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articles 16 and 17 of the Covenant

UNITED KINGDOM OF GREAT BRITAIN AND
NORTHERN IRELAND

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Scientific progress and its applications

374. Everyone in the UK is entitled to enjoy the benefits of scientific progress and its applications. The Government's "Public Engagement in Science and Technology Programme" has moved in recent years from simply promoting public understanding of science to the wider agenda of facilitating public engagement with science and its applications. The Programme seeks to enable Government and scientists to respond proactively to public priorities and concerns; to increase public confidence in the benefits offered by science and technology; greater engagement with major issues facing society; and careers in science becoming more attractive to both adults and children. The programme supports a broad range of activities including:

- The "Science-wise Programme", launched in 2004, to enable citizens, the science community and policy-makers to engage in dialogue to inform policy and decision-making on key science and technology challenges. Science-wise has already provided grant funding for 10 key dialogue projects in areas such as nanotechnology, stem cells and climate change. The most recent project, "Science-horizons", launched in 2007, is the first ever mass public engagement programme in this area.
- Developing an expert resource centre for public dialogue.
- Supporting research to identify public attitudes to science/technology and scientists. A new survey in 2008 will build on research conducted by MORI in 2004 that shows that the UK public already has a positive attitude towards science and technology.

- Promoting good practice, co-ordination and co-operation with stakeholders, and produce publications such as the Government Chief Scientific Adviser's Ethical Code for Scientists.
- Supporting a cross-Government network of Science and Society Champions to increase the awareness of the science and society agenda in their organisations and encourage the use of public engagement tools to support policy-making.
- Supporting key stakeholder activities that can achieve a positive national impact, e.g. the Royal Society and Research Council UK's Science and Society programmes, National Science and Engineering Week, the British Association for the Advancement of Science Festival of Science, ecsite-UK, AlphaGalileo (the European internet press service) and the Foundation for Science and Technology.

375. In April 2003, the Government published "A Strategy for Women in Science, Engineering and Technology".¹⁶⁶ The Strategy is aimed at academia, industry and public service equally to tackle the problems of under-representation of women in the areas of science, technology and engineering (SET). The main new initiatives laid out in the new Strategy were: the setting up of a national Resource Centre; improved statistical monitoring, to enable the position of women's participation in SET to be accurately monitored and tracked. As part of the Government's strategy, the role of the Science Workforce and Diversity Team has been strengthened and become more strategic. Its new tasks include: overseeing the Resource Centre; working across government departments to ensure that they and their SET agencies and contractors follow good practice in their employment of women scientists; working within Government to ensure policies on science in schools, in careers advice and information, and in higher education take account of women in SET; working with those sections of Government which interface with relevant SET companies to ensure good management practice for women; carrying out policy advice and relevant Parliamentary work.

376. The UK Resource Centre for Women in SET (UKRC) was launched in September 2004 and works with British business to help maximise the opportunities for professional women in SET and close the skills gap that is damaging UK competitiveness. The UKRC supports the Governments strategy objective by:

- Recognising good SET employers and sharing good employment practice.
- Setting up and maintaining an expert women's database.
- Maintaining and disseminating statistics.
- Promoting innovation through developing support for initiatives such as mentoring, networking, speaker's bursaries and mobility.
- Supporting women scientists "returners" and co-ordinating the work of women in science organisations.

377. The UKRC has established links with over 70 major employers; 100 of these are currently working closely with the employers' team. 10 employers applied for the UKRC sponsored equality award as part of the Employer of the Year Awards. 11 Athena SWAN

Charter awards were made to Higher Education Institutions in March 2006 to recognise excellence in the retention and progression of female scientists. The GetSET database was launched in January 2006 to support women's visibility. Pump Priming Ad Hoc Funding Grants, to promote innovation, have received 8 applications totalling almost £140,000. L'Oréal and UKRC's programme to help women scientists returning to work will enable 3 £10,000 bursaries to be granted to women scientists every year - 21 applications were received in round one. Over 200 women have successfully undertaken the Open University / UKRC online course for women "returners".

Science initiatives

378. In addition to the National Science and Engineering Week, there are a variety of science festivals throughout the UK. The BA Festival of Science is one of the UK's biggest science festivals. Annually it attracts around 400 of the best scientists and science communicators from home and abroad who reveal the latest developments in research to a general audience, at a week long event held at a different location each September. Next year, in 2008, the Festival will take place in York, hosted by the University of York. Other important science festivals include the Edinburgh International Science Festival, the Orkney International Science Festival and the Cheltenham Science Festival.

379. Science and Discovery Centres represent a £500 million capital investment in the nation's future to introduce a non-specialist public and schools to enjoy science in engaging and interactive ways, as part of the "education and lifelong learning" goals of government departments. Every year, there are approximately 11 million visitors to science centres who participate in activities ranging from the freedom to explore scientific phenomena (i.e. the visitor-led experience) to the educational and vocational. Many of the science centres cover the STEM (Science, Technology, Engineering and Mathematics) agenda. Specialist centres such as The National Space Science Centre and the Eden Project are recent examples; and more museums have set up "science centres". Launch Pad and Flight Lab at the Science Museum and Xperiment at the Manchester Museum of Science and Industry are other examples.

