POLICY BRIEFING

Science and Engineering Education and Skills

CaSE
Campaign for Science and Engineering

SUMMARY

The science base is as strong as the people in it, not just the institutions and equipment they use. There is fierce global competition for talented people and an active transfer market of scientists and engineers across the world. The UK must be able to attract and retain the best people into its research companies, charities, universities and schools.

This requires migration policy that facilitates global recruitment into UK industry and academia and welcomes talented people.

Furthermore, the UK needs to develop its home-grown pool of people with science and engineering skills to meet workforce needs. There are many different routes into STEM careers, be it through further education, higher education, apprenticeships, or a combination of these pathways.

Currently too many research-intensive companies say they can't recruit people with the skills they need from the UK. Attracting a wider range of people to study and work in science and engineering will help meet our country's skills needs, provide fulfilling careers for our own workforce and well-paid jobs for the economy.

This briefing encompasses the full range of mathematical, scientific and engineering disciplines at all levels of education and the workforce. It includes key actions the science and engineering sector want to see reflected in political party manifestos and taken in the next term of Government relating to 5-19 Education, Higher Education, Diversity and Immigration.

Priority Actions

5-19 Education

ACTION

Work towards policy stability that enables teachers and schools to focus on teaching our young people rather than navigating complex new system changes.

ACTION

It should be an expectation that by the end of the next term of Government every primary school appoints a science subject leader who receives training to remain up to date through appropriate subject-specific professional development.

Higher Education

ACTION

Commit to providing sufficient funding, through the course fee and additional government contribution, to meet the higher costs associated with high quality science and engineering provision.

Diversity

ACTION

Unconscious bias training should be made mandatory for all members of grant-awarding boards and panels across all 7 Research Councils.

Immigration

ACTION

Immigration policy and implementation must complement and support science and innovation policy aims so that industry and academia can attract the brightest and best to the UK science base.

5-19 STEM EDUCATION

Stability in the education system is much needed. A period of curriculum and assessment stability is required after new policies are introduced. It has been suggested that this needs to be a minimum of 3 years to enable and encourage teachers to fully embed the curriculum[1].

ACTION

Work towards policy stability across parties and between political cycles that enables teachers and schools to focus on teaching our young people rather than navigating complex new system changes.

Teaching STEM

There are not sufficient numbers of science, maths or computing teachers to meet the demand from schools and pupils in England[2]. In 2013/14 there was a deficit of over 1000 teachers in STEM subjects compared to recruitment targets. The issue is currently most acute in Physics which under-recruited by around 300 teachers and Computer Science which recruited just over half the target of 620 teachers thought to be required to teach the new curriculum. There was also significant under-recruitment of Mathematics and Design and Technology teachers. This issue is compounded by the lower acceptance rate of trainees through the School Direct process and, in many cases, by multiple years of under-recruitment.

In 2013/14 there was a deficit of over 1000 teachers in STEM subjects compared to recruitment targets.

Due to the shortage in specialist teachers many science teachers will teach outside their specialism. At secondary school, pupils in schools with high numbers of students receiving free school meals (FSM) or with special educational needs (SEN) are less likely to be taught by a specialist teacher for each of the sciences[3]. In particular, only 19% of science teachers across the system are physics specialists. As the level of specialist qualification of the teacher has been found to be the second most effective predictor of pupil performance in physics, this is deeply concerning[4]. In mathematics, a quarter of teachers had neither studied maths to degree level nor as part of their initial teacher training. A survey of teachers has reported that to get more good teachers into more challenging schools then pay and other incentives need to be looked at[5].

ACTION

The Government must work with schools and teacher training providers to both increase the number of science and maths teachers and to channel specialist science and maths teachers into the schools where they are most needed.

ACTION

The number of teachers, by discipline, recruited through School Direct must be reported annually by teaching schools.

[1] Teachers' experiences of science curriculum reform, Ryder et al, 2014
[2] Due to the devolved nature of policy making for education in the UK, when discussing 5-19 education this briefing focuses on the English education system. However many of the observations and recommendations are applicable across the UK.
[3] Mathematics and Science in Secondary Schools, Moor et al, 2006
[4] Science Education in Schools, the Teaching and Learning Research Programme (ESRC) 2006
[5] Cracking the code: how schools can improve social mobility, Social Mobility and Child Poverty Commission 2014

Only 5% of primary teachers have a science related degree.

