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EDITORIAL

Japanese Science Funding

Japan's recent plan to dramatically increase government research funding may appear unusual in light of other countries' efforts to reduce such funding and in light of the large financial deficit faced by the Japanese government. However, the plan merely calls for an increase in government expenditures for science and technology research to a level comparable to that in Western countries [up to about 1 percent of gross domestic product (GDP)] from the current low level of 0.5 to 0.6 percent of GDP. At this low government funding level, the vast majority of Japanese scientists, especially those in the basic sciences, have not had the opportunity to participate in rapid developments in science research.

The lack of funding has also resulted in a weak domestic groundwork for international collaboration. The substantial increase in Japanese government research funding during the past couple of years is encouraging. We are proud of the Japanese government's recent initiatives to support international research funding through the Human Frontier Science Program and other international endeavors such as CERN, but we must frankly recognize that Japanese science as a whole is still far from the standard achieved in Western countries.

In addition to the increase in research funding, the so-called 5-year Basic Plan on Science and Technology adopted by the Japanese government in July 1996 proposes actions for strengthening research systems, such as the establishment of mechanisms for evaluating research, an increase in the number of postdocs, an end to stipulations making it difficult to hire lab technicians, and improvement in cooperation among universities, research institutes, and industry. The plan also emphasizes the importance of distributed megascience. In contrast to concentrated megascience, which involves the use of specific facilities to study such fields as nuclear physics or space exploration, distributed megascience involves the study of life science, information science, and environmental science in a network of many laboratories working on diverse topics. These fields are rapidly growing and are full of potential for contributions to social and global development, but research will be hampered without close collaboration between university faculties and government departments.

In this general climate, several developments have converged to make brain research the prototype for future efforts by Japan to bring its funding of science in line with that of Western nations. An ad hoc group of neuroscientists has been promoting the "Century of the Brain" campaign since 1992. This campaign corresponds to the "Decade of the Brain" initiated in the United States in 1990, and to a similar campaign initiated in Europe in 1991. In April 1996, the Science Council of Japan formally requested that the government promote brain research, and in June 1996, an ad hoc committee of the Science and Technology Agency (STA) proposed a large-scale research program entitled "The Age of Brain Science" with a 20-year strategic timetable. In August 1996, STA, the Ministry of International Trade and Industry, the Ministry of Health and Welfare, and other ministries included brain research programs in their budget requests for 1997, and in December 1996, funding for these programs was incorporated into the 1997 national budget plan in the form of a distinct fund for a new strategic category equivalent to $125 million. In March 1997, the Ministry of Education, Science, Sports and Culture (Monbusho) received from its own science council a report urging promotion and support of brain research in university laboratories. In January, Prime Minister Ryutaro Hashimoto stated in his speech to parliament: "To make Japan a science and technology–based creative nation ... I shall make efforts ... to promote science and technology, such as by expanding brain science and genetic research."

A new Brain Science Institute in charge of three major fields of brain science [to understand, to protect, and to create (model) the brain] will be set up this October in the Institute of Physical and Chemical Research (RIKEN) (*Science* 14 March 1997, p. 156). The facility will be open to researchers around the world. A number of distinct grants designated for brain science are now available to researchers at universities and national institutes. And finally, to coordinate diverse activities all over Japan in the context of the worldwide promotion of brain science, a central organization called the Brain Science Committee was set up in April as part of the Prime Minister's Council for Science and Technology.

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