



Foreign &
Commonwealth
Office

Science & Innovation Annual Report 2005-2006



Science & Innovation
Network

Foreword

Margaret Beckett Foreign Secretary



Science & Innovation
Network



Britain is facing increasing competition from rapidly growing economies around the world. But the rapid expansion of those economies also presents us with a massive opportunity. Jobs and prosperity here at home will depend on us grasping this chance: building a knowledge economy founded on quality scientific research and outstanding innovation. And at the same time investing in our scientific capacity holds the key to tackling truly global threats such as climate change, pandemic disease and terrorism.

So, as a politician and one with a science background, I am acutely aware of the importance of science: and how vital it is that we maintain an exceptional scientific and research base in this country. We can't do this in isolation. With only one per cent of the world's population, we undertake ten per cent of the world's scientific research. It's a great record; but it still means that the vast majority of research goes on outside our borders. So engaging and collaborating with others around the world is hugely important. And that's not just our traditional partners; the economic expansion in countries such as India and China has been matched by an explosion in science. We need to build partnerships here too.

This Annual Report sets out in detail how the FCO's Science and Innovation Network helps the British scientific community to forge links with their counterparts in other countries. It is a record of very practical achievements from monsoon monitoring in India to harnessing the power of waves in Brazil; from tracking bird flu in China to helping a small British technology company win business in Taiwan.

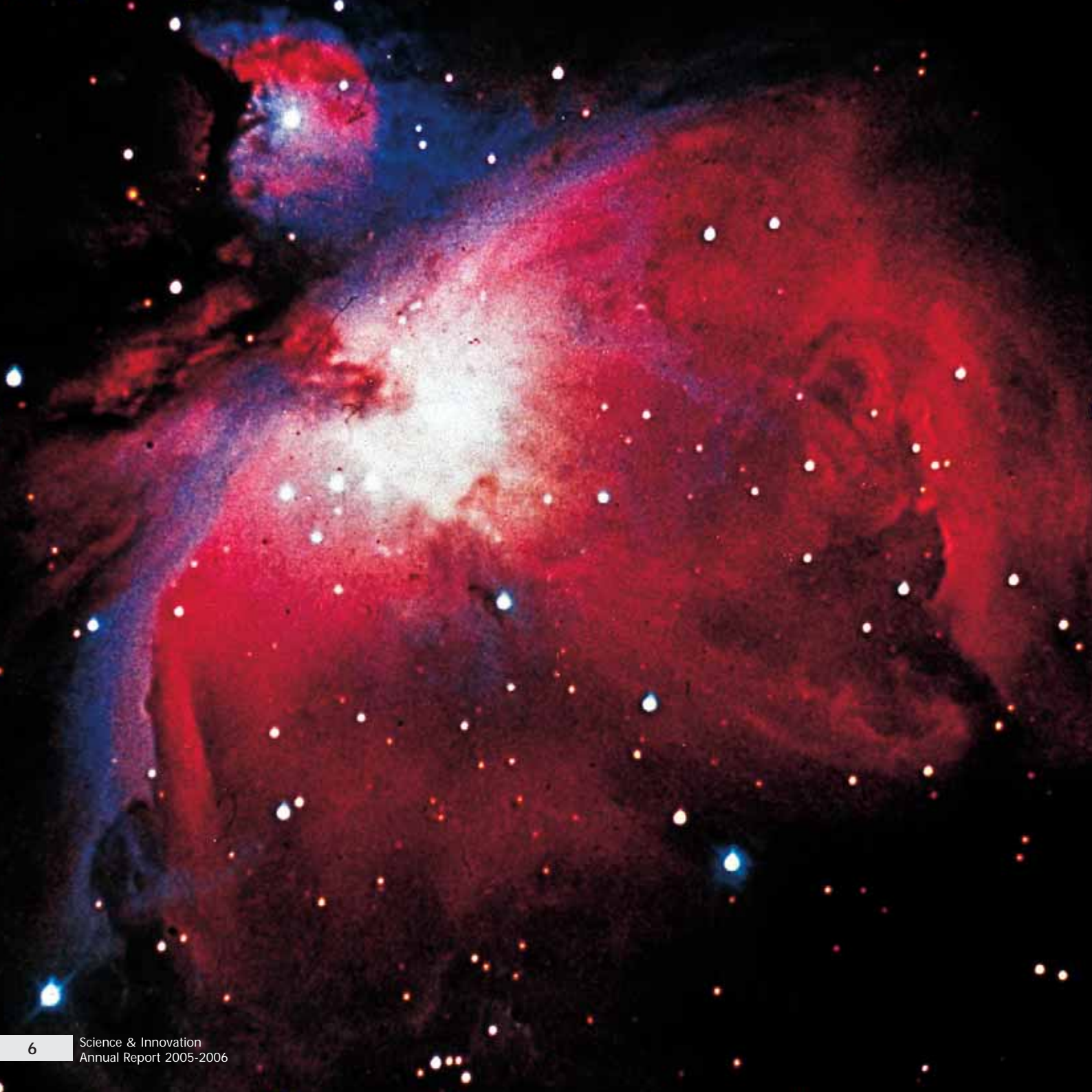
During my time as Environment Secretary, I was consistently impressed by the work that the Science and Innovation Network did on climate change. Now as Foreign Secretary, I am encouraged in reading this report to see how much it does across the broad spectrum of British scientific endeavour.

Margaret Beckett

Contents

Section 1 The Science and Innovation Network (SIN) Introduction	7
Section 2 The Science and Innovation Network: Making a difference	11
Climate Change and Clean Energy	11
Infectious Diseases – Avian Flu	14
Nanotechnology and Sporting New Science	16
Engaging with Emerging Economies - UK-China Partners in Science	18
And Finally Sporting New Science	20
Section 3 Country Profiles	23
Australia	24
Brazil	25
Canada	26
China	27
Czech Republic	28
Denmark	29
France	30
Germany	31
India	32
Israel	33
Italy	34
Japan	35
Netherlands	36
Poland	37
Russia	38
Singapore	39
South Africa	40
South Korea	41
Sweden	42
Switzerland	43
Taiwan	44
USA	45
Annex 1 FCO Science & Innovation Network Posts	46
Annex 2 Science and Innovation Network Profiles	48
Annex 3 Science and Innovation Network Contact details	60





Section 1

The Science and Innovation Network (SIN)

Introduction



The purpose of the FCO's Science and Innovation Network is to strengthen the UK's long-term prosperity, sustainability and security in a globalised world by:

- promoting access to and sharing of scientific expertise, resources and facilities through **international scientific collaboration** and exchange
- **strengthening the UK's innovation capacity** through international research and development (R&D) investment, R&D partnerships and technology transfer
- informing **effective** domestic and international **policymaking and leadership** based on the best available science
- using science and innovation as a tool **for influence** in an increasingly globalised world and to **forge strategic alliances**.

The importance of science and innovation

Britain has one of the most creative and productive scientific and research communities in the world:

- With just 1 per cent of the world's population, the UK receives over 12 per cent of all citations to published papers and publishes almost 13 per cent of papers with the highest impact.
- UK scientists claim around 10 per cent of internationally recognised scientific prizes every year.
- Our science base has long contributed to the prosperity and well-being of our citizens.
- Knowledge transfer activity from universities has increased substantially, with spin-out formation, licensing income, and patent applications increasing four-fold since 1998.

- Since 2004, 20 university spin-out companies have floated on the stock exchange, with an initial market value of over £1 billion.
- UK science has also played a leading role in developments that have helped eradicate disease and raise living standards globally.
- And as in the past so today, our scientists and researchers are contributing to a better understanding of the global challenges we face.

Our scientific and innovation communities will play an even greater role in Britain's future as the pace of globalisation accelerates. We will increasingly depend on our strengths in science and innovation to develop the technologies and jobs of tomorrow as lower cost economies move into the technologies of today. And we will increasingly depend on international partnerships and collaborations to sustain these strengths as more and more countries acquire the capacity for leading edge R&D.

But the importance of science and innovation goes much wider than the economy. How effectively we respond to climate change, infectious disease, pressure on natural resources and other challenges will depend crucially on our scientific community. And as science pushes back the frontiers of our knowledge ever further, we will increasingly need to take into account wider ethical and social issues as we harness these developments for the common good. Strong and effective science input to domestic and foreign policy strengthens the UK's international position.

Section 1

The Science and Innovation Network (SIN) Introduction

What is the Science and Innovation Network (SIN)?

The International Science and Innovation Network was established by the FCO in 2000 in response to the growing importance of science, technology and innovation for our future. There are dedicated staff in 35 missions in 22 countries and territories.

SIN is coordinated by the Science and Innovation Group in the Foreign and Commonwealth Office in London, in collaboration with the DTI's Office of Science and Innovation and the Government's Chief Scientific Adviser, Sir David King. Based in UK embassies and consulates abroad, the overseas Network works closely with other colleagues including British Council and UK Trade and Investment.

Why an overseas science and innovation network?

With **90%** of the world's science and innovation happening **outside the UK**, international interaction is essential to ensure the UK retains its position at the cutting edge of world science and that we further develop an internationally competitive and innovative knowledge-based economy. Science already includes a complex web of international collaborations, public and private. The rationale behind the FCO's SIN is that the vast majority of S&I funding worldwide remains national. Decisions on how this money is spent remain **national**. The UK Science and Innovation base needs **country-specific** intelligence on what is being funded, why and how countries prioritise their spending, and how best to tap into the best S&I. SIN adds value by being a network of in-country experts familiar with both the UK customer base and host country networks.

Science is also fundamental to meeting the challenges of diplomacy in a changing world. SIN has a **unique role** in delivering across all the **Strategic Priorities**, in developing evidence-based policies to tackle new global challenges, such as climate change and pandemic flu. SIN also has a major role **in responding to the opportunities of globalisation** by using science to build relationships with the emerging economies, particularly with China and India. Science collaboration is a major way of enhancing our overall bilateral relationship with emerging economies and in turn can be used to promote influence, for example, on the regulatory framework, by actively promoting UK approaches and/or other internationally recognised benchmarks.

What does SIN do?

SIN helps deliver UK success by:

- **facilitating collaboration** between UK universities and research laboratories and public and private-sector counterparts abroad; working to increase **access to foreign funding** for UK researchers; bilateral scientific workshops, conferences and other networking activities;
- **raising awareness** of the UK as a global leader in science and innovation; providing expert advice and leadership in support of R&D investment projects; **working with UK Trade and Investment colleagues** to help technology-intensive UK-based companies penetrate the supply chains of multi-national enterprises and global markets; **providing intelligence** to UK innovation networks on overseas science and technology advances; helping UK companies to access and benchmark overseas technologies;

The Science and Innovation Network (SIN) Introduction

Section 1

- gathering and disseminating **best practice** in science and innovation policy for example how money is spent on S&I; developing **international frameworks** in breakthrough technologies such as stem cell research; **promoting UK excellence in science** with key international decision-makers;
- promoting the use of **science and innovation for evidence based policy-making** covering the range of the UK's international priorities, for example how to respond to climate change, poverty, infectious diseases, technologies to support counter-terrorism, new energy technologies to increase climate and energy security, innovation to boost EU competitiveness and support the Lisbon Agenda; using science and innovation to **contribute** to the UK's **wider bilateral priorities** with countries.

PRIORITISATION

The field of science and innovation is vast. To choose what we do SIN uses a mix of top down and bottom up approaches:

TOP-DOWN: SIN works to support the UK Government's international strategic priorities, particularly those around innovation and globalisation. SIN therefore works closely with the top level Global Science and Innovation Forum and bilaterally with partners including many departments across Whitehall, the Research Councils, British Council, Royal Society and universities and industry.

BOTTOM-UP: Within this broad framework, SIN is responsible for proactively spotting opportunities to deliver for our customer base, drawing on particular strengths in host countries. SIN's local country-based expertise is the core of the value we add to the UK's overall Science and Innovation Strategy. SIN is regularly evaluated to ensure maximum impact.





Section 2

The Science and Innovation Network: Making a difference

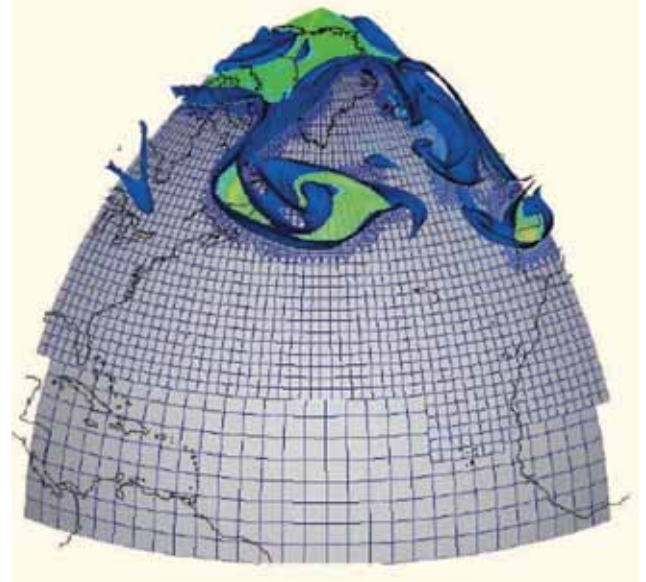
The Science and Innovation Network works on some of the world's most pressing issues, such as climate change, clean energy and the threat from infectious diseases. It also explores promising new areas of science, such as nanotechnology and biotechnology, to look for opportunities where the UK could contribute, collaborate or capitalise.

Four areas in which the S&I Network has been particularly successful in forging new partnerships, boosting research and development and influencing policy are outlined below.