Research shows the strong impact that primary teachers' knowledge and confidence in science have on students' attitudes towards science and their attainment and progression in it[6]. Data from 2009 found that only 6,000 science specialists were distributed over 17,000 maintained primary schools in England[7]. Currently around 5% of primary teachers have a science related degree[8]. Due to the scale of the gap, while seeking to increase the number of science graduates training as primary school teachers, it is essential that teachers without existing science specialism are trained as science subject leaders.

ACTION

It should be an expectation that by the end of the next term of Government every primary school appoints a science subject leader who receives training to remain up to date through appropriate subject-specific professional development.

ACTION

Support the increase in primary science expertise by investing in the professional development of existing primary teachers (at a cost of £2 million per annum)[9] to ensure that every child has access to a high-quality science education.

There is evidence that the removal of national tests for science at Key Stage 2 has had an impact on the teaching of science in many primary schools and mostly in negative ways, such as reduced lesson time and the perception that science is less important than other core subjects[10].

ACTION

Mathematics and science are both core subjects and must both be treated as such by schools and by Ofsted in the way they are monitored.

The brunt of the impact will likely be felt in schools where achieving basic numeracy and literacy is more of a challenge. These are both central to success in STEM. Therefore it would be beneficial to integrate numeracy and literacy learning into science education, rather than to focus on them at the expense of science education[11].

In addition to recruiting new science and maths teachers, continuing to develop and update the skills and knowledge of the existing teaching workforce is a key factor in delivering quality science and maths education. Subject specific CPD needs to be a central feature of a teaching career. Despite grants[12] and some excellent CPD courses[13], time, funding and lack of priority by managers can limit teachers' access to CPD. In one study half of all secondary science teachers surveyed had had no subject-knowledge professional development in the past five years[14]. There have been calls from the sector to raise the professional status

[6] Science as a Key Component of the Primary Curriculum, The Wellcome Trust, 2008
[7] State of the nation report on 5-19 science and mathematics education, Royal Society, 2010
[8] Building Expertise – the primary science specialist study, Wellcome Trust, 2013
[9] Estimate from the Wellcome Trust. The current Primary Science Specialist course being offered by National Science Learning Centre has a cost of £3011 which includes 3 x 2 days residential at the NSLC.
[10] Primary science survey report, Wellcome Trust, 2011
[11] Schools Report, Ofsted, 2011/12
[12] https://www.sciencelearningcentres.org.uk/about/bursaries/enthuse-awards/
[13] https://www.sciencelearningcentres.org.uk/cpd/
[14] Science Education in Schools, the Teaching and Learning Research Programme (ESRC) 2006

of teachers and to see them as an integral part of the professional STEM community. Professional development and career progression routes are central to achieving this[15]. Learned societies play a useful role in offering professional accreditation for science teachers[16] that also connects teachers with the wider scientific community.

ACTION

Make subject specific professional development a core requirement for teachers and technicians and link it to career progression.

ACTION

Improve access to CPD by continuing to provide funding for CPD and creating incentives for schools to give teachers sufficient time to partake in it.

Subject choice

STEM education from 14-16 usually consists of the study of science and mathematics, with little specific coverage of technology or engineering. Most pupils work towards one GCSE in mathematics and one, two or three GCSE's in science[17].

ACTION

All students should be required to study a balance of biology, chemistry and physics in some form up to Key Stage 4 (age 16).

ACTION

All students should be given the opportunity to study all three of biology, chemistry and physics GCSEs.

Practical Science

Science by nature is a practical subject and the most effective approach to engaging young people with science is through practical investigations. Further, making science interesting for pupils also raises achievement in science[18]. Therefore if we want to see young people enjoying, achieving and continuing in science, all students studying science should receive a rich practical experience. Recent policy changes separating the grade for practical work from the main qualification grade at A-Level may devalue practical work and therefore there may be reduced support in terms of funding, technical support and professional training. The new minimum requirement of 12 practical activities at A-level[19] is a welcome but necessary introduction to prevent practical work from being deprioritised. Further, direct assessment of practicals is important. It was removed from Psychology A-level a number of years ago and replaced by a written examination of practical skills. The HE sector reports that Psychology students are now more poorly prepared for undergraduate study of Psychology.

