

NATURAL ENVIRONMENT RESEARCH COUNCIL

ANNUAL DELIVERY REPORT 2005/2006

1. Introduction

- 1.1 NERC provides environmental research, survey and monitoring, excellent training, and access to high-quality environmental services and information in the UK.
- 1.2 This section outlines selected highlights and achievements for 2005/2006 that show what we have done to help achieve our strategic priorities and science budget objectives. Some of these fall directly from the 2005-2008 Delivery Plan, others are the result of NERC's longer-term investment in environmental science. These are set out using the same headings as NERC's Delivery Plan. More highlights can be found in the NERC Annual Report 2005/06.

Strategic science

- 1.3 The RAPID climate change programme published evidence that the Atlantic circulation largely responsible for Europe's temperate climate may have slowed by nearly a third since 1957. The research supports computer model predictions that greenhouse gas emissions would cause this major ocean circulation to change.
- 1.4 The Marine and Freshwater Microbial Biodiversity programme has identified several compounds such as the potential antibiotic, abyssomycin, which may provide new approaches to treating MRSA. Similarly, an algal virus has been identified which produces a compound which may have applications in inhibiting the growth of cancerous cells.
- 1.5 The Biological Records Centre at the Centre for Ecology and Hydrology has produced the first comprehensive inventory of the alien species in England, including its coastal waters. A total of 2721 species were listed. The research is important because many introduced species have substantial environmental and economic effects. The most damaging alien animals are grey squirrels and muntjacs.
- 1.6 New energy scenarios for achieving the UK's 60% carbon dioxide emission target by 2050 show that governments have seriously underestimated what needs to be done, because they excluded emissions from international aviation and shipping. But the Tyndall Centre's analysis showed that we can achieve the 60% target and still have a dynamic, economically successful society.
- 1.7 A novel use of computer models by the QUEST (Quantifying and Understanding the Earth System) programme has shown how climate change could threaten freshwater supplies, increase the risk of forest fires and damage ecosystems. Other projects found that increased growth of plants in a warmer world could make global warming even worse, and may lead to increased ozone pollution in the northern hemisphere.

- 1.8 In the past 30 years, temperatures in the troposphere over Antarctica have risen three times faster than anywhere else in the world, according to an analysis of weather-balloon records by the British Antarctic Survey. This finding suggests that greenhouse gases could be affecting Antarctica more than the rest of the world.
- 1.9 The Maldivian Islands are a recognised sensitive indicator of land vulnerable to sea level rise. But geological fieldwork had suggested that sea level there fell by approximately 30cm in the past few decades. The Proudman Oceanographic Laboratory examined meteorological and oceanographic evidence, finding such a fall to be implausible. The IPCC scenario remains the most reliable: a sea level rise of about half a metre during the 21st century. Identifying factors driving sea level change allows us to focus our activity in those areas important for the mitigation of climate change.

Blue Skies – Responsive funding

- 1.10 Migrating blackcaps have provided evidence of evolution in action. In research cited by *Science* magazine as a top science achievement for 2005, NERC Fellow Stuart Bearhop and collaborators showed that blackcaps that over-winter in Britain reach the breeding grounds earlier and bag better breeding spots than blackcaps that fly south for winter. This shows how new species could form in a population that is separated by time rather than geography.
- 1.11 Researchers have confirmed evidence of the earliest humans in East Anglia some 200,000 years before any previous traces of human colonisation north of the Alps. A team from the University of York dated the proteins in snail fossils, providing the final piece of evidence that stone tools found at the site are up to 700,000 years old.
- 1.12 Nitrogen emissions from cars, power stations and livestock may threaten many of the world's valuable plant species. An international team led by the University of Sheffield and the Stockholm Environment Institute in York estimated the atmospheric nitrogen fall-out in 34 biodiversity hotspots which together contain half of the world's endemic plants. Combining atmospheric chemistry models and emission predictions, the team discovered that some global biodiversity hotspots already receive significant nitrogen pollution, and half will get potentially damaging amounts by 2050. This threatens plant diversity because nitrogen-loving plants can out-grow other species.
- 1.13 The Amazon rainforest is a major global carbon sink. Although this forest has survived for more than 55 million years in the face of enormous global climate changes, it may now face destruction this century. It was previously believed that the forest retreated into isolated patches during ice ages, and new species evolved in isolation before the patches merged again in warmer periods. But new NERC-funded research shows that the rainforest remained largely intact during ice ages, and another explanation is needed for its diversity. There is therefore no precedent for the fragmentation caused by current logging and climate change.

