

IN CONFIDENCE

NERC 99/50

NATURAL ENVIRONMENT RESEARCH COUNCIL

TWO HUNDRED AND THIRTY-SEVENTH meeting of Council, held at the University Arms, Cambridge, on Thursday 23 September 1999.

UNCONFIRMED MINUTES

Members: Mr J C Smith CBE FREng FRSE (Chairman), Sir John Krebs FRS (Chief Executive and Deputy Chairman), Professor J E Beringer CBE, Dr R O Bidwell CBE, Professor S Conway-Morris FRS, Professor D Edwards CBE FRS, Mr R Hardman CBE, Ms M P Henton, Professor M Irvine FRSE, Professor I A Johnston FRSE, Professor J H Lawton CBE FRS, Professor M J Pilling, Professor G L P Randall,

Representing the Secretary of State for Trade and Industry: [REDACTED]

Also present: [REDACTED]

[REDACTED] Dr M J Tricker (Director Partnership and Innovation), [REDACTED]

Apologies for absence: Mrs P Castle, Dr D J Fisk CB FREng, Dr D W F Shannon.

[REDACTED] Centre for Coastal and Marine Sciences, attended for part of item 5.

3.2 He also highlighted a number of shorter items of news:

- i. the launch on 15 July of the announcement of opportunity for the joint Climate Change Centre; up to seventeen bids were expected, several from consortia of universities; Sir Crispin Tickell would be chairing the panel to review the bids;

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NERC 99/38

NATURAL ENVIRONMENT RESEARCH COUNCIL

TWO HUNDRED AND THIRTY-SIXTH meeting of Council, held at Polaris House, Swindon, on Thursday 24 June 1999.

UNCONFIRMED MINUTES

Members: Mr J C Smith CBE FREng FRSE (Chairman), Sir John Krebs FRS (Chief Executive and Deputy Chairman), Professor J E Beringer CBE, Dr R O Bidwell CBE, Mrs P Castle, Professor S Conway-Morris FRS, Dr D J Fisk CB FREng, Mr R Hardman CBE, Ms M P Henton, Professor M Irvine FRSE, Professor I A Johnston FRSE, Professor J H Lawton CBE FRS, Professor M J Pilling, Professor G L P Randall, Dr D W F Shannon.

Representing the Secretary of State for Trade and Industry: [REDACTED]

Also present: [REDACTED]

[REDACTED] Dr M J Tricker (Director Partnership and Innovation), [REDACTED]

Apologies for absence: Professor D Edwards CBE FRS

[REDACTED] Centre for Ecology and Hydrology, attended for item 8;
[REDACTED] British Antarctic Survey, attended for item 13.

6. REPORT OF THE RESOURCES AND STRATEGY GROUP, 8 JUNE 1999

6.1 [REDACTED] highlighted three areas of the RSG report:

- i. the financial arrangements for the climate change centre, funding of which was to be split equally between Council headroom and Board allocations; an announcement of opportunity for the centre is to be launched on 15 July, and attended by government ministers;

6.2 Two points were raised in discussion:

- i. it was agreed that, in order to aid Council understanding of financial considerations such as the proposal to fund 50% of the climate change centre from headroom, Council papers would in future include a financial information report;

6.3 Council approved the proposed funding of the climate change centre and noted the remainder of the report.

IN CONFIDENCE

NERC 99/23

NATURAL ENVIRONMENT RESEARCH COUNCIL

TWO HUNDRED AND THIRTY-FIFTH Meeting of Council, held at Polaris House, Swindon, on Thursday 25 March 1999.

UNCONFIRMED MINUTES

Members: Mr J C Smith CBE FEng FRSE (Chairman), Sir John Krebs FRS (Chief Executive and Deputy Chairman), Dr R O Bidwell, Mrs P Castle FRSA, Professor S Conway Morris FRS, Professor D Edwards FRS, Dr D J Fisk CB FEng, Mr R Hardman CBE, Ms M P Henton, Professor M Irvine FRSE, Professor I A Johnston FRSE, Professor J H Lawton CBE FRS, Professor M J Pilling, Dr D W F Shannon.