Science by nature is a practical subject and the most effective approach to engaging young people with science is through practical investigations.

[15] Vision for science and mathematics education, Royal Society, 2014
[16] Such as the Chartered Science Teacher (CSciTeach)
[17] The POST Note on STEM education for 14-19 year olds provides a more detailed breakdown of the GCSE options for science
[18] Ofsted, Maintaining curiosity: a survey into science in schools, 2013
[19] Ofqual response to Alevel regulation consultation, 2014

ACTION

All science curricula and qualifications, including at GCSE, AS and A Level, need to include the teaching and direct assessment of practical skills as an integral part of the qualification.

Funding for science practical work in schools is already constrained averaging £8 per student in 2011/12, falling as low as 75p in some schools. The average in independent schools was £27. On average, state-funded secondary schools have just 70% of the equipment and consumables they need to teach science subjects, with four in ten having less than 70% of the required equipment and consumables. To compensate, nearly 70% of schools reported that staff had contributed to the core science budget for normal curricular activities by paying for items themselves, for which they are not always reimbursed[20].

ACTION

Schools should be adequately funded to ensure that student choice within science is never restricted due to cost.

ACTION

The Government should review the infrastructure for practical science, including technician support, and target investment to bring up the least resourced to improve science education for the most disadvantaged.

Careers Education

Studying STEM subjects at school, college or university opens doors to a wide range of careers, many of which do not yet exist. And yet a recent report for BIS found that young people had a view that STEM subjects lead to limited career paths[21]. Careers education is an essential part of a good education and schools in England are now legally obliged to arrange independent, impartial careers advice. Yet Ofsted have reported that three quarters of the schools they visited were not implementing their duty effectively[22]. In one report only 2% of respondents agreed that schools were providing young people with sufficient careers advice to make effective decisions on their post-16 education[23]. Recent research outlines eight benchmarks that could be used to highlight and measure 'what good careers guidance looks like' and could be implemented in schools nationally, at a cost of less than 1% of a school's budget[24].

2% of respondents agreed that schools were providing young people with sufficient careers advice to make effective decisions on their post-16 education.

There is evidence to support the value of more sustained activity to integrate careers awareness into the mainstream science curriculum, rather than 'one-off' interventions.[25 26]

ACTION

All teachers should be supported in integrating science careers awareness as part of teaching and learning by including training on careers education within initial teacher training and subject-specific or other CPD for teachers.

[20] Resourcing practical science at secondary level, SCORE, 2013
[21] Project STEM Book of Insights 2014, BIS
[22] Going in the right direction?, Ofsted, 2013
[23] Supply Chain for Employment and Skills survey, Local Government Association, 2014
[24] Good Career Guidance, The Gatsby Foundation, 2014
[25] STEM careers review, Gatsby Foundation, 2010
[26] Nuffield Practical work for learning: Science in the workplace Research summary, Nuffield Foundation, 2012

From a budget of £94m, Government has set aside only £4.7m to fund the National Careers Service (NCS) for young people with the rest dedicated to adult careers services. A continued and steady decline in the use of the NCS services with only 27,400 interactions with young people last year suggests it is not fit for purpose[27]. Although it has recently been updated, the content of both the young people and STEM career pages unhelpfully perpetuate many STEM and gender stereotypes, are difficult to navigate, and need to be improved if they are to offer a good service for young people.

ACTION

The content and emphasis of the National Careers Service online should be urgently reviewed and amended with input from STEM careers specialists.

Vocational STEM Education

Most English young people take some vocational courses before they are 16 and the majority follow courses which are largely or entirely vocational post-16[28]. Across science and engineering there is a need for upwards of 450,000 new STEM based technicians by 2020[29]. Around one-third of the science workforce in the UK is non-graduates working with science skills in a variety of ways and many of these will be highly skilled technicians[30].

