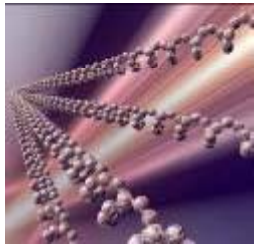
The University of Nottingham

Professor Ian Diamond

Chief Executive
ESRC AND Chair of RCUK

Strategies to Enhance International Partnerships in Research and Knowledge Transfer



International Partnerships in Research and Knowledge Transfer

Ian Diamond

ESRC and RCUK

RESEARCH COUNCILS UK

THE RESEARCH COUNCILS

- Arts and Humanities Research Council
- Biotechnology and Biological Sciences Research Council
- Economic and Social Research Council
- Engineering and Physical Sciences Research Council
- Medical Research Council
- Natural Environment Research Council
- Science and Technology Facilities Council

RESEARCH COUNCILS UK

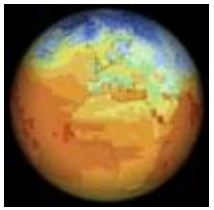
SPECIFIC MISSIONS BUT COMMON OBJECTIVES

- Support basic, strategic and applied research
- Support postgraduate training
- Advance knowledge and technology and provide services and trained people that lead to social, cultural and economic impact
- Manage and develop large facilities
- Promote science in society

RESEARCH COUNCILS UK

INTERNATIONAL DIMENSION OF RESEARCH IN C21

- Knowledge and research are global commodities.
- Knowledge and research respects neither geographical nor discipline boundaries.
- Most major research challenges need teams; or are the results of incremental work by scholars who communicate.
- Knowledge needs to interface with an increasingly global industrial and commercial base



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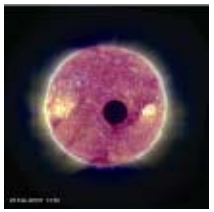
RCUK INTERNATIONAL STRATEGY

- Encourage collaboration between UK researchers and the best researchers from around the world
- Promote the movement of researchers to and from the UK
- Promote opportunities for UK research to have international impact
- Enable access to data, facilities and resources
- Influence the international research agenda
- Promote the UK as a world centre for research and innovation



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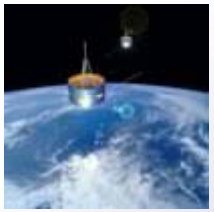
ENCOURAGING RESEARCH COLLABORATION

- Objective: as easy for UK researchers to collaborate with researchers overseas as it is to collaborate with each other

- Partnership by researchers needs top down and bottom up initiatives.



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Promoting Partnership

- From the top:
  - Funders need to work together
  - HEIs need strategic partnerships both within and without the UK
  - HEIs and Funders need jointly to value international collaboration and to enable the ***time*** for collaborations to happen
- From the bottom:
  - Academics need to be prepared to invest in new areas and potentially in new ways of working

RESEARCH COUNCILS UK

PROMOTING PARTNERSHIP A FUNDERS' PERSPECTIVE

- Encourage UK researchers to spend time overseas and overseas researchers to spend time in the UK.
- Need a lifecourse perspective with focus on establishing early opportunities
  - Eg; ESRC PhD scheme; BA/ESRC schemes with China, US, South Asia, Arab World; ESF programmes on quantitative and qualitative methods
- Forge lasting collaborations.
  - Science Bridges a CSR 2007 initiative
  - personal development
  - ensuring research continues at a global level.

RESEARCH COUNCILS UK

NEWTON FELLOWSHIPS AND THE UK INTERNATIONAL FELLOWSHIPS ASSOCIATION

- Newton Fellows announced in CSR 2007, funded and administered by RS, RAcEng and BA

- UKIFA announced in CSR 2007 and administered by RCUK

RESEARCH COUNCILS UK

PROMOTING PARTNERSHIP BY TEAMS A FUNDERS' PERSPECTIVE

- Essential to eliminate double jeopardy
  - Response Mode : ESRC has 13 bilaterals
  - RCUK Brazil
  - ESRC international partners on applications
- Essential to partner on directed research calls
  - NORFACE
  - NSF

RESEARCH COUNCILS UK

WORKING IN PARTNERSHIP

- RCUK works closely with other UK overseas presence
  - E.g. RCUK Overseas Office staff meeting regularly to discuss strategy and implementation with British Council, FCO SIN, DFID, UKTI.
- RCUK works closely with other international stakeholders in UK
  - Organises regular international stakeholder workshops to address key issues
  - Participates in DIUS co-ordinated visit schedules
  - Regularly briefs FCO SIN staff and provides input to business planning via RCUK International Team

