
Science Policy News

United Kingdom: The 1987/88 Annual Report of the Natural Environment Research Council

The NERC is one of the five Research Councils of the Government of the United Kingdom, the other four being the Agricultural, Medical, Science and Social Research Councils. The NERC has the responsibility to encourage, plan and execute research in those sciences, physical and biological, that relate to man's natural environment and its resources. The NERC carries out these responsibilities through its executive headquarters, its component and grant-aided research institutes, and by research grants and post-graduate awards for complementary studies in universities and other institutes of higher education.

Financial account for 1987/88:

Receipts: Parliamentary grant-in-aid, £73.3 million; Commissioned research receipts, £28.4 million; Miscellaneous receipts, £4.4 million; Capital receipts £0.3 million. Payments: Earth sciences, £29.2 million; Marine sciences, £18.3 million; Terrestrial and freshwater sciences, £19.7 million; Antarctic research, £14.4 million; Scientific services, £15.4 million; Other expenditure, £9.4 million. Gross total, £106.4 million.

The 1989 Corporate Plan:

This plan sets out what the NERC will do over the five-year period 1990/91 to 1994/95. Emphasis has been placed in the plan on identifying the new initiatives that will be taken. The international dimension of environment research is growing in importance and the NERC will continue its policy of developing and expanding overseas links and activities. Major activities such as the Ocean Drilling Program can only succeed by concerted action between nations and the NERC will take a full part in it. The Framework Program of the European Commission and the European Science Foundation provide opportunities for British scientists to develop closer links with their European colleagues and to join in multi-national projects. The research supported by the NERC is largely interdisciplinary, and cooperation be-

tween scientists and across institutes, universities, polytechnics and industry is essential if progress is to be maintained. The programs set out in the 1989 Corporate Plan reflect this interdisciplinary approach and are described under the following headings:

Understanding the natural environment; The global perspective; Conservation and protection of the environment; Surveying and mapping; Data and information; Providing the technology base; Higher education affairs.

Key programs that will form focal points of activity over the next five years include:

Climate, climate changes, and the influences and interactions of the land, sea and atmospheric components of the climate system; Shelf seas, coastal waters, and estuaries; Ocean circulation, through participation in international experiments such as the World Ocean Circulation Experiment; Environmental microbiology; Population biology; Agriculture and the environment; Water quality and ground water modeling; Arctic research; Deep geology; Marine geology and geophysics in particular at the mid-ocean ridges.

These programs cross scientific boundaries and need to be tackled by communities of scientists in the manner already exploited by the NERC.

Support for the universities and polytechnics and the provision of personnel trained in the environmental sciences remain key objectives for the NERC. The next decade will see a sustained interest in the natural environment, changes in the climate, and the availability of the Earth's renewable and non-renewable resources. The research carried out by the NERC is central to all these themes.

For further information:

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France: The 1987 Annual Report of the Centre National de la Recherche Scientifique

The CNRS is France's largest public agency for the support of basic research. With an annual budget close to 9 billion French Francs (FF), equal to US\$ 1.65 billion, it supports about 17000 research scientists and engineers and about 8500 technical and administrative staff in over

300 laboratories. It has 1000 contracts with universities and other higher-education institutions.

The overall budget of 8900 million FF covers salaries and wages of 6600 million FF, scientific funding of 1900 million FF and administrative and general costs of 400 mil-

lion FF. This budget is covered by government subsidy. The CNRS is divided into 7 Sections: Nuclear and Particle Physics (budget: 809 million FF, 11.2% of the total), Mathematics and Basic Physics (788 million FF, 10.9%), Engineering Sciences (625 million FF, 8.6%), Chemistry (1056 million FF, 14.6%), Earth, Ocean, Atmospheric and Space Sciences (801 million FF, 11.0%), Life Sciences (1704 million FF, 23.6%), and Humanities and Social Sciences (928 million FF, 12.8%).

The *Life Sciences Section* has its own 69 laboratory units and 221 associated units. It employs 2976 fulltime research scientists. Its budget of 1704 million FF covers salaries and wages of 1319 million FF and costs of 385 million FF.

Some Life Sciences highlights from the Annual Report:

- *Enzymes defend plants:* Do plants have a true attack mechanism, based on enzymes, for warding off stress and pathogen aggression? Enzymes seem to enable plants to break down the structural polymers most commonly found in their natural predators. That is the recent finding of the CNRS phytopathology team at Strasbourg. These studies should allow the application of new genetic engineering strategies designed to increase the resistance of plants to a selected range of pathogens.

- *Hormone receptors:* Over the past several years, the CNRS Laboratory for Eucaryote Molecular Genetics in Strasbourg has undertaken a complete study of steroid hormone receptors. It has succeeded in identifying the receptor structure. These studies have also shown that the hormone receptor coding genes belong to a gene superfamily, some of whose members are related to oncogenes.

- *An Interdisciplinary Biotechnology Program* involving the CNRS Life Sciences, Chemistry and Engineering Sci-

ences Sections was launched in 1987. The major research themes are: Lactic bacteria, of great importance in agrobusiness; Corynebacteria, with industrial value for amino acid production; Anti-messenger RNAs, which play a role in controlling gene expression and can be used to inhibit gene functions; Protein production in large quantities from genetically altered microorganisms; Recognition mechanisms in plants and bioconversions.

- *Battle against mosquitos:* In several species of the *Culex* genus, resistance to organophosphorus insecticides results from an increase in the activity of the insects' detoxifying esterases. These changes are due to gene amplification. This was the unexpected finding of the investigations jointly undertaken by the CNRS-linked Genetics Laboratory of the Institute for Evolutionary Science at the University of Montpellier, the INRA at Antibes and the University of California at Riverside. One of these esterases was purified, a specific antibody obtained and the structural gene cloned.

- The highly successful *European Network for Plant Molecular Biology* has been extended to 1989. The project includes 25 French universities, CNRS and INRA laboratories. Fifteen exchange visits of one week to six months' duration were arranged between Belgian, British, Dutch, German (Federal Republic) and Spanish laboratories. Cooperation has already been established between public and private laboratories in 12 countries of the Council of Europe (Austria, Belgium, Denmark, France, Federal Republic of Germany, Greece, Ireland, Italy, the Netherlands, Spain, Switzerland, and the United Kingdom) in three main research fields: developmental molecular biology, organelle molecular biology and construction of transgenic plants.

For further information:

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