CLIMATE CHANGE AND CLEAN ENERGY

Is it possible to design a model of the Earth that accurately reflects climate and weather conditions? The Japanese are close to achieving just that, and the UK has now secured privileged access to one of the planet's most powerful simulators.

With the help of our S&I officers in Japan, a three-year project was set up in January 2005 where six UK researchers have taken up quarters in Yokohama to develop the next generation simulations of climate systems, at higher resolutions than previous climate models. This collaboration links the Natural Environment Research Council (NERC) and the Hadley Centre on Climate Modelling with Japan's Earth Simulator Centre. Even the most complex climate models currently used by the UK have fairly bulky resolutions, which means that densely varied areas such as mountain ranges may be blurred. However, boosting the resolution of a model can push demands on computer power to the limit, which is where Japan's supercomputer comes in. Yokohama holds one of the world's most powerful computing machines.



Simulation model for the Earth simulator in Japan.

UK researchers have been making steady progress in their work at the Earth Simulator, and have already delivered some important results. Until recently, the ocean was not thought to play a role in modelling the atmosphere. However, as model resolution has increased, more importance has been placed on how the ocean influences atmospheric circulation. New findings by the UK team have shown that variations in surface ocean temperature can produce waves which have a significant impact on atmospheric circulation. Where ocean temperature is warmer, atmospheric winds speed up, and where the ocean is cooler, they slow down. This forcing at the bottom of the atmosphere is fed upwards and might well play a part in cloud formation and other processes, as well as influencing the larger scale atmospheric circulation.

Section 2

The Science and Innovation Network: Making a difference



Like the ocean, there is growing awareness of the potential effects of air travel on the atmosphere. In Tokyo, over 50 experts attended a three-day workshop held by our team on the 'Environmental Impact of Aircraft Emissions and Impact Reduction Technologies'. The aim of the workshop was to strengthen links between UK and Japanese aerospace industries, better understand the effect of aviation emissions (including noise) and explore impact reduction technologies.

A number of areas were identified for potential collaborations, including the impact of aircraft NOx on atmospheric ozone and the need to measure emissions from commercial aircraft. Aviation acoustic experts discussed potential projects on engine and fan noise, and designs for noise reduction such as acoustic liners. There is a long history of collaboration between the UK and Japan in aviation engineering, but further research could include airframe design, fuel research and turbine engine temperature control using cooling air and water injection. Cranfield University was suggested as a suitable centre for future collaborative opportunities.

Monsoon monitoring was one of the themes of a three-day Indo-UK workshop, 'Earth Observations for Weather and Climate', organised by our New Delhi team. Scientists from the UK and two dozen Indian institutes discussed ways to

strengthen research cooperation on weather modelling. Future collaborations could include a joint Indo-UK satellite mission, sensors to monitor sea surface temperature and air quality, and forecasting on different scales, for example for the monsoon season or even for specific events such as the 2010 Commonwealth Games.

UK participants, including Professor Alan O'Neil from the Data Assimilation Research Centre, are now working on a position paper with the help of the NERC and the Met Office. The paper will tie in with collaborative projects with India, where the Indian Space Research Organisation will be leading on the recommendations of the paper.

In the US, our Atlanta offices arranged for Malcolm Wicks MP, Minister of State for Energy, to visit the prototype Polk Power Station in Florida, run by the Tampa Electric Company. This clean coal facility – the first of its kind – processes the coal prior to burning it, where processing removes many toxins that would normally be released from a coal plant. The visit enabled the Minister to see the technology at work and fed into the wider UK-US dialogue on clean coal technologies, on which the UK and US have signed a joint Memorandum of Understanding.

Our Houston team helped to set up a collaboration between the National Centre for Atmospheric Research in Colorado and the Hadley Centre on Climate Modelling in the UK. This partnership has enabled UK researchers to join a US consortium and gain access to a new supercomputing facility and software which will boost work on climate modelling and atmospheric sciences.

Podcasters may have picked up a rare student radio interview with Sir David King during his tour of California organised by our US teams. In a run of broadcast

The Science and Innovation Network: Making a difference

interviews, including a debate in a packed auditorium at UC Berkeley, Sir David discussed UK and US approaches to climate change. Along with appearing on TV's 'Conversations with History' and featuring in the LA Times, Sir David also gave the keynote speech at the West Coast Governors Climate Change Conference. Sir David's visit spurred cap and trade on CO₂ emissions to be included in the Californian state government's Climate Change Action Team Report, published in April 2006. The state is currently debating a proposal to impose a cap on major stationary emitters of CO₂.

It doesn't come cleaner than hydrogen, a zero-emission gas that offers much promise as a non-polluting fuel. A Copenhagen seminar organised by our Danish team in October 2005 explored new materials and ways to store hydrogen. The event featured talks by academics and businesses, ranging from the design of fuel cells to the testing of novel lightweight metal hydrides and alloys to make low-cost electrodes. At the seminar, part-sponsored by the Confederation of Danish Industries and Carlsberg A/S, several commercial agreements were initiated and later concluded. UK company Intelligent Systems signed agreements with two Danish companies, one of which will be rolling out a line of products next year incorporating fuel cells designed by Intelligent Systems.

Over in Japan, our team ran a workshop in May 2005 with hydrogen experts from the UK. The workshop resulted in offers of collaborative research funding from the New Energy Development Organisation, and was followed up by Global Opportunities Fund (GOF) exchanges to enable joint research proposals to be drawn up. As a result, at least three active collaborations are underway, involving eight British and Japanese institutions. Hiroshima University has teamed up with the universities of Oxford, Salford and



Nottingham to investigate hydrogenated graphite and lithium hydride composites and the properties of carbon nanostructures for hydrogen storage. The University of East Anglia will be working with Saga University on another project, and Queen Mary, University of London researchers have applied for an EPSRC/Carbon Trust grant for joint research with Tohoku and Nagoya universities, again on hydrogen storage materials.

Section 2

The Science and Innovation Network: Making a difference

The UK is a pioneer of wave energy, but Brazil is also looking to harness this new technology. Our S&I team in Brazil organised a seminar on this theme in partnership with the UK-Brazil Centre of Ocean Engineering which sits within COPPE, the Technology Centre of the Federal University of Rio de Janeiro. Two hundred delegates discussed different ways of yielding electricity from waves, while UK delegates demonstrated that wave energy is already a feasible technology in Scotland. COPPE's Ocean Technology Lab is setting up the first wave energy pilot plant in Northeast Brazil, where a large population is without access to power but has excellent natural conditions for renewable energies such as biomass, wind and solar. Brazil's main TV channel is planning to produce a special report on the subject, and several energy companies have been in touch with COPPE to find out more about the project.

INFECTIOUS DISEASES – AVIAN FLU

China, along with a number of other Asian countries, is facing the serious challenge of avian influenza and a small but rising number of human infections. Asian countries play a critical role in controlling the future spread or evolution of bird flu, and thus continue to be the focus of international attention.

The S&I Network has been at the forefront of engaging the key policy players regarding, and reporting on the rise of, avian and potentially pandemic influenza. On the policy side, the Washington team engaged the US Administration from the summer of 2005 on its plans to create an 'International Partnership on Avian and Pandemic Influenza' (IPAPI). This led to President Bush's launch of IPAPI in September on terms acceptable to the UK, and a close bilateral exchange on the scientific modelling for and appropriate policy response to an avian or pandemic outbreak.



The Science and Innovation Network: Making a difference

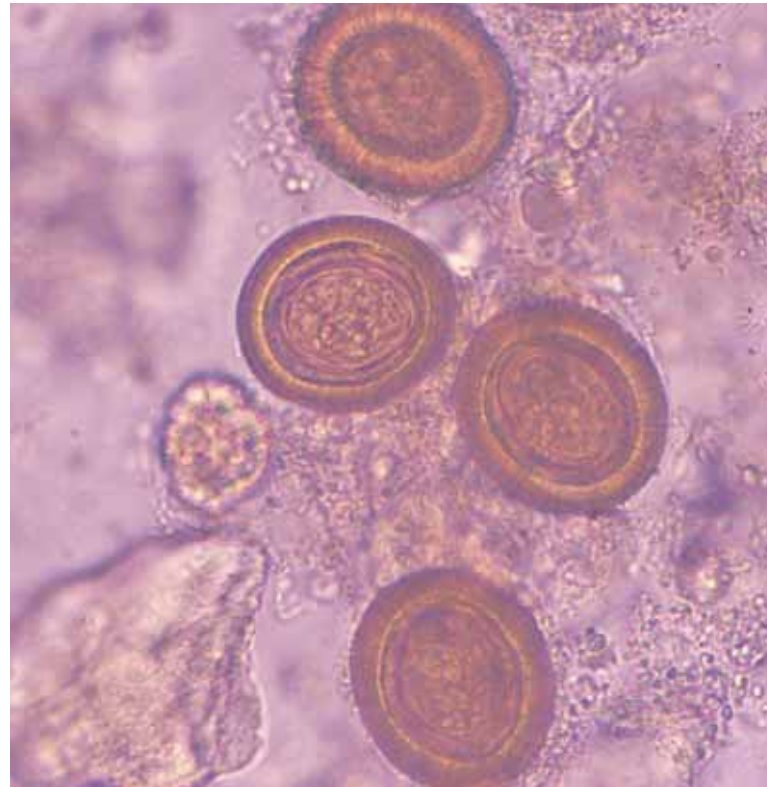
On avian flu itself, our team in China tracked developments throughout 2005 and the first quarter of 2006, producing reports on China's approach to human and veterinary surveillance, pandemic preparedness, poultry vaccination and information sharing. These reports highlighted the unprecedented scale of the Chinese effort to vaccinate their entire poultry stock against H5N1, and the potential problem of mass vaccination leading to low levels of virus circulating incognito in apparently healthy birds. Our monitoring also revealed the huge difficulties China faces in tracking human cases of H5N1, given the widespread lack of access to healthcare across rural China. Crucially, our team identified one of the key Chinese concerns about sample sharing with the UK: namely, that the viral samples would be exploited for commercial and academic gain in the West without due recognition of their Chinese origins.

The Chinese S&I team also helped to organise a mission by the Medical Research Council (MRC) to Chinese institutes to assess the scope for collaboration. The mission group then submitted a report to the MRC Council recommending that Chinese teams be encouraged to submit joint bids with UK teams from a new £10 million fund for international flu research.

In Japan, our offices compiled a number of reports on the situation, such as Japan's domestic pandemic flu plan, including its use of antivirals and vaccines and equal access to medical services for foreigners; Japan's own research on avian flu along with its international collaborations; and what Japan intends to do with its overseas aid budget in South East Asia to combat avian flu.

The UK emerged with a key role at a trilateral US-UK-Japan meeting organised by our Tokyo team, in conjunction with Tokyo's National Institute for Infectious Diseases.

The aim of the meeting was to combine US and Japanese supercomputing power with the UK's epidemiological modelling expertise, built up from our experiences with foot and mouth disease. Our S&I team also organised the visit of two UK experts from Oxford University and the Health Protection Agency (HPA) to Japan, along with arranging for two Japanese experts to visit the UK. Following this second visit to Oxford University, Imperial College and the HPA, the experts are now taking collaborations forward with the idea of sharing Japan's data and running it on the UK model.



Section 2

The Science and Innovation Network: Making a difference

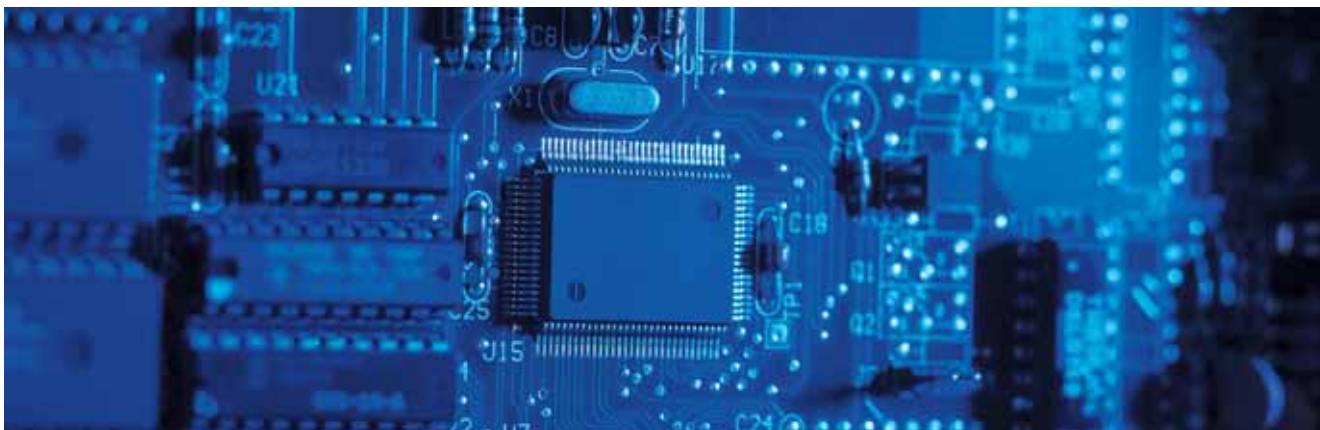
NANOTECHNOLOGY

Nanotechnology – a frequent feature of science thrillers – looks to promise as much in fact as it does in fiction. And given the intense global competition that its pharmaceutical and electronics industries face, Japan is actively looking to invest in such cross-over technologies. In 2005, the Japanese government allocated ¥97 billion (approximately £500 million) to nanotechnology studies, while the private sector spent over ¥40 billion (£200 million) on nanoscience research in 2003. Currently, there are around a thousand nanotechnology-related companies in Japan.

