

Cycle of feast or famine

Tokyo

To all appearances, biologists Satoshi Nishikawa and Kazunari Taira are doing well. Last month, the two researchers in the department of cellular and molecular biology of the Fermentation Research Institute received a government grant of ¥48 million (\$360,000) to spend more or less as they please. And as most Japanese government researchers these days are struggling for adequate research funds and wrestling with red tape surrounding what money they do get, it would seem that Nishikawa and Taira have cause for celebration.

But there is a catch. Although the two scientists can spend the money on their choice of equipment, reagents, salaries for technicians and postdoctoral assistants and travel expenses for collaborators, their grant is good only to the end of the fiscal year. That gives them less than two months — not nearly enough time, they say, to spend it efficiently.

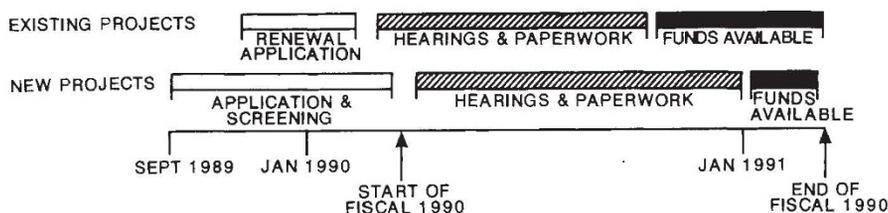
If this were an isolated case, it might be written off as one of the normal afflictions that develop in any bureaucratic system from time to time. But the experience of Nishikawa and Taira is symptomatic of chronic bureaucratic delays that hamper disbursement of funds under an otherwise

¥10,000 million (\$75 million) a year, a significant part of the government's overall research grant budget.

But the timing of the disbursement of the funds has proved to be a problem. Whereas most government funds for research can be obtained fairly early in the fiscal year, which runs from April to March, the special promotion funds are seldom available before August or September and often come much later. And because the government sticks rigidly to a one-year fiscal cycle, all of the money must be spent by the end of the fiscal year and cannot be carried over to the next.

Even when a grant continues into the next fiscal year, funds are not available during the spring or summer because of bureaucratic delays in grant renewal. As a result, even scientists, such as oceanographers and climatologists, who need to take data throughout the year, cannot carry out surveys in the spring or summer with the STA special promotion funds.

The delays in disbursement are caused by hearings between STA and the Ministry of Finance, which determine the allotment of funds within each and every grant in minute detail. These negotiations begin only after the budget has been passed by the Diet, usually in March or



imaginative grant scheme administered by the Science and Technology Agency (STA). The problem is particularly acute because the STA money fills an important niche in Japanese government funding of science.

Japan lacks a central organization such as the National Science Foundation in the United States or the research councils in Britain to which researchers of any affiliation can apply. Instead, government researchers have to rely primarily on their own ministry or agency for funds, and grants from these sources can be used only for rigidly defined purposes, usually not including such things as the employment of technicians or postdoctoral assistants.

To introduce more flexibility into this system, STA introduced in 1981 its "special coordination funds for promoting science and technology". The purpose was to create a substantial fund that would be open to government researchers of any affiliation and that could be used for multiple purposes. In large part, this aim has been achieved, and the special promotion fund has grown to more than

April, and typically last up to several months for grant renewals and as much as four to six months for new grants. Grants for fiscal year 1990 were badly affected because passage of the budget was delayed by the opposition parties (see figure).

The results of these delays on scientists can be seen — in exaggerated form — in the case of Nishikawa and Taira. According to allotments laid down by STA and the Finance Ministry, their ¥48 million grant includes an allowance for 1,056 man-days of salaries for assistants, and travel funds for a collaborator at Hokkaido University in the north of Japan to come and work with them. But it is impossible for Nishikawa and Taira to spend 1,056 man-days of salaries in only two months, even if they could find anyone interested in signing on for such a short time. And their collaborator cannot come before the end of the fiscal year because the January–March period is particularly busy with examinations.