Representing the Secretary of State for Trade and Industry: [REDACTED]

Also present: [REDACTED]

[REDACTED] Dr M J Tricker (Director Partnerships and Innovation),
[REDACTED]

Apologies for absence: Professor J E Beringer CBE, Professor G L P Randall.

- 4.2 Professor Pilling highlighted the decision of ASTB to revisit and revise its science strategy, and produce separate strategy and implementation plans. The Board had welcomed the [REDACTED] and the climate change centre, and believed that it could play a strong supporting role in both initiatives, as could UGAMP and the Hadley Centre. [REDACTED]
- [REDACTED]

**5. REPORT OF THE RESOURCES AND STRATEGY GROUP, 25 FEBRUARY 1999;
PROPOSALS FOR AN NERC/EPSRC/ESRC CLIMATE CHANGE CENTRE**

- 5.2 Professor Krebs reminded Council members that the development of a climate change research agenda had formed part of NERC's case for additional funding in the Government's Comprehensive Spending Review, and said that subsequent development had included discussions with other Research Councils and Government Departments, and the Advisory Committee on Business and the Environment, all of whom had expressed interest in the concept of establishing a climate change centre. EPSRC Council had approved contributory funding of up to £750k per annum for five years, and ESRC was considering a contribution, probably in the region of £250k per annum, which, together with the request for approval by Council of up to £1m per annum for five years, would ensure a viable level of funding for the proposed centre. It was intended to make an announcement of opportunity to host the centre by the end of May 1999, with the expectation that the centre would be functioning by Summer 2000.
- 5.3 The Board chairmen, who had taken part in the Hoskins Group discussion on the proposed suite of climate change programmes, and who had discussed the centre at RSG, confirmed that their communities were very enthusiastic about the proposal. Dr Fisk confirmed DETR support for the centre, but raised concerns, echoed by a number of other members, that the centre should not duplicate other climate change research being undertaken elsewhere. He also stressed the importance of ensuring that the centre was firmly connected with other climate research activity, in order to maximise the value of the funding and the quality of the science. It was considered that the appointment of a suitable director would be critical to ensure such interactions, and agreed that there should be a compulsory review, after four years, to check that the centre was operating along the intended lines before committing further funding to the initially agreed amount.
- 5.4 On the provision that the points raised by Council were further worked up in the concept note for the centre, Council approved the commitment of up to £1m per annum for five years. Chairman asked that Council be kept fully informed of developments on the establishment of the centre.

MATTERS ARISING

Agenda item

Item 5 Report of RSG

Council to be kept informed of developments on the joint Climate Change Centre.

Progress on the Centre was discussed by RSG on 8 June, and details are in the report of the meeting.

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NERC 99/28

NATURAL ENVIRONMENT RESEARCH COUNCIL

REPORT OF THE RESOURCES AND STRATEGY GROUP, 8 JUNE 1999

Introductory Note

2. Two of the main items of business took forward issues which were discussed by Council at its meeting in March, as part of the February RSG report:
 - i. the funding of the NERC/EPSRC/ESRC Climate Change Centre, on which RSG agreed that the four Boards should make a contribution of £500k per annum to the centre, with the precise contribution of each Board to be determined once the balance of the centre's research was clearer. The remainder of the annual contribution would be found from Council's headroom;
4. Council is asked to:
 - i. **DISCUSS** and **APPROVE** the proposed method of funding the NERC contribution to the NERC/EPSRC/ESRC Climate Change Centre (item 7);

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NATURAL ENVIRONMENT RESEARCH COUNCIL

UNCONFIRMED REPORT OF THE TWELFTH MEETING OF THE RESOURCES AND STRATEGY GROUP, 8 JUNE 1999

Present: Sir John Krebs FRS (Ch); Mr A J Bennett CMG; Professor J E Beringer CBE;
 Dr R O Bidwell; Professor S Conway Morris FRS (for items 1 - 4);
 [REDACTED] Dr C P Hicks;
 Professor I A Johnston FRSE; Professor G L P Randall; [REDACTED]
 [REDACTED]

Apologies: Professor M Pilling.

Guest: [REDACTED] NERC Science Based Archaeology Strategy
 Group (items 1 - 3).