However, there are concerns around the continuing provision of high quality, well-funded vocational STEM courses. There is considerable cost involved in providing some STEM programmes over and above other subjects. Data suggest that the current programme weightings for funding science, engineering and IT in FE colleges do not adequately reflect the cost of delivering these practical subjects[31]. Leaving this unaddressed would be a disservice to students and a missed opportunity for investing in much needed skills.

ACTION

Commit to closing the Further Education STEM funding gap to ensure that STEM courses are high quality and feasible to deliver.

STEM apprenticeships can offer great employment and progression routes. In general, those taking apprenticeships experience lower funding, greater complexity and more variability in quality than university students[32]. The recent growth in apprenticeships has been mainly at the lower skill level with higher apprenticeships only making up 2% of total starts. Across all levels there are fewer than 500 apprenticeships in science and maths each year. Those within engineering are largely at the lower level[33]. With all political parties wanting to see more young people taking apprenticeships as a route into meaningful work, the opportunities available to young people must begin to reflect political discourse. As apprenticeships are developed in partnership with employers, the new standards should include skills which are relevant and valuable beyond just the current job, supporting progression within the sector. In science and engineering there are professional registration standards, such as Registered Science Technician, that are developed with the input of employers and the education sector and provide transferability and progression pathways.

Across science and engineering there is a need for upwards of 450,000 new STEM based technicians by 2020.

Across all levels there were fewer than 500 apprenticeships in science and mathematics.

[27] Taking Action: Achieving a culture change in careers provision, National Careers Council, 2014
Project STEM Book of Insights 2014, BIS
[28] Review of Vocational Education, Wolf Report, 2011
[29] The state of Engineering 2014, Engineering UK, 2013
[30] UK Science Workforce, Science Council, 2011
[31] The challenges of STEM provision for FECs, 157 Group, 2012
[32] State of the Nation, Social Mobility and Child Poverty commission, 2013
[33] Apprenticeships statistics, House of Commons Library, Feb 2014

ACTION

Science and engineering apprenticeships should link to professional registration standards to ensure transparency, quality and accountability.

Accountability

Recent changes to school accountability measures for exam results have significantly altered early exam entry demonstrating how these measures can drive behavioural change. It is therefore extremely important for school behaviour and student outcomes to ensure that accountability measures are appropriate, proportionate and well-designed. CaSE recommends using a wider set of measures than examination performance, such as measures of progression and added value.

ACTION

Use STEM related accountability indicators such as the number or deployment of specialist science and maths teachers, and measures of progression post-16 and post-18 by diversity characteristics.

40% of postgraduate research students and over 60% of postgraduate taught students are self-funded.

HIGHER EDUCATION

The funding of higher education must be sustainable and must also remain free at point of use. The provision of science and engineering undergraduate courses comes with additional costs associated with equipping laboratories and providing materials for practical work. They cost more to deliver than the current cap on undergraduate fees of £9,000, so without extra funding science and engineering subjects will not be a viable option for universities to offer undergraduates. The Government's funding for high cost subjects is designed to bridge the funding difference between the student fee and the cost of provision, but many have told us it is no longer achieving this.

The tuition fee cap reduces in value each year due to inflation, yet the costs for universities continue to rise. As more students take science and engineering courses the total funding for high cost subjects must increase to ensure funding per student, and therefore quality of provision can be maintained.

ACTION

Commit to providing sufficient funding, through the course fee and additional government contribution, to meet the higher costs associated with high quality science and engineering provision.

The Government, individuals and the wider UK have much to gain from an increased pool of skilled scientists and engineers. It is therefore absolutely right that Government meets the additional costs that come with teaching these subjects to the UK's future scientists and engineers.

Unlike undergraduate fees where there is no upfront cost for most students, postgraduate fees must be paid upfront and currently around 40% of postgraduate research students and over 60% of postgraduate taught students are self-funded[34 35]. With the urgent demand for more highly skilled STEM workers, including those at postgraduate level, it is essential that STEM postgraduate study is a feasible option for those who are not able to fund themselves. This is not currently the case.