Against this backdrop, our Tokyo team has worked to promote UK nanotechnology with gratifying success. Following their efforts, in October 2005 Newcastle University and Hokkaido University signed a Memorandum of Understanding (MoU) to work together in the field of bionanotechnology. From this MoU two symposia followed, one in Japan (October 2005) and one in Newcastle (March 2006).

Our offices also sponsored a ‘Health Impacts of Nanotechnology’ workshop between the Royal Society and the Science Council of Japan, held in London in July 2005. The workshop explored research on the potential health and environmental impacts of nanotechnology, and identified future research needs and collaborations. With Japan’s National Institute of Material Sciences, we sponsored a second workshop to build on these discussions in February 2006. Several areas for collaboration were identified, including toxicology and characterisation, and the workshop findings are now being used to influence funding and regulatory bodies.

At Nanotech 2006 – the largest nanotech partnering event in the world – our Tokyo team organised two events. At our Japan-UK exchange involving 25 people in a closed meeting, government, business and academic representatives discussed bionanotechnology policy and best practice along with the commercial potential of this emerging science. At our open seminar, attended by 120 people, a dozen speakers presented the range of UK nanotechnology research and development.



The Science and Innovation Network: Making a difference

Possibly the finest powder in the world, nanopowder is made up of ultrafine particles a millionth of a millimetre in size. In Moscow, our S&I team helped to organise a DTI Global Watch nanoparticle mission to Russia, and followed up on potential collaborations between Russian and UK organisations. The mission centered around nano-based catalysts, nanoparticles and nanopowders for fuel cells, batteries, sensors, fine ceramics, materials with special mechanical properties and other applications.

UK firm, Reckitt and Benckiser, has established contact with a number of Russian organisations and is interested in surfactants, metallo-complex organic materials and carbon fullerenes, while Johnson and Matthey is looking to place trial research projects in Russia.

Nanotechnology has been on the radar screen of our S&I team in Germany since the launch of Germany's national nanotechnology strategy and funding initiative in 2002. On 3 October each year, one of Germany's 16 regions organises a programme of activity in London to mark German Unification Day. In 2005, Saxony organised a Saxon-British Nanotechnology Forum, attended by 100 people, at the DTI conference centre. Our team helped out by putting the organisers in touch with our contacts at the UK Micro and Nanotechnology Network and UK government offices. In November 2005, we provided the reverse service by advising the MNT Network on the best way to raise awareness of its activities in Germany, to encourage trade and scientific cooperation between the two countries.

In collaboration with the Foreign Policy Centre, our Munich S&I team successfully bid for GOF funding for a series of bilateral nanotechnology projects in 2006/7. Piggy-backing on upcoming events, the team plans to support further

bilateral contacts in this area with the aim of stimulating collaborative projects. One forthcoming activity is a mission by leading nanotech companies and scientists from Germany to attend the UKTI S&T NanoForum partnering event in London in October 2006. This will likely be followed by a nanotech/biotech event linked in with the Bayern Innovative Life Sciences Forum in spring 2007. Our work will promote UK strengths in nanotechnologies and will enable the UK industry to tap into the expertise in Germany - which in some areas is world-leading.

A small UK firm took a giant step forward in flat panel display technology, thanks to the efforts of our S&I team in Taiwan. Our offices promoted MIMIV, a UK firm specialising in field emitted display (an alternate form of flat panel display), to Taiwanese companies and helped MIMIV to secure a contract with Tatung, a consumer electronics conglomerate in Taiwan. The contract is a two-year project to scale up MIMIV's technology, to verify the technology's feasibility and low-cost manufacturability of large size flat panel TVs. This commercial collaboration between a small UK technology company and a large Taiwanese electronics company is proof of the UK's tremendous strengths in advanced technology and research. Since many UK technology companies are small to medium enterprises who lack manufacturing capabilities and access to downstream manufacturers mostly located in Asia, developing such partnerships is an excellent way for small UK firms to grow.

In Singapore, our offices funded 29 materials scientists from Singapore and Malaysia to visit the UK to discuss collaborative projects. As a result, 14 collaborations have been agreed, a further 14 are being submitted to funding bodies and an additional 43 possible collaborations have been identified, many in the nanotechnology field.

Section 2

The Science and Innovation Network: Making a difference

ENGAGING WITH EMERGING ECONOMIES - UK-CHINA PARTNERS IN SCIENCE

The map of world science is being re-drawn and nowhere faster than in China. Between 1999 and 2003, China's R&D spending increased by around 24 per cent per year, compared with a three to five per cent rise in Germany, the US and Japan. China is now estimated to be the third biggest spender on science after the US and Japan, and the reputations of its top universities and research institutes are growing fast.

These striking trends were the stimulus for launching the UK-China Partners in Science initiative, which aimed to boost scientific collaboration between the two countries. The launch in January 2005 was the lead story in the China Daily.

Over 130 events were held in China, between Science Minister Lord Sainsbury's inaugural event with China's Vice-Minister for Science Liu Yanhua in January 2005, and the Deputy Prime Minister's celebration to mark the official conclusion in February 2006. These included workshops, seminars, visits, missions and public debates – all run jointly with Chinese partner organisations.

Highlights of the year included a UK-China science journalism awards scheme piloted by our S&I team, where prizes were awarded to Chinese journalists for outstanding features written on a range of subjects, from reducing CO2 emissions and protecting the environment to crimefighting with the help of DNA databases. The six prize-winners were sent on a media trip to the UK to visit major science facilities including the Roslin Institute and Imperial College. On returning to China the journalists produced newspaper,

radio or TV reports, including a 10-minute film called 'The Kindling' which was broadcast on Chinese national TV. Our team is now working to put the awards scheme on a permanent footing with corporate sponsorship.

What will climate change do to forestry, farming and water resources? Leading experts from the UK and China met in Beijing, at a meeting coordinated by our team in partnership with NERC and the National Natural Science Foundation of China (NNSFC), to look at the latest predictions from climate modelling and identify common issues. In the first UK-China workshop of its type, experts explored the future impacts of climate change on rainfall, sea level and storm surges under different carbon emission scenarios. A subsequent visit to Guangzhou by John Rees of the British Geological Survey (BGS), arranged by our team, revealed common interests between the BGS and the CAS Institute of Geochemistry in Guangzhou, which led to a workshop in February on 'Geological Applications of Carbon Management'. The workshop identified a number of potential joint projects and a delegation of Chinese researchers is expected to visit the UK later this year to continue discussions.

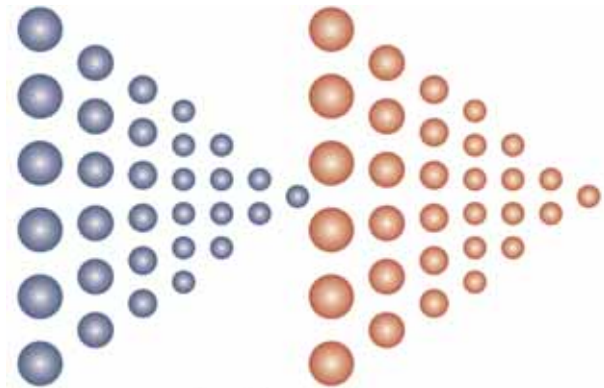
Further collaborations are likely to grow out of this meeting, with Imperial College in discussion with the CAS South China Institute of Oceanology and others on the possible role of Guangdong Province in providing demonstration activities in carbon sequestration. Another BGS scientist is in discussion with a Chinese botanic garden about the use of cycads and conifers (in which the garden has particular expertise) in climate change modelling. BGS is also beginning discussions with the Guangdong Urban Planning Research Centre about modelling the coastal effects of sea level rises in the Pearl River Delta.

The Science and Innovation Network: Making a difference

Cosmological cooperation was the theme of another event coordinated by our team with Chinese and UK partners. The first ever China-UK workshop on astronomy strengthened links at a time when Chinese astronomers are proposing major new telescopes, including the world's largest radio dish. Held in Beijing, the meeting brought together leading British and Chinese astronomers and saw the signing of a Memorandum of Understanding between the UK-led Herschel-SPIRE satellite instrument team and the National Astronomical Observatories of China, covering Chinese participation in ground software development for SPIRE. With International Polar Year beginning in 2007, a China-UK workshop on polar research – the first of its kind – was held in October 2005 to develop a number of joint China-UK projects, ready for 2007. The meeting, sponsored by our Shanghai offices and the NNSFC, discussed critical areas of research such as the interaction between ice and sea in polar regions, ocean circulation, sea-ice distribution, the diversity of polar marine life, and the link between atmospheres above the poles and global environment change. Around 30 areas of potential collaboration were identified, including ice and rock coring, remote sensing, polar oceanography, upper atmospheric and space science, and polar operations.

Since a Strategic Alliance was signed in July 2005 between the British Antarctic Survey (BAS) and Polar Research Institute of China (PRIC), the institutes have been in discussions over science activities in the vicinity of Dome A in the Antarctic. China is planning to expand its polar research and build a station at the highest point in the Antarctic. Dr Huigen Yang, Deputy Director of PRIC, is planning to visit BAS to learn about their operations and discuss cooperation in the relief and logistics support of the countries' respective Antarctic stations. During this visit,

Dr Yang will carry out some collaborative research with his BAS counterpart. BAS is also building four low-powered magnetometers for PRIC for use in the Antarctic. Further developments include a one-year Chinese post-doctoral fellowship on phytoplankton hosted by the National Oceanographic Centre in Southampton, and support from the University of Leicester to help PRIC build a high frequency radar system for observing the upper atmosphere over Antarctica.



精英科技
UK-CHINA
Partners in Science

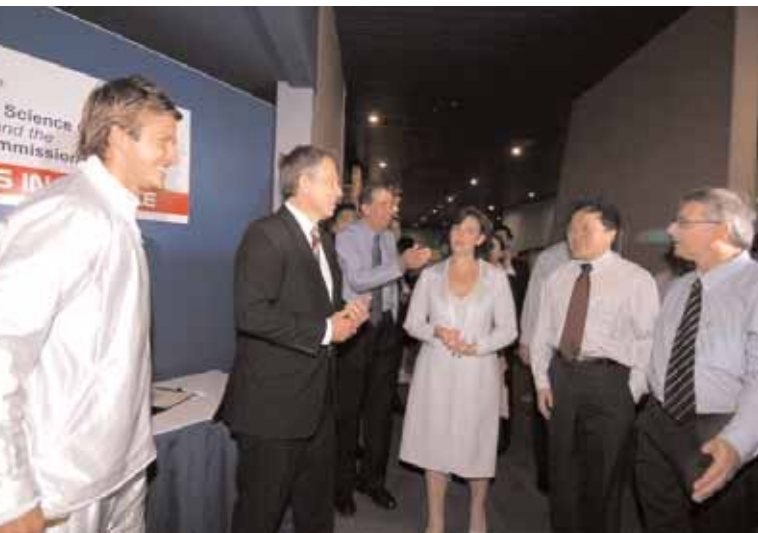
Section 2

The Science and Innovation Network: Making a difference

AND FINALLY SPORTING NEW SCIENCE...

Celebrities mixed with scientists at a UK-Singapore Sports Science and Engineering exhibition also organised by our team there. Tony and Cherie Blair and David Beckham were visiting the event when Singapore announced that London had won the 2012 Olympic Games bid. The distinguished visitors also launched our competition, sponsored by Manchester University and Singapore Airlines, to test entrants' knowledge of UK science and technology. The first prize, a trip to watch Manchester United play at Old Trafford, was won by a seven year old Singaporean boy who went to the UK with his father to see Manchester United beat Newcastle United.

The exhibition was one of many successes of the UK-Singapore Partners in Science programme. Its sister initiative in China is featured in the previous section.



Prime Minister Tony Blair, his wife Cherie Blair and David Beckham meet Brian Ferrar, First Secretary (Science & Innovation) during the bid for the 2012 Olympic Games in Singapore.

Section 2
The Science and Innovation Network:
Making a difference



Section 3 Country Profiles



Science & Innovation
Network



Australia

Country profile

Population

20.5 million

GDP*

£334 bn

Research expenditure

(as percentage of GDP*)

1.69%

Ratio Public:Private

R&D spend

73: 27

Previous year percentage change in GDP*

+3.2

Major S&I developments

The Australian Government reviewed its stem cell legislation, and recommended that therapeutic cloning be legalised and a national stem cell bank be created. This will bring

Australian laws in line with current UK laws. The Australian Government was also a key player in organising the Asia-Pacific Partnership on Clean Development and Climate, joining forces with the USA, China, India and South Korea. The partnership will focus on technology transfer for combating climate change. Mandatory emissions targets have yet to be set.

Looking back, looking forward

The October 2005 visit of Sir David King and the March 2006 visit of the Prime Minister Tony Blair to Australia further highlighted the need for governments to act to combat climate change. One way this can be tackled is by looking at energy supply and energy sources.

The British High Commission in Canberra will organise a high-level bilateral forum to be held during 2006. Participants will discuss the issues of energy supply and security as well as current and emerging energy technologies including renewable and nuclear energy.

Australia is in a commanding position with large coal and uranium deposits as well as being an excellent location for wind and solar energy. Their proximity to and relationship with China and India is also important in the global energy market, while their participation in the Asia-Pacific Partnership on Clean Development and Climate indicates a willingness to focus on energy technologies. The forum will discuss these issues and how the UK and Australia can work together.

*All economic data is taken from the IMF World Economic Outlook April 2006

Brazil

Country profile

Major S&I developments

A new biotech law will enable stem cell research to progress with government funding. The main programme is worth £3M, involves 40 institutions, and focuses on treating heart disease.