7. NERC/EPSRC/ESRC CLIMATE CHANGE CENTRE: FUNDING AND PROGRESS

7.1 [REDACTED] introduced the paper, which outlined the progress in taking forward the launch of the centre by Government ministers on 15 July, and presented details of an announcement of opportunity (AO) and an expert panel to consider bids to host the centre. NERC funding had been confirmed by Council in March at up to £1m per annum; EPSRC funding had been confirmed at £0.75m per annum; and an ESRC funding contribution of £0.25m per annum was to be considered by that Council on 25 June. The membership of the panel and the AO had been agreed with colleagues in the other Councils, but the precise provenance of the NERC funding was for discussion. [REDACTED] proposed that the Boards find £500k per annum on a rough pro-rata basis, and Council find £500k per annum from headroom. Dr Hicks confirmed that DTI would be considering a contribution to fund a business contact centre, aimed at climate change technology.

7.2 A number of points were raised during discussion, and RSG members were invited to send further comments to Ian Dwyer, who is leading for NERC on the centre:

- i. it was agreed that NERC funding for the centre should be split in the proposed amounts between Boards' indicative allocations and Council headroom, with the financial contribution of each Board to be decided upon once a successful bidder had been appointed to host the centre, and the balance of the centre's research made clearer. RSG considered it vital that ESRC should be involved, to add an additional economic and social dimension to the centre;
- ii. in terms of the launch, it was considered important to enunciate both what the centre was intended to do (what - what is happening?; why - why is climate change happening?; how - how are we going to respond?); the centre should also be presented in terms of the broader picture of climate change research being funded by NERC; a high profile international figure, such as [REDACTED], might be invited to the launch;
- iii. on the composition of the expert panel, there was concern that there should be an ex-officio member from NERC, and that an ecologist should be added to the panel (it was thought that [REDACTED] might be an ecologist);
- iv. DFID might be a potential user of the centre, possibly by funding visiting scientists from developing countries to use the centre.

**COMMITTEE REVIEWING NERC's PROPOSED PORTFOLIO OF
CLIMATE CHANGE PROGRAMMES**

CHAIRMAN'S RPEORT

following

A single meeting at the London Pied-a-terre on 15 December 1998

3.9 The impacts on the natural environment of both the natural variability and the possible anthropogenic change of climate is the subject of much existing and planned research in NERC. The only specific preliminary proposal, on Sea Level Change, was not well focused at this time. NERC needs to draw together its work in this area and then assess the need for specific programmes. This could be done in the context of the proposed Joint Research Council Climate Change Centre.

NATURAL ENVIRONMENT RESEARCH COUNCIL

FEBRUARY ROUND OF SCIENCE AND TECHNOLOGY BOARD MEETINGS

Overview from Director of Science Programmes

2. **Implementation of Science Strategies:** The Boards welcomed the additions to the non-thematic funding opportunities which provide a more diverse set of delivery mechanisms. All Boards are seeking to make changes to their sectoral science strategies primarily to provide greater clarity of both emphases and implementation strategies. The proposal to establish an NERC led, joint Research Council Climate Change Centre was welcomed.

ATMOSPHERIC SCIENCE AND TECHNOLOGY BOARD

SUMMARY REPORT OF THE FOURTEENTH MEETING: 10 FEBRUARY 1999

3. **Climate Change Centre** ASTB noted this proposal with enthusiasm, particularly the considerable potential for interdisciplinary research between the Research Councils.

MARINE SCIENCE AND TECHNOLOGY BOARD

SUMMARY REPORT OF FOURTEENTH MEETING: 24 FEBRUARY 1999


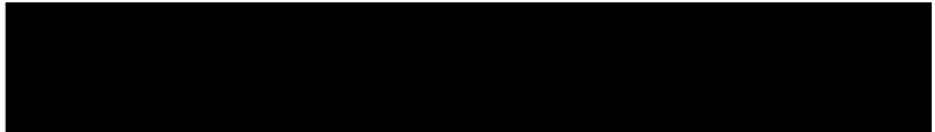
2. **Development of new programmes** After noting the outcome of the Hoskins review and the status of proposal planning for the Climate Change Centre

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NATURAL ENVIRONMENT RESEARCH COUNCIL

**REPORT OF THE RESOURCES AND STRATEGY GROUP, 25 FEBRUARY 1999;
PROPOSALS FOR AN NERC/EPSRC/ESRC CLIMATE CHANGE CENTRE****Introductory Note**