RESEARCH COUNCILS UK

PROMOTING PARTNERSHIP SCIENCE AND THE DEVELOPING WORLD

– *Research on the developing world with ldc teams*
  - Rinderpest
  - Insecticide Bed Nets
  - ESRC/DFID Collaboration

– *Research with the developing world*
  - Long term partnerships at HEI/sub HEI level

RESEARCH COUNCILS UK

RCUK Cross-Council Themes

Key Highlights of the Allocation 04

Living With Environmental Change (LWEC)

LWEC is an interdisciplinary research and policy partnership programme to increase resilience to – and reduce costs of – environmental change, addressing the associated pressures on natural resources, ecosystem services, economic growth and social progress.

Human activities, most notably worldwide fossil-fuel demand and rapid population and economic growth in the developing world, are accelerating environmental change and increasing pressure on ecosystems and services, challenging our social and economic well-being. HM Treasury has identified this issue as a key challenge that the UK must address in the next decade, a concern supported by the Intergovernmental Panel on Climate Change Fourth Assessment, the Millennium Ecosystem Assessment, and the Stern Review.

Living With Environmental Change (LWEC) is a major interdisciplinary research and policy partnership to tackle environmental change and the societal challenges it poses, and thus provide a firmer basis for people to deal with the unprecedented changes that the world will face over the next century. The Research Councils, working with partners in at least nine Government Departments, Agencies and Devolved Administrations, will design the LWEC programme across the relevant research areas and policy and industrial sectors. Through a 10-year programme, LWEC aims to provide the knowledge, tools, predictions, solutions and business opportunities needed to increase resilience to, and reduce economic costs of, environmental changes such as more weather and reduced biodiversity; and the best information to enable sustainable management and protection of vital ecosystem services — such as clean air, fresh water, health and flood and disease protection — on the time and space on which the economy is managed.

Improving the Urban Environment

LWEC will build on forerunner programmes such as UF[illegible] problems, such as contaminated soils and rivers, improving [illegible]

The £10m programme brought together universities, agencies, government departments and industry. It deliver benefits to the UK economy of £13-29 millio[illegible]

Energy

promising work [illegible]

Carbon-Free Cars

A new breakthrough in hydrogen storage technology achieved by researchers from Sustainable Hydrogen Energy Consortium could remove a key barrier to widespre[illegible] non-polluting cars that produce no carbon dioxide emissions.

UK scientists have developed a compound of the element lithium which may mak[illegible] store enough hydrogen on-board fuel-cell-powered cars to enable them to drive [illegible] before refuelling. Achieving this driving range is considered essential if a mass ma[illegible] is to develop in future years, but has not been possible using current hydrogen [illegible]

Global Threats to Security

Homeland Security

The recent publication on [illegible] Research Council, shows h[illegible] counter and manage terro[illegible] networks, tactics and tang[illegible]

Key Highlights of the Allocation 04

Ageing: Life Long Health and Wellbeing

This initiative will establish new interdisciplinary research centres targeting the major determinants of health and wellbeing over the whole life course and reducing dependency in later life.

There is an unprecedented demographic change underway in the UK with the proportion of young people declining whilst that of older people is increasing. By 2021, 40 percent of the UK population will be over 50 and one in four over 65. There are considerable benefits to the UK of having an active and healthy older population with potential economic, social, and health gains associated with healthy ageing and reducing dependency in later life.

Ageing research is a long standing priority area for the Research Councils. The Research Councils will develop a new initiative (involving MRC, AHRC, BBSRC, EPSRC, ESRC, NERC, and STFC) which will provide substantial longer term funding for new interdisciplinary centres targeting themes of healthy ageing and factors over the whole life course that may be major determinants of health and well being in later life. Centres will be focussed on specific research themes drawing on the interdisciplinary strengths of the Research Councils, such as "Quality of Life", "Physical Frailty" and "Ageing Brain".

The Ageing Pop[illegible]

Key Highlights of the Allocation 04

Research into the Digital Economy and Nanoscience

In addition to these major programmes, the Research Councils are working on two multi-disciplinary projects. These multi-disciplinary programmes are part of much larger bodies of work being undertaken by the Research Councils on these areas.