The Brazilian Space Agency sent the first Brazilian astronaut (trained by NASA) into space as part of a Russian mission. A new law licensing sustainable logging in publicly owned sections of the Amazon rainforest has been hailed as an important step towards tackling deforestation.

Looking back, looking forward

Brazil's Minister for Science and Technology, Dr Sergio Rezende, has revitalised UK-Brazil scientific co-operation. A Brazil Day at the Royal Society co-hosted by Dr Rezende and Sir David King paved the way for the 2007 Year of UK-Brazil Partnership in Science, with funding from OSI and the FCO. The partnership includes a science public diplomacy campaign across Brazil, to increase collaborations in science, technology and innovation between the UK and Brazil.

Population
186 million

GDP*
£510 bn

Research expenditure
(as percentage of GDP*)
1.37%

Ratio Public:Private
R&D expenditure
55:45

Previous year percentage
change in GDP*
2.3%



*All economic data is taken from the IMF World Economic Outlook April 2006

Canada

Country profile

Population

32.4 million

GDP*

£610 bn

Research expenditure

(as percentage of GDP)

2.3%

Ratio Public:Private R&D expenditure

24:76

Previous year growth in GDP*

+2.9%

Major S&I developments

Canada's research strengths, particularly in energy and biotechnology, continue to develop rapidly. Canada continues to have the highest Higher Education Research and Development (HERD)/GDP spend in the G8. The new Canadian Academies of Science will provide expert assessment of the science underlying matters of public interest, and represent Canadian science in international inter-academy fora.

In January 2006, Canada elected a minority Conservative government, ending more than 12 years of Liberal rule. The new government's approach to science has yet to be made clear, but the election platform promised increased research funding. At a provincial level, the Ontario government has invested heavily in research and innovation. In Alberta, revenues from the energy sector have spurred substantial investment in science and innovation.

Looking back, looking forward

Technology Commercialisation Seminars in Toronto and Vancouver, have led to joint training, commencing Spring 2006, of interns between the DTI, Westlink and the Ontario Centres of Excellence.

Since the January 2005 seminar on Building S&T Capacity with African Partners, the subject has been taken forward by the UK and Canadian chief scientists, including formation of an OSI/IDRC/ NEPAD working group and joint papers to the Carnegie group of G8 science ministers.

The second round of the North American postdoc short visits to the UK programme closes in Summer 2006. With eighty high quality applications for fourteen awards, we are seeking external funding to continue the scheme.

The UK-Canada Nuclear Skills Workshop, held in Toronto in March 2006, identified a number of bilateral initiatives, which will be taken forward in 2006/07.

Events planned for 2006 include UK-Canada workshops on white biotech, and on urban energy efficiency. We organised a UK panel at the International Society for Stem Cell Research in Toronto in June, and will host lecture tours by Chris Rapley, Head of the British Antarctic Survey, in October and on Women in Science in December.

*All economic data is taken from the IMF World Economic Outlook April 2006

China

Country profile

Major S&I developments

China's five-year plan for 2006-2010 includes a 19.2% rise in R&D budget for 2006 compared with 2005. Its science ambitions are confirmed in its Medium and Long Term Plan for developing science and technology over the next 15 years, which shows a doubling of overall spending to 2.5% by 2020.

China's ambitions in space were underlined by the successful launch of Shenzhou 6 - China's second crewed mission, which carried two astronauts into orbit for nearly 5 days. China's world share of research papers in scientific journals continued to grow, with Chinese teams reporting the first Chinese human embryonic stem cell lines and notable findings in spin physics and nanoscience. The UK signed a milestone agreement with China to fund a £3.5M study into the feasibility of building a prototype Near Zero Emissions Carbon power plant in China.

Looking back, looking forward

Last year's memorandum of understanding between the British National Space Centre and the Chinese National Space Administration gave rise to a Beijing workshop that attracted a high-profile list of UK experts and companies and received significant political and scientific interest from China, at a time when its ambitions for its space programme are riding high.



Population
13000 million

GDP*
£1370 bn

Research expenditure
(as percentage of GDP*)
0.9%

Ratio Public:Private
R&D expenditure
38:62

Previous year percentage
change in GDP*
+9.5

*All economic data is taken from the
IMF World Economic Outlook April 2006

Czech Republic

Country profile

Population
10.3 million

GDP*
£66.5 bn

Research expenditure
(as percentage of GDP*)
1.2%

**Ratio Public:Private
R&D expenditure**
45: 55

**Previous year percentage
change in GDP***
+6.0

Major S&I developments

The Czech Government continues to focus its attention on applied research, innovation, technology transfer, and business-university collaboration. The government approved the National Innovation Policy 2005-2010 in June 2005, with plans to increase R&D spending from the state budget to 1% of GDP by 2010.

Looking back, looking forward

The 2005 seminar on intellectual property rights, patents and licensing, has contributed to new initiatives in patent issues, including patenting becoming part of the Czech National Innovation Policy and new university courses on patents. New patent funds to support patenting in

academia are being established and the Patent Office is a key partner for the Czech Industrial Property Office. In 2006, we expect stronger Czech support for science, technology and innovation with Structural Funds and EU support helping to implement innovation and knowledge transfer programmes. The Czech government is currently drafting national programmes for Structural Funds for 2007-2013 and is keen to co-operate with European partners on S&I issues. Key priorities remain mathematics and natural sciences, clinical research, stem cell research and biotechnologies, nanotechnologies and new advanced materials.



*All economic data is taken from the IMF World Economic Outlook April 2006

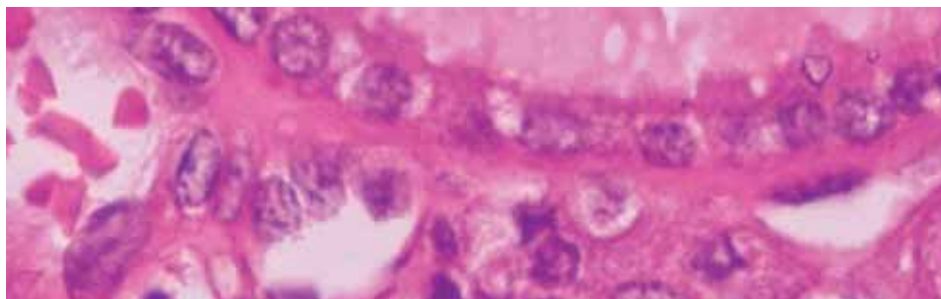
Major S&I developments

For the second year in a row, the British Economist Intelligence Unit named Denmark as the world's best country to do business in. The Danish Government plans to inject an additional £926 million into R&D during 2007-2010. The Technical University of Denmark has received £9.26 million to build the world's most powerful electron microscope, aimed at making Denmark a world leader in nanotechnology.

Looking back, looking forward

The UK-MVA (Medicon Valley Academy) Challenge Programme launched in 2004 to promote cooperation between the UK and the Oresund region has made good progress this year, with five missions, two seminars, an EU project proposal and two business exchange meetings. Activities for next year include a major exchange programme of post-doctorates between the UK and the Oresund region.

Next year one of the key activities will be a stem cell seminar on tissue engineering and biocompatible materials, which plans to combine British expertise in therapeutic cloning and genetic manipulation with Danish expertise in nanotechnology, which is needed to provide new tools for manipulating cells, DNA and even molecules. Combining these skills is likely to improve dramatically the success rate of differentiating stem cells into other types of tissues.



Population
5.4 million

GDP *
£140 bn

Research expenditure
(as percentage of GDP*)
2.51

Ratio Public:Private
R&D expenditure
40:60

Previous year percentage
change in GDP*
+2.6

*All economic data is taken from the
IMF World Economic Outlook April 2006

France

Country profile

Population
60.5 million

GDP*
£1013 bn

Research expenditure
(as a percentage of GDP*)
2.17%

Ratio Public:Private
R&D expenditure
54:46

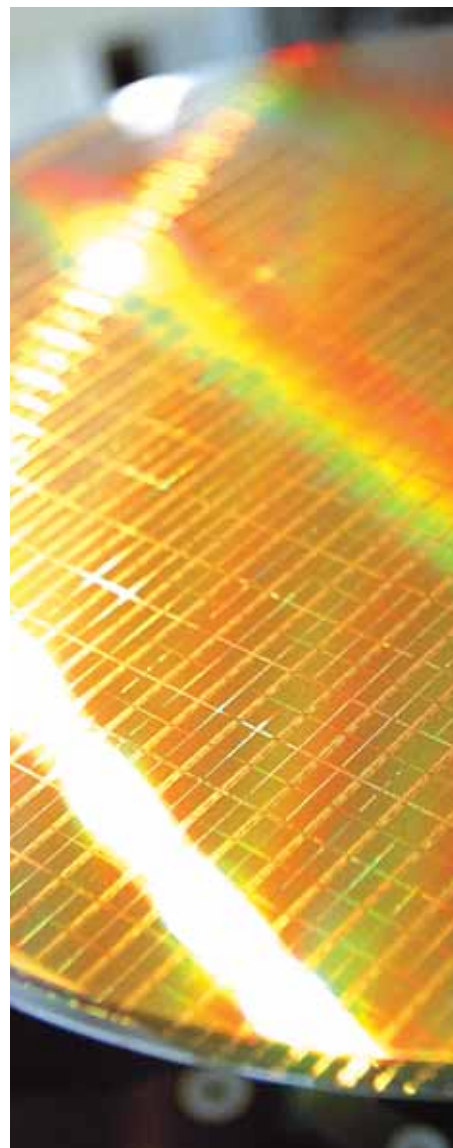
Previous year percentage
change in GDP*
+1.4

Major S&I developments

The controversial Research Bill intended to modernise the public research sector has finally been passed. A new National Research Agency has committed 540 M€ in project funding for the science base, and a new Industrial Innovation Agency will commit 2 B€ to large-scale industrial R&D programmes over the next 2 years. More than 50 technology clusters have been established to bring R&D, industry and training, while streamlined support for innovative SME's, includes improved access to public procurement.

Looking back, looking forward

Our Global Opportunities Fund grant has enabled us to make a step change in the level of our wealth creation activity. Over the next year we will be working together with colleagues in Berne on a trilateral Fuel Cells partnering event and with the UK's Micro and Nanotechnology Network on nanomedicine. We are exploring potential partners for activity in biofuels, carbon capture and sequestration and biomanufacturing. On the science collaboration side we will be taking forward new bilateral collaborations in pure maths, and between the UK's Diamond synchrotron and the French Soleil.



*All economic data is taken from the IMF World Economic Outlook April 2006

Germany

Country profile

Major S&I developments

Germany is the UK's largest trading partner, with Britain being the favourite destination for German outward investment after the USA. Germany has an excellent research infrastructure with more than 300 higher education institutes and four non-university research organisations. Achieving the 2010 3% Lisbon goal remains a key objective and the 2006 Federal research budget is 5.6% up on 2005. Excellence, innovation and the importance of basic research remain key themes. Germany appointed a physicist, Dr Angela Merkel, as its first female Chancellor.

Looking back, looking forward

As follow-up to the 2004 State Visit Climate Change Conference, two GOF funded scientific workshops took place on Urban Areas (in London) and Tipping Points (in Berlin) in 2005. With Germany holding both EU and G8 Presidencies in 2007, Berlin will be hosting the SIN Europe regional conference in Spring 2007. Other notable events planned for next year include a dinner at the Embassy for members of the Nuffield Council and the German National Ethics Council, a keynote speech from Sir David King on climate change and the Queen's lecture

from Lord Rees, both in Berlin. Three Global Watch missions are also planned on waste electrical and electronic equipment, microfluidics and bionics. Berlin has won a GOF award to make a contribution to a series of bilateral conferences organised by the 21st Century Trust over the next two years and co-funded by German research funding agencies. The events will address scientific issues which are key for future economic growth and competitiveness, including genetics, ageing, climate change, and the knowledge economy.

Population
82.5 million

GDP*
£1513 bn

Research expenditure
(as percentage of GDP*)
2.5%

Ratio Public
(and not for profit):
Private R&D expenditure
33:67

Previous year percentage
change in GDP*
+0.9

*All economic data is taken from the
IMF World Economic Outlook April 2006

India

Country profile

Population

1024 million

GDP*

£459 bn

Research expenditure

(as percentage of GDP*)

0.5%

Ratio Public:Private R&D expenditure

80:20

Previous year percentage change in GDP*

+7.3

Major S&I developments

India is fast emerging as a major global R&D player. Last year nearly 9 million SET students graduated with degrees, of which 4500 are from the world-renowned Indian Institutes of Technology (IIT) and Science (IISc).

The science agenda is a core strategic priority for India, particularly with the President being one of India's leading Scientists. 2005 saw a 25% hike in the science budget, with a £12.5m uplift for IISc and an additional £6m each for the Universities of Calcutta and Mumbai.

Expertise is broad with strengths in information and communication technologies, life sciences and aerospace. India was recently included in the International Thermonuclear Experimental Reactor fusion collaboration project.

Looking back, looking forward

The coming year will be a pivotal one for UK-India relationships. The challenge for the next 12 months is to facilitate Memoranda of Understanding set up last year so they deliver, and to ensure that previously established roadmaps stay on track. The Indo-UK Science and Innovation Council is a key event from which to launch an enhanced dialogue with India. The UK-India Education and Research Initiative will also help build collaboration.

2006 will also see the implementation of the Public Diplomacy Initiative. This includes a series of UK-focussed science magazine programmes to be shown on Discovery Asia, and opportunities to market the UK's expertise at workshops and the Science and Innovation Council.



