tended to focus on solving problems for India's upper and middle classes. He points out that government-funded research in areas such as sustainable development can make a huge difference in eliminating poverty.

In the 2003–04 budget, science and technology funding received a 9.5% increase to INR 146 billion ($3.1 billion), despite a generally weak economy. Nearly 80% of the R&D money in India is provided by the government, yet almost all the increase proposed in the 2003 strategy document would come from industry. "We are seeing a very encouraging response to industry participation in R&D," says Ramamurthy. "Indian industries [are looking] to technology to give them the competitive edge," he adds. There is more than an even chance that the 2% GDP goal can be met, says Predhiman Kaw, director of the IPR, "but the contribution from industry may be slow coming and tend to be very selective."

"The strength of India's current R&D effort lies in the large, diverse, and qualified scientific human resource that the country possesses," says Pachauri. "Its weakness is essentially in the largely inefficient institutional structure, symbolized by government-funded research laboratories, which have remained essentially stagnant and unproductive for much too long."

Most of the funding goes to India's 200 state-run and 1350 industrial laboratories. The government also funds 230 universities. The policy calls for a radical shakeup at these institutions and increased mobility of scientists among industry, academia, and research laboratories, and between fields. The universities will welcome the report, says Kaw, because it gives "clear recognition of the fact that they are the ultimate source of trained manpower, and that their infrastructure needs considerable upgrading with new investments." However, according to Katepalli Sreenivasan, the new director of the International Centre for Theoretical Physics in Trieste, Italy, "the report does not recognize the importance of first-rate undergraduate science education in the universities, which is where most of the raw talent for scientists exists."

Pachauri agrees. "India had some excellent universities half a century ago, but many of these have declined in quality and caliber for a variety of reasons, particularly lack of government support. . . . It is hoped that the new policy will correct this historical trend and bring about a strengthening of the university system as far as science and technology is concerned."

The document's influence may be felt beyond India's borders. "Many developing countries view Indian science policy as visionary," says Sreenivasan, "and the document is well in that spirit." **Paul Guinnessy**

## DESY Laser Gets the Nod, Collider Bid Deferred

The German Electron Synchroton (DESY) in Hamburg recently received good news and not-so-good news in a single breath: On 5 February, Germany's science ministry announced that it will ante up €337 million ($363 million), or half the cost of the lab's proposed x-ray free electron laser (X-FEL), but that, at least for now, it will not commit to the lab's ultimate goal of building a superconducting electron–positron collider, a contender to become the world's next-generation particle accelerator. Both projects got conditional endorsement last year from Germany's national science council (see PHYSICS TODAY, November 2002, page 24).

Because DESY had hoped to garner greater support for TESLA, its proposed TeV-Energy Superconducting Linear Accelerator, the government's decision to defer is disappointing. "Some people took the announcement as bad news, others took it as good news," says Allen Caldwell, a particle physicist from Columbia University and the Max Planck Institute for Physics in Munich. "But the realists say that, given the state of the economy in Germany—and everywhere else—it's as much as could be expected for now."

For his part, DESY Director Albrecht Wagner says "the outcome is very good. The decision provided the lab with a clear direction and perspective: Build the X-FEL, and keep going with the linear collider R&D." Next, DESY needs to enlist international partners for the X-FEL and to sort out financial, design, and organizational aspects of the project.

Superconducting accelerator cavities are the backbone of the 1.4-km X-FEL and 33-km TESLA alike. "Going through the process of bringing something from the lab into industry is a major step," says Wagner. "Clearly the linear collider will benefit from building the free electron laser."

Meanwhile, collider designs being developed in the US and Japan would rely on "warm," nonsuperconducting technology. But whichever technology is used, and wherever it is sited, the consensus is that the multibillion-dollar next-generation linear collider has to be an international project (see PHYSICS TODAY, September 2001, page 22). Indeed, Wagner says Germany plans to participate in the next linear collider wherever it is sited, but that the government "felt that a unilateral German move might be counterproductive for the international negotiations."

And whether or not TESLA ever gets built, the X-FEL secures DESY's future. The X-FEL will provide femtosecond light flashes orders of magnitude more intense than today's light sources, says Wagner. "This makes it an ideal stroboscopic lamp for rapid processes." To be sure, research on the X-FEL would stray from DESY's historic strength in particle physics and put more emphasis on condensed matter physics, plasma physics, chemistry, and biology. **Toni Feder**

## European Spallation Source: Dead or Alive?

The aspiring European Spallation Source has no doubt suffered setbacks, but whether it is dead or just delayed is a matter of perspective.

"Chances are [the ESS] will be shelved," says Peter Tindemans, chair of the ESS council and an independent policy expert in the Hague. "Of course, I am not happy about this. It would be a setback for Europe vis-à-vis the United States and Japan," which expect to complete, respectively, 1.4 MW and 1 MW spallation sources in 2006. If it's built, the ESS will outdo them, with two 5 MW experimental stations. If it's not, Europe will cede its long-held leadership in neutron science.

Low marks in Germany's review of big facilities last year were followed in February by no money for the ESS when that government announced which facilities it would fund (see PHYSICS TODAY, November 2002, page 24). The ESS received another blow early this year, when the European Strategy Forum on Research Infrastructures concluded that the countries of Europe are not presently willing to pay for the project, which would cost an estimated €1.5 billion ($1.6 billion).