Cross-cutting Science and Technologies

- 1.14 A NERC e-science programme is using live Met Office forecasts in a prototype software package that could help coastguards to predict the location of people who fall overboard. Scientists at the Environmental Systems Science Centre worked with BMT Cordah Ltd to adapt existing software so that it can add live weather and ocean forecasts to its predictions.
- 1.15 A rapid response from NERC researchers and facilities helped to reduce the impact of the Buncefield oil depot fire. The NERC/Met Office research aircraft sampled the cloud's composition and measured dispersion of pollutants; CEH scientists rapidly advised that long-term damage to the environment was likely to be minimal; and NERC's Dundee Satellite Receiving Station produced many of the most useful images of the blast and subsequent cloud, helping to track and predict the course of the cloud. NERC staff handled numerous media requests for information during the emergency.
- 1.16 The designers of NERC's Autosub, an autonomous robot submarine, from the National Oceanography Centre, Southampton, have taken what they've learned in providing world leading technology for marine scientists and adapted it for future defence needs. As part of a Ministry of Defence research programme, NOCS engineers worked alongside other technology developers, and led several technology assessment teams. In turn, several of the advanced technologies identified by this programme may be added to future generations of marine science underwater vehicles.

How we Deliver our Science

- 1.17 A review of progress of the Tyndall Centre for Climate Change Research was carried out by the Research Councils in September 2005. The three sponsoring Research Councils - NERC, EPSRC & ESRC - have offered the Tyndall Centre a further three-year contract to the value of about £5.6m. This Phase 2 contract will start after the Phase 1 extension expires on 31 March 2006 and will run until March 2009.
- 1.18 NERC adopted a new ethics policy in June 2005 after much debate, discussion and consultation. The policy applies to all aspects of our governance, policy, research, commercial, operational and administrative activities. It sets out principles for working with others, scientific integrity and standards, and impact on the environment.
- 1.19 This year we planned for change at the Centre for Ecology and Hydrology, CEH. After a thorough analysis of the future science programme and issues connected to its sustainability, NERC Council decided that a major re-structuring of CEH was essential to enable it to position itself as a world-leading centre that is sustainable both from scientific and financial viewpoints. Regrettably this will mean a reduction in the number of staff NERC employs at CEH. The activities of CEH will be focussed at four sites in future: Wallingford, Edinburgh, Bangor and Lancaster. A new partnership fund will

enable CEH to build on its links with the academic sector and other organisations.

Trained people

- 1.20 The NERC Centre for Terrestrial Carbon Dynamics ran a novel summer school on terrestrial carbon dynamics and Earth observation, funded by NERC and the European Science Foundation. Students experienced six different scientific techniques and were trained in the latest methods.
- 1.21 Staff from NERC's Centre for Observation and Modelling of Earthquakes and Tectonics are training young Iranian scientists in seismic hazards assessment. These scientists will play a leading role in the effort of assessing and mitigating earthquake hazards in Iran.
- 1.22 The Autosub team ran an international masterclass and workshop on 'Autosub science in extreme environments' to help young scientists to develop collaborative links, and to learn about the world-class technologies developed for our robot submarine.

