Met. Office and defence research lose out in spending proposals

London

THE British government is to spend £2,272 on military research and development (R&D) in the current financial year, of which £403 million will go on research. The figures for last year were £2,346 million and £401 million respectively. The decrease in spending on total R&D and the decline in real terms in research expenditure is in keeping with the government's recently declared policy of lessening the share of the nation's research resources devoted to defence. Even so, the government is shying from instituting substantial reductions and shifting the balance to the civil sector. The statement of the government's defence spending estimates, released last week, says "we continue to pay very close attention to the real level of defence research and development expenditure, the aim being to achieve a gradual reduction over the next decade . . . there will, however, be no abrupt change; the Ministry of Defence will continue to fund R&D on a substantial scale".

The statement will provide little comfort for the already squeezed defence research establishments, dogged by shortages of manpower and resources (see *Nature* **332**, 479; 1988). The six non-nuclear research establishments were earlier this year given clearance to sell their services in the market-place and are likely to be early candidates for agency status under recent government proposals to give greater autonomy to civil service establishments.

For the Meteorological Office, part of the Air Force Department, the statement's three short paragraphs give little inkling of the serious financial problems the office is experiencing. But for an independent inquiry into the Met. Office's failure to give adequate warnings about the 'great storm' of 15–16 October last year, many of the difficulties would remain unrecognized.

Accepting the recommendations, the government made clear at the outset that no more money would be available to meet them. Although this year's defence estimate does not give specific figures for the Met. Office, its budget is likely to be pegged at around last year's figure of £81 million. Of this, £23.6 million was obtained through the office's commercial activities. The Met. Office is under instruction to identify economies amounting to some 7 per cent over the next three years. Serious doubts are being raised about the office's ability to provide an effective service faced with such pressures of economy. Over the past 12 years, total staff numbers have fallen by nearly 40 per cent to the present 2,500. Plans to give the Met. Office executive agency status by 1990 are well under way and have in general been welcomed by staff, who accept that the key to the office's future lies in the expansion of its commercial activities.

On participation in the US Strategic Defense Initiative (SDI) research programme, the statement remains subdued. By February this year, some 65 contracts had been placed in the United Kingdom, to a value of $60 million. The ministry had earlier predicted that by the end of 1987 contracts worth $100 million would have been placed in the United Kingdom. Contracts worth $10 million have been awarded to 17 higher academic research bodies. The ministry concedes that the SDI work "has been gained in a climate of competition . . . that has turned out to be more severe than predicted".

Simon Hadlington

North Sea project lacks the cash

As final preparations are made for the experimental stage of Britain's five-year study of the chemical, biological and sediment processes in the North Sea, the project's administrators are still trying to make up a budget shortfall of more than £2 million. The North Sea Project is being carried out principally by the Natural Environment Research Council (NERC), which is providing £7 million of the £10.6 million needed. Separate but related studies by the Ministry of Agriculture, Fisheries and Food will contribute a further £1.3 million. The Department of the Environment (DoE) has declined to contribute substantial resources to the project as a whole, but has been persuaded to put relatively small amounts into specific parts of the programme.

The aim of the project is to formulate three-dimensional hydrodynamical and transport models for predicting water quality. From early August the research vessel *Challenger* will spend 15 months plying the sea along a set track gathering data, which will be processed on shore.

Project organizers say that the shortfall of funds will not severely compromise the experiments, but will leave little room for flexibility — for example there are no contingency funds available to replace loss of equipment, an almost inevitable hazard in shipboard studies. The hope is that the Department of Energy may be persuaded to take a financial stake, and that private companies with an interest in the North Sea may supply funds. Simon Hadlington

SDI simulations under fire

Washington

A GROUP of computer scientists has fired a broadside at the Strategic Defense Initiative's (SDI) National Test Bed being built at Colorado Springs, Colorado. A report by Computer Professionals for Social Responsibility (CPSR) last week says that the idea that the test bed can determine whether SDI will function is "based on a fundamental misunderstanding of the value of computer simulation."

Undeterred by this criticism, the SDI Organization claims that the test bed can be used to evaluate the various hardware and software components that will make up an effective ballistic missile defence.

Martin Marietta last January signed a contract worth $508 million over 5 years to design, install and operate the National Test Bed (NTB), which consists of a network of test sites scattered around the United States, coordinated through the National Test Facility in Colorado. NTB will use supercomputers and electronic test equipment to provide a simulation environment for SDI's component systems, as well as to verify strategies for overall battle management capabilities.

But CPSR says it is impossible to develop meaningful simulations of a space-based missile defence, because performance specifications cannot be validated against real data derived from experience. Even assuming all the parameters of an intended defence system can be accurately represented in models, it is not possible to include all the ways in which the system might be subverted.

The report argues that exercises using hypothetical constructs of potentially real situations are not simulations but "hypothetical presentations that may resemble some chain of events in the real world", only providing an accurate picture of the world dreamed up by their creators.

David Parnas, a former SDI adviser from Queen's University in Ontario, Canada, says NTB will be nothing more than "the world's largest arcade game parlour", and will offer no true insight into the reliability of an SDI system.

But Danny Cohen, an adviser to the SDI Organization from the University of Southern California, says CPSR's criticisms are ideologically motivated. Cohen maintains that any defensive system must make assumptions about the attack it is going to face. Although it is true that US planners will have doubts about Soviet offensive capabilities, he points out that Soviet planners will also have doubts about SDI's effectiveness. This, Cohen maintains, will add to deterrence, and limit the likelihood that a war will start.

Joseph Palca