[34] Postgraduate education in the UK, HEPI and British Library, 2010
[35] Broke and broken, NUS, 2010

ACTION

Postgraduate funding should be addressed to ensure that the system is affordable, fair and fit for a high-skill, high-tech future.

STEM Workforce

Evidence points to the benefits of increasing the level and depth of STEM skills in the workforce[36 37]. There are numerous reports pointing to a significant shortfall in STEM skilled workers and increasing demand for STEM skills in future, from technician level upwards[38 39]. There are estimates that the UK has an annual shortfall in domestic supply of around 40,000 new STEM skilled workers[40] and we need to double the number of graduates and apprentices in the engineering discipline alone by 2020 to meet demand[41]. Enabling more people access to STEM careers will benefit families and communities across the UK, in part due to high demand for workers and because, on average, those working in STEM occupations earn 20% more than those working in other fields[42].

One way to close the gap between supply and demand is to improve the participation, retention and success in STEM study, training and employment amongst populations currently underrepresented. This is necessarily a long-term solution. In parallel, immigration is an essential mechanism for meeting the UK's need for skilled STEM workers and brings with it wider benefits to the UK.

DIVERSITY

Improving diversity in STEM[43] education is desirable on the basis of equality of opportunity, to meet a real skills need in the UK and could also bring wider benefits. Studies show that organisations that deliver on diversity perform better financially, recruit from a wider talent pool, reduce staff turnover and increase creativity and problem solving capability[44 45 46].

Currently one in 20 first degree students are in receipt of Disabled Students Allowance (DSA), around 53,000 full-time undergraduates[47], up from one in 25 in 2005/06[48]. Disabled STEM students are less than half as likely (57%) as their peers to take up postgraduate study.

The DSA has been one of the higher education diversity success stories offering prospective disabled students a degree of certainty and a minimum entitlement of support during their studies and it is linked with improved retention rates[49]. Changes to the DSA for 2015-16 have been estimated to equate to 60-70% cuts[50] with the burden of support being squarely put onto universities[51]. Universities already contribute to the additional costs and resources associated with supporting and teaching disabled students, as they should. However, the proposed changes will only act to penalise those institutions that have so far been successful at attracting disabled students and disincentivise institutions from doing so in future.

On average those working in STEM occupations earn 20% more than those working in other fields.

[36] The demand for STEM graduates and postgraduates, CIHE, 2009
[37] The supply and demand for high level STEM skills, UKCES, 2013
[38] CaSE press release – skilled migration is essential, 7 Jan 2014
[39] Engineering our Future, CBI, 2014
[40] The STEM human capital crunch, The Social Market Foundation, 2013
[41] The state of Engineering, Engineering UK, 2013
[42] The labour market value of STEM qualifications and occupations, Department of Quantitative Social Science, Institute of Education, July 2011.
[43] See the full CaSE report, Improving diversity in STEM (2014), for a full set actions.
[44] Global diversity and inclusion: Fostering innovation through a diverse workforce, Forbes Insight, 2011
[45] Women Matter, Gender diversity, a corporate performance driver, McKinsey&Co, 2007
[46] Women in Engineering, IMechE, 2014
[47] NUS blasts David Willetts over changes to support for disabled students, Times Higher Education article, 7 April 2014
[48] HESA data, Students by disability
[49] Improving diversity in STEM, CaSE, 2014
[50] Ian Litterick Chair of British Assistive Technology Association, NADP press release, 11th April 2014
[51] David Willetts statement, 7th April 2014

Only 8% of British engineers are women, the lowest proportion in Europe.

ACTION

Government support for disabled students, at both undergraduate and postgraduate level, should have the current caps on financial support lifted, making it needs based, to bring it in-line with support for employment.

STEM subjects were found to account for 35% of the HE qualifications achieved by women in 2010/11, which is a decrease since 2006, returning to 2003 levels. Numbers remain high in biological sciences however more female undergraduates are studying languages than are studying engineering, computing, physical sciences and mathematics combined. The number of male undergraduate students in these scientific subjects is more than three times that of female students[52].