Fortunately for them, they are allowed some flexibility in how they spend the money. And so the two have gone on a

spending spree, buying the most expensive equipment and reagents they can lay their hands on to try to use up all the money — because if they do not, the penny-pinching Ministry of Finance will cut their budget next year.

Taira says he is furious with the government bureaucrats responsible for this situation. "They don't care about scientists. They just think about paperwork."

He is not alone. Makoto Yuasa of the marine geology department of the Geological Survey of Japan says that the STA special promotion funds are always late. When the grant is small, the survey can borrow from other funds, but if the grant is large, Yuasa and his colleagues must sit and wait. And at the Ministry of International Trade and Industry's Agency of Industrial Science and Technology (AIST), Masayoshi Hamada, who administers the fund for AIST researchers, says he too has encountered many examples of problems caused by the delays in disbursement.

The situation is particularly bad for university researchers. Although in theory the special promotion fund is open to them, practice is somewhat different. The Ministry of Education, Science and Culture (MESC), which is in charge of funding at universities, has a running feud with STA about its area of responsibility, and the special promotion funds are seen as a direct intervention in traditional MESC territory. As a result, there is no mechanism for university researchers to receive money directly from the fund. Instead, the special promotion funds have to be fed indirectly through one of the national research laboratories belonging to another ministry or agency. And this leads to further bureaucratic delays.

One category of fund does get to researchers comparatively quickly. These are the 'emergency' special promotion funds designated for such things as natural disasters and epidemics. But even here bureaucracy intervenes.

Last November, Mount Unzen, a volcano on Japan's southern island of Kyushu which has been dormant for about 200 years, suddenly erupted. Researchers from Kyushu University, the Meteorological Agency and STA immediately applied for emergency funds. But the money was not granted until more than a month later, by which time the eruption had long since stopped. (Fortunately, the volcano re-erupted recently and the researchers now have something to spend their money on.)

Toshihiko Yamada, who administers the fund at STA, admits that there are problems. But he says that fiscal year 1990 was exceptionally bad because of delays in the passage of the budget in the Diet. And he says that he and his colleagues are trying their best this year to hold the annual negotiations with the Ministry of

Finance earlier.

The root of the problem is that although STA controls one of the largest science and technology budgets in the government, it has very little political power. The special promotion funds were introduced by the late Ichiro Nakagawa, a powerful member of the ruling Liberal Democratic Party (LDP), when he headed STA in the early 1980s. But Nakagawa was roundly defeated by Yasuhiro Nakasone in the run-up for prime minister in 1982. And Nakagawa subsequently committed suicide in a hotel in Hokkaido in 1983.

With Nakagawa's death, the special promotion fund lost its strongest political backer, and the Ministry of Finance, which was annoyed by the way in which Nakagawa and his supporters had bulldozed the new fund through the Diet, has been putting up bureaucratic barriers to the fund ever since. **David Swinbanks**

JAPANESE BUDGET

End of year splurge

Tokyo

THE rush to spend money at the end of the Japanese fiscal year is by no means confined to the special promotion funds of the Science and Technology Agency. Any motorist in Tokyo will testify to the horrendous traffic jams in the city in late March caused by local governments digging up the roads (whether they need to or not) in order to use up the fiscal year's



construction budget to make sure their budgets are not cut the following year.

And all booksellers know that February–March is the best time for their salesmen to visit universities and research institutes, because scientists are looking for ways to spend the rest of their book budget before the fiscal year ends. Booksellers set aside a 'dedu stoku', or 'dead stock', consisting of unsold books, which they sell off at a discount to researchers wanting to get rid of unused funds.

Many researchers say in private that they consider the annual splurge a disgraceful waste of taxpayers' money, but they cannot fight the system.