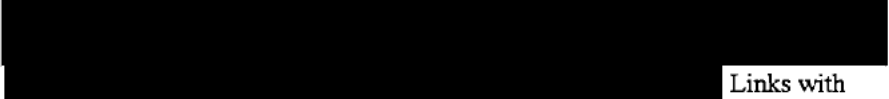
1. The unconfirmed report of the meeting of the Resources and Strategy Group is attached to this cover note. The attention of Council members is drawn to the discussions of:
 - i. 
 - ii. 
 - iii. the establishment of a climate change centre together with EPSRC and ESRC (item six).
2. There has been a number of subsequent developments on the establishment of a climate change centre since the meeting of RSG, and a paper for fuller discussion by Council is at Annex A to the report.
3. Council is asked to **NOTE** the report of the Resources and Strategy Group.
4. Council is also asked to:
 - i. **NOTE** the developments in taking forward the NERC/EPSRC/ESRC Climate Change Centre;
 - ii. **DISCUSS** and **APPROVE** the Resources and Strategy Group's advice that the NERC contribution to the Centre should be up to £1million per annum for the initial five years.

5. PROGRAMME ISSUES ARISING FROM THE 1999 OPERATING PLAN

5.1 This paper dealt with progress on issues within the 1999 Operating Plan.

Hoskins Report on NERC's proposed portfolio of climate change programmes

i. RSG agreed with the report's conclusions that the suite of climate change-related programmes constituted a coherent package. The report had drawn out particular links between specific programmes, and RSG advised that relevant steering committee chairmen should meet at an early stage to consider the linkages, and that the Boards should be kept fully informed of any developments. It was recognised that especially close linkages would be possible within the proposed climate change centre.

ii.  Links with EPSRC would need to be formed in the area of marine renewable energy, possibly within the climate change centre.

6. ESTABLISHMENT OF A CLIMATE CHANGE CENTRE

6.1 Sir John introduced the paper, which asked RSG to discuss the criteria for the success of the centre, and the proposed level of funding. He explained that EPSRC Council had approved the concept note at its February meeting, and had delegated further progress to the EPSRC Office, and that ESRC would have considered the concept of the centre by the end of March.

6.2 Professor Johnston, Professor Conway Morris and Professor Lawton confirmed that their Boards had responded positively to the climate change centre concept note, which had been put to the February Board meetings. Professor Lawton said that TFSTB was certainly expecting to make a contribution to the funding of the centre from its indicative allocation. Dr Hicks floated the possibility of DTI funding for the centre, provided that certain objectives were met, such as a facility for the provision of advice to the business community, and some degree of near-market technology development. He also expressed the desire of DTI to be involved in the tendering process. The proposed level of funding for the centre (of around £1-£2m per annum) was considered to be a little low, although it was agreed that partnership funding (from, for example, the insurance industry or the EU) might be pursued by the director of the centre once in post.

6.3 There was general acceptance of a single-site concept, entailing the establishment of a director and core staff, together with facilities for visiting researchers: this would not preclude the development of a network involving activity at other research establishments. Given the level of funding, it was thought probable that the centre would seek to utilise existing accommodation at a university or other site, rather than start from scratch with a new building. Discussion of the criteria for the success of the centre suggested that its interactions and focus should be internationalised (eg in its links with existing groups, and to take account of FCO and DfID priorities).

NATURAL ENVIRONMENT RESEARCH COUNCIL

PROPOSALS FOR AN NERC/EPSRC/ESRC CLIMATE CHANGE CENTRE

Introduction

1. One of NERC's three Comprehensive Spending Review (CSR) priorities is to develop a climate change research agenda which includes joint work with EPSRC and ESRC. In this context the Strategic Plan identifies the establishment of an interdisciplinary, joint Research Council climate change centre as a priority task. Before the next CSR (2001) NERC will need to demonstrate to government that it has delivered on this and other CSR objectives.

Issue

2. This paper provides an update on progress in establishing the climate change centre and seeks Council's agreement to a NERC contribution of up to £1 million per annum for an initial period of five years.

