

Yr Athro/Professor Julie Williams CBE
Prif Gynghorydd Gwyddonol Cymru
Chief Scientific Adviser for Wales
Adran yr Economi, Gwyddoniaeth a Thrafnidiaeth
Department for Economy, Science and Transport



Llywodraeth Cymru
Welsh Government

Dear Jocelyn,

Thank you for your email containing the questions from the Finance Committee that arose following their meeting on 11th December. I am sorry not to have been able to attend that meeting as I had been asked to represent Welsh Government at the G8 meeting in London. I hope the information given below will provide the details you require:

How effectively does the £71 million allocated by HEFCW for Quality Research support research in Welsh HEIs?

- It is my understanding based on the evidence outlined below, that the £71m allocated by HEFCW for Quality Research (QR) support is very effectively spent in Welsh HEIs. HEFCW allocates QR funding selectively to recognise and reinforce research excellence.
- The recent report prepared by Elsevier for Welsh universities, HEFCW and Welsh Government: International Comparative Performance of the Welsh Research Base – November 2013, gives clear evidence of research excellence in Wales:
 - It is clear that researchers in Wales punch well above what would be expected from the QR support they receive. In terms of productivity [publications per researcher] and efficiency [publications per unit of gross expenditure on R&D (GERD)], Wales's performs **above** the UK average.
 - In terms of publications per unit of gross expenditure on R&D (GERD), Wales has over the past 6 years become the most efficient country in the UK and one of the most efficient in the world for countries of a similar size (In 2011, Wales produced 7.5 publications per unit of GERD, compared with 3.7 for the UK, 3.6 for Ireland, 3.5 for Norway, 2.3 for Finland and 2.5 for Sweden).
 - Citation numbers are used as the gold standard measure for research excellence. Wales has an increasing field-weighted citation impact, comparable to that of Norway, Finland or Sweden demonstrating that it is efficient at translating research income into high impact research (Field-weighted citation impact is increasing at 2.26% compound annual growth rate between 2007 and 2011 at 58% above world average in 2011).
 - Perhaps more important is the same HERD (Higher Education R&D; country's academic output to its expenditure on higher education) figures comprising 49% of Wales total GERD where in terms of publication per unit of HERD, Wales is

second only to New Zealand and most efficient country in the UK (In 2011, Wales produced 13.7 publications per unit of HERD, compared with 11.8 for the UK, 11.5 for Ireland, 9.8 for Norway and 8.2 for Sweden).

- Wales' share of the top 1% highest cited articles is 0.7%, over twice as high as might be expected based on the overall publication share of 0.3%.
 - Wales accounts for 0.3% of publication output globally and 4% of UK output.
 - Wales had the highest level of start-ups and spin-offs per unit GERD in 2011 of the UK constituent countries.
 - Wales had the highest level of IP disclosures per unit GERD in 2011 for the UK constituent countries.
- *Should HEFCW's QR funding continue to be targeted at a small number of research intensive HEIs or be shared more widely?*
 - It is important to note that HEFCW has followed moves also reflected in other parts of the UK to focus QR more selectively to promoting 'sustainable research excellence'. This is done according to the QR formula which is based on performance in the 2008 Research Assessment Exercise (RAE) conducted jointly by the four UK higher education funding bodies and following consistent academic excellence. Research is highly competitive and a strategy which does not focus on strength will ultimately weaken Welsh research.
 - *Glyndŵr University told the committee that the removal of £375,000 of research funding was a "significant loss" for them and that for every £1 that they got from HEFCW for research; they were able to generate £11 from other sources. Should HEFCW's funding formula be looked again to ensure that each HEI does receive some research funding?*
 - Unfortunately, not having access to the specific figures on which these comments are based, I do not feel it appropriate to respond to this question.
 - More generally speaking, it is important not to miss out on areas of emerging strength so we are hoping to extend current funding initiatives with new schemes that build on the platform put in place by Professor John Harries. The aim is to further build capacity through small grants to help support early career researchers to establish their own groups, to enable researchers to produce pilot data and to facilitate collaboration between groups both nationally and internationally.

What do Welsh HEIs need to do, and what support do they need, to win more funding from the Research Councils?

- *Do Welsh HEIs have effective contacts and representation on Boards and Networks in order to maximise the opportunities for research funding?*
- Of 106 seats available across the Research Councils, representatives from Wales occupy only two (Professor Paul Morgan, Cardiff University, MRC and Professor Chris

Pollock, Aberystwyth University, BBSRC). Increasing this to four or five will be part of the challenge in building our research capacity and our ability to shape Research Councils' policies. Our universities need to do more to encourage their staff to pursue any opportunities that arise.