Table 1.2: Projected Funding for Digital Economy and Nanoscience Programmes[12]

	AHRC	BBSRC	EPSRC	ESRC	MRC	NERC	STFC	Total
Digital economy	5		36	3	11			58
Nanoscience		13	16	1	9	2	8	50

12 Figures represent planned expenditure (£M) over CSR period. Figures are rounded to the nearest million. For further information please refer to the RCUK Delivery Plan, www.rcuk.ac.uk

Digital Economy

Early adoption of Information and Communications Technology (ICT) tools supported by research capacity and skilled people, better positions the country to reap the economic and social benefits of technological change.

ICT is everywhere. It is embedded in every aspect of our lives. Business, Government, the Health Service, and other users depend on how we capture, manipulate, and share information. ICT has the power to transform the way business operates, the way that government can deliver, and the way science is undertaken to improve life. In an ever-changing world, being able to respond rapidly to new opportunities and challenges is key to the future economic and social prosperity of the UK.

The Digital Economy programme will link the world-class ICT research base with the other disciplines needed to deliver its benefits and match those with a strong user pull to deliver multidisciplinary, user focussed research aimed at building a base of expertise to put the UK at the forefront of the digital technology. Through the Digital Economy programme we will make a step-change in the type of industrial engagement to pursue key research challenge[illegible]

possibilities of ICT are employed to support the innovation cycle. The initiative (involving EPSRC, AHRC, ESRC, MRC, and STFC) will concentrate on areas where the management and presentation of information can have maximum transformational impact: healthcare, transport, and the creative industries.

NanoScience through Engineering to Application

Nanotechnologies can transform society, they offer the potential of disruptive step changes in electronic materials, optics, computing, and in the application of physical and chemical understanding (in combination with biology) to generate novel and innovative self-assembled systems.

The field is maturing rapidly, with a trend towards ever more complex, integrated nanosystems and structures. It is estimated that by 2015 products incorporating nanotechnology will contribute US$1 trillion to the global economy, and that the UK has a 10 percent share of the current market.

To focus the UK research effort we will work through a series of Grand Challenges developed in conjunction with researchers and users in areas of societal importance such as energy, environmental remediation, the digital economy, and healthcare. An interdisciplinary, stage-gate approach spanning basic research through to application will be used including studies on risk governance, economics, and social implications. The challenges will be addressed via interdisciplinary consortia supported jointly by the Research Councils and the Technology Strategy Board. The Councils will also work with the Cross-Government Nanotechnology Research Coordination Group to respond to the Royal Society/Royal Academy of Engineering report on Nanoscience and Nanotechnologies.

CROSS-COUNCIL THEMES : INTERNATIONAL ASPECTS

- RCUK Overseas Offices and International team engaging with Theme leaders
- Majority of Themes have a strong international flavour
- Using RCUK Overseas Offices to take advantage of the opportunity this affords
  - e.g. commitment to joint funding of research in Energy and Digital Economy with India
- Working with other UK stakeholders via Themes and GSIF

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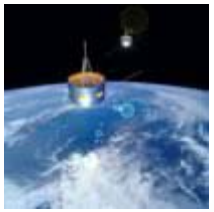
ENABLING ACCESS TO DATA, FACILITIES AND RESOURCES

- Developing research issues such as ethics and data management with sister organisations
- International brokering of large scale facilities – will likely involve barter.



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Influencing the International Policy Agenda

- Researchers have an important role in informing the international agenda;
  - researchers funded by the UK Research Council have been active on the IPCC
  - UK Research Councils support research aimed at United Nations Millennium Development Goals

RESEARCH COUNCILS UK

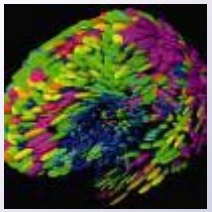
Making it easy for international researchers to learn about the UK

- RCUK Offices
  - Beijing, Washington and Delhi
- Communication, communication, communication

RESEARCH
COUNCILS UK

A WORLD CENTRE FOR RESEARCH AND INNOVATION

- Making the most of the economic potential in the research funded.
- Supporting excellent researchers who have the very best to offer our global collaborators.
- Companies such as Ford, Pfizer, Airbus and Nokia have chosen the UK for large-scale investment.
- Continue to find ways to develop new relationships with global industry.



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IN SUMMARY

- These areas of international importance provide huge opportunities for UK and overseas researchers to work together.
- By enabling and encouraging greater collaboration there is hope that the challenges that the world currently faces can be successfully overcome.

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