Discussion

3. Following the CSR outcome, the Chief Executive produced a concept note for a climate change centre which was circulated and commented on by some Council members, STB Chairmen, DTI, DETR, EPSRC, ESRC, the Advisory Committee on Business and the Environment (ACBE) and others.
4. Further discussions between NERC, EPSRC and ESRC have resulting in a new concept note (**Appendix 1**) which describes the centre's purpose and broad scientific agenda, plus the challenges it must seek to address.
5. Within NERC the STBs and RSG at their meetings in February/March endorsed the need for such a centre. RSG advised that the budget for such a centre should be £1.5-£2.0 million pa, or possibly higher, with NERC contributing up to £1 million pa. The NERC portion of this will consist of contributions from STB indicative allocations and from Council headroom.
6. EPSRC have agreed to fund the centre and has given the office responsibility for deciding the level of funding. This is likely to be up to £¾ million pa. ESRC will submit a proposal to their Research Priorities Board for funding the centre to the value of £¼-£½ million pa. DTI have also expressed interest in contributing to the centre, particularly in those areas relating to communication and/or provision of advice to business. DETR are being kept informed of developments as are the Advisory Committee on Business and the Environment (ACBE) who are themselves contemplating a business-led climate change technologies centre which could interface with the Research Council centre.

The way forward

7. Conditional on Council's endorsement to proceed, a timetable detailing future actions has been agreed, the salient points of which are:
 - Research Council staff to write an Announcement of Opportunity for release at the end of April;
 - a two stage selection process inviting outline proposals before full proposals;
 - an outcome of the competition in time to inform the first Council meetings in 2000;
 - the centre to begin operation as soon as practicable in the Financial Year 2000/01.
8. The Announcement of Opportunity to run the centre will not prescribe how the centre should operate (eg whether a network, research centre, or research hotel). Instead, the community will be asked to submit imaginative proposals stipulating how they intend meeting the challenges. Options for meeting them have been identified, however, and will help inform the selection process.
9. The competition will be open to UK universities as lead bidders.

Action

10. Council is asked to:
 - i. **NOTE** the developments in taking forward the NERC/EPSRC/ESRC Climate Change Centre;
 - ii. **DISCUSS** and **APPROVE** the Resources and Strategy Group's advice that the NERC contribution to the Centre should be up to £1million per annum for the initial five years.

NATURAL ENVIRONMENT RESEARCH COUNCIL

PROPOSALS FOR A CLIMATE CHANGE CENTRE

CONCEPT

Motivation and purpose

1. The climate change research agenda is progressing from a passive understanding of the phenomenon to helping society find sustainable solutions to it. Solutions will include mitigation of global warming through the management of greenhouse gas emissions, and the development of adaptation strategies to cope with the inevitable impacts of climate change.
2. Of over-riding importance, however, is that the solutions are sustainable: environmentally sustainable, economically sustainable, and socially sustainable. All these are interrelated. For example, market take-up of a new technology depends on its public acceptability, which depends on its environmental impact and monetary cost, which depend on the materials used, financial incentives available etc. That is, the various scientific disciplines are inseparable if sustainable solutions are to be developed. Hence the need for focused integrated research to meet the needs of industry, government, and society.
3. The individual scientific disciplines involved are well developed in the UK and admired internationally. However, unlike some other countries such as Germany and the USA, we have no concerted effort in the integrated research identified above. If the UK is to maintain its scientific excellence in this area, which will contribute to competitive advantage for UK industry and inform government's negotiating position on international legislation, it must develop such an effort. Whence the need for a new cross Research Council climate change centre.

Broad scientific scope

4. The centre should develop an issue-based research programme. That is, projects funded within multi-disciplinary research teams whose remits cover interdisciplinary climate change issues.
5. Possible issues include:
 - Greenhouse gases, including
 - emissions and the Kyoto Protocol
 - biogeochemical cycling
 - permit trading – institutional, economic and international aspects
 - CO₂ sequestration and fixation
 - Alternative energy and energy efficiency, including
 - underpinning physical science
 - technical experimentation
 - environmental impacts

- socio-economic impacts
 - social institutions, and policy and economic incentives
 - public perception and behaviour
- Climate impacts and human adaptation, including
 - regional environmental and ecological impacts on the UK
 - consequential impact on society and industry
 - responses by society and industry, and consequential new technologies
 - broader economic and social consequences
 - Integrated modelling, including
 - building a fully integrated computational model
 - integrated assessments
6. In interdisciplinary efforts elsewhere (eg PIK in Potsdam and MIT in the US), integrated modelling has proved to be a powerful magnet for researchers from different disciplines to come together and collaborate on an interesting and challenging common scientific goal. Also, integrated modelling is an effective means of dealing with feedbacks between the environmental, technological and socio-economic systems.

