country as potentially offering a future. To retain skilled individuals who can contribute to international competitiveness, it must be apparent that continued residency in the UK 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.

## Why are international students choosing to study elsewhere?

Existing measures, such as the inclusion of STEM work on the Shortage Occupation List, exemptions for PhD level professionals and the exceptional talent route help to create a welcoming environment and are valuable; however more must be done to fully benefit from these measures.

### Messaging & Enforcement

Government rhetoric on immigration is inconsistent with our need to attract the brightest minds to the UK. Broad brush anti-immigration messaging is damaging the UK's reputation as a welcome place to study, and no amount of institutional-level marketing will counter this.

The Government must be more nuanced with its approach to enforcement. Reports from students revealed the sometimes intrusive and complex nature of the visa process, which in some cases required registration at local police stations. For highly skilled students wanting to learn and contribute to UK science, this is at best off-putting, and at worst alienating.

The implementation of monitoring engagement varies across the sector, and can be onerous for both students and academics. Several academics reported their concerns with 'singling out' of particular groups for monitoring and reporting, which has made students feel annoyed and disparaged.

In addition, events such as those at the London Metropolitan University<sup>10 11</sup> are likely to have lasting after-effects, and portray the UK as unwelcoming of overseas students.

### Periods of Absence

International students also face difficulties if they need to take a period of abeyance for health-related or other personal reasons. For these students, returning home is now very difficult, as is getting an extension to their visa. This means that students remain in the UK and struggle to keep up with their research and studies. Although HEIs have policies in place to manage these situations, they cannot simply advise a student to take time out from their course as this could effectively end their careers in the UK.

This also relates to longer periods of absence – for instance overseas students cannot take maternity leave of more than 60 days without returning to their home country, and overseas students are not able to take internships that are longer than 60 days.

### Perception

There is a risk that visa issues experienced by students/academics at any stage in the pipeline will influence colleagues and student agencies in their country of origin. Our members have told us that central student agencies who guide the students on the best countries in which to study are now directing students to universities elsewhere (e.g. the USA) because in their view the visa situation in the UK has become too difficult. There is a risk that this will impact the UK's ability to attract the best international students, and have a knock-on effect on our global competitiveness. The UK is currently perceived as the third most attractive destination for international study according to a survey of student agents representing over 100 countries<sup>12</sup>. However, the survey indicates that the UK has lost 8 percentage points on their scale of measurement as an attractive destination between 2008 -2013. This contrasts with increases in attractiveness for the top destination, the USA (5 percentage point increase), and the second most attractive destination Canada (15 percentage point increase) over the same time period.

### Case Studies

Quantitative systematic data is broadly unavailable however we have asked our membership for relevant information, both positive and negative, and they have told us of difficulties faced by international students and researchers throughout the research pipeline. Some of these are described below:

- Indian students appear to be particularly affected by the changes. An international development coordinator for the biosciences at a UK HEI told us that at recent meetings in India, almost all Indian students reported a general feeling that UK is not welcoming to them as students. Those students perceive coming to the UK as a great opportunity and worthy of investment by themselves and their parents, in anticipation of some form of return - either in the form of a Post Study Work Visa or industrial placement opportunity to improve their skills and employability. Although the new Tier 4 visa has provisions for their stay to be extended by obtaining jobs with the annual pay of £25,000,

<sup>10</sup> London Met banned from enrolling overseas students, *Times Higher Education*, 2012  
<http://www.timeshighereducation.co.uk/420993.article>

<sup>11</sup> London Metropolitan University, Higher Education Funding Council for England, 2012  
<https://www.hefce.ac.uk/news/newsarchive/2012/news75126.html>

<sup>12</sup> Seventh annual ICEF i-graduate Agent Barometer, 2013 <http://monitor.icef.com/2013/11/seventh-annual-agent-barometer-provides-agents-view-of-marketplace/> & Sixth annual ICEF i-graduate Agent Carometer 2012 <http://monitor.icef.com/2012/10/2012-agent-barometer-global-survey-results-are-in/>

the international students (through their peers), know that this is impossible to achieve within a year while concentrating on studies. Despite an 'increased presence' in India (i.e. introducing attractive scholarships and involvement with the British Council-India advertisements) the number of Indian students is on the decline in some HEIs.

