

Written evidence submitted The Royal Society of Edinburgh (WSC094)

A. SUMMARY

- The Royal Society of Edinburgh (RSE) warmly welcomes the decision by the House of Commons Select Committee on Science and Technology to conduct an Inquiry into Women in STEM Careers.
- The loss of qualified women to the STEM sector has been widely recognised as a major issue in the UK for some time. The under-representation of women in STEM is of particular concern when the strategic importance of this field is considered: economic growth relies heavily on innovation and knowledge, especially in science and technology.
- Various excellent reports have been produced analysing the causes and consequences, but progress in putting practical measures into place to tackle the issue has been disappointingly slow.
- **The present priority is to identify and encourage actions that will turn the tide - not simply restate the problem. It was in this spirit that the RSE produced a major report last year entitled “Tapping All Our Talents”.**
- Since then, the RSE has promoted the recommendations widely through an extensive series of dissemination meetings, including to Westminster, the Scottish Government and the European Union.
- Attracting and retaining more women in the STEM workforce to boost economic growth is a public policy challenge which demands public, private and third sector solutions. The key recommendations from the RSE Inquiry were aimed at encouraging:
 - **Scottish Government** to take the lead in committing itself to a national strategy for Scotland aimed at retaining and promoting women in STEM.
 - **UK Government** to extend existing parental leave legislation to recognise the equal responsibilities of mothers and fathers for parenting.
 - **Business and industry** to address the issue of job design and selection and retention policies; and to introduce quality part-time employment at all levels for men and women.
 - **Funders of universities and research** to link funding to gender equality and seek to encourage a level of performance equivalent to an Athena Swan Silver Award.
 - **Universities and research institutes** to obtain the minimum standard of an Athena Swan Silver Award (or equivalent) for their STEM departments.
 - **Academies, learned Societies and professional bodies** to set standards that help to change the culture; lead by example – ensuring that appropriate data is being collected, analysed and reported regularly, with trends examined.
- There has been some modest progress since the RSE report was issued, but much remains to be done. This includes changing attitudes – of both men and women – and employer practices, especially in the business sector.
- Whilst the work undertaken by the RSE was primarily looking at the impact within Scotland, much of the evidence that was gathered also indicated that similar challenges exist across the UK and indeed in many other countries.

- The RSE would be pleased to have an opportunity to provide witnesses to contribute to the consideration of the Committee.

B. THE ROYAL SOCIETY OF EDINBURGH

1. As Scotland's National Academy, the Royal Society of Edinburgh (RSE) supports and welcomes the Inquiry that the Science and Technology Committee of the House of Commons is undertaking on Women in STEM Careers
2. The RSE has a multi-disciplinary Fellowship of over 1500 and is a product of the Scottish Enlightenment, having formed in 1783. The RSE Fellowship is uniquely wide and includes experts across the full range of academic disciplines – science, engineering and technology, arts, humanities and social sciences – as well as the professions, business and public service.
3. Within that Fellowship, past and present, are many leading Scottish and international scientists, both male and female. Like many other similar organisations, where the accolade of Fellowship is for life, the overall proportion of female Fellows is rising slowly. This is due to measures taken in recent years to increase the number of women elected on merit to the Fellowship. Over the last five years the percentage of women amongst new Fellows has been 21.2%. This compares with just over 19% of Professors in Scottish universities being female.
4. The RSE in 2011 also established the Young Academy of Scotland, whose membership is recruited from early career researchers and professionals. Of the members elected to the Young Academy to date 43% are women.
5. One of the RSE's core aims is the "Advancement of Useful Knowledge". This includes providing scientific advice to each of the Governments and Parliaments relevant to Scotland in order to ensure that decision makers have access to current and relevant information before concluding on policy issues.
6. As part of its mission, the RSE regularly engages with decision makers on specific issues of public policy. A full range of the advice papers prepared by the Society is available through our website at www.royalsoced.org.uk.

C. TAPPING ALL OUR TALENTS

Of particular relevance to the Inquiry that the Committee is undertaking is the Report published in April 2012 by the RSE on Women in STEM – "Tapping all our Talents".

1. This report was produced by an RSE Working Group co-chaired by the eminent astrophysicist Professor Dame Jocelyn Bell Burnell FRS FRSE, and the social scientist Professor Alice Brown CBE FRSE (who is currently the General Secretary of the RSE).
2. In preparing its report, the RSE consulted widely and sought views from academia, the private sector, public sector, trade unions and the third sector.
3. The decision to create an expert Working Group mainly of Fellows to examine the issue was encouraged by Professor Anne Glover CBE FRSE, formerly Chief Scientific Adviser to the Scottish Government and now fulfilling a similar role for the European Commission.
4. There is widespread agreement that science underpins key sectors of the Scottish and UK economy and is a vital component in the creation of economic growth. But sustainable

economic growth can only be achieved if we make best use of the skills of our people to boost productivity, and support the flow of knowledge from our universities and colleges into wealth creation. The RSE believes change is necessary to ensure Scotland makes full use of its available talent by tackling the under-representation of women in the science, technology, engineering, and mathematics (STEM) workforce.

