

# Japan on target to double science spend...

[TOKYO] Japan is likely to meet its goal of doubling its science spending by 2001, but it still needs to improve the research environment at national laboratories and universities. That is the conclusion of a progress report on the government's five-year plan on science and technology, written by the Science and Technology Agency and released last week.

The science and technology basic plan, which was launched in 1996, includes a commitment to increase the number of postdoctoral researchers to 10,000 over the course of five years. This target is now likely to be achieved by the end of the 1999 fiscal year, which starts in April.

But some other targets seem unlikely to be met. For example, a promise to increase

the number of non-Japanese researchers at national institutes is making slow progress: at present, there are only 0.4 such researchers per research group on average, less than half the original target.

The five-year plan was introduced to promote Japan's basic research and increase its science spending to a total of ¥17 trillion (US\$140 billion). With overall science spending expected to total ¥13.3 trillion during the 1999 fiscal year, the progress report says the financial target is likely to be met, provided that the budget for the fiscal year 2000 is kept at the current level (¥3.2 trillion), and that additional funding is provided through supplementary budgets.

Similarly, with the government creating

376 postdoctoral research posts, the number of postdocs in Japan is expected to total 10,187 in 1999, meeting the target a year earlier than planned.

The lack of foreign researchers is widely attributed to the general reluctance of research institutes to employ such researchers on a long-term basis. But many argue that the research environment in Japanese laboratories does not always appeal to overseas researchers.

"Unless these research institutes abandon the tenure system and employ a more flexible system allowing researchers to move easily from one research centre to another, their attraction will remain pretty low," says a British researcher working on a limited-term contract at one of the national institutes.

Another serious concern at universities and national research institutes is a shortage of laboratory technicians. Despite a commitment to provide one technician per researcher by 2001, the ratios of researchers to technicians at universities and national research institutes are currently 1:4 and 1:5, respectively. This means that young researchers, particularly postdocs, are often forced to act as lab technicians.

The report also says that little has been done to replace old buildings and facilities, particularly at national universities. It says a long-term strategy will have to be formed in the second phase of the plan, which begins in April 2001, to prevent the further deterioration of research facilities.

According to the report, 38 per cent of facilities at national research institutes, and 28 per cent of facilities at national universities, are in need of repair. At Kyoto University, for example, the science school has been waiting for a new building since 1995, even though it was listed as the top priority in the annual budget request.

"Manpower, location and funding are the three basic factors needed to carry out teaching and research at universities," says Kazuo Oike, dean of science at Kyoto University. "The one thing that's lagged behind is the location; the buildings have got old and dilapidated, and could present a potential danger to both students and staff."

The report says that the improvement of facilities will be one of the top priorities in the second phase of the plan, together with plans to increase the number of foreign researchers and to reinforce overall support for postdoctoral researchers.

But critics of the plan, especially in industry, say that too much emphasis has been placed on basic research at national universities and national research institutes, and that the second phase should focus more on application-orientated research to create new industries.

Asako Saegusa

## ... while Canada's budget boosts innovation

[MONTREAL] Canada is the latest country to declare its commitment to developing a 'knowledge-based economy'. Flush with a healthy fiscal surplus, finance minister Paul Martin last week presented a budget devoting Can\$1.8 billion (US\$1.2 billion) to encouraging research and innovation over the next three years.

The grand total of new spending is Can\$18 billion, and the share devoted to science and technology related items is second only to the health sector's. The health service will receive Can\$11.5 billion over the next five years, of which Can\$550 million over three years is new money for research. This includes plans for a coordinating body to be set up in 2000 and known as the Canadian Institutes for Health Research. The CIHR was first proposed last year by the Medical Research Council of Canada (see *Nature* 393, 613; 1998).

Four areas are identified as critical to the knowledge-based economy: creating knowledge, disseminating it, commercializing it, and hiring people to support it. One body to benefit from the new funding over the next three years will be the Canadian Space Agency, which will receive Can\$430 million on top of its previous budget, and Can\$300 million annually thereafter.

The Canada Foundation for Innovation will receive an extra \$200 million over this period. The foundation provides money for research infrastructure to hospitals, universities and research institutions.

Some Can\$240 million is allocated to setting up the CIHR, which will use networks to link all elements of the country's health-care system, providing a national focus for health research. The National Research Council, the three main federal research funding councils and the

National Health Research and Development Program will be given an extra \$150 million to back CIHR objectives.

Other extra spending includes Can\$60 million to improve researchers' access to computers, Can\$150 million to help companies market innovative products, and Can\$50 million for the Business Development Bank to finance knowledge-based and export-orientated companies.

An extra Can\$90 million will be allocated to the Networks of Centres of Excellence, which facilitate knowledge transfer among universities and the private sector.

As a result of the extra funding, the overall budget of the Medical Research Council (MRC) will grow in the next financial year to Can\$302.5 million, an increase of 11.4 per cent over this year. The 2000/2001 budget will be Can\$373.8 million, an increase over the current year of 37.7 per cent, and the 2001/2002 budget Can\$484.1 million, a massive 78.4 per cent increase over this year.

Reaction to the budget has been generally favourable. MRC president Henry Friesen hailed the creation of the CIHR as "historic". He said the government's largesse meant that the ever-widening gap between Canada and the United States "has taken a dramatically different course".

But critics said the overall increases for the health-care system would only bring its funding level back to where it had been three years previously, when the Liberal government started cost-cutting to eliminate the country's economic deficit.

Business people criticized the absence of corporate tax relief. Michael Wilson, executive director of the Fraser Institute, a Vancouver think-tank, said the lack of cuts to capital gains tax would have a serious impact on start-up companies.

David Spurgeon