GENETIC OWNERSHIP

# Brazil Wants Cut of Its Biological Bounty

A debate is brewing in the Brazilian Senate over legislation designed to ensure that Brazil's citizens share in any profits from crops or medicines derived from the biological wealth of the Amazon and other species-rich regions. Brazilian officials say they hope the legislation will encourage bioprospecting. "We want to establish rules to stimulate the use of biodiversity, not restrict it," says molecular biologist Luiz Antonio Barreto de Castro, an official in Brazil's science ministry. But some scientists, while applauding the legislation's goals, warn that it could imperil field research in Brazil. The legislation "is potentially a real roadblock ... to scientific progress," says Smithsonian Institution biologist Thomas Lovejoy.

The legislation, observers say, has its origins in still-smoldering anger over the collapse of Brazil's rubber industry in the early 1900s after Brazilian seeds were transplanted to Southeast Asia and used to start the region's booming rubber plantations. In several other instances since then, foreign organizations have claimed breeding or patent rights to Amazonian plants that might be useful as crops or medicines, such as the pinto peanut. According to Pat Mooney, executive director of the Rural Advancement Foundation International, a nonprofit organization based in Ottawa, Canada, Brazilians "feel ripped off."

The first attempt to reverse this trend and formally assert Brazil's ownership of native plants and animals came 3 years ago. A Brazilian senator from the Amazon region, Marina Silva, introduced a bill that would recognize local citizens' ownership of native species and mandate that any benefits derived from commercial uses of these resources be shared with local tribes. After a series of hearings, a more detailed version of that bill was introduced last year outlining a series of bureaucratic hurdles that anyone who wants to collect and use biological specimens in Brazil must clear.

Supporters had hoped this second bill would breeze through the Senate's education commission later this month before heading for debate in Brazil's Chamber of Deputies. But it has encountered opposition. The bill "can have tremendous impact on research" by discouraging basic research by non-Brazilian biologists, contends geneticist Marcio de Miranda of the Brazilian Cooperation for Agricultural Research. "Depending on how much you centralize the power," he says, the bill "could lead to a huge bureaucracy" of national, regional, and local offices that must sign off on any proposed collecting.

Now Brazil's executive branch is about to step into the debate. It plans to offer alternative legislation in the next couple of months that would leave it to regulators to devise how to implement the bill's provisions. One issue that must be clarified, says de Castro, is how to ensure that local residents are rewarded for providing knowledge used to identify potentially valuable species. "It is very difficult to establish rights related to this knowledge," says de Castro. Both the Senate bill and the government's draft version state that folklore has unspecified value—opening the door for local residents to receive compensation and have a say in what happens to their resources, de Castro says. But exactly how to do that is still a hotly debated issue.

OWEN FRANKEN/PNI

**Rightful owners.** Native tribes may benefit from new legislation to protect Brazilian biodiversity.

Biotech companies hoping to work in Brazil are watching with interest. If Brazil manages to lay out a balanced legal framework that empowers indigenous peoples but doesn't cut too deeply into a company's bottom line, it could stimulate bioprospecting, says Steven King, a botanist with Shaman Pharmaceuticals in South San Francisco. "When a country enacts clear-cut legislation, it makes it easier, not harder, to work there," he says. Indeed, de Castro, who says he knows of several Brazilian businessmen now seeking capital and expertise for large-scale collecting ventures, predicts that "efforts toward bioprospecting will increase [when] we have legislation of this kind."

But some biologists who collect specimens for research remain wary. "I want these countries to realize the proper return [on their biodiversity]," says Lovejoy. However, he adds, during recent hearings in the Brazilian Senate, research activities were lumped with commercial and amateur collecting. That might lead to unduly harsh restrictions on research, says Lovejoy, who's flying to Brazil later this month to discuss the bills with government officials and legislators. Lovejoy acknowledges that Brazil faces a difficult balancing act: juggling the concerns of scientists with a desire to redress old wrongs and the need to return benefits to its peoples.

–Elizabeth Pennisi

CANADIAN BUDGET

# Research Funding Cuts Restored

OTTAWA—The Canadian government has moved to restore 3 years' worth of funding cuts to the country's three research granting councils. The increases, part of the country's new 1998 budget announced last week, will provide greater support for graduate students and individual investigators as well as stronger links with industry and community-based activities. They are being hailed by academic officials as an important "first step" in ending a dangerous slide in public R&D investment. "I'm very grateful," says University of Toronto President Rob Prichard. "But we have a very long way to go to reassert Canada's international competitiveness."

The new funding is part of the government's increased commitment to education at all levels. (A major component of the new budget, for the fiscal year that started on 1 March, is a $1.75 billion scholarship fund for some 100,000 students entering university.) And the granting council increases—reversing a 3-year trend and overturning a planned 3% cut for 1998–99 that was announced last year—are made possible in part by the country's first balanced budget in 29 years.

The biggest beneficiary of this increased spending is the Natural Sciences and Engineering Research Council (NSERC), whose funding will rise 13.8%, to US$346 million. The Medical Research Council (MRC) will get a 12.1% hike, to $187 million, while the Social Sciences and Humanities Research Council (SSHRC) lags behind, its budget going up only 7.4%, to $71 million. Industry Minister John Manley says the government wanted to give each council the same share of the overall research pie this year as it received in 1995. But the government's network of centers of excellence at the time were supporting only projects in the natural and medical sciences. Since then, the social sciences have received $4 million from the program. So when the government moved to restore the 1995 balance, it in effect penalized the social sciences for its newly obtained network centers funding.