*All economic data is taken from the IMF World Economic Outlook April 2006

Major S&I developments

Israel continues to lead in the national spend on R&D relative to its GDP - 4.6% (2004). Israel has the largest number of start-ups outside the US, has more companies traded on NASDAQ than any European country, accounts for 1.28% of all scientific articles in the world (with less than 0.1% of the world population), and is the leading publisher of stem cell research per capita.

Major S&I developments include the announcement of Nanotechnology as a national project; an amendment to the R&D law which now allows the transfer abroad of knowledge created with the support of government funding; governmental support of R&D centres established at academic institutions; Intel choosing Israel as the site for its new Fab, following incentives from the Israeli government; Israel joining the European Galileo Programme on civilian satellites; three new bilateral agreements financing R&D projects with India, China and Finland; and a 3rd Nobel prize in 2 years to Israeli scientists - awarded to the Hebrew University mathematician Prof Aumann for his work on game theory.

Looking back, looking forward

One of the focuses of S&I work in Israel is nanotechnology. A 2004 nanobiotechnology workshop resulted in student exchanges, publication of joint papers and in the formation of an EU nanotechnology consortium, in which UK and Israeli partners will participate. The UK views on nanotechnology and its risks were presented at an EcoNano conference and at a closed policy workshop. The conclusions from these were presented to the Israeli parliament's Science and Technology Committee. As a result, the Committee called on the National Academy of Sciences and the National Council for R&D to incorporate in their work the risks involved in new technologies.

Joint work with UKTI led to a successful inward biotech mission. One of the participating companies is about to sign an agreement with a UK university. UKTI and S&I section will also be collaborating on a Global Partnership seminar which will focus on biotechnology.

The mission is looking forward to a visit by Prof Stephen Hawking that will raise the profile of UK scientific excellence to an Israeli public interested in science, but not aware of UK leadership.

Population:
6.8 million

GDP*
£59 bn

Research expenditure:
(as percentage of GDP*)
4.6%

Public/Private R&D
spend ratio:
75% - business sector,
21% - Government,
4% non-profit institutions

Previous year percentage
change in GDP*
+5.2

*All economic data is taken from the IMF World Economic Outlook April 2006

Italy

Country profile

Population
58.1 million

GDP*
£955 bn

Research expenditure
(as percentage of GDP*)
1.3% of GDP

Ratio Public:Private R&D expenditure
66:33

Previous year percentage change in GDP*
+0.1

Major S&I developments

Though Italy still lags behind some European countries in terms of R&D investment (particularly in the private sector), the Italian research system is actively involved in major international projects, such as the ITER fusion research collaboration and Galileo. Italy also recently signed bilateral S&T agreements with China and India.

The scientific output of public researchers is strong (out of 1,000 scientists, US produce 954 works, the UK 949, Italy 766). Italy continues its commitment to Antarctica exploration, excels in physics and aerospace, and is well placed in AIDS vaccine research. Industrial R&D is mainly in production systems, advanced mechanics and telecommunications, with a recent significant increase in the number of biotechnology companies (now ranking 4th in the EU).

Looking back, looking forward

Successful collaboration between Science and Innovation and UK Trade and Investment teams led to two major agreements between Italian and British partners from the 2004 Emission trading event in Milan.

The Clean Coal Technologies Workshop will pursue activities aimed at reducing emissions - a priority for the UK - and will promote and support scientific collaboration between Italian and British scientists in the field of clean coal technologies. The project aims to foster contacts between experts, and follow these up with an exchange of researchers.



*All economic data is taken from the IMF World Economic Outlook April 2006

Major S&I developments

Japan accounts for a quarter of global R&D, with ~80% coming from business. Government expenditure amounts to 4 trillion yen per year (£20 billion). Japan's most recent five year plan was published in March 2006 and set a target for government expenditure on R&D of 1% GDP (~£125 billion) over the next 5 years.

Japan aims to re-assert its technology dominance in Asia and is working to establish a leading global position for its universities and research institutes. Recent changes include a shift in emphasis from the 'hardware' to the 'software' of technology development (i.e. human resources), and encouragement of creativity, entrepreneurship and mobility. Universities are being urged to develop better links with business to improve exploitation and knowledge transfer, and with other countries to improve international engagement and mobility.

Looking back, looking forward

The Japan science and innovation strategy has consistently focused on the core business of research collaboration and wealth creation, and this consistency is starting to pay off. Activities in genomics over a number of years culminated last year in significant bilateral funding from

the Japanese research agencies. In nanotechnology, relationships built up through Embassy activities have led to an investment by NTT Europe of over GBP 1m in the Oxford Bionanotechnology IRC, as well as a number of academic collaborations and MOUs.

A key achievement last year was the climate change modelling collaboration between the Natural Environment Research Council, the Hadley Centre and the Earth Simulator supercomputer in Yokohama, giving UK scientists unparalleled access to the machine and the opportunity to run new climate models at greater levels of refinement. A UK-Japan Summer School to be held in Cambridge in 2007 will disseminate the results of this collaboration with a wider audience and help cultivate the next generation of leading scientists.

Workshops in early 2006 on aircraft emissions, flooding and coastal defences, and sustainable engineering have led to exchange programmes to develop joint proposals for research collaboration, and opportunities for business development that are being pursued in conjunction with UKTI and DTI. The meeting of the UK-Japan Joint Committee on Science and Technology Co-operation in June 2006 provided an opportunity to set high-level priorities for collaboration over the next 2-3 years.

Population
128 million

GDP*
£2472 bn

Research expenditure
(as percentage of GDP*)
3.43%

Ratio Public:Private
R&D expenditure
20:80

Previous year percentage
change in GDP*
+2.7

*All economic data is taken from the IMF World Economic Outlook April 2006

The Netherlands

Country profile

Population

16.4 million

GDP*

£340 bn

Research expenditure

(as percentage of GDP*)

1.76

Ratio Public:Private R&D expenditure

60:40

Previous year percentage change in GDP*

+1.1

Major S&I developments

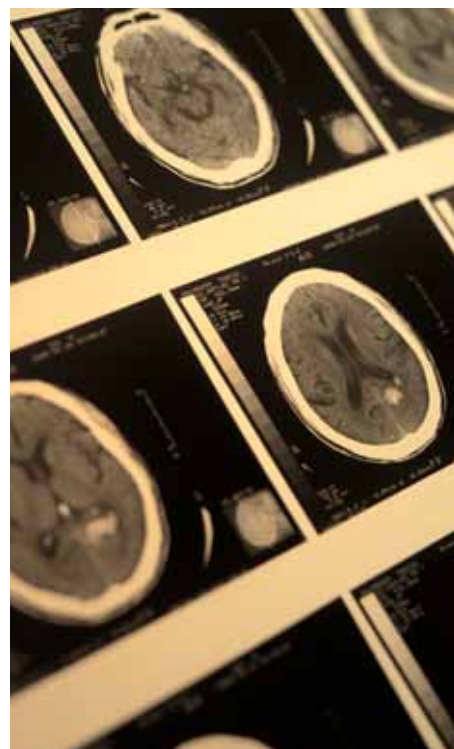
The Netherlands occupies the 11th position on the Global Competitiveness Index (seventh in Europe) and wants to improve its ranking. The Innovation Platform, chaired by the Prime Minister, proposes strategic plans to reinforce the Dutch knowledge economy by providing further fiscal incentives for R&D and schemes for research collaboration. In the 2006 budget, the Cabinet reported extra investments, amounting to £730 million in knowledge, innovation and education, of which £310 million comes via collaborative programmes between government and industry.

Looking back, looking forward

Our Brain Science and Cognition theme resulted in five academic bilateral events, which have led to new collaborations, including joint research between the Universities of Amsterdam, Cambridge, Edinburgh, Nijmegen, and Utrecht, as well as the continuing exchange of post-doctoral researchers. Brain science remains an important theme for the Netherlands, as the Netherlands Organisation for Scientific Research earmarked £68 million for 7T functional Magnetic Resonance Imaging (fMRI)

machines, and the Netherlands Brain Institute has just highlighted its research strategy until 2014.

In the year ahead we will launch a new publicity campaign - Science Futures: Working at the Edge - which will look at neuronal man-machine interfaces. Two other programmes under the Science Futures umbrella are water and flood management (in which the Dutch are extremely strong) and morphogenetic studies, as part of the continuing Regenerative Medicine project.



*All economic data is taken from the IMF World Economic Outlook April 2006

Poland

Country profile

Major S&I developments

The parliamentary and presidential elections in Poland last year resulted in radical changes across government, including the merging of science and education ministries to form a single ministry. One of the new ministry's main tasks is to reform the science support system in Poland and, together with the Ministry of Economy, to make the Polish economy more competitive by promoting innovation as well as encouraging science and business links.

To help this, Poland is to receive over 60 billion Euros from Structural and Cohesion Funds in 2007-2013, some of which will be targeted specifically at science and innovation. The funds represent an important opportunity to make a step change in improving the Polish science base and providing development opportunities for over 100,000 Polish scientists.



Looking back, looking forward

One of the most successful and visible outcomes of transferring UK best practice to Poland is the Business and Innovation Centre in Wroclaw supported by the British Embassy and being set up in collaboration with the Coventry University Enterprise, the Lower Silesia region in Poland and West Midlands in the UK. The centre will open for business at the Wroclaw Technical University later in 2006.

Facilitating science collaboration will be a major focus of next year's programme, and we plan to work with the Foundation for Polish Science to raise opportunities on the Polish scientific market with UK research institutions.

Population
38.2 million

GDP*
£162.6 bn

Research expenditure
(as percentage of GDP*)
0.3

Ratio Public:Private
R&D expenditure
50:50

Previous year growth
in GDP*
+3.2

*All economic data is taken from the
IMF World Economic Outlook April 2006

Russia

Country profile

Population

142.7 million

GDP*

£486.9 bn

Research expenditure

(as percentage of GDP*)

2.1

Ratio Public:Private R&D expenditure

72:28

Previous year percentage change in GDP*

+6

Major S&I developments

New legislation on Special Economic Zones (SEZ) means four new technical/innovation zones and two industrial zones will be created in 2006, attracting investment from foreign, domestic, public and private sources.

A state-managed Investment Fund (£1.43 billion) and Innovation Venture Fund (£280 M) will be created to support technology commercialisation, to be launched in 2007. The 2006-2015 National Space Programme has been approved with a total budget of £6.22 billion. The Russian Academy of Sciences (RAS) and the government reached agreement on reforming the academic science sector. Budget-funded RAS institute staff will be cut 20% by 2008. In return, the government has promised a 150% rise in state financing of the sciences, from \$1.6 to \$3.9 billion.

Looking back, looking forward

Russian industrial secondment on 3-phase flow measurement technology and academic links between Cranfield and St Petersburg universities were established in 2005. A number of commercial and technology partnerships have been generated by the activities of the UK Russia Closed Nuclear Cities Partnership, including the UK company Chiltern

Invadex Ltd working with a new company in the closed nuclear city of Sarov to produce an advanced electric hoist for medical applications.

Plans for next year include Phase 2 of the British-Russian Technology Transfer Network, a Russia research event at the Royal Society on the themes of Russia's G8 Presidency (Infectious Disease Control and New Energy Technologies). There will be a DTI technology mission to Russia on mechatronics and robotics, and a Russian State Duma deputy sponsored visit to the UK to explore British innovation and financing models.

*All economic data is taken from the IMF World Economic Outlook April 2006

Singapore

Country profile

Major S&I developments

Singapore has a new five-year R&D plan to 2010, which includes a new Research, Innovation and Enterprise Council, chaired by the Prime Minister, and supported by a new National Research Foundation with funding of S\$5 billion (£1.8 billion). The aim is to fund longer-term strategic programmes including biomedical sciences, environmental and water technologies and creative media. Singapore intends to more than double public sector investment in research to S\$13.5 billion (£4.8 billion) between now and 2010 and aims to increase overall investment in R&D to 3% of GDP, two-thirds in the private sector.

Looking back, looking forward

In July 2005 Prime Minister Tony Blair and Singaporean Prime Minister Lee Hsien Loong signed a statement on science, engineering and technology which converted our highly successful UK-Singapore Partners in Science campaign into a long-term strategic initiative. In the statement, which was the lead story in The Straits Times, they agreed to encourage scientific collaboration and networks and to help build scientific capacity with South East Asian partners. As a result, with funding from the FCO's

Global Opportunities Fund, we have held workshops in areas including materials science, immunology and bioelectronics involving over 1000 researchers from the UK, Singapore and other SE Asian countries. In addition we have provided Collaboration Development Awards to 29 researchers from Singapore and Malaysia to enable them to visit the UK to develop proposals for collaborative research leading to many new collaborations.

We will continue to forge collaborations and networks in 2006-07 through a major conference on Building Scientific Capacity with South East Asian partners, and workshops in areas such as GRID computing, aquaculture and developmental biology.

Population
4.35 million

GDP*
£69 bn

Research expenditure
(as percentage of GDP*)
2.25% of GDP*

Ratio Public:Private
R&D expenditure
36:64

Previous year percentage
change in GDP*
+6.4%

*All economic data is taken from the IMF World Economic Outlook April 2006

South Africa

Country profile

Population

6.2 million

GDP*

£599 bn

Research expenditure

(as percentage of GDP*)

2.79

Previous year percentage change in GDP*

+4.9

Major S&I developments

The National System of Innovation in South Africa sets a policy framework for social and economic development through a science and technology knowledge base.