- In terms of successful grant applications, universities can find it helpful if they have academic staff involved in Research Council boards and committees, as those individuals will have a deep understanding of the techniques that help to create a successful proposal and should be able to offer advice to colleagues on how to best structure a proposal. If more could be done to encourage those that are on Boards and Committees to share their knowledge and experience, through peer review or workshops for example, this could go some way into improving the success rates for Welsh academics.

Numbers of Wales-based Academics serving on United Kingdom Research Councils, their Boards and Committees:

Research Council	Council Members (Total membership shown in Brackets)	Boards and Committees
Arts and Humanities	- (15)	2
Biotechnology and Biological Sciences	1 (18)	9
Engineering and Physical Sciences	- (17)	5
Economic and Social	- (14)	3
Medical	1 (15)	3
Natural Environment	- (16)	1
Science and Technology Facilities	- (11)	7

- *Is it inevitable that Wales' share of Research Council funding will always be lower than other parts of the UK?*
- Wales' relative underperformance in winning Research Council grants is long standing and attributable in large part to the historic evolution of the Welsh HE sector, in particular its focus on arts and social science subjects and relative lack of academic staff in medicine and the physical sciences, where the relevant Research Councils have larger budgets.
- However, in recent years, Welsh Government policy has consistently encouraged our higher education institutions to expand research excellence by appointing new staff, encouraging research collaboration and thus improving grant capture in our themed areas of research: Life sciences and health; low carbon, energy and environment; and advanced engineering and materials. A number of initiatives are currently underway to help our universities to win more external research funding:
 - the Sêr Cymru programme to attract world-class scientific talent to Wales.

- the creation of complementary National Research Networks to build larger and more competitive research teams.
 - co-investment, alongside HEFCW and our leading research universities, in smaller joint initiatives such as the research leaders training programme, designed to improve standards of research management in our HE institutions.
- As mentioned above, HEFCW are focusing their research funding (the QR stream) on the best research teams in order to incentivise and reinforce ‘sustainable research excellence’.
 - We have encouraged the formation of groups such as the Wales Research Office Liaison Officers network (WROLOs) in an effort to encourage more cooperation, networking and sharing of research best practice across the Welsh HE sector.
 - *Which collaborative projects are particularly successful in winning research funding and what are the reasons for their success?*
 - Encouragement of collaboration is a general RCUK (Research Councils UK) policy. Their ‘Framework of Principles’ relates to funding for collaborative, multi-institutional research and related research activities, such as capital investment, doctoral training, innovation, knowledge exchange, and public engagement. Collaborations may include public or private sector research organisations, as well as business and other partner organisations where these bring distinctive contributions to the collaborative research activity.
 - HEFCW funded a number of successful collaborative projects, principally through its Reconfiguration and Collaboration Fund. These included the Wales Institute of Cognitive Neuroscience (involving Bangor, Cardiff and Swansea universities) and the Wales Institute of Social and Economic Research, Data and Methods (WISERD).
 - Collaboration through the establishment of the Wales Biostatistics and Bioinformatics unit a decade ago underpinned the success of the MRC Centre for Neuropsychiatric Genetics and Genomics, which has identified over 100 genes for disorders such as Alzheimer’s disease and Schizophrenia. This Centre is now considered world-leading.
 - The Elsevier report has shown that international collaboration outside the UK is both frequent and highly impactful for Wales:
 - Wales has the highest percentage of outside UK constituent collaboration of all constituent countries at 60%. Of these, 20% are publications co-authored with an author from within the UK, 40% from outside the UK.
 - Collaboration outside the UK saw the strongest 5 year compound annual growth of over 6%. In the same period, the total Welsh output grew with almost 2%, meaning that collaboration outside UK is growing more rapidly than total output.