Collaboration

- 1.23 The British Geological Survey has taken a leading role in the international development of carbon dioxide capture and storage (CCS) technology since 2000. These efforts were translated into national and international policy this year. DTI and Defra endorsed CCS in their 'Strategy for developing carbon abatement technologies for fossil fuel use'. The G8 plan of action included a pledge to accelerate development and commercialisation of CCS technologies. And BGS is part of a major initiative to build Europe's first zero-emission coal-fired power station.
- 1.24 NERC held three UK-China workshops this year. In July, we held a Climate Change Workshop in Beijing with the Natural Science Foundation of China (NSFC) and the Chinese Meteorological Association. NERC signed a memorandum of understanding with NSFC to co-operate in environmental research. The British Antarctic Survey joined the Polar Research Institute of China to discuss joint activities for International Polar Year 2007-2008. China plans to spend an extra US\$64 million on polar research and infrastructure over the next few years. A workshop at the Institute of Geochemistry in China discussed geological approaches to carbon management. Scientists from the British Geological Survey took part.
- 1.25 NERC has regular strategic-level meetings with government and other UK agencies, at which opportunities for collaboration are among the topics discussed. A recent outcome from one such meeting with the Ministry of Defence was a funding contribution and involvement of the MoD in the NERC-led cross-Council Environment and Human health initiative.
- 1.26 NERC undertakes much collaborative work with, and commissioned work for, government departments and agencies. For example:

- The NERC directed programme on Global Nitrogen and Enrichment (GANE) received co-funding from Defra and SEERAD. The results included information for policymakers on how to set and assess critical loads for nitrogen deposition emissions data which have been included in the National Atmospheric Emissions Inventory (NAEI) for Defra, for atmospheric dispersion and deposition modelling for the UK;
- Defra commissioned work at NERC's Plymouth Marine Laboratory on ocean acidification, which it used to inform OSPAR (the Convention for the Protection of the Marine Environment of the North-East Atlantic) and the London Convention.

Facilities and Infrastructure

- 1.27 Halley VI: A futuristic design won the competition for the new British Antarctic Survey Halley Research Station. The new station will allow long-running research on global change to continue at the site where the ozone hole was discovered. The new modular station, elevated on ski-based jackable legs to avoid burial by snow, can be towed across the ice. The modules are simple to construct and can be relocated as the ice shelf flows towards the sea. It features improved environmental strategies for fuel, waste and material handling. Construction is due for completion by 2010.

Stakeholder Engagement

- 1.28 Space researchers showed MPs and policymakers their contribution to understanding climate change issues at a parliamentary reception in November 2005. Over 150 people attended, and around 30 MPs listened to the UK's top climate change experts explain the value of Earth observation satellites to their work.
- 1.29 NERC and BBSRC launched a new exhibition 'Biodiversity: what on earth is it?' in 2005. The interactive display shows how understanding biodiversity can help us face challenges such as climate change and feeding the world. It has been to Edinburgh, Glasgow, Newcastle and Cardiff and is still on tour. A debate to accompany the exhibition was held in Cardiff during national Science Week.
- 1.30 NERC ran four events and published booklets to celebrate the highlights of four directed research programmes that finished this year. The events and publications are aimed at policy makers and businesses who might wish to use the results of the programmes, and for the media and members of the interested public.
- 1.31 Two NERC scientists took part in the Royal Society's 'MP-scientist' pairing scheme' this year. Mathematical modeller Jim Smith was paired with the then Minister for Rural Affairs, Landscape and Biodiversity at Defra, and biogeochemist Mike Billet was paired with his local MP David Hamilton. The

scheme aims to improve mutual understanding and forge links between scientists and policy makers.

Knowledge Transfer

- 1.32 In the first study of its kind for the research councils, NERC received confirmation that its research has a considerable impact on the UK economy. The news is timely given the government requirement for research councils to realise and demonstrate benefits from its investments. The *Economic Impacts Study*, commissioned from PricewaterhouseCoopers, was a pilot project to improve NERC's understanding of its contribution to the economy and to measure its monetary value where possible. Ten case studies of research investments of varying scale and maturity in different science areas were used.