To boost its science and technology research, the Innovation Fund and The National Research Foundation (NRF) were established, incorporating the Foundation for Research Development (FRD) and the Centre for Science Development of the Human Sciences Research Council (HSRC). Statutory science councils are responsible for science and technology development, innovation and transfer, the promotion of human resources development, and promotion of technology implementation. The councils cover areas such as agriculture, industry, minerals, medicine, geology, standardisation and quality systems, energy, water, fisheries and the environment. South Africa has bilateral S&T agreements with some 30 countries.



*All economic data is taken from the IMF World Economic Outlook April 2006

South Korea

Country profile

Major S&I developments

Korea is ranked 10th largest in the world in terms of GDP. The ratio of investment in R&D is among the highest of any nation, hitting nearly 3% of GDP last year. Corporate R&D investment accounts for about two-thirds with government expenditure making up the rest. Much of this R&D is on the applied side and the corporate investment comes mostly from the large Korean conglomerates such as Samsung, LG and Hyundai. But there is now a shift in the composition of spending as Korea recognises the value of long-term investments in basic research. Telecommunications, display technologies, materials, precision engineering and bio-science are strong points.

The Korean government set up its national mid-to-long term ICT strategy called 'IT 839' – new development of 8 services, 3 infrastructure and 9 products by 2012- and has started to invest between £370M and £550M annually. The main focus is to develop core ICT technologies and to commercialise them with detailed implementation plans.

Looking back, looking forward

The UK and Korean governments launched the "UK-Korea Science, Technology and Innovation Partnership" in 2005. This aims to create collaborations in selected focus areas - space, nanotechnology, energy technologies,

risk management, bio-electronics, women in science and mobile TV - and mainly consists of bilateral workshops, missions, personnel exchange and joint R&D projects. Under the STIP umbrella, 'Korea Day' was held at the Royal Society in September 2005 in parallel with three bilateral focal point networking workshops. The 1st UK-Korea Flexible Display workshop held in Birmingham has led to various follow-up activities including one NDA. The 1st UK-Korea Women in Science workshop attracted high profile interest from the Korean government and science community. The UK delegation led by Gill Samuels, Pfizer, and Prof Jocelyn Bell Burnell had the opportunity to call on the Korean First Lady, Yang-Sook Kwon.

In 2006, the key priority will remain the four focal points areas, risk management, women in science and flexible display under the STIP umbrella. New initiatives for science collaboration will start in chemical science and aerospace. Lord Sainsbury is planning to visit Korea in November to lead the biennial UK-Korea S&T Joint Commission and for discussing continuation of the STI Partnership agreement. In ICT area, we are planning a bilateral policy and regulatory workshop on ICT convergence and IPTV which we expect will influence the Korean government's work on new regulatory framework to be finished by the end of 2006. Margaret Hodge is planning to visit Korea in September and plans to sign the updated UK-Korea ICT Co-operation Agreement with Korean ICT.

Population
47.3 million

GDP*
£430 bn

Research expenditure
(as percentage of GDP*)
3%

Ratio Public: Private R&D
expenditure
25:75

Previous year percentage
change in GDP*
+4

*All economic data is taken from the IMF World Economic Outlook April 2006

Sweden

Country profile

Population

9 million

GDP*

£194 bn

Research expenditure

(as percentage of GDP*)

3.98%

Public/Private R&D spend ratio

25:75

Previous year percentage change in GDP*

+2.7

Major S&I developments

Sweden leads the EU's Innovation Scoreboard and is one of the world's most R&D intensive countries. Government policy continues to focus on prioritising high-tech research areas including biomedical science, ICT and energy technologies, to ensure that Sweden maintains its place at the leading edge of science. Following the publication of the Innovation Strategy in 2004, the national innovation system has been changed to encourage more industry/ academia collaborations and greater pull-through of science to technology. Discussions about possible changes to the rules regarding the ownership of intellectual property rights for researchers are ongoing.

Looking back, looking forward

Links made through the March 2005 "Small Talk on Big Issues" nanoscience event continued to be built on throughout 2005 and will develop further with the bionanotechnology mission to the UK in autumn 2006. In the coming year, a focus will be placed on best practice in innovation and innovation policy, through greater collaboration with the innovation agency, Vinnova, and academic partners. Energy research is also likely to feature strongly on the agenda, as we expect the recommendations of the Swedish Government's "Commission to break the oil dependency" to increase commercialisation of research in this field.

*All economic data is taken from the IMF World Economic Outlook April 2006

Switzerland

Country profile

Major S&I developments

During 2005, Switzerland was the UK's second largest non-EU market after the US and the sixth largest investor in the UK. It is among the most active R&D-oriented countries in the world on a per capita basis, ahead of the United States, but behind Israel, Sweden, Finland and Japan.

2006 sees the launch, by the ETH Board, of four new national networks of multidisciplinary research competence in the areas of Energy and Mobility, Environment and Sustainability, Materials Science & Technology, and Systems Biology. The Swiss Federal Institute of Technology at Zurich, ETHZ, celebrated its 150th anniversary and moved ahead in developing its new 'Science City' campus.

The world focused on Swiss pharma giant Roche. Sales of its drug Tamiflu, the leading treatment for avian and related influenza, were worth £ 700 million in 2005. Roche is increasing production to supply 400 million treatments p.a. by the end of 2006 to meet orders from 60 countries. The company has also outsourced production to 15 external manufacturers in 9 countries and donated 5 million treatments to the WHO's stockpile to forestall a human pandemic of avian influenza in high risk countries.

Looking back, looking forward

Achievements include three scientific, business-oriented inward missions to the UK, support for a significant technical UK presence at a Swiss fair on emerging nanotechnologies, and support for the Swiss leg of a GlobalWatch outward mission.

We built on feedback from our 2005 cancer therapies mission to introduce pre-arranged, targeted one-on-one partnering meetings as an integral component of our follow-up missions on neurodegenerative disease therapies and novel cancer therapies. This yielded significantly more and faster outcomes in respect of business deals and research collaborations.

Key events for 2006/7 include the bilateral science minister's meeting in May, trilateral UK-Swiss-French partnering alongside a leading European Solid Oxide Fuel Cells meeting in Switzerland in July, an Applied Photonics inward mission in October, and an Advanced Materials inward mission in early 2007.

Population
7.4 million

GDP*
£199 bn

Research expenditure
(as percentage of GDP*)
2.6%

Ratio Public:Private
R&D expenditure
69% (Public) 21% Private.

Previous year percentage
change in GDP*
+1.8

*All economic data is taken from the
IMF World Economic Outlook April 2006

Taiwan

Country profile

Population
22.7 million

GDP*
£187 bn

Research expenditure
(as percentage of GDP*)
2.42

Ratio Public:Private R&D expenditure
34:66

Previous year percentage change in GDP*
+4.1

*All economic data is taken from the IMF World Economic Outlook April 2006

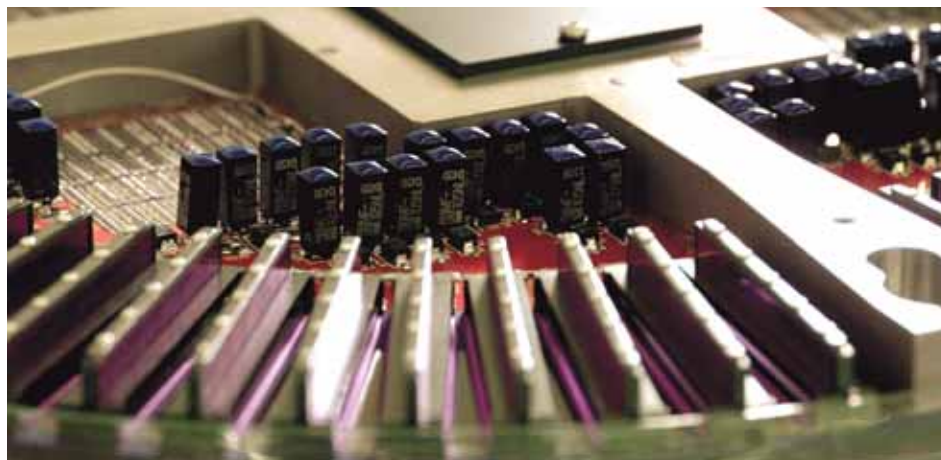
Her Majesty's Government does not recognise Taiwan as a sovereign state and consequently does not have diplomatic relations with it. However, there is a non-governmental Trade and Cultural Office, with full time S&I officers working there.

Major S&I developments

Government officials are starting to look towards non-US sources for collaboration partners in science, technology and innovation (historically, the United States has been the partner of choice). Government and industry have begun to focus more on original research to develop and/or acquire intellectual property in the major technology sectors. Historically, Taiwanese companies have been world leaders in the volume production of IT and electronic products. There is a concerted effort by government and industry to move towards advanced research.

Looking back, looking forward

Taiwan's Centre of Disease Control visited the Health Protection Agency's (HPA) annual conference as a result of Sir William Stewart's visit from the HPA to Taiwan in 2004. Sir William Stewart shared his knowledge in infectious diseases and healthcare. In return, the Centre of Disease Control passed on useful information about managing SARS and tuberculosis - infectious diseases that Taiwan has unique expertise and experiences of dealing with. Key forthcoming events include an Inward Mission (together with Inward Investment Section), recruitment of UK universities and companies to attend Technomart Taiwan 2006, and attendance at Nano Japan 2007.



United States

Country profile

Major S&I developments

The US remains a powerhouse in global science and innovation: with only 5% of the world's population, it still accounts for 44 % of the combined R&D spending of the 30 OECD countries. Its strong S&I performance is the benchmark against which other governments measure their S&I activities. Public and private R&D funding reached a record \$328 billion in 2005. The US attracts many of the world's best scientists and engineers and remains the world's leading producer of innovative products.

Centres of excellence around the US have led to international collaborations and multidisciplinary partnering. These centres of excellence have programmes that welcome participation with the UK. Below the federal level, state support for R&D also contributes to US science and innovation. Several states contribute millions to R&D excellence through university funding and the creation of science facilities and incubators.

Looking back, looking forward

The US S&I Network has achieved many important outcomes building on activities initiated in the previous year. Outcomes include a UK-US alliance on structural genomics / proteomics, the UK-US S&T agreement on homeland security, UK collaboration with the California Institute for Regenerative Medicine on stem cell research, and informing a number of government policy reviews, such as the UK Stem Cell Initiative, science and innovation components of the Comprehensive Spending Review, and the Gowers Review of intellectual property issues.

Looking ahead the US network will be further developing our best practice exchanges with government, industry and academia on intellectual property and innovation, stem cell research, homeland security, and renewable / alternative energy research and development. This will include a US roadshow on UK regulation of stem cell research and banking, co-organising a major West Coast event showcasing the latest developments in renewable energy, and pursuing collaborative opportunities with UKTI to promote science and innovation for homeland security.

Population
300 million

GDP*
£6800 bn

Research expenditure
(as percentage of GDP*)
2.6

Ratio Public:Private R&D
expenditure
42:58

Previous year percentage
change in GDP*
+3.5

Annex 1 FCO Science & Innovation Network Posts



UK overseas posts with dedicated Science & Innovation officers.



Annex 1 FCO Science & Innovation Network Posts

Australia Canberra	Denmark Copenhagen	Malaysia Kuala Lumpur*	South Korea Seoul
Belgium Brussels*	France Paris	Mexico Mexico City*	Spain Madrid*
Brazil Sao Paulo	Germany Berlin Munich	Netherlands The Hague	Sweden Stockholm
Canada Ottawa Toronto	India Bangalore New Delhi	New Zealand Wellington*	Switzerland Berne
China Beijing Chongqing Guangzhou Hong Kong* Shanghai	Ireland Dublin*	Poland Warsaw	Taiwan Taipei
Czech Republic Prague	Israel Tel Aviv	Portugal Lisbon*	USA Atlanta Boston Chicago* Denver* Houston Los Angeles New York* San Francisco Seattle* Washington
	Italy Milan Rome	Russia Moscow	
	Japan Osaka Tokyo	Singapore Singapore	
		South Africa Pretoria	

*No dedicated Science Officer

Annex 2 Science and Innovation Network Profiles

UK

London Science & Innovation Group

Philippa Rogers – Acting Head of Science & Innovation



Philippa became acting head of Science and Innovation in March 2006.

Philippa has been involved with the S&I network since 1997, in Washington as First Secretary (Science and Technology) and then as First Secretary and Science Counsellor in Tokyo. Before joining FCO, Philippa worked for the UK Research Councils for 12 years.

Richard Jones - Deputy Head



Richard joined the Group in March 2003 on return from Tokyo, where as First

Secretary (Inward Investment) he worked closely with colleagues in the Science and Innovation Section. Previous jobs include Deputy Head of the Human Rights Unit in the FCO, Deputy Head of Mission in Suva and Head of Mexico and Central America Section of the Latin America Department.

Australia

Canberra

Fiona Ratcliff - Science & Innovation Officer



Fiona began as Science & Innovation Officer in April 2005. Before joining the

team, she worked at the Federation of Australian Scientific and Technological Societies and Questacon - Australia's National Science and Technology Centre.

Brazil

Sao Paulo

Alexandra Ozorio de Almeida – Science & Innovation Officer



Alexandra joined the British Consulate General in October

2003. She has a Masters degree in Political Science from the University of São Paulo where she specialised in Post-War Brazilian

Nuclear Policy. Before joining the S&I Network, she worked as a journalist for the greater part of her professional life. For six years she was a journalist at one of Brazil's most respected and widely read dailies, Folha de S.Paulo, latterly in the post of Assistant Science Editor.

Cristina Hori – Deputy Science and Innovation Officer



Cristina joined the S & T Network in July 2005, having previously

worked for UKTI at the British Consulate General for one year. She graduated in Information Technology and is post graduated in Business Administration. Before joining the Consulate General, she worked as a system administrator and management co-ordinator for the private sector.

