South Korea Science and Innovation Landscape

Based on the latest figures from the OECD, in 2014 Korea spent $72.83 billion (approx. £52 billion) on R&D, maintaining its position as the fifth largest R&D investor in the world after the United States, China, Japan and Germany. In 2014 Korea became the highest ranked country in terms of R&D intensity with a gross expenditure on R&D (GERD) of 4.3%. The previous Administration had targeted this to increase to 5%, but this year saw the first real slowdown in R&D investment by the Korean Government. The 2016 total government R&D budget will be KRW 18.9 trillion (approx. £11 billion). The majority of Korean R&D is performed by the industrial sector (73.7%) and performed within the ‘chaebol’ or large international conglomerates including Samsung, LG and Hyundai/Kia Motors. The remainder is funded by the government and with research performed by national research institutes and universities.

In a policy announced in June 2013, the President Park Geun Hye administration announced its strategy for R&D support in the Third Korean Science and Technology Basic Plan. Overseen by the National Science and Technology Council, the new ‘High Five’ Strategy prioritises the translation of research output into new products, the generation of science and technology related jobs and small to medium sized enterprises, and increased support for basic sciences. Thirty technologies have been identified as economic priorities. This is a primary component of the Korean government ‘Creative Economy’ policy. Aligning strongly with the UK’s ‘Eight Great Technologies’ and industrial strategies, Korean government support is to be concentrated upon the healthcare, biosciences, ICT and new materials research sectors and provides interesting opportunities for collaboration with UK researchers.

South Korea’s rapid industrial and economic rise has been as a result of strategic investment in core and applied industrial technologies. While there is a high level of excellence in the basic sciences, to address the recognised need for a stronger platform for sustainable technological development, in 2012 the Korean government inaugurated the Institute for Basic Science (IBS). Modelled after the Max Planck Society (Germany) and RIKEN (Japan), the government has committed to the investment of $3 billion (£1.9 billion) between 2012 and 2015 in 25 autonomous institutes and the construction of a rare isotope accelerator. A core group of the institutes will be constructed together with the IBS headquarters in Korea’s science city of Daejeon, with the remaining institutes to be located at research institutions and universities.

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UK Science and Innovation in South Korea

The UK and South Korea first signed a Science and Technology Cooperation Agreement in 1985. As part of a biennial review of cooperation activities, the UK’s Department of Business, Innovation and Skills (BIS) and the Korean Ministries of Science ICT & Future Planning (MSIP), Trade, Industry & Energy (MOTIE) and Health & Welfare (MOHW) meet to agree new areas of collaboration. The most recent biennial meeting, the Joint Committee on Science and Technology Cooperation, was held in Seoul on 13 March 2015.

BIS/MSIP Focal Point Programme. The research areas selected for 2015-16 were 3D printing, advanced materials, big data, plastic electronics, and synthetic biology. Discussions are ongoing as to how to translate the networking and knowledge exchange activities supported by this programme to larger scale research initiatives.

BIS/MOTIE Science, Technology and Innovation Partnership (STIP) Programme. After discussions during the 2015 Joint Commission, the themes identified for future networking and knowledge exchange support include 3D printing, advanced materials, energy storage, fuel cells and smart grid technology.

BIS/MOHW Health Partnership. In November 2010, BIS and MOHW signed an agreement to support a joint collaboration programme funded principally by the Korean Government to look at the causes and treatment of Alzheimer's disease. Opportunities for wider collaboration include AMR, dementia, healthcare big data, medical devices and regenerative medicine.

SIN South Korea recent success stories/forward look

EPSRC and the Korea Institute for Energy Technology Evaluation and Planning (KETEP) have launched two £4 million matched fund calls for fuel cell technology (August 2014) and smart grids (October 2015). The August 2014 call was the first ever joint research call of any kind between the UK and South Korea. EPSRC also launched a further £4 million joint call in nuclear decommissioning and radioactive waste management in partnership with the Korean Ministry of Science, ICT and Future Planning.

In November 2015, the MRC and the Korea Health Industry Development Institute, affiliated to MOHW, announced a new Partnering Awards programme. With a total of £1 million matched funding, this programme will fund 50 one year long networking and knowledge sharing projects with the aim to strengthen healthcare research links and identify future longer term and larger scale research calls.

At the UK-South Korea Future Health Forum in London in September, the MOHW stated its intention to continue its financial support for the UK-Korea Alzheimer's Disease Consortium through a multi-million pound investment to support researcher mobility and research activity between 2015 and 2019.

In September 2015, the first of three cohorts of academic and industrial researchers from South Korea’s three largest shipbuilding companies entered a new programme in partnership with the Universities of Newcastle and Strathclyde. Generating £1.4 million of Business Wins, this programme will see up to ten masters and ten PhD students per year studying offshore engineering related programmes.

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