An example of a measurable direct benefit of NERC research is the flood estimation handbook, produced by the Centre for Ecology and Hydrology, which provides better methods for predicting flood frequency. PwC estimated that, even taking a cautious approach to economic modelling, this handbook has saved the UK between £7m and £34m (present value) over 25 years.

- 1.33 A new understanding of how continental margins formed is helping the hydrocarbon industry to discover oil and gas more efficiently. Research in the NERC-LINK Ocean Margins programme produced a new software package which industry partners are using to find oil reserves at continental margins. With deep-water boreholes costing up to \$100 million each, a better understanding of ocean geology is important for improved exploration.
- 1.34 The UK Energy Research Centre has published a definitive review of over 200 studies of the costs and impacts of an intermittent energy supply from renewable sources such as wind and waves. The report showed no evidence that our energy supply would be less reliable if a significant proportion came from intermittent renewable sources, and the extra cost would be very modest. The report was welcomed by Energy Minister Malcolm Wicks.
- 1.35 Long-term funding for research at the University of Reading has attracted industry partners and co-funding for better calculations of the global warming potential of certain fluorinated gases. The team produced significant revisions to the IPCC values for two gases: one used in refrigeration and air conditioning, the other emitted by the aluminium smelting and semi-conductor industries. The results give industry reliable information on the environmental impact of their products and processes, and help regulators to set sensible emission limits.
- 1.36 The British Geological Survey has released new GeoSure Ground Stability data to identify areas potentially susceptible to ground movement and subsidence. The digital data are helping homeowners, surveyors, insurers, planners and local government to assess the stability and value of land and property, and the safety of residents. Financial losses associated with house subsidence are estimated to be over £300 million a year. BGS is looking to extend this service, in collaboration with the Coal Authority, to provide a

complete ground stability hazard assessment to the householder, including radon potential and hazards from old mine shafts.

2. Progress in Management

- 2.1 In 2005 NERC, in conjunction with OSI and in common with other Research Councils, implemented a performance management system with a renewed focus on measurable outputs. This Framework includes a series of performance metrics (the 'Outputs Framework') and a set of targets and milestones arising from the activities set out in the Delivery Plan (the 'Scorecard'). These outputs originated in the Ten Year Science & Innovation Investment Framework 2004 – 2014, a key document setting out a ten-year strategy for UK science.
- 2.2 NERC has undertaken a major re-organisation of the way the National Oceanography Centre, Southampton, is structured and run. This will be beneficial in many ways including enabling NOCS to be more effective in taking a leadership role on behalf on marine science in the UK
- 2.3 NERC is currently in the process of developing its new strategy due to be published in mid-2007. NERC is developing the science themes and strategies for people, organisation, scientific infrastructure and knowledge, to meet some of the key challenges facing society, policy makers and the economy. The new strategy will form the major input from NERC to the Government's Comprehensive Spending Review 2007.

3. Recent Successes in Output Frameworks 1 and 2

- 3.1. Below are examples of successes against NERC's Output Framework Metrics (figures are for 2005/2006):
 - Output 1: Gershon *efficiency* savings of £7.86m in 2005/2006 (the NERC disaggregated contribution);
 - Output 1/2: total publications from NERC funding as recorded on NERC's Research Outputs Database = 6,618 (as a demonstration of *scale* for the *UK contribution to the global knowledge pool*);
 - Output 2: publications/£ (millions) = 19.4 or £51.6k averaged cost per publication (as a demonstration of *efficiency and productivity* for the *UK contribution to the global knowledge pool*);
 - Output 1/2: Total Research Centre Commissioned Research income = £37.1m (as a demonstration of *user focus - business and public service* for the *UK contribution to the global knowledge pool*);
 - Output 1: total number of PhDs funded = 1,032 and number of Masters funded = 335 (as demonstrations of *scale* for *UK newly trained people*);
 - Output 1: The NERC staff retention rate of 87% (as a demonstration of *sustainability* for the *UK trained people pool*);
 - Output 1: customer satisfaction for NERC regional events was 91% positive or very positive;