An often quoted figure is that only one in five A-level physics students are female, a proportion that has not improved in 20 years[53]. The uptake of physics does vary by school type with independent and single sex schools enrolling a higher proportion of girls to study STEM A-levels. Nearly half of state schools, however, did not send a single girl on to do A-level physics in 2013[54].

ACTION

School accountability measures should include an indicator of progression to and success at A-level and other post-16 qualifications by gender and other diversity characteristics.

ACTION

The Government should commit to adequate funding to support the ongoing work of the Equality Challenge Unit on the Athena SWAN Charter.

Recent evidence shows that women are less successful than men in getting grants from Research Councils across all age and grant categories – women averaged a 25% success rate, compared with men's 29%[55]. In response one Research Council is launching unconscious bias training for review panels. This is welcome but must spread further.

ACTION

Unconscious bias training should be made mandatory for all members of grant-awarding boards and panels across all 7 Research Councils.

The recent Perkins' Review highlighted that only 8% of British engineers are women, the lowest proportion in Europe, compared to Germany (15%), Sweden (25%) and top-performing Latvia (30%)[56]. This gender imbalance persists in STEM apprenticeships. In 2011/12 half of all apprenticeship starts were female. However, women are significantly under-represented in the STEM and higher-pay sectors such as engineering (4%), while men are under-represented in lower-pay sectors such as the children's and young people's workforce (7%)[57 58]. A recent survey of young professionals showed that a third of the men questioned were encouraged to take an apprenticeship in school. Just 17% of women received the same advice[59]. Further, the number of females achieving Engineering and

[52] Higher Education in facts and figures, Universities UK, 2013
[53] Closing Doors, Institute of Physics, 2013
[54] Closing Doors, Institute of Physics, 2013
[55] Gender Differences, Nature 507 (525), 2014
[56] Engineering skills: Perkins review, 2013

Manufacturing Technologies NVQs/SVQs was already low and in 2011 declined by a further 8% compared to a 19% increase for males over the same period[60].

ACTION

Actively improving diversity must be considered central to the development, design, promotion and evaluation of any new qualifications and apprenticeships.

Diversity needs to be integrated throughout government policy making for STEM if we are to see real change. And Government must lead by example, ensuring there are no intrinsic barriers to under-represented groups progressing into and within Government and linked public bodies, particularly those associated with STEM where there is not a strong history of diversity in leadership.

ACTION

A proactive approach should be taken, including the setting of goals, to improve the diversity of the public appointments for which the Department for Business, Innovation and Skills is responsible.

IMMIGRATION

The free movement of ideas and people plays a critical role in science and engineering. Part of the reason for the UK's global pre-eminence in these fields is our current and historical ability to attract the world's most talented minds[61]. One in ten UK academics come from outside the EU[62] forming an important part of our academic and commercial R&D base and helping train the next generation of British scientists and engineers.

ACTION

Immigration policy and implementation must complement and support science and innovation policy aims so that industry and academia can attract the brightest and best to the UK science base.

With support from CaSE and others in the sector, the Home Office has worked towards regulations which facilitate immigration of skilled people in to the science and engineering sectors while implementing the Government's policy to reduce net migration. The 'Shortage Occupation List' for visa applications, drawn up by the Home Office, lists demand for 26 occupations that require STEM-skilled people – three quarters of the total. This list shows that the UK urgently needs to recruit from overseas: engineers in the oil and gas industry, aerospace, nuclear waste disposal, railway signalling and automotive industries; hospital doctors in a range of specialities from A&E, anaesthetics, to old age psychiatry, radiographers, specialist nurses for neonatal intensive care; and, crucially, secondary school teachers in science and maths.

ACTION

Lift the cap on skilled migration through Tier 2 visas so that businesses and growth aren't held back by an arbitrary limit.

A major worry for the sector is that the UK is seen as 'closed for business'.

[57] Under-representation by gender and race in apprenticeships, TUC, 2013
[58] UKRC statistics guide, 2010
[59] City and Guilds survey, March 2014
[60] Women in Science,Technology, Engineering and Mathematics: from Classroom to Boardroom, WISE, 2012
[61] Response to Migration Advisory Committee consultation on the level of an annual limit on economic migration to the UK. CaSE, 2010
[62] HESA data

an 'unwelcoming' UK has led to an unprecedented fall of more than 10% in the last two years in international STEM student numbers.