380. Science centres work closely with Education Business Partnerships, with Learning and Skills Councils (and their forebears) and in a number of cases are funded by the Government. In 2006, a £3.2 million Arts Award funding scheme was launched as part of The Wellcome Trust's Engaging Science programme to support arts projects that engage with biomedical science. This scheme builds on the success of previous initiatives such as Sciart, Pulse and Science on Stage and Screen.

381. Science museums also promote the understanding of science and technology. Important museums or scientific collections in the UK include the Natural History and Science Museums in London, the Museum of Science and Industry in Manchester, the Museum of the History of Science in Oxford and the Royal Scottish Museum in Edinburgh. The collections of the National Museums and Galleries of Wales show how innovations in science and technology gave rise to the development of the coal, slate and woollen industries in Wales. The museums' style of engaging the public is also evolving.

For example, the Wellcome Trust has broken down traditional barriers between science and art through substantial investment in a range of exhibition initiatives, including recent shows at the Science Museum, British Museum and the TwoTen Gallery.

Research and development

382. Most expenditure on research and development in the UK is undertaken by private industry either within industry itself or through contracts with university or other establishments. Expenditure on research and development in the UK in 2005 was £21,764 million, 1.76 per cent of GDP; of this, £7,130 million or 33% of the total expenditure, was provided by the Government. Government funding for research is provided to develop technology and the economic well being of the country in cooperation with industry and the scientific community, to strengthen the science and engineering base, and to serve particular departmental responsibilities.

383. The UK Foresight programme, and its associated horizon scanning centre, focuses on strategies for the future by providing a core of skills in science-based futures projects and access to leaders in government, business and science. The starting point for a project area is either: a key issue where science holds the promise of solutions; or, an area of cutting edge science where the potential applications and technologies have yet to be considered and articulated. Foresight deals with issues of wide impact upon society - previous projects have included Flood and Coastal Defence, the Detection & Identification of Infectious Diseases, and Brain Science, Addiction & Drugs. Current Projects include Tackling Obesities. The Horizon Scanning Centre published two major scans looking ahead up to fifty years, covering both science and technology and the full public policy agenda.

384. The Office of Science and Innovation is responsible for a specific Science Budget designed to strengthen the science and engineering base by funding research and postgraduate training in universities and colleges of higher education and in establishments operated by the eight Research Councils, and to provide grants in aid for teaching and research by the Royal Society (for science) and the Royal Academy of Engineering. The Science Budget for the financial year 2007/08 is £3,451 million. In addition to the Science Budget, the Government provides approximately £1,500 million (2005/06) by means of block grant for scientific research in universities.

Monitoring the use of science and technology

385. The UK has a comprehensive regulatory framework for monitoring the use of science and technology. This consists of a network of expert advisory and regulatory bodies which advise the Government on the safety of products and processes, such as the Advisory Committee on Releases to the Environment for genetically modified organisms (ACRE) and the Advisory Committee on Novel Foods and Processes (ACNFP) as well as the social and ethical aspects of science, such as the Commission on Human Medicines and the Gene Therapy Advisory Committee (GTAC).

386. Some scientific developments give rise to profound ethical and social issues. For example, modern biotechnology has the potential to change healthcare and agriculture significantly. The Human Genetics Commission and a number of other advisory bodies, including the Sustainable Development Commission (SDC), the Royal Commission on Environmental Pollution (RCEP), take account of the need for broader integration of biotechnology issues with wider agriculture and environment considerations.

International cooperation

387. The Government makes an annual contribution to the UNESCO World Heritage Fund which helps to protect World Heritage Sites in danger, often in war affected countries. Since 1997, the UK has contributed to the World Heritage Convention and has, over the years, provided formal and informal training placements for large numbers of conservation professionals from overseas.

388. The UK Global Science and Innovation Forum is chaired by the UK Chief Scientific Advisor, and sets out the UK objectives and priorities for international collaboration in four areas: research excellence; innovation; global influence; and development. The Global Science and Innovation Forum also acts to coordinate activity across the main government departments and non governmental bodies in support of international collaboration. Significant areas of cooperation are the scientific programmes of the European Union. The Sixth Framework Programme of the European Union, in which the UK participated in a large number of the projects, ran until 2002. The Seventh Framework Programme, which runs from 2007 to 2013, has a significantly increased budget and is structured in four main programmes: “Cooperation”, supporting trans-national collaboration in nine thematic areas; “Ideas”, launching a new European Research Council; “People”, to support the mobility and training of researchers; and “Capacities” to boost and network European research capacities in areas such as research infrastructures, and regional capacities. The 7th Framework Programme is generally open to participation from countries outside the European Union, and specific actions are included across the various programmes that target this participation. The budget for this Programme is approximately €54 billion.

389. The UK continues to participate in EUREKA which supports industry driven research and innovation projects between EUREKA member states. In the COST programme (European Cooperation in Science and Technical Research), the UK takes part in a large number of the actions supported. Other organisations in which the UK participates include the European Space Agency, the European Organisation for Nuclear Research, the European Synchronisation Radiation Facility, and the European Science Foundation.