Challenges to be met by the centre

7. The following are a set of challenges that the centre will be expected to meet. They will be used as a basis for writing an Announcement of Opportunity to run the centre.
- i. Achievement of scientifically excellent integrated research which not only feeds upon the separate scientific disciplines but also contributes to and gains credibility within them.
 - ii. Take-up of pertinent research results by government and industry. This has two elements: *producing* research results which are relevant for independent policy advice to government and knowledge transfer to industry; and utilising or creating effective mechanisms for *ensuring take-up* of these research results by government and industry.
 - iii. Attraction of additional funding support from, for example, industry, government departments and agencies, and the EU. Industrial support by way of subscriptions to the centre should be sought in addition to individual research commissions.
 - iv. Establishment of quality and comprehensive working relationships with the wider research community to achieve synergy with other research efforts. This includes links with UK and international scientists and research centres, attracting visiting scientists to the centre, and addressing national and international research agendas.
 - v. Attraction of eminent scientists in each scientific discipline to cooperate in co-directing the centre under the leadership of a single internationally renowned scientist.

The way forward

8. The Announcement of Opportunity to run the centre will not prescribe how the centre should operate (eg whether a network, research centre, or research hotel). Instead, the above challenges will be set and the community will be asked to submit imaginative proposals stipulating how they intend meeting them. Options for meeting them have been identified

through discussions with scientific groups and government departments and agencies nationally and internationally. These options will help inform the selection process. Different aspects of the research agenda (eg technical experiments as compared to computational modelling) might be suited to different modes of operation, whence a multifaceted centre could emerge.

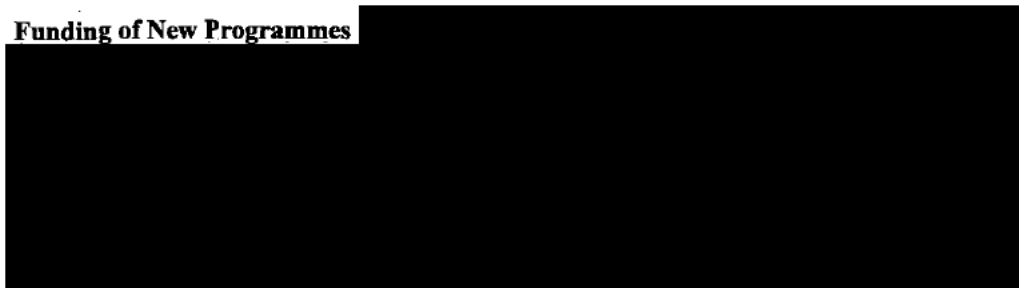
9. It is envisaged that the centre will be managed and advised by one or more specially formed committees. For example the centre could be advised by an expert scientific panel and be ultimately responsible to a management board comprising scientists, industry, and government departments and agencies. Funding decisions would be made by the Director of the centre and ratified by such boards.

EARTH SCIENCE AND TECHNOLOGY BOARD

SUMMARY REPORT OF THE FIFTEENTH MEETING, 29 OCTOBER 1999

Strategic Issues of Relevance to Council

1. **Funding of New Programmes**



The Board will contribute to the Climate Change Centre initiative, but noted that details of funding were yet to be finalised.

NATURAL ENVIRONMENT RESEARCH COUNCIL

NERC INPUT TO THE GOVERNMENT'S 1999 FORWARD LOOK

12. An important common aim between NERC, EPSRC and ESRC is to establish a climate change centre. The purpose of such a centre (whether virtual or real) will be to draw together existing expertise in order to create a novel interdisciplinary research programme involving climate scientists, technologists, engineers, economists and social scientists. The centre will, in addition to developing a new research agenda, aim to meet the requirements (through knowledge transfer) of business and government in relation to climate change.