Agricultural Research Council

Savings plans

The British Agricultural Research Council (ARC) is still in a fix about its budget for the next three years. Plans to find all the necessary economies to meet the expected shortfall in its government grant at the Animal Breeding Research Organization (ABRO) and the Long Ashton Research Station have been abandoned. A decision on the future of the two institutes, which was to have been taken at the end of last month, has been put off to the end of April, and the council has set up a "core group" to look for comparable savings elsewhere.

ARC had originally planned to save the expected £3 million deficit in its annual budget by cutting research on food, beverages and fruit at Long Ashton and by cutting back ABRO to fundamental animal genetics. It has, however, found its hands tied by the Rothschild customer-contractor principle, whereby the Ministry of Agriculture (the customer) commissions a substantial proportion of research in ARC institutes (the contractors). The ministry, aided by the livestock industry, seems to have objected strongly to the plan to cut ABRO to one-fifth of its present strength. Such is the colour of the ministry's money, however, that at one stage it had almost persuaded ARC to cut fundamental rather than applied research. In the event, ARC last week produced a revised plan that may get it off that hook.

The revised plan being circulated for consultation before a final decision on 20 April entails a 50 per cent cut in ABRO's annual budget, from £2.25 million to £1.2 million, by 1984-85, but keeps the balance between fundamental and applied research roughly the same as now. Work on the long-term breeding of sheep and pigs and on the efficiency of dairy cows would continue, as would several areas of animal genetics. ARC says that it may also find a further £0.4 million for research in molecular biology later on. The council clearly hopes its new plan will have an easy passage.

The proposals for the Long Ashton Research Station, which have caused less of a stir, are likely to stand. Hence some research will probably be moved to the East Malling Research Station and the fruit industry is being asked to increase its support for the remaining programmes.

The debate over the future of the two institutes nevertheless has wider implications. ARC's own staff has complained that the process of regularly reviewing research programmes is not sufficiently open. It is also clear that the council needs some way of deciding priorities within as well as between institutes. But the most telling lesson of the past few days is the council's discovery that under the customer-contractor principle, the customer is ultimately (if not always) right.

Judy Redfearn

Not enough toxicologists in Europe?

The European Science Foundation (ESF) and the European Medical Research Council (EMRC) have announced a new programme for research and training in toxicology. A number of awards will be made in 1983 along the lines of ESF's existing brain research programme.

EMRC is basically a talking shop for ESF, representing members of the governing bodies of 14 Western European medical research councils who meet twice a year, and directors of the regional office of the World Health Organization and of the National Institute of Health in Bethesda, Maryland have a standing invitation to attend meetings. Toxicology has been a major interest of EMRC since it was established in 1971, and now nine members of EMRC have put up the money for the toxicology programme; the 1982 budget is FF700,000 (£63,600).

Although the demand for toxicologists in industry and government is growing rapidly, toxicology remains an ill-defined subject which may mean different things in France and, say, Denmark.

EMRC has recommended that priority should be given to mechanisms of toxicity and the epidemiology of exposure to chemicals. It also emphasizes the need for more research in toxicology and the inclusion of toxicology in the university curriculum. In the United Kingdom, for example, toxicologists are drawn mainly from pathology and biochemistry, and the subcommittee report on which the ESF programme is based is impressed with the complaint from industry that university graduates lack practical training in toxicology.

As well as travel and subsistence grants for training courses, ESF plans to award one-year training fellowships to graduates from toxicology-related disciplines. There will also be renewable fellowships for people already working as toxicologists for projects involving collaboration with teams abroad.

ESF is optimistic about the programme. It is to be hoped that the length of time it has taken to set up the new programme is not indicative of the pace at which all collaborative European research will develop.

Jane Wynn

Soviet science and technology

Practical slant

The Soviet Academy of Sciences seems to be planning a more direct interest in production research, according to Dr Anatolii Aleksandrov, the president, in his address to the academy's annual meeting. The academy's increased participation in technological projects in the past eighteen months seems to be connected with the appointment of Dr Gurii Marchuk, formerly chairman of the Siberian branch of the academy, as head of the State Committee for Science and Technology.

When Dr Marchuk moved to the state committee, which is responsible for applied research and its implementation, he urged greater use of the academy's talents in implementing research results in production — thus bridging what has become a major planning gap.

The academy's new practical slant is clearly approved by Dr Aleksandrov, who has often stressed that the Soviet Union is potentially independent of foreign research and development. By contrast, the chief academic secretary of the academy, Dr Georgii Skryabin, told the annual meeting of his regret that the deterioration of the international situation has led to reduced contact with the West. He particularly deplored the cutback in exchanges with the United States — although the US National Academy of Sciences had asked for talks to continue on international security and arms control. Contacts with the United Kingdom, on the other hand, had, he said, "become more active".

Vera Rich

University research funding

Line of defence

Washington

US universities and colleges continue to benefit from Washington's current enthusiasm for increasing its expenditure on military technologies and related national security needs. A subcommittee of the House of Representatives has now approved a provisional bill, said to have wide support within the Administration, which would allocate up to \$100 million a year to improve facilities in higher education institutions in technical subjects important for security interests.

The explicit purpose of the legislation is to increase the ability of the United States to meet both its immediate defence needs and the technological demands that would be created by a prolonged war.

The legislation is supported by the Department of Defense, the Department

"HERE'S YOUR GRANT—THIRTY THOUSAND PIECES OF SILVER."

of Commerce and congressmen representing areas of the United States which are suffering hardest from the current recession.