At the same time, those allocations will be reviewed later this year for the first time in a decade, says junior science minister Ron Duhamel, in the wake of academic concerns about the status quo. In particular, the Asso-

ciation of Universities and Colleges of Canada has called for a larger share for the SSHRC. It cites, for example, the fact that 57% of faculty are social scientists, yet the granting council receives less than 12% of the pot.

The budget increases are a product of a strong Canadian economy. But they won't offset the effects of inflation, and they aren't quite as generous as the government claims. The Coalition for Biomedical and Health Research, for example, has calculated that the new funding levels give each council the buying power of its 1985 budget. "Ask any academic. It's never adequate," says Frederick Lowy, president of Concordia University in Montreal. "There are flaws, but at least we're headed in the right direction, finally."

Ottawa says that the councils will receive $280 million more over 3 years. But that figure is calculated by recounting this year's increases twice more, as part of the boosts for 1999–00 and for 2000–01. In reality, the councils will receive increases of $67 million this year, and $14 million more over the next 2 years.

SSHRC President Marc Renaud hopes to bolster stipends to graduate students and to open Dutch-style science shops in which academic teams work with community organizations to improve public health and boost scientific literacy. "It's not enough, but it's an occasion to get started on a few things," he says. NSERC President Thomas Brzustowski hopes to beef up support for graduate students and university-industry partnerships with its additional funds. Some of the money will be used to satisfy increased demand stemming from infrastructure projects funded by the new Canada Foundation for Innovation (*Science*, 28 February 1997, p. 1256). The MRC hopes that its boost will reverse a declining success rate for applicants that last fall stood at 19.6%, the lowest in the council's 38-year history.

**–Wayne Kondro**

*Wayne Kondro is a free-lance writer in Ottawa.*

U.K. UNIVERSITIES

# Government Stalls on Dearing Challenge

LONDON—Last summer, within weeks of taking office, Britain's Labour government was handed a hot potato: a major report calling for fundamental reforms in Britain's higher education system. The government responded quickly on some issues and promised a full response on the rest by the fall. It took until last week for the Department for Education and Employment to issue its official response, however, and researchers were unsurprised to find that the main message was that the government needed more time.

The department offered no decisions on most of the report's recommendations for university research, saying that these would have to await the outcome of a comprehensive review of all government spending, due to be completed this summer. And although the response contained supportive words for academic research, it shot down one of the report's main recommendations for funding university facilities and offered no substantial alternative solution. "The response leaves all the key issues unanswered and raises questions about the government's real commitment to maintaining a world-class science base," says physicist John Mulvey of Oxford University, spokesperson for the lobby group Save British Science.

The higher education report, commissioned by the previous Conservative government with all-party support, was written by a panel chaired by educational troubleshooter Sir Ron Dearing, now Lord Dearing (*Science*, 1 August 1997, p. 628). The report suggested some root and branch reforms, many with expensive price tags, to fund university research in the face of a huge growth in student numbers and growing pressure on existing sources of funds. "Expenditure on research in the U.K. compares unfavorably with competitor countries. The lack of increased investment by government in research is surprising over a decade when the opportunities for discovery and technological progress have continued to expand rapidly and global competition has increased," the report said.

The Dearing report was especially concerned about a shortage of funds for academic research facilities, which it said amounted to somewhere between $220 million and $1.1 billion. "Multinational companies are dissatisfied with the state of research facilities and equipment in higher education institutions," the report said. "Some are relocating their collaborative projects with universities outside the U.K. as a direct result of decay in the research infrastructure." Dearing suggested that the government should set up an $800 million loan fund financed by government and industry to make equipment purchases. "The fund would support departments or institutions with a track record of conducting top-quality research," the report said.

**"Unless there is a strong response by the government, a major national asset will be damaged."**
**—Lord Dearing**

The government dismisses that idea, however, arguing that industry will be willing to fund infrastructure only on a case-by-case basis rather than through a pool. It offered no substantial alternative, however, and that stance has drawn barbs from both industry and academia. "We believe this is a matter of urgent attention now, and not after the deliberations of the [comprehensive spending review]," says a spokesperson for the Association of the British Pharmaceutical Industry. "Renewal of research infrastructure and equipment is now urgent: Unless there is a strong response by the government, a major national asset will be damaged," says Dearing.

The Dearing report also devoted much attention to Britain's "dual support" system for university research. Funds for infrastructure are distributed to the universities by the higher education funding councils for England, Wales, Scotland, and Northern Ireland, while the subject-based research councils provide grants for specific research projects and part of the overhead costs. "The dual-funding system is creaking. We think it is a logical position that research councils fund all costs," the report said. Accordingly, it called on the government to allocate an estimated $180 million to the research councils to meet all the costs associated with their research projects.

In its response, the government says it "recognizes the strains" on the dual support system, but it has deferred any decision until after the spending review. A recent study commissioned by the Office of Science and Technology, the Higher Education Funding Council for England, and the Committee of Vice Chancellors and Principals suggests that the research councils will need much more than Dearing estimated to pay indirect costs—perhaps as much as $800 million.

The government did have at least one firm response to a Dearing recommendation. The Dearing report argued for a new high-level independent body to advise the government on policies for public funding of research in higher education, on the level of such funding, and on the performance of the public bodies that distribute it. But the response says the government is "not convinced" that there is a need for such a body.

**–Nigel Williams**