Annex 2 Science and Innovation Network Profiles

Brasilia

Matthew Lownds – First Secretary (Economic and Trade Policy)



Matthew joined SIN in November 2004, backstopping the Sao Paulo S&I team in Brazil's capital city. This marked a belated return to his roots – eighteen years after opting for a career in the FCO, rather than pursuing his academic studies at Sussex University's Science Policy Research Unit. Matthew also leads the Embassy's economic and UKTI teams. As well as filling various roles in the FCO's EU and Economic Directorates, he has served in British missions in Dublin, Dusseldorf, Luanda and Vienna.

Canada

Ottawa

Julie Wright-de Hennin - Science & Innovation Officer



Julie joined the Network in May 2002. She previously worked in medical research at the Prince of Wales Medical Research Institute in Sydney, Australia, and for high-tech fibre optic components company JDS Uniphase in Ottawa.

Eleanor Fast - Science and Innovation Officer



Eleanor joined the Network in August 2003. She has held a variety of positions in both scientific research and administration, most recently working for the career service of McGill University.

Sue Farrag - Science and Innovation Assistant



Sue joined the network in April 2005. She has held a variety of positions working for the UK government and previously worked in Beijing China.

Toronto

Alex Zivojinovic – Science and Innovation Officer



Prior to joining the Science and Innovation Network in 2006, Alex Zivojinovic worked as in research and as a freelance journalist. He also worked for the European Science Foundation in France and organized business conferences in the oil & gas industry.

China

Beijing

David Concar – Counsellor (Science & Innovation)



David joined the FCO in 2004 after a career in the media, including posts at New Scientist, Nature, and time spent setting up a TV production co-venture to co-produce programmes for the Discovery Channel and Channel 4.

Andrew Woodcock - First Secretary (Science and Innovation)



Andrew has served widely in Embassies abroad since joining the FCO in 1988, most notably as Economics Attache in Mexico and as Science and Innovation officer in Germany.

Annex 2

Science and Innovation Network Profiles

Du Ying - Head of Liaison (Science and Innovation)



Du Ying previously worked at the Chinese Foreign Ministry, in

Suriname and the Netherlands. She joined the British Embassy in 1996 as a senior commercial representative and transferred to the S&T Section in 1998.

Katy Fu - Project Officer (Science and Innovation)



Katy joined science and innovation in May 2005 in the middle of the UK-China

Partners in Science initiative. She previously worked for the New Zealand Immigration Service and as Culture Exchange Co-ordinator in Japan.

Jing Cai - Office Manager and PA to Counsellor (Science and Innovation)



Jing worked for the Brighton & Hove Chinese Society in the UK before

joining the Science & Innovation team in Beijing in April 2006.

Shanghai

Anna Lindahl - Programme

Manager/Acting head (Science & Innovation section)



Anna joined the Embassy in Beijing in June 2002, and

transferred to the British Consulate in Shanghai in 2003. Anna has studied and worked in China for over 5 years.

Bronte Zhang - Project Officer (Science & Innovation)



Bronte joined the S and I network in Shanghai in 2004, having previously

worked in the British Consulate.

King Kong - Project Officer (Science & Innovation)



King has been working in the British Consulate as co-ordinator of the UK-

China Partners in Science initiative since September 2004.

Chongqing

Grace Lang - Senior Project Officer (Science & Innovation)



Grace joined the S&I network in September 2004. Her previous

university teaching experience provides her with good knowledge of the local academia. In 2005, Grace worked extensively with the science community on the delivery of UK-China Partners in Science events in southwest China.

Guangzhou

Nigel Birch - Consul (Science and Innovation)



Nigel joined the Network in May 2005 from the UK Research Councils,

where he managed science and engineering programmes and international relations with the Engineering and Physical Sciences Research Council.

Annex 2 Science and Innovation Network Profiles

Adee Zai - Science and Innovation Officer



Adee Zai took up her current post in May 2005 having previously researched e-

Business at the University of Warwick.

Czech Republic

Prague

Otakar Fojt – Science & Innovation Officer



Otakar took up the newly created post of S&T Officer in Prague in October 2003.

He previously worked as a specialist on international projects at Brno University of Technology and as Managing Director of a small technological company, Sincotron.

Denmark

Copenhagen

Mogens Olsen - Science & Innovation Officer



Mogens has 17 years of business experience from Philips Denmark,

Philips Australia, RE Technology and Peek Traffic. He joined the British Embassy in Copenhagen in May 2003.

France

Paris

Hugh Elliott - Counsellor (Global Issues)



Hugh began work as Counsellor for Global Issues in Paris in September

2002. He previously headed up the Political, Economic and Press Section of the British Embassy in Buenos Aires. Hugh will be succeeded by Simon Buckle in July 2006.

Helen Dickinson - First Secretary (Science & Innovation)



Helen joined the Paris team in March 2003 from the DTI. She previously worked at the DTI and Parliamentary Office of Science and Technology, after having spent several years researching physical chemistry. Dr Mark Sinclair will succeed Helen in September 2006.

Dara Brice - Science & Innovation Officer

Dara joined the S&I team in May 2005. She comes from a background in public relations for life sciences: her last job was in the Lyon R&D cancer research cluster.

Kathy Carvalho - Science & Innovation Assistant



Kathy originally came to Paris in July 1990 on a secondment

posting with the Ministry of Defence (MOD). In May 1996, after 4 years in Paris, she left the MOD and returned to the Embassy as a locally-engaged member of staff.

Annex 2 Science and Innovation Network Profiles

Germany

Berlin

Alison Pring - First Secretary (Science & Innovation)



Alison arrived in Berlin in August 2004. She was previously Deputy

Director, Trade & Investment in Berne, where she worked closely with her S&T colleagues. She has also had postings to Brussels, Caracas and St Petersburg, and has experience of a wide range of diplomatic work.

Ursula Roos - Science & Innovation Officer



Ursula joined the German S&T team in September 1996. She has been involved several missions since 1998 looking into biotechnology, microsystems engineering, nanotechnology, and oncology.

Heike Hammelehle - Science & Innovation Assistant



Heike joined the Berlin S&I team in August 2004. She previously worked as an assistant for international companies in Germany, Switzerland and Colombia.

Munich

Steve Plater - Counsellor (Science & Innovation)



Steve has been in Munich since December 2003. His FCO experience includes promotion of exports (in Japan) and inward investment. As Consul-General in Munich he is charge of trade and investment promotion, consular and other work in Bavaria. As Counsellor he has oversight of the Germany S&T team.

Muzinée Kistenfeger - Science & Innovation Officer



Muzinée has 10 years' experience in foreign languages journalism and joined the German S&T team in April 2001.

India

New Delhi

Rob Daniel - First Secretary (Science & Innovation)



Rob joined the FCO S&I Network in November 2005. Before that, he worked with the Canadian High Commission in London, and as an engineer with the Ministry of Defence, subsequently QinetiQ.

Swati Saxena - Science & Innovation Adviser



Swati joined the S&I Network in August 2003. She previously worked for Monsanto on researching genetically modified crops, and exploring regulatory aspects of their commercialisation in India.

Shweta Datt - Science & Innovation Officer



Shweta joined the S&I Network in September 2003 and previously worked in the travel industry.

Annex 2 Science and Innovation Network Profiles

Bangalore

Soffia Dayal - Science & Innovation Adviser



Soffia joined the FCO S&I Network in June 2005. Before that she worked at

the Institute for Nanotechnology, Northwestern University, USA managing research programmes.

Israel

Tel Aviv

Adee Matan - Science & Innovation Officer



Adee has worked in product management and R&D for companies in

the fields of machine translation, workforce management and e-commerce. Adee took up the S&I post in Tel Aviv in January 2002.

Italy

Rome

Ashley Prime - First Secretary (Social/Science and Innovation)



Ashley joined the British Embassy in Rome in March 2003 with

responsibility for S&T, Social and Labour Affairs, and Commercial and Trade relations. He previously worked on the USA desk in the FCO and served in China and London to attract Chinese inward investment to the UK.

Laura Nuccilli - Science & Innovation Officer



Laura has a Degree in Political Science from the University of "La

Sapienza" in Rome and an MA in Mass Communication from Leicester University as a Chevening Scholar. Before joining the Embassy, she worked in the Italian Parliament as a Parliamentary Assistant with the Green Group dealing with issues such as sustainable development, biotechnology and GMOs.

Milan

Alessandra Ferraris - Science & Innovation Officer



Alessandra took up her post in 2002. She has 6 years research experience,

having worked for a major Italian pharmaceutical company managing R&D projects on respiratory disease therapy.

Japan

TOKYO

Chris Pook - Counsellor (Science and Innovation)



Before moving to Tokyo in December 2005 Chris was Secretary to the UK's

Technology Strategy Board. He has also worked as Science Attaché at the British Embassy in Washington, and Private Secretary to successive DTI Ministers.

Ed Wright - First Secretary (Science & Innovation)



Ed previously worked in Tokyo at the Japanese Pharmaceutical Manufacturers

Association before returning to the UK as a technology investment analyst. Ed joined the FCO in 2004 as Consul (Science & Innovation) at the British Consulate-General in Osaka, and took up post in Tokyo in June 2005.

Annex 2

Science and Innovation Network Profiles

Paul Johnson - First Secretary (Science & Innovation)



Following an early career in overseas oil exploration and geotechnical consulting, Paul became Head of the Department for Transport's (Highways Agency) Forward Planning and Technology team, including a secondment to the Japanese Ministry of Transport. Paul has been with the Science and Innovation Network and FCO for 2 years.

Tadashi Shirai - Senior Science and Innovation Officer



Tadashi joined the British Embassy in 1974 and is the longest-serving member of the S&I Section.

Ryozo Tanaka – Senior Science and Innovation Officer



Ryozo joined the S&I Section in April 2005. He previously worked as a civil engineer and as a researcher at the Ministry of Trade, Economy and Industry, monitoring the world oil market.

Seiko Oya - Science and Innovation Officer



Seiko Oya joined the S&I Section in 1995 and is responsible for organizing visit programmes for GlobalWatch mission teams and individual UK visitors.

Tomoko Watanabe - Science and Innovation Officer



Tomoko joined the S&I Section in August 1996. Her responsibilities include assisting in the transfer of information and technology between Japan and the UK.

Kaoru Kambe - Science and Innovation Officer



Kaoru joined the Embassy in October 1997. Her responsibilities include organising Global Watch Missions and other academic/VIP visitors' programmes and arranging seminars.

Natsuko Nito - PA to Counsellor



Natsuko joined the S&I section in February 2006 after working for a Japanese University and a UK based private enterprise as a secretary.

Yumiko Yamashita - Science and Innovation Assistant



Yumiko joined the S&I section in November 2004. She previously worked at the Norwegian Embassy in Tokyo.

Annex 2 Science and Innovation Network Profiles

OSAKA

Robert Morini - Consul, Science and Innovation



Rob joined the Network in November 2005. He previously worked at the Royal Society, where he was responsible for the Society's policy and collaboration with countries in Asia. Rob has also worked in China, for the UN and for a number of international NGOs involved in human rights and development.

Sachiko Yoshida - Science and Innovation Officer



Sachiko joined the S&I section in Osaka in February 2006. She previously worked for the City of Kobe.

Poland

Warsaw

Izabela Van den Bossche – Science & Innovation Officer



Izabela joined the Embassy in 1998 as a Press Officer, and has been working on science and technology since 2004. She previously worked for Alcatel in Belgium and for BOC Ltd in Poland.

Russian Federation

Moscow

David Vincent – First Secretary (Science & Innovation)



David joined the British Embassy in April 2005 from the DTI. He was previously Director of the UK-Russia Closed Nuclear Cities Partnership, and has a background in managing nuclear safety and security programmes with countries including Russia and Kazakhstan.

Mikhail Lachinov – Science & Innovation Officer



Mikhail joined the British Embassy in September 2004 after moving back to Russia from Canada where he worked as a research engineer for high-tech fibre optic instruments company JDS Uniphase in Ottawa.

Liya Korobova – Science & Environment Officer



Liya joined the British Embassy in 1994. Prior to this she was a DFID Environment Officer.

South Africa

Pretoria

The Science and Innovation Officer for South Africa is Currently being appointed

Republic of Korea

Seoul

Thomas Mark Tomlinson - First Secretary (Science, Innovation and Environment)



Mark joined the Network in August 2002, taking up his post in Seoul in 2006. He previously worked for the network in New Delhi, after spending several years in the private sector.

Kyejin Chay – Senior Trade and Science & Innovation Officer



Kyejin is responsible for the team's work in biotechnology, pharmaceuticals, energy and environment. She has extensive experience of the Embassy and was awarded an Honorary MBE in 2004.

Annex 2 Science and Innovation Network Profiles

Youngsun Soh – Senior Science & Innovation Officer



Youngsun was the first full time S&T Officer in the British Embassy. She

previously worked for a leading law firm.

Hyeyoung Kim - Science Development Officer



Hyeyoung joined the team in August 2004. Past experience

includes working at Templeton Asset Management Ltd and the Australian Embassy in Seoul.

Mijeong Lee – Deputy Trade and Science & Innovation Officer



Mijeong joined the team in June 2003. She previously worked for the

Korean Broadcasting System and a leading law firm in Seoul.

Mikyung Park – Deputy Science & Innovation Officer



Mikyung joined the team in September 2003. She has worked in

several multinational companies in Seoul.