- Output 2: NERC periodic evaluations of its KT activities (as a demonstration of *quality* for all aspects of better exploitation);
- Output 2: Research Centre royalties and licensing income = £1.8m, plus data centre licensing income = £2.5m (as a demonstration of *scale* for *commercialisation of research*);
- Output 1/2: percentage of total number of PhDs that are CASE = 30% {ie 307 out of 1032} (as a demonstration of *scale for co-operative training*).

4. Progress to Date Against Targets and Milestones

- 4.1 The NERC Scorecard set out 57 targets for the 2004 spending review period (cascading from the 39 deliverables set out in the Delivery Plan). A number of milestones, each associated with the financial year in which they are due to be achieved (2005/2006 to 2007/2008). 104 of these milestones fell within 2005/2006.
- 4.2 In addition to the Scorecard acting as a reporting tool to OSI, NERC is using it as an internal management tool. We have developed an in-house system (STAR – System for Targets And Risks) that not only allows us to capture the Scorecard and progress information but also important information on risk (the NERC Risk Register). As part of this, we have introduced a simple traffic-light coding system (see below) that quickly flags the status of targets/milestones. Reports from STAR inform the NERC Executive Board, Audit Committee and Council and allow informed management decisions. STAR has attracted considerable interest from other Research Councils.

Progress against targets and milestones in 2005/2006

- 4.3 NERC has performed well against its Scorecard and there have been some notable achievements in meeting or progressing towards the targets and milestones which will enable us to meet our deliverables. Of the 161 targets and 2005/2006 milestones, 145 are green, 16 amber and 0 red.
- 4.4 NERC progress on targets and 2005/2006 milestones:

Total number of targets and 2005/2006 milestones	161
Red	0
Amber	16
Green	145

Definition of the traffic light system:

Red	There has been no progress on target, or, if work on the target has started, it is likely that the target will not be delivered in specified financial year. The delivery date and/or the detail in the target may have to be changed substantially.
Amber	Progress is being made but the target may not be delivered on time or there have been or will be other problems. Some aspects of the work (e.g. delivery date) may have to be changed to ensure delivery of the target.
Green	Progress on the target is as planned and no problems are envisaged

Amber targets/milestones

- 4.5 All of the 16 amber targets/milestones have had appropriate management action eg additional resources allocated, or project deadlines extended. Following management action targets/milestones have been amended for future years in the light of this. The refreshed Delivery Plan and Scorecard can be seen at <http://www.nerc.ac.uk/aboutus/planning/deliveryplan>.
- 4.6 Examples of changes include the rescheduling of the milestone “34.1.1 Complete review of Peer Review College by July 2006” following the announcement of an OSI project on the cost of peer review. This milestone has been carried over to 2006/2007 and is now due to be complete by March 2007, and is dependent upon the OSI project. Other targets/milestones have gone outside boundary conditions due to resource issues for example, “29.1 Invest £24m into the construction of the Halley VI Antarctic base”. Following the interim cost plan, which was received at end of October 2005, a revised plan, with a total cost of £38m, has been agreed by NERC Council and the Scorecard revised for 2006 onwards.