"It would be unwise to say there haven't been setbacks," says Bob Cywinski, a neutron physicist at Leeds University in the UK and a scientific adviser to Yorkshire's bid to host the

ESS. "But those of us in the project realize we have a long struggle to get consensus on funding—there's no single paymaster." Because the ESS was first appraised in Germany and many of the planners are there, he says, "there's a feeling that it's a German project, and that because they don't want it, it's failed. That's not true." Seventeen nations belong to the European Neutron Scattering Association, an organization that backs the ESS, Cywinski adds. "That leaves 16 nations that we have to talk to."

For now, though, Europe's usual big players are otherwise busy: The UK is intent on building a second target station for ISIS, currently the world's leading spallation source; France is focused on landing the International Thermonuclear Experimental Reactor; and Germany, in addition to giving the ESS the cold shoulder, has yet to start up its controversial research reactor, the FRM2, and has its eye on a global linear collider (see preceding story).

The best hope for the ESS may lie with regional governments. Interest is strong in Yorkshire, England; Lund, Sweden; and from a coalition of two former East German states. "They are all aware of the advantages of big science investments to develop their regions," says Kurt Clausen, a neutron physicist who moved from Denmark to Germany's Research Center Jülich to head the ESS central project team. These regions "want the ESS and work hard to get it. They also have potential access to huge sums of money—the regional development funds, which are much higher than the science budgets." **Toni Feder**

## Chief Quits Spain's Research Institutions

Fed up with dwindling autonomy and a seeming lack of government support for science, Rolf Tarrach quit in February as president of the Consejo Superior de Investigaciones Científicas (CSIC), a network of about 115 research institutions across Spain. A theoretical high-energy physicist, Tarrach has returned to his post at the University of Barcelona.

Tarrach assumed the presidency about two and a half years ago, soon after oversight of the CSIC was moved from the education ministry to the newly created science and technology ministry. At the time, says Tarrach, "there was hope—that's why I accepted the position—that the new ministry would mean a boost in research, more positions, more resources, more money. But that has not been the case at all."


CSIC

Tarrach


CSIC

Lora-Tamayo

For example, Tarrach lobbied to raise the salaries of CSIC scientists, who are paid 7–10% less than university scientists, he says. The disparity stems from the decentralization of and subsequent increased regional support for the universities. "The best people will go to universities instead of to CSIC. I don't see any sense in having state research institutions if they are not attractive to researchers," says Tarrach. In mid-October, he sent a letter to the ministry asking for pay raises. But, he says, "I was not able to convince the previous or the present minister that this is an urgent issue."

The salaries issue was the last straw. More generally, says Tarrach, "I have had diminishing autonomy. This makes the system extremely inefficient. And I believe that the research should be as far as possible from the ministries—where politics dominates, and where long-term projects are not usually considered important."

The CSIC is in a critical situation now, adds Juan E. Iglesias, a researcher at the Institute for Materials Science in Madrid and a member of CSIC's governing board. "In the ministry, all the industrial things are considered as more important. We feel we have been kind of neglected. The most important thing we need is some degree of independence."

Before, there was more autonomy at the CSIC, agrees Pedro Echenique, founder and president of the Donostia International Physics Centre in San Sebastian. "Now, even the letterheads have the ministry." The issue goes beyond the CSIC, he adds. "We need to have an institutional architecture that gives scientists the power to run their own organizations."

CSIC again has a physicist as president. Emilio Lora-Tamayo comes from the National Center for Microelectronics in Barcelona and has served as the organization's vice president for research for the past five years. **Toni Feder**

## Bankruptcy Hits Publishers, Libraries

When Sandy Spurlock of the Lovelace Respiratory Research Institute in Albuquerque, New Mexico, tried to confirm details of the institute's 2003 library subscriptions with RoweCom, a Massachusetts-based subscription agent that provides magazines and journals to thousands of libraries worldwide, none of her telephone calls or e-mails was returned. A few days later, RoweCom went into bankruptcy. "I first learned in late December that RoweCom had cashed our check for $79 000 but had no intention of paying [publishers] for our subscriptions," she says, "and we do not have the budget to pay for our [2003] subscriptions again. The implications for our research scientists are very serious."

Between April and December 2002, RoweCom collected more than $65 million from libraries and institutions, including the National Institutes of Health Library ($2.4 million), Virginia Tech ($1.6 million), 3M ($1.3 million), and Lawrence Livermore National Laboratory ($1.2 million). The company also collected significant sums from a number of state universities, Brookhaven National Laboratory, the US Library of Congress, and the National Academy of Sciences. In some cases, RoweCom offered substantial discounts to clients who paid early. The money was supposed to be transferred to more than 26 000 publishers, minus a commission fee. Instead, it was transferred to RoweCom's parent company, the Chicago-based divine Inc (which is now also in Chapter 11 bankruptcy). The transfer has resulted in lawsuits and a federal grand jury investigation. The only notice RoweCom gave its clients about the bankruptcy was a recommendation in late December that they find "alternate sources for their materials at this time."

News of RoweCom's bankruptcy filing did not surprise all librarians. "Given their low fees, there were serious questions about the possibility and quality of [client] support," says David Stern, director of science libraries at Yale University. He adds that he had been concerned for some time over RoweCom's balance sheet, especially after divine's purchase of the company in 2001. "The major beneficiaries from RoweCom were those investors that bailed out very quickly and saw a nice profit on their initial investments. The losers will be the remaining libraries and publishers that