A major worry for the sector is that the UK is seen as 'closed for business'. The persistent tough rhetoric and regulations from politicians without a consistent message encouraging skilled migration may discourage more migrants than the new regulations themselves. It is vital that both Government and scientific bodies can come together to highlight the UK's continuing desire to be a global science and engineering hub. The message that the UK is 'open for business' for skilled scientists and engineers must be genuine and reach those who might wish to study, work or locate their businesses in the UK.

ACTION

Ensure that skilled migration is positively and publicly encouraged by Government as a vital part of making the UK the best place in the world to do science.

The reforms to student visas, such as changes to the Post-Study Work route, reduce the scope for foreign graduates to seek employment in the UK. This is damaging the competiveness of our Higher Education system. Indeed the recent Science and Technology Committee report on International STEM students stated that an 'unwelcoming' UK has led to an unprecedented fall of more than 10% in the last two years in international STEM student numbers[63]. For instance, Chinese students are flocking to universities in the USA and Australia, compared to ten years ago when they were as likely to study in the UK as the USA. The number of visas granted to Indian nationals has fallen by over a half since 2010, which is concerning when you consider that the UK accounts for about a quarter of India's outbound Foreign Direct Investment[64].

International students contribute at least £10.2bn every year to the UK through fees and living expenditure[65] alone, even before one considers the benefits to UK businesses of being able to access some of the world's best talent. This is at a time when our competitors are seeking to make their Higher Education systems and post-study work opportunities more attractive. Higher education is a rapidly growing export market and the UK must take action to reverse the damaging downward trends.

International students contribute at least £10.2bn every year to the UK.

ACTION

The Government should reverse its policy on Post-Study Work visas, sending a strong message to the international community and giving students more flexibility to use their skills to contribute to the UK's economy.

The 'Exceptional Talent' route in Tier 1 was launched with bold ambitions to make it straightforward for the world's top and emerging talent to come to the UK. There are concerns about application processing time, lack of awareness of the route and the high fees (in excess of £800 per applicant and any family members) for this route. There are pilots underway to explore automatic eligibility for this route, making use of the existing peer review process within the research community.

ACTION

Expand the exceptional and future talent Tier 1 visa route and continue to fine tune eligibility; raise the profile of the route and the application process in partnership with the academic community for mutual benefit.

[63] House of Commons Science and Technology Select Committee report on International STEM students, 2014
[64] Paying its way, The Economist, 9th Nov 2013
[65] International Education: Global Growth and Prosperity, HM Government, 2013

CaSE
Campaign for Science and Engineering

CONTACT US

Call 0207 679 4995
Email info@sciencecampaign.org.uk
Visit www.sciencecampaign.org.uk
Tweet @sciencecampaign

ABOUT CaSE

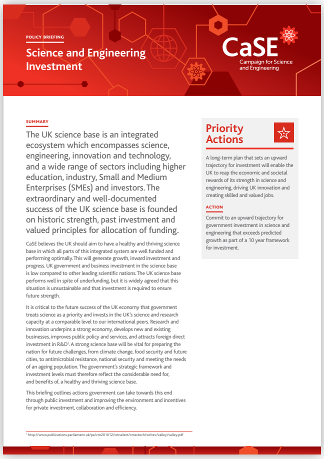
The Campaign for Science & Engineering (CaSE) is the leading independent advocate for science and engineering in the UK.

We speak with the voice of our members from across the science and engineering community, in industry and academia, to raise the political profile of science and engineering and deliver independent, authoritative analysis to convey its economic and societal importance.

FIND OUT MORE

This policy briefing is part of a set of three which can be downloaded at www.sciencecampaign.org.uk

The briefings cover Investment, Education and Skills, and Science and Engineering in Government and were developed in consultation with our members and collaborators from across the science and engineering sector. They set out the actions we want to see reflected in political party commitments and taken in the next term of Parliament.



Published October 2014 Designed by vincentdesign.co.uk