Green targets/milestones

- 4.7 NERC completed 80 of our targets/milestones during 2005/2006. Of these there have been some notable achievements:
- i. Strategic Science: NERC has initiated a number of programmes:
 - Environment and Human Health, a multi-disciplinary capacity building programme supported by numerous contributing partners (target 23.2);
 - FREE (Flood Risk from Extreme Events), a £6 million programme for the period 2004/2005 to 2009/2010. A central feature will be to bridge the interfaces between water environments and users of flood forecasts (target 6.1);
 - APPRAISE (Aerosol Properties, PRocesses and InfluenceS), a £4 million, five-year programme running from 2005 to provide information on aerosol and cloud properties and their effects on climate (target 1.1);
 - Through QUEST and related programmes, NERC has created around 6 large multidisciplinary projects, co-ordinated together and with other programmes, to address issues at the global scale (target 2.1);
 - ii. Blue Skies – Responsive Funding: NERC has committed an additional £4 million to the Consortium Grant scheme budget. This will be implemented in 2006/2007 (target 13.1);
 - iii. Cross-cutting Science and Technologies: NERC is investing in polar science through International Polar Year (IPY), and will provide

leadership in scientific and logistical planning. The International Project Office is hosted by the British Antarctic Survey (target 18.1);

- iv. How we Deliver our Science: NERC Council approved the NCAS (NERC Centres for Atmospheric Science) review recommendations in June 2005, and was impressed by NCAS's achievements since its creation in 2002. The programme and funding have been agreed (target 20.1) .
- v. Trained People: NERC has undertaken a review of NERC-supported Masters courses which helps address users and employers' needs in the UK. The review findings have been published on our web site (target 22.1);
- vi. International Collaboration: NERC has established an International Opportunities Fund to stimulate UK leadership in programme areas. Ten grants were awarded in 2005/2006, totalling £1.68 million over three years (target 24.1);
- vii. Facilities and Infrastructure: The RRS James Cook is on track to be delivered to NERC during 2006, in accordance with the contract (target 28.1);
- viii. Stakeholder Engagement: NERC has increased the number of end-users engaged in the peer review process by 20% in 2005/2006. Beyond this period, subject to demand, we aim to engage 50 end-users in the NERC Peer Review College (target 34.1);
- ix. Knowledge Transfer: NERC has implemented a LINK franchise to enable more collaborative research with the private sector. The first closing date was 1 December 2005. We hope to allocate 6% of research grant funding to collaborative research by the end of 2007 (target 37.1).

5. Future Targets/Milestones on Objective 1 and Objective 2

- 5.1 During the end of 2005/2006 NERC refreshed its Delivery Plan and its Scorecard. These changes can be related to both Outputs frameworks 1 and 2. Some examples of future targets/milestones that relate to Output frameworks 1 and 2 are set out below:

Output 1 – A healthy UK science and engineering base

- 5.2 In 2005/2006 seven Marine Centres in the United Kingdom prepared a coordinated bid to (NERC for a programme of Strategic Research called 'Oceans 2025'. Previously the seven institutions have all been funded separately by NERC for their own individual strategic programmes. During 2006/2007 Swindon Office and Directors of POL, NOCS, PML, SAMS, SMRU, MBA, SAHFOS will work together to take the full proposal to NERC

Council in November 2006. (Milestone “9.1.1/2 Council consideration of NERC marine centre renewal (by end November 2006)”).

In contrast to NERC's funding for curiosity-driven, blue skies research, its Strategic Research funding is for directed research that addresses areas of national needs, and environmental issues where sustained national capability or major critical mass is required. Oceans 2025 addresses ten major science themes. It also supports three national facilities.

- 5.3 An example of a new Scorecard target on CEH's coordination of a new major EU project on the European nitrogen problem (NitroEurope IP). The project has a value of €27 M over 5 years, with an EU contribution of €16.6 M. It incorporates 64 university and institute partners from around 20 countries. To focus the integration, it asks the major question: "What is the net effect of nitrogen on the European greenhouse gas balance?" (new target “7.4 Kick off an integrated project on the European nitrogen problem (NitroEurope IP) coordinated by CEH”).

