

# Gloom deepens for Australian researchers

**Sydney.** Australian science has been hit harder than first appeared in last month's budget. A Science and Technology Statement released by the government, covering the seven ministries supporting research and development (R&D), reveals an overall fall of 5.1 per cent in real terms (equivalent to 7 per cent in current-dollar terms), the largest overall drop in funding for many years.

This fall, largely accounted for by a reduction in tax incentives for industrial R&D, is proportionately higher than the budget's 5 per cent cut in operating expenses for universities, spread over three years, which has generated widespread protest (see *Nature* 382, 569 & 659; 1996).

It has also become clear that the Commonwealth Scientific and Industrial Research Organization (CSIRO), Australia's largest research agency, has not escaped unscathed. Government documents reveal that the organization is being required to sell some of its assets to balance an increase of A\$60 million (US\$31.5 million) in operating funds.

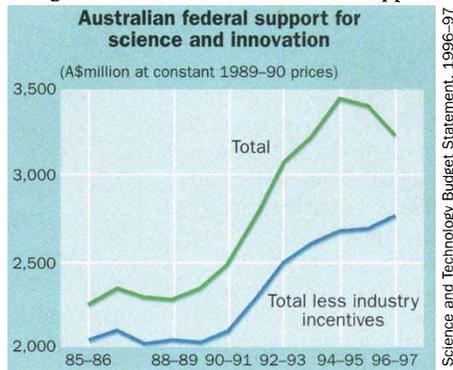
CSIRO will also have to repay a so-called 'efficiency dividend', a 2 per cent annual reduction on running costs and 3 per cent on programmes imposed on government activities. The organization is to receive partial compensation of A\$65 million over four years, but will still end up with a net loss of A\$10.3 million.

Two other federally funded agencies — the Australian Nuclear Science and Tech-

nology Organisation, and the Australian Institute of Marine Science (AIMS) — have not only had their operating funds cut but will also not be compensated for losing the 3 per cent efficiency dividend. These agencies will also lose access to their former cash reserves, which had been used as a buffer against unforeseen payments, and had a value equivalent to three weeks' salaries.

Among other cuts, the Defence Science and Technology Organisation has lost A\$20 million (11 per cent) for the year and the Australian Geological Survey Organisation (AGSO) has been slashed by about 25 per cent (see *Nature* 381, 547; 1996). The budget papers had shown an increase for AGSO, but the subsequent science and technology statement revealed that A\$61 million of this is to be spent on a new building.

In addition, intense lobbying to reverse the government's decision not to support



Australia's invitation to join the European Southern Observatory (see *Nature* 381, 101; 1996) has been unsuccessful.

A large drop in funding for industrial R&D, in the form of reducing the tax reduction that can be claimed for such research from 150 to 125 per cent, has triggered a chorus of complaints from business, which generally supports the government's cost-cutting strategy. John Prescott, managing director of Australia's largest company, BHP, says that the reduced tax deduction "will mean that some important projects may not go ahead".

Australia, which spends 1.6 per cent of its gross domestic product (GDP) on R&D, lies in twelfth place overall among the 24 leading members of the OECD. But it has long struggled to improve the performance of business R&D, for which it lies in nineteenth place, spending 0.74 per cent of its GDP, compared to an average of 1.11 per cent. Some fear that a steady rise in recent years, said to be due to the 150 per cent tax break, will now be reversed.

Others are also concerned at the likely impact on non-industrial research. "The cuts came at a time when our ageing infrastructure is costing more and more to maintain," says Russell Reichelt, director of the AIMS. The combined effect has caused 20 jobs to go, from total staff of about 180. Areas affected include water quality monitoring on the Great Barrier Reef and large-scale oceanographic work. **Peter Pockley**

## Space centrifuge deal may mean job losses at NASA

**Washington.** An expected Japanese offer to build a centrifuge for biological research on the international space station has prompted the US National Aeronautics and Space Administration (NASA) to halt its own plans for the facility, a move which may lead to redundancies at the agency's Ames Research Center in California.

In compliance with California's labour laws, about 50 contract employees with the Lockheed Martin Corporation were notified last week that they may be laid off following cuts to the budget for the 1997 fiscal year (which begins on 1 October) for Ames' Space Station Biological Research Project. NASA's space station headquarters at the Johnson Space Center in Houston also told Ames last week to stop any procurements related to the centrifuge.

The deal, if it takes place, would involve Japan building the centrifuge and associated hardware, including an animal-holding facility. In exchange, it would receive a free launch of its Japanese Experiment Module — one of the space station's main laboratories — on the space shuttle in 2000.

Although the details of the barter

arrangement have still to be worked out, Japan is expected to make a formal proposal to NASA by the end of this month. Japanese officials originally suggested a barter deal for launch services last spring, and it was the Americans who suggested that Japan might contribute a centrifuge.

Not having to build the facility itself would solve a short-term financial problem for NASA. Technical difficulties with the construction of one of the station's nodes — small modules that will connect the larger laboratory and living modules — have led to substantial slips in schedule and budget.

According to NASA officials, the cost overruns are likely to be at least \$100 million, and perhaps as much as \$500 million. But the overall space station project is strictly capped at \$2.1 billion per year. Any solution that pushes expenditure to later in the station's development therefore gives NASA some much-needed breathing room.

The centrifuge will be used to provide different levels of gravitation on board the station. It has already had a chequered history. In 1991, the agency proposed eliminating it altogether to save money when

the station was redesigned and scaled back. But the centrifuge was reinstated after scientists complained that its loss would jeopardize the scientific return from the station.

Ames has already spent an estimated \$50 million developing the facility, but has yet to begin construction. Finishing the job would cost an estimated \$100 million, say Ames project managers. It is not clear how much, if any, of the Ames work would be inherited by the Japanese space agency, NASDA, if it takes over responsibility for the centrifuge.

Mary Jane Osborn of the University of Connecticut Health Center, who chairs the National Research Council's Committee on Space Biology and Medicine, says her committee has heard no details about the Japanese proposal, but that it should be judged in terms of how well it serves the research community. Of greater concern, she says, is NASA's apparent backing away from early scientific use of the space station.

Scientists already have been informed that research on the station is being 'rephased' — meaning that it will begin later than the originally planned starting date of November 1998. **Tony Reichhardt**