**It is pertinent to state at this point that a number of HEIs across the country have noted a decline in Indian students in particular.**

- Regarding Masters courses we received information from HEIs that since the new policy reforms there has been an increase in accepted students being unable to take up places due to visa issues<sup>13</sup>. This can be because the timescale for issuing an offer of a student place to the student obtaining a Tier 4 visa can be very tight. This has resulted in a loss of expected income for institutions and a significant disturbance for the students involved.
- Regarding study to PhD level, we received a report that the transfer from a work visa to a student visa had caused problems due to complexity and lack of communication during application for an Academic Technology Approval Scheme (ATAS) clearance certificate. This caused significant stress for the candidate and a flight back to their home country (India), therefore expense and considerable delay to the start of the research project.
- Regarding postdoctoral employment, we have received reports from researchers that there are serious issues with the inflexibilities and timescale of the visa system, for example in not allowing easy extension of visas once they have already been issued. Timescales for research projects occasionally have to be extended to achieve completion. The visa system must have sufficient flexibility to take into consideration any changes in the circumstances of the individuals or of the research projects they are working on. The visa processes don't always appear to be quick enough to adapt to such changes. We have had reports of talented postdoctoral researchers who have had to return to their home countries of China and Brazil as they have been unable to overcome these issues in a timely manner.

Visa insecurity can influence in-country progress as demonstrated by the case of an Indian national who completed their PhD in 2010 and was offered a post-doctoral position in the same institution. The salary for this position was low in terms of the requirements for work permits emerging (but was strictly tied to a grant and a particular university pay scale) and so qualification for a visa for the full three years of the project was uncertain. The lack of clear information about the work permit conditions and anxiety about being unable to complete the project caused the researcher to leave the post early for a higher-paid post at a different institution to ensure their work permit status would facilitate completing their research. This caused a hiatus in the original project which adversely affected the research outputs.

A Nigerian national who completed his PhD in the UK and went on to conduct research and lecture has been unable to work after his application under the Highly Skilled Migrant Programme was refused in 2009. Since then, he has re-applied for the permission to work on numerous occasions. As his wife is currently studying in the UK and they have a young son he is unable to return to Nigeria but is also unable to take paid employment. Often skilled researchers who reside in the UK for a number of years will come to see the UK as their home.

**It is important to note that the major losers here are the UK employers, as the postdoctoral scientist will be a highly trained person central to the effective running of the laboratory and in turn achieving the research outcomes. The sudden removal, even though they are often**

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<sup>13</sup> Information received from the University of Nottingham and Brunel University.

**desperate to complete the research is a major loss for all concerned. Since a high proportion of research is publically funded, any researchers from overseas who are forced to leave their positions due to these regulations could undermine the productivity of this investment and be potentially wasteful.**

- There are also problems reported due to the unpredictability of acquiring short-term visas for visiting academics. One example is of a Ukrainian academic who received funding to work in the UK for a week at a high-technology government-funded facility as part of a collaborative project on fish embryo freezing in 2012 but who's visa was denied without appropriate explanation, and so could not utilise either the funding or the booked time on the equipment. Without any change of circumstance the researcher was then later granted the visa (in late 2013) but at very short notice and giving little time for his UK collaborators to prepare for experiments. This unpredictability stifles international research collaborations and could result in wasted funding and delays to research progress.
- The inflexibilities of the Academic Visitor Visa is highlighted for those applying for the 'Science without Borders scheme'<sup>14</sup>. The scheme allows postdoctoral researchers to come to the UK for 6-12 months (extendable for up to 2 years). However, the visa situation is complex. The Academic Visitor visa has a strict one year limit, so the applicants are advised to ignore the Academic Visitor Visa in case they would like to extend their stay, and to apply for a tier 5 visa instead. Such instruction is complex and off-putting for the incoming student.
- We have heard that, on occasion, non-EU overseas students and researchers have been unable to obtain visas in a timely manner to visit research collaborators, conferences and training courses in Europe. Researchers based in other European countries do not face these challenges when travelling within the Schengen Area. There is genuine concern that students and researchers choose to go to other countries where there is a greater freedom of movement.

## Conclusion

The entire academic and business pipeline need to be attractive to international STEM students in order for them to choose to study in the UK. Whilst cause and effect can be hard to ascertain, from consultation within our membership and from looking at the available data, the Society of Biology is concerned that immigration policy reforms since 2010 have impacted the number of talented students and researchers attempting to pursue an academic career in the UK.

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<sup>14</sup> Postdoctoral applications, Science without Borders <http://sciencewithoutborders.international.ac.uk/student-applications/postdoctoral-applications.aspx>

## Member Organisations of the Society of Biology

### Full Members

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British Society for Medical Mycology  
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MONOGRAM – Cereal and Grasses Research  
Community  
Nutrition Society  
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UK Environmental Mutagen Society  
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