Output 2 – Better exploitation

- 5.4 One of the biggest changes NERC has made is the refreshing of the Knowledge Transfer (KT) sections of the Delivery Plan and Scorecard. These amendments for 2006/2007 now reflect 10 targets (increased from 3) on KT and illustrates the type and amount of KT work NERC achieves and its status as a key NERC activity.
- 5.5 Examples of new targets/milestones for 2006/2007 in the Knowledge Transfer area include:
- 37.2.1/2: Develop a work plan for the science-to-policy facilitator, in consultation with NERC scientists and users, to include a process for producing three key policy-relevant science briefings for policymakers per year (by September 2006).
 - 39.1: Increase revenues from data sales and products, by improved curation and ease of access - 39.1.1./2 Generate revenues in excess of £3.2m. Conduct a strategic market review of the opportunities for commercialisation NERC-owned data, by end of March 2007.
 - 41.2: Support current and future Research Council Business Plan Competitions and increase the level of involvement of the academic community in this initiative.

6. The Gershon Efficiency Programme

- 6.1 NERC's annual target for Gershon Efficiency is £4.63m in 2005/2006, rising to £15.75m in 2006/2007 and £22.57m by 2007/2008. 50% is required to be cashable in nature (available for reinvestment into priority areas). Overall, NERC is confident it can achieve the targets for 2006/2007 and 2007/2008.

- 6.2 During 2005/2006 NERC declared savings of £7.323m (55% cashable), including the following:
- i. £2,254k by increasing the efficiency of our Research and Collaborative Centres. Most has been achieved by negotiating the cost of contracts;
 - ii. £2,474k by increasing the level of co-funding of research
 - iii. £217k by centralising some financial functions and improving site utilisation.
- 6.3 Almost half of the reported savings are from the effective reprioritisation of science. In NERC, Knowledge Transfer and Consortium Grant expenditure has increased over pre-Gershon baselines, which has contributed to an increase in the number of researchers supported (33% and 43% respectively).
- 6.4 The Research Council Procurement Office saved NERC £1.11m in 2005/2006 through contract negotiations and economies of scale. NERC's research centres have also achieved cost savings and productivity gains from more effective asset and infrastructure utilisation.
- 6.5 The Research Councils are required to find a running rate of £170m of 'administrative' savings by 2007/2008 compared to a 2004/2005 base year. This work is being rolled into plans for the provision of shared services to all Research Councils and their institutes, to be implemented by 2009.

7. Science and Society

- 7.1 NERC has been reviewing its own science and society policy to ensure it is fit for purpose. This will compliment the RCUK science in society strategy recently jointly agreed. NERC held a workshop at the end of 2005, involving our own staff and external experts, to discuss key elements to include in a new policy. The draft policy will be completed by summer 2006.
- 7.2 NERC is actively involved in the activities being taken forward by the RCUK Science and Society Unit via membership of the Science and Society Group (SISG), and by the Research Careers and Diversity Unit through membership of the RCUK Research Careers and Diversity Advisory Group (RCDG) and through involvement in related activities such as the Roberts Policy Forum and UKGRAD Strategy Forum.
- 7.3 NERC has recently agreed extra funding for two new initiatives being managed through the unit. These are specifically aimed at early career researchers (mostly postdoctoral researchers).

8. Summary Financial Table

The totals for resource and capital are consistent with the the audited NERC Annual Accounts.