Furthermore, according to a report published last month by the Defense Science Board (DSB) on the state of the nation's research universities and their ability to absorb increased military research funds, many universities which had rejected close involvement with the Pentagon in the late 1960s and early 1970s are now experiencing a change of heart.

The DSB study has been used by the Department of Defense to justify the major increase in university research funding which it is asking Congress to support. In his budget request last month, President Reagan proposed a 30.5 per cent increase in university basic research funded by the Army, to a total of \$92.1 million; a 36.9 per cent increase in such research funded by the Air Force, to reach \$89.7 million; and a 17.2 per cent increase in Navy funding. Basic research supported by the Defense Advanced Research Projects Agency would rise to \$8.4 million, a 21.7 per cent increase. Many of the extra funds would go explicitly to raise the level of effort in the mathematical sciences, electronics, chemistry and engineering conversion.

The details of the Defense Department's budget request reflect some of the science board's conclusions and some of the universities' concern. In response to complaints about the declining state of the universities' research facilities, the department has announced its intention to allocate \$150 million over a five-year period to improving research instrumentation. Each of the three major services will put aside \$10 million a year for this purpose.

The department is also attempting to overcome the increasing difficulty of universities in retaining top graduates in fields such as engineering by setting up a new graduate fellowship programme. Stipends will be \$12,000 a year — about 50 per cent higher than comparable awards made by the National Science Foundation — and the services will, in addition, provide affiliated universities with \$8,000 a year to cover tuition and fees.

The initial plans are to award about 125 graduate fellowships in the fiscal year 1983, which starts on 1 October 1982, costing the Department of Defense about \$2.5 million. Dr Jack Crowley of the Association of American Universities has said that the association warmly supports both the proposed funding for research facilities and the new fellowship programme.

If Congress does grant the extra funds there is unlikely to be any shortage of applications for the additional grants. With support for basic research from other agencies by falling in real terms and with industry unlikely to be able to make up much of the shortfall, the universities are looking to the Department of Defense as the only significant alternative source of support.

David Dickson

Oceanographic research

In the black

At a time when many groups are hard pressed to support large projects, a team from the UK Institute of Oceanographic Sciences (IOS) has just returned from a successful six-month cruise on which it earned more than £250,000 in foreign currency. IOS, now run by the Natural Environment Research Council, has been able to share the cost of its unique side-scan sonar project GLORIA (Geological Long-Range Inclined ASDIC) by combining its interests with those of several research groups abroad. With the ability to scan a swathe of the ocean floor almost ten times wider than conventional deep-tow sonars, the equipment is quicker and cheaper than other survey techniques, and many groups overseas are apparently eager to use it.

Research on this multi-project charter — the first long voyage to use GLORIA — was strongly oriented towards commercial applications, principally oil exploration and radioactive waste disposal. The UK Department of Energy commissioned the first part of the voyage, with an extensive survey off Newfoundland aimed at completing a reconstruction of the North Atlantic during the Cretaceous to help

GLORIA aboard the trawler Farnella

assess the oil potential of Britain's continental shelf. The other British project, from the Department of the Environment, was an investigation of the possible disposal of high-level radioactive waste under the sea bed. Searching for specific sites is not the primary objective at present; the department is more interested in using GLORIA's ability to distinguish fine textural changes in the ocean floor to study the varying types of sea-bed environment.

One of the most exciting finds came from an area known as the Amazon Cone off the Brazilian coast. This is a huge pile of sediments washed out by the Amazon into the Atlantic, and is thought to be a potentially important source of oil. Submarine current meanders were for the first time observed to cut into the cone, giving new clues about processes of sediment deposition that may be relevant to the formation of oil-bearing structures. There has been great interest in this finding from petroleum geologists and from the Brazilian oil company Petrobras, which paid for this leg of the cruise jointly with

the Lamont-Doherty Geological Observatory of New York's Columbia University.

During the last leg of the voyage, on the way home from Miami, GLORIA was tested as a means of detecting deposits of manganese nodules, which at present can be located only by trial and error sampling. There seems to be a chance that GLORIA's sensitivity to slight variations in the reflectivity and roughness of the bed may offer a more direct means of location. United States scientists are said to have been impressed with the equipment.

David Millar

Soviet shake up

A regional earthquake monitoring centre has been opened in Dushanbe, in the Soviet republic of Tadjikistan, as a first step towards a seismic early warning system for the whole Soviet Union. Tadjikistan suffers several thousand earth tremors a year, and seismic activity is also very high in the neighbouring republics of Turkmenia, Uzbekistan, Kirghizia and Kazakhstan.

The new centre will combine the resources of existing seismological centres of the Academies of Sciences of the various republics in the area, including a seismic testing ground covering 30,000 square kilometres in the northern Tien-Shan. The facilities of this site include wells 3,000 kilometres deep for studying subterranean waters — in particular the radon content of such waters which has been observed to increase shortly before a tremor. Field stations at the site also monitor the Earth's magnetic field and telluric currents, while microdisplacements of individual crustal blocks are measured with lasers. Biological teams monitor the behaviour of snakes, ants and other fauna said to behave abnormally during the build-up to an earthquake.

In 1980–81 Soviet seismologists say they successfully predicted the occurrence of 13 earthquakes, including force 4–5 tremors in Dushanbe. The seismologists seem very open-minded to any suggestions of possible early-warning signals. Recent investigations have included the relationship of the amount of mercury vapour emitted from the Earth's crust, or present in subterranean well water, and an assessment of local folk lore which has it that a seismic shock is frequently preceded by overcast skies and dust-storms.

The heart of the Dushanbe centre will be a computerized seismological data bank, linking existing centres, to be augmented by links to new mobile seismic monitoring stations scheduled to go into production in the near future.

Vera Rich