David Swinbanks

GULF OIL SPILL

Let nature take its course

London

THE Gulf states should resist the urge to clean oil from their smothered beaches, say a group of British ecologists at the Natural Environment Research Council (NERC) who were asked by the UK Department of the Environment to assess the environmental effects of the huge slick now drifting down the Saudi Arabian coast. The region's wildlife may take years to recover, but the additional disturbance caused by removing beached oil means this tactic would do more harm than good, says NERC's Brian Bayne.

Bayne's conclusion is based on studies of previous oil spills, notably the *Amoco Cadiz* wreck off the coast of Northern France in 1978, where saltmarshes that had been left alone recovered more quickly than those from which oil had been removed. Although his team rejects the idea of physical removal of the oil, Bayne believes it will be possible to accelerate the natural bacterial breakdown of oil by spraying fertilizing nutrients onto oiled beaches (see *Nature* 349, 447; 7 February 1991). The 'latent' oil-feeding bacterial population is limited by a lack of nitrates in Gulf coastal waters, Bayne says.

The NERC report also recommends that the most ecologically vulnerable stretches of coastline should be protected using oil-diverting booms. Bayne is particularly concerned about the fate of

the shallow water seagrass beds around the island state of Bahrain.

Most oil-damaged habitats are expected to recover in time, but Bayne says that smothered coral reefs may not be so lucky. The high salt content and relatively low temperature of the Gulf means that the corals are living near the limits of their physical tolerance. Damaged reefs may 'flip' to a completely different ecosystem, says Bayne, with corals unable to return.

The report urges that monitoring of the breakdown of spilled oil and the ecological damage and recovery should begin as soon as possible. This is difficult, given that much of the affected area is a war zone, but Bayne hopes surveys will begin within the next two months. The ecological impact of oil pollution in tropical waters has been studied extensively only once before, after an 8 million litre spill into the Caribbean in 1986, near the Panama Canal. That happened on the doorstep of the Smithsonian Tropical Research Institute's Galeta Marine Laboratory, so marine ecologists were able to make a thorough 'before and after' comparison. They found that reef corals and the seagrass fauna were badly hit. A similar study should be possible in the Gulf, using data collected before the war by Saudi and Kuwaiti scientists, although some Kuwaiti data may now have been destroyed.

Peter Aldhous

SOUTH AFRICAN DEVELOPMENT

Water project dropped

Johannesburg

THE Botswana government and Greenpeace International have issued a joint statement announcing that the southern Okavango Integrated Water Development Project has been abandoned. The plan to dredge the southern stretch of the Boro River, one of the main channels flowing through the Okavango Delta in north-west Botswana, met with opposition from Greenpeace, which had threatened an international boycott of beef and diamonds, the country's two main exports. But the government finally suspended work on the project when more than a thousand representatives of the delta's inhabitants converged on the town of Maun on 11 January to hold a 'kgotla' (crisis meeting) to protest against the scheme to Archie Mogwe, Minister of Mineral and Water Affairs.

The project was intended to provide water for both domestic and agricultural use in the Maun area, which lies at the foot of the delta, and for the De Beers diamond mine at Orapa, which accounts for a considerable portion of the country's foreign exchange earnings.

Some ecologists, were concerned that the project would inevitably lead to a dropping of the water level, which would have adversely affected the delta's ecosystems, which derive their rare characteristics from it being a broad but shallow body of water. The delta is fed by the Kavango River, which rises in the Angola high lands ad flows inland, creating a seasonal floodplain. Its inhabitants are largely dependent on the natural resources of the delta for their livelihood, for which they fish, and more recently, act as tourist guides.

De Beers appeared ambivalent about the implications of the scheme's abandonment for the future of Orapa, as the company set up its own water supply for the mine three years ago by drilling boreholes. Alternative arrangements will have to be made for improving Maun's domestic water supply, and plans for large-scale irrigation will have to be abandoned. But the interesting aspect of the Botswana government's about-face is that it appears to have been prompted by local opposition.

Michael Cherry