5. It has been estimated that increasing the participation of women in the UK labour market could be worth between £15 billion and £23 billion (1.3-2.0% GDP), with STEM accounting for at least £2 billion.
6. Although recent years have seen significant increases in the number of female STEM graduates and postgraduates, the numbers who proceed to take up senior positions in universities, research, business and industry remain proportionately much smaller than in the case of their male counterparts. In a straitened economy where higher education is free (in Scotland), the failure to provide a workplace where skilled individuals – whether male or female – can progress and thrive is a wasted investment in human capital and represents a serious loss of potential. For students in the rest of the UK, the issue is even more serious, given the levels of debt incurred by students at undergraduate level, much of which is related to tuition fees.
7. The RSE report makes the case for a cohesive and comprehensive strategy for Scotland to increase both the proportion of women in the STEM workforce, and the number who rise to senior positions in universities, institutes and business. The report provides practical advice on what can be done by those who have a key interest in STEM to harness the full potential of women in science.
8. The RSE report highlights the loss of talent of qualified female scientists to both the public and private sectors in Scotland – representing a loss of individual opportunity and a cost to the Scottish economy. The RSE has looked to each level of Government to address issues within their area of responsibility. The Select Committee inquiry provides an ideal opportunity to initiate action at a UK level.

D. PROGRESS SINCE “TAPPING ALL OUR TALENTS” WAS PUBLISHED

1. Since publishing its report, the RSE has disseminated the key findings around Scotland and the UK. This has included: holding public events in all of Scotland’s major cities; a presentation by Professor Dame Jocelyn Bell Burnell to senior officials at the Department of Business Innovation and Skills (BIS); then subsequently to the Select Committee for BIS in December 2012; and also to members of the Scottish Parliament. Professor Alice Brown also presented on the report further at the annual Parliamentary Science Links Day at Westminster in June.
2. Key issues that emerged from the dissemination events included:
 - A widespread welcome that the RSE had undertaken the Inquiry
 - Agreement that the problems identified in all sectors about women’s retention and promotion in STEM professions were valid
 - Disappointment that the private sector were not engaging in the issue to the same degree as the academic sector
 - A desire to see leadership and action in all sectors and not just words of encouragement
 - The need to develop more flexible working lives for men and women
3. Within Scotland, there has been some progress since the publication of the report. For example, the University of Edinburgh has recently attained the Gold Athena Swan Award for

its School of Chemistry – largely due to the commitment of Professor Lesley Yellowlees MBE FRSE, the first female President of the Royal Society of Chemistry.

4. Other scientific departments in Scotland are also making progress. However, during the course of the RSE Inquiry it became clear that further progress would require additional funding and staff resources. Consideration needs to be given to strengthening the resources given to institutions such as the Scottish Resource Centre for Women in STEM, the UK Equality Challenge Unit and other similar organisations to support academic institutions seeking to achieve progress in the Athena Swan Awards programme.
5. The Scottish Government has written a very supportive letter to the RSE on the recommendations of the Report¹. It stated that the Scottish Government had welcomed the RSE Report on its publication and highlighted key actions that it had taken forward since, including:
 - New funding for the Scottish Resource Centre for Women in SET
 - Hosting a Women's Employment Summit
 - Funding for CareerWISE Scotland to support more Women into STEM occupations
 - The establishment of a Strategic Group on Women and Work, chaired by a Minister
6. The Queen's Speech in 2012 also included proposed improvements in parental leave, which subsequently became part of the Children & Families Bill published on 5 February 2013, currently still being considered by the Westminster Parliament.
7. A full copy of the RSE Report can be accessed at the web-link below. However, hard copies can be provided on request. The recommendations summarised earlier in this response are not repeated, but the evidence and reasoning for them are fully set out in the Report that is referenced.

E. ADDITIONAL INFORMATION AND REFERENCES

Tapping all our Talents - Women in Science Technology Engineering and Mathematics (April 2012)
http://www.royalsoced.org.uk/1027_Report.html

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¹ http://www.rse.org.uk/cms/files/advice-papers/inquiry/women_in_stem/Scottish_Government_Response_2013.pdf