- Although Wales shows a relatively low volume of academic-industry collaborative papers, these publications result in relatively high field weighted citation impact of 2.76. This is above the world average for this type of collaboration of 1.68.
- The strategic alliance between Aberystwyth and Bangor universities is building on a long-standing research and enterprise partnership between these two institutions, which was also supported by HEFCW. The alliance includes a number of collaborative research centres, primarily in the environmental sciences.
- Welsh universities have been collaborating with partners in England and Scotland in joint bids for Research Council doctoral training centres (DTCs). Cardiff and Bangor universities are members of two different partnerships awarded funding by the Natural Environment Research Council (NERC) to train the next generation of environmental scientists. Cardiff and Aberystwyth universities joined a south, west and Wales consortium that has received funding from the Arts and Humanities Research Council (AHRC) to deliver postgraduate training in a number of arts and humanities disciplines over the next five years. Separately, Bangor and Swansea universities, together with the University of Wales Trinity St David and the Centre for Advanced Welsh and Celtic Studies (CAWCS), will form part of a new collaborative doctoral training centre in the Celtic languages.
- In September, we announced the first National Research Network (in Health and Life Sciences), to be led by Cardiff University in partnership with Aberystwyth, Bangor and Swansea. The focus of the network will be drug discovery and development for unmet medical needs, and it aims to co-fund up to 50 PhDs and 30 fellows over the period 2014-19.
- The Farr Institute being set up Swansea in health informatics research, with new £20m MRC funding. This institute has major centres in London, Dundee, Manchester and Swansea (CIPHER) and will link research in 19 universities across the UK.
- Administrative Data Research Centres, part of the Economic and Social Research Council's (ESRC) £64 million Big Data investment. Four centres and a data service aim to strengthen the UK's competitive advantage in Big Data. At the core are the centres being led by the universities of Southampton and Edinburgh, Swansea University and Queens University Belfast, with the administrative data service being based at the University of Essex. Collectively, the grants package is about £34 million.
- Welsh colleagues are also involved in many of the Catapult centres, not least Swansea's membership of the Research Advisory Group of the Catapult on Offshore Renewable Energy where Strathclyde University plays a central role. Cardiff also has a strong collaboration with Strathclyde in Electrical Engineering / Grid Technology.
- The Universities of Bath, Bristol, Cardiff and Exeter announced a formal collaboration in early 2013, bringing together a high concentration of research expertise and capability in the South West of England and Wales. By creating critical mass of research excellence with other UK universities the aim is to tackle some of society's biggest research

challenges and to place these universities at the forefront not only in the UK, but internationally.

- The UK Dementia platform, led by Cardiff University has just received the first phase of a potential £12m from the Medical Research Council. This UK wide collaboration involves 20 well-characterised cohorts aimed at fostering research and encouraging future industrial collaboration. It will provide comprehensive physiological information on what happens as we get older and enter the early stages of neurodegenerative disease, and use a stratified approach to establish a programme of experimental studies aimed at the early detection, treatment and ultimately, prevention of dementias.

How can Welsh HEIs maximise the opportunities offered for research funding under European funding programmes particularly Horizon 2020?

- *Did Welsh HEIs maximise the opportunities available under the FP7 programme? If not, what more could have been done?*
- Overall Wales accounted for 2.6 per cent of UK participations and 2.1 per cent of UK funding in FP7. However, the UK was a very successful member state in FP7 and this should be kept in mind when assessing Welsh performance. It is also worth noting that there are many Welsh branches of UK or international organisations that are active in FP7 but whose participations are registered to the lead Institution or R&D headquarters outside Wales.
- Wales had strengths in accessing FP7 that can be built on. Statistically there was good performance in Health, ERC, Marie Skłodowska-Curie, FAFB (Food, Agriculture and Fisheries, and Biotechnology), ICT and NMP (Nanosciences, Nanotechnologies, Materials and New Production Technologies).
- Universities account for 71% of the FP7 drawdown in Wales and are therefore key to the success in Welsh performance.
- Wales was the first to launch Horizon2020 at a Wales Forum on Europe event in November 2013.
- Welsh Government also intends to submit an application to the Marie Curie COFUND call totalling approximately (€20M) to support 60 research fellows from Europe to come to Wales to work in the major themed areas in Science for Wales. This proposal will include all research active universities in Wales.
- More is being done to encourage Welsh Institutions to take part in Horizon 2020.
 - WEFO's new Horizon 2020 Unit provides a "one stop shop" supplying advice and support to organisations looking for the most appropriate research and development funding available from the European Union.
 - One key aim of WEFO's Horizon 2020 Unit is to maximise the impact of the existing support for accessing Horizon 2020 at Welsh, UK and EU levels for the benefit of

Welsh organisations. The Welsh Government is committed to improving Welsh organisations' access to Horizon 2020 National Contact Points (NCPs) and the Unit has already established a good working relationship with the current NCPs and brought them to Wales for targeted events; for example, the thematic workshops at the highly successful launch of Horizon 2020 in Wales held on 13 November.

- The support also includes the SCoRE Cymru scheme (Supporting Collaborative Research and innovation in Europe) which provides funding support to stimulate Welsh organisations to participate in European collaborative research including Horizon 2020. This can include up to £1,000 for the travel costs incurred in building partnerships and attending relevant research and innovation events, as well as up to £10,000 to support bid writing costs.
- The Horizon 2020 Unit is also engaging with the Welsh HE sector on how structural funds can be used to build capacity to improve performance in accessing competitive research funding such as Horizon 2020 working alongside Sêr Cymru investments.
- The Unit is also working closely with the Welsh Government and Higher Education offices in Brussels to raise the profile of Welsh research and innovation expertise in Europe.

Yours sincerely,

Julie

Professor Julie Williams CBE
Chief Scientific Adviser for Wales

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