NERC FINAL OUTTURN 2005/06

£m

	YTD Outturn	Full-Year Budget	Over / Under
RESOURCE DEL			
Income			
Pay related receipts	-22,031	-21,783	-248
Receipts for goods and services	-30,416	-28,228	-2,188
Net expenditure (cash)			
Pay Costs (incl EU DEL)	109,429	110,697	-1,268
Payment for goods and services	74,355	82,153	-7,798
Current Grants			
Current grants	103,901	105,105	-1,204
Current grants - overseas	42,067	42,641	-574
Interest on Assets			
Interest payable on finance leases (PFI)	878	1,476	-598
TOTAL NEAR-CASH			
	278,183	292,061	-13,878
Profit and Loss on Disposal			
Loss on disposal of other assets	146	0	146
Non Cash Costs			
Cost of Capital charges	7,891	8,593	-702
Change in provisions	15,823	17,969	-2,146
Impairments	2,613	0	2,613
Depreciation on tangibles	18,840	18,046	794
TOTAL NON-CASH			
	45,313	44,608	705
Capital Grants			
Capital grants - income	-2,253	0	-2,253
Capital grants	12,335	6,978	5,357
Capital grants - overseas	7,800	7,800	0
TOTAL CAPITAL GRANTS			
	17,882	14,778	3,104
TOTAL RESOURCE			
	341,378	351,447	-10,069
DEL CAPITAL:			
Additions - Buildings	5,512	8,725	-3,213
Additions - other assets	26,528	23,121	3,407
Book value on sale of other assets	-182	0	-182
TOTAL CAPITAL			
	31,858	31,846	12

Statement of Financial Requirement

Priority	05/06 £'000			
	resource		capital	
	plan	outturn	plan	outturn
Strategic Science				
Climate Change	38,099	33,668	702	98
Earth Life Support Systems	19,082	16,863	1,011	142
Sustainable Economies	6,103	5,393	220	31
Blue Skies	36,556	37,685	775	0
Cross Cutting Science and Technologies	107,249	101,475	34,521	29,902
Trained People	25,520	24,402	0	0
Facilities and Infrastructure	60,807	68,840	4,828	1,670
Knowledge Transfer *	2,457	6,049	0	0
Science and Society	1,651	1,690	0	0
Capital Financing	26,035	45,313	0	0
TOTAL PLANNED EXPENDITURE	323,559	341,378	42,057	31,842
Science Budget	321,480	338,447	31,346	31,346
2004/05 End Year Flexibility brought forward	31,691	13,000	1,845	0
Capital loan from other Research Councils			9,000	500
Cumulative End Year Flexibility carried forward	29,612	10,069	134	4

* - outturn includes knowledge transfer activities carried out in NERC Research Centres

Resource budget and planned expenditure

£m

	2005/06	
	Plan	Outturn
Science Budget	321.480	338.447
Administration Strategy		
2004/05 End of Year Flexibility	31.691	13.000
External Income	46.182	54.700
Total Resource available	399.353	406.147
Expenditure		
<i>Science Budget Expenditure:</i>		
Research	296.765	315.932
Training	25.520	24.402
Knowledge Transfer #	2.457	6.049
Science in Society	1.651	1.690
Notional charge against capital	7.989	8.593
Depreciation	18.046	18.046
Administration costs *	17.313	21.366
Total Expenditure	369.741	396.078
Overall result against budget	29.612	10.069

Outturn includes knowledge transfer activity embedded in research centres and directed programmes

* 2005/06 Outturn is based on the agreed Cross-Council methodology, which was finalised in August 2005 (after publication of the Delivery Plan).

Total Income

£m

Income	2005/06	
	Plan	Outturn
<u>Science Budget</u>		
Near-cash	306.802	289.761
Non-cash		34.008
Capital Grants	14.678	14.678
Capital	31.346	31.346
<i>includes the following elements:-</i>		
<u>SR2004 Additions</u>		
<i>Research Council Pension Scheme</i>	8.100	8.099
<u>Large Facilities Roadmap Funding</u>		
<i>James Cook Research Vessel</i>	8.750	8.750
<i>Halley 6 Antarctic Base</i>	3.020	3.020
<i>Keyworth Blocks A-F</i>		
<u>Other Additions</u>		
<i>Exchange Rate Compensation</i>		5.369
<i>CEH Restructuring loan</i>		12.200
<i>Minor baseline adjustments</i>		0.398
Science Budget	352.826	369.793
Loan from other Research Councils	9.000	0.500
External Income	46.182	54.700
Total Income (excl EYF)	408.008	424.993
<u>Add End of Year Flexibility</u>		
2005/06 EYF	33.536	13.000
Total Income	441.544	437.993

July 2006