Singapore

Brian Ferrar – First Secretary (Science & Innovation)



Brian spent most of his early career in the UK Department of Energy

before joining DTI, where his work included the Foresight Programme and the International Technology Service. Brian joined the British Embassy in Tokyo in 2000, and moved to his current position in 2004.

Vanessa Choo - Science and Innovation Officer



Vanessa joined the S&T Section in Singapore in 2004. She is a graduate in

Life Sciences from the National University of Singapore (NUS).

Christopher Tan - Senior Science and Innovation Officer



Christopher joined the S&T Section in Singapore in May 2005. Prior to this

he was working in Malaysia and China.

Annex 2 Science and Innovation Network Profiles

Sweden

Stockholm

Alice Hague - Second Secretary (Science & Innovation)



Alice joined the British Embassy in Stockholm in April 2003 having previously worked as Education Manager in an interactive science centre in Dundee and for the Royal Society of Edinburgh.

Sofia Norberg – Science & Innovation Officer



Sofia joined the Science & Innovation team at the British Embassy in Stockholm in September 2004. Previous work experience includes managing projects for Stockholm universities and local organisations focusing on S&T issues.

Switzerland

Berne

Bernhard Sander - Science & Innovation Officer



Bernhard joined the Embassy in Berne from the private sector in 2001. He has previously worked for engineering, tunnelling and management consultants.

Michael Tomsett – Science & Innovation Adviser



Michael worked with an international marketing and management consultancy based in Scotland before coming to Switzerland. He has been in the Embassy S&T team since November 2003

Taiwan

Her Majesty's Government does not recognise Taiwan as a sovereign state and consequently does not have diplomatic relations with it. However, there is a non-governmental Trade and Cultural Office, with full time S&I officers working there.

Taipei

Douglas Huang – Head of Science and Innovation Section

Douglas joined the S&T team in May 2005. He spent most of his previous career as an investment manager at local VC firms and a corporate VC.



Ginell Hsu – Science & Innovation Officer



Ginell joined the S&T team in February 2001 having previously worked in the BTCO visa-handling unit and in the private sector for 2 years.

The Netherlands

The Hague

Leo Zonneveld - Science & Innovation Officer



Leo was appointed S&I Officer in The Hague in 2001. He is Honorary Professor at the Faculty of Psychology and Social Sciences at the Universidad de Flores in Buenos Aires and was granted a Maltese Order in 1991.

Kim van den Wijngaard- Science and Innovation Assistant



Kim joined the Embassy in The Hague in June 2005. Previously she worked for several popular science magazines.

Annex 2 Science and Innovation Network Profiles

USA

Washington

Julian Braithwaite – Counsellor (Global Issues)



Julian joined the S&I Network as Head of the Global Issues Group in

2004. He leads the Trade, Transport, Energy/Environment, and Science/Technology policy teams in the Embassy. Before coming to Washington DC, Julian most recently served as Director of Communications to the Office of the High Representative in Sarajevo. Julian has also previously worked for Number 10, the United Nations and NATO.

Dr Phil Budden – First Secretary (Science & Innovation)



Phil joined the S&I Network in mid-2004 as the First Secretary responsible for

Innovation, Science and Technology. He has been at the Embassy since 2002 covering a range of information and communications technology (ICT) issues. He previously worked in the Cabinet Office, Foreign Office and British Embassy in Vienna on a range of European, economic and high-tech topics.

Joshua Mandell – Senior Science & Innovation Officer



Prior to joining the Embassy in 2003, Joshua Mandell was an

environmental scientist and policy consultant to the United States Air Force. Joshua also spent 6 years in the private sector where he

performed services in geology, hydrology, geographic information systems, remote sensing and environmental regulatory policy.

Jonathan Temple – Policy Advisor, Energy & Environment and Science & Innovation



Jonathan advises on a full range of energy policy issues including energy technology development and energy markets. Jonathan has worked in the Embassy since 1988 and before that worked in UK nuclear sector.

David Muller – Science & Innovation Officer



David has recently joined the British Embassy team in Washington after spending 2 years as Vice-Consul, Science and Innovation at the Consulate-General in Atlanta."

Atlanta

Vice Consul (Science & Innovation)

We are currently in the process of appointing and officer for this position.

Boston

Consul (Science & Innovation)

We are currently in the process of appointing an officer for this position.

Stefan Winkler - Vice-Consul (Science & Innovation)



Stefan joins from the technology consultancy Arthur D Little where he managed biotechnology R&D. Stefan also teaches undergraduate and graduate students in bioengineering at Tufts University where he holds an adjunct faculty position. He joined the Boston team in May 2002.

Annex 2 Science and Innovation Network Profiles

Neelangi Gunasekera – Research Assistant, Science & Innovation



Neelangi joined the Network in 2003. She previously worked in

Investor Relations at Weber Shandwick in Chicago and RepliGen Corporation in Massachusetts.

Houston

May Akrawi - Vice-Consul (Science & Innovation)



May joined the British Consulate-General in Houston, in April 2002, to

set up the S&T team in the Southwest. She has worked as a science analyst for a major law firm, and most recently set up the European office for US biotech company, In Vitro Technologies.

Catherine Santamaria - Research Assistant, Science & Innovation



Catherine joined the British Consulate-General in February

2005. She previously worked in Japan for a Japanese business software company and at the Houston World Affairs Council, to promote awareness of international issues and U.S. foreign policy.

Los Angeles

Malcolm McLean - Vice-Consul (Science & Innovation)



Malcolm previously worked as CEO of an environmental technology company, International Ecoscience and ran his own business selling into the Japanese market. He arrived in Los Angeles in April 2002.

Beverly Xu – Research Assistant, Science & Innovation



Before joining the S&I Network in January 2006, Beverly supported

global marketing operations in two companies based in Southern California.

San Francisco

Annabelle Malins - Consul (Science and Innovation)



Annabelle joined FCO in 1999 and took up post as Consul S&I in October

2005. She has 20 years' industry background in food and agriculture including international research and technical consultancy. She previously worked as principle scientist and training specialist at the Natural Resources Institute, UK.

Stephen Lynn - Vice-Consul (Science & Innovation)



Stephen took up his post as Science and Technology Vice Consul in November

2003. He previously worked as a scientist on the genetics of diabetes and mechanisms of neurodegeneration.

Doreen Reid - Research Assistant, Science & Innovation



Doreen took up her position at the British Consulate in March 2004.

Before joining the Network, she worked for Scottish Development International (SDI), Scotland's economic development agency, where she had responsibility for a portfolio of 63 predominately high-tech companies located throughout North America

Annex 3

Science and Innovation Network

Contact Details



Atlanta

Vice Consul
(Science & Innovation)
British Consulate General
Suite 3400,
Georgia Pacific Centre
133 Peachtree Street NE
Atlanta GA 30303
(00) (1) (404) 954 7700

Bangalore

Soffia Dayal
Science & Innovation
Officer
British Trade Office
Prestige Takt
23 Kasturba Cross Road
Bangalore 560001
(00) (91) (80) 2100 200

Berlin

Alison Pring
First Secretary
(Science & Innovation)
British Embassy
Wilhelmstr. 70
D-10117 Berlin
Germany
(00) (49) (30) 20457 0

Beijing

David Concar
Counsellor
(Science & Innovation)
British Embassy
11 Guanghualu
Jianwai
Beijing, 100600
(00) (86) (10) 6532 1961

Berne

Dr Bernhard K Sander
Science and Innovation
Officer
British Embassy
Thunstrasse 50,
3005 Berne
Switzerland
(00) (41) (31) 359 7700

Boston

Stefan Winkler
Vice Consul
(Science & Innovation)
British Consulate-General
One Memorial Drive,
Suite 1500
Cambridge MA 02142
(00) (1) (617) 245 4500

Canberra

Fiona Ratcliff
Science & Innovation
Officer
British High Commission
Commonwealth Avenue
Yarralumla
Canberra, ACT 2600
(61) (2) 6270 6666

Copenhagen

Mogens Olsen
Science & Innovation
Officer
British Embassy
Kastelsvej 38
DK - 2100 Copenhagen Ø
(00) (45) 35 44 52 69

Houston

Dr. May Akrawi
Vice-Consul
(Science & Innovation)
British Consulate General
1000 Louisiana, Suite 1900
Houston, TX 77002
(00) (1) (713) 659 6270

London

Philippa Rogers
Acting Head Science and
Innovation Group
Foreign and
Commonwealth Office
King Charles Street
London
SW1A 2AH
Tel: 020 7008 8290
Fax: 020 7008 8289

Los Angeles

Dr. Malcolm McLean
Vice-Consul
(Science & Innovation)
British Consulate General
11766 Wilshire Boulevard,
Suite 1200,
Los Angeles, California
90025-6538
(00) (1) (310) 481 0031

Annex 2

Science and Innovation Network Contact Details

Milan

Alessandra Ferraris
Science & Innovation
Officer
British Consulate General
Via San Paolo 7
20121 Milano
(00) (39) 02 723001

Moscow

David Vincent
First Secretary
(Science, Environment and
Nuclear Safety)
British Embassy
Smolenskaya
Naberezhnaya 10
Moscow 121099
(00) (7) (095) 956 7200

Munich

Steve Plater
Consul General and
Counsellor
(Science & Innovation)
British Consulate-General
Burkleinstrasse 10
D - 80538 Munchen
(00) (49) (89) 211090

New Delhi

Robert Daniel
First Secretary
(Science & Innovation)
British High Commission
Shantipath, Chanakyapuri
New Delhi 110 021
(00) (91) (11) 2687 2161

Ottawa

Eleanor Fast
Science & Innovation
Officer
British High Commission
80 Elgin Street
Ottawa ONTARIO K1P 5K7
(00) (1) (613) 237 1530

Paris

Dr Helen Dickinson
First Secretary
(Science & Innovation)
British Embassy
35 rue du Faubourg St
Honoré,
75383 Paris Cedex 08
(00) (331) 44 51 31 00

Prague

Otakar Fojt
Science & Innovation
Officer
British Embassy -
Commercial Section
Palac Myslbek
Na Prikope 21
117 19 Prague 1
(00) (420) 2 2224 0021

Pretoria

Officer currently being
appointed
British High Commission
255 Hill Street
Arcadia 0002
(00) (27) (12) 421 7500
Johannesburg
(00) (27) (11) 537 7000

Rome

Ashley Prime
First Secretary
(Social/Science and
Innovation)
British Embassy
Via XX Settembre 80a,
00187 Rome
(00) (39) 06 4220 0001

Sao Paulo

Alexandra Ozorio de
Almeida
Science & Technology
Officer
British Consulate General
Centro Brasileiro Britanico
Rua Ferreira de Araujo,
2nd Floor
Pinheiros
05428-002-Sao Paulo-SP
(00) (55) (11) 3094 2700

San Francisco

Annabelle Malins
Consul
(Science & Innovation)
British Consulate-General
1 Sansome Street,
Suite 850
San Francisco, CA 94104
(001) (415) 617 1300

Seoul

Mark Tomlinson
First Secretary (Science,
Innovation & Environment)
British Embassy
Taepyeongno 40
4 Jeong-dong
Jung-gu
Seoul 100-102
(00) (82) (2) 3210 5500

Annex 3

Science and Innovation Network

Contact Details

Shanghai

Anna Lindahl
Manager, UK-China
Partners in Science
Acting Head of Science and
Innovation Section
British Consulate General
Suite 301, Shanghai Centre
1376 Nanjing Xi Lu
Shanghai 200040
(00) (86) (21) 6279 7650

Singapore

Brian Ferrar
First Secretary
(Science & Innovation)
British High Commission
Tanglin Road
Singapore 247919
(00) (65) 6424 4200

Stockholm

Alice Hague
Second Secretary
(Science & Innovation)
British Embassy
Skarpogatan 6-8
Box 27819
115 93 Stockholm
(00) (46) (8) 671 3000

Taipei

Douglas Huang
Science & Innovation
Officer
British Trade and Cultural
Office
9-10 Floor Fu Key Building
99 Jen Ai Road, Section 2
Taipei 100
(00) (886) (2) 2192 7000

Tel Aviv

Dr Adee Matan
Science and Innovation
Officer
British Embassy
192 Hayarkon Street
Tel Aviv, 63405
(00) (972) (3) 7251222

The Hague

Dr. Leo Zonneveld
Science & Innovation
Officer
British Embassy
Lange Voorhout 10,
2514 ED,
The Hague
(00) (31) (70) 427 0427

Tokyo

Chris Pook
Counsellor
(Science and Innovation)
British Embassy
No 1 Ichiban-cho
Chiyoda-ku
Tokyo 102-8381
(00) (81) (3) 5211 1320

Toronto

Alexandar Zivojinovic
Science and Innovation
Officer
British Consulate General
British Trade and
Investment Office
777 Bay Street, Suite 2800,
College Park
Toronto, M5G 2G2

Warsaw

Izabela Van Den Bossche
Science & Innovation
Officer
British Embassy
Aleje Roz No 1
00-556 Warsaw
(00) (48) (22) 628 6262

Washington DC

Dr Phil Budden
First Secretary
(Science & Innovation)
British Embassy
3100 Massachusetts Avenue
NW Washington DC 20008
(00) (1) (202) 588 6500



S & I Network at their Global conference at Lancaster House, London in November 2005

© Crown copyright

For further information on the
S&I Network contact:
Science & Innovation Group
Foreign & Commonwealth Office
King Charles Street
London

email: science.innovation@fco.gov.uk
Tel: 020 7008 1500
www.fco.gov.uk/science

Project management by FCO Services: Publishing
Tel: 020 7008 6041
Printed on recycled paper containing a minimum of 75%
post consumer waste and 25% ECF pulp



Science & Innovation
Network