

Outlook for French Science Still Uncertain, Even as CNRS Crisis Subsides

Two years after their massive street protests, French researchers are worried that science remains underfunded and that the government is grabbing increasing control over the directions of research.

Catherine Bréchnignac is back in the driver's seat of the CNRS, France's leading research agency. Her appointment as president on 11 January came on the heels of the resignation of her predecessor, Bernard Meunier; right after she took office, CNRS director general Bernard Larrouturnou was fired. The worst of the latest crisis at CNRS may be over, but many French researchers fear that a more serious threat to science looms in a law awaiting passage by the country's parliament.

The former top CNRS managers had clashed over running the agency. "They disagreed on reform. They disagreed on new appointments. The war became public, and was not very healthy for CNRS," says Édouard Brézin, president of the Academy of Sciences of Paris. The reforms involved restructuring the agency's research divisions—called departments—and creating five regional directorships.

Larrouturnou, a key architect and implementer of the reforms, says the goals were to encourage more interdisciplinary research and closer ties between CNRS labs and local universities and companies. For example, he says, "Before, every researcher belonged to only one department. Now a lab can be at the intersection of two departments, say life sciences and physics."

Some scientists worry that the structural changes will isolate labs from decision making at the CNRS and from universities. "The NSF is a federal agency," says Sébastien Balibar, a low-temperature physicist at the École Normale Supérieure in Paris. "Nobody thinks that the necessary evaluation of research in the US would be better if the NSF was divided into 50 local agencies, one per state." The reforms, he adds, "are a purely bureaucratic initiative—something to show that the CNRS is not an old immobile organism."

Even critics of the reforms were upset by Larrouturnou's firing. "A lot of us didn't understand his plan for reforming CNRS," says Brézin. "I was skeptical as far as the logic for science was concerned. But I do admit Larrouturnou is a clever, sincere, honest man. His firing was very painful." Pascal Silberzan, a biophysicist at the Curie Institute in Paris, adds, "Changing the direction in the middle of the river is the best way to weaken the CNRS. I—and I am not alone—think that this is precisely what the [research] ministry is trying to do."

Bending the reforms

But the ministry's appointment of Bréchnignac, an atomic physicist who served as CNRS director general from 1997 to 2000, is welcomed by France's science community. "Catherine Bréchnignac knows the CNRS extremely well," says Jean-Pierre Bourguignon, head of the Institut des Hautes Études Scientifiques near Paris and a supporter of the reforms. "She is known to be very dedicated to the institution. She will certainly fight for it."

CNRS has redefined its top posts, consolidating power in Bréchnignac's hands. Moreover, the new number two at the agency, Arnold Migus, director of the French Institute of Optics, is a close colleague of Bréchnignac's.

The reforms have been approved by France's trade unions, CNRS's administrative and scientific councils, and the research minister, but it's too early to say to what extent they'll be implemented. In a 6 February interview in *Le Monde*, Bréchnignac said, "I will go on with the reforms, but I will bend them." She said she will keep some of the organizational changes. For example, astrophysics will now be in a division together with physics and math. And two new cross-disciplinary departments, for engineering and for the environment and

sustainable development, will go forward.

The real problem

The reforms and the shakeup at the CNRS are of only secondary importance, says Henri Audier, a former member of the CNRS administrative council. "The fundamental problem is the law." The LOPR, or law for orienting and programming research, would set long-term guidelines for science policy and funding. As of press time, a late-January date for discussion of the law by France's parliament had been postponed by several weeks.

The law grew out of demands by researchers for more money and jobs (see *PHYSICS TODAY*, April 2004, page 28). But, says Audier, the law twists those demands, and "uses the same words, but in a contradictory sense. This law is a catastrophe for science." The law doesn't give enough money to science, he says, and it "gives the government all the tools to drive research."

One of those tools is the ANR, a new national research funding agency. The ANR was formed last year, and the law would strengthen it relative to CNRS and other research agencies. For example, says biologist Alain Trautmann, a spokesman for the *Sauvons la Recherche* ("let's save research") movement, the law would give the ANR an annual budget of about C1.3 billion (\$1.55 billion) in 2010, while CNRS would still have less than C500 million for research projects. "At the new agency, there is no scientific council; all the main decisions are at the level of the ministry," says Trautmann. Scientists worry that the ANR will focus on short-term projects in targeted areas of applied research.

In France, funding has traditionally gone to labs, which can consist of many research groups, rather than to individuals. "The French structure is more collective in some ways than in other countries," says Didier Chateau, a biophysicist at the École Normale Supérieure. With ANR, he says, "we will have a mixture between the French organization of funding and the more common type of funding. We will get the defects of both systems."

For her part, Bréchnignac told *Le Monde* that the law "has some good

CNRS/NICOLE TIGET



Bréchnignac

elements" and "puts research and innovation back to the heart of development in our country." Noting that every country has a funding agency for research, she said that the ANR "needs to stay flexible and non-bureaucratic, with the financing of projects selected by relevant and independent scientists. My conviction is that if researchers are good, they don't have to worry." The most important thing, she said, is that money is invested in science.

Not surprisingly, France's research ministry denies that the government wants to weaken the CNRS. "The ministry disputes . . . that we want to take away from the CNRS certain of its powers," says a ministry press officer. "But there must be coordination between the scientific policies of different organisms and the choices of ANR." And, the press officer adds, "no one can deny that research today is

given new financial means."

The law does indeed call for more money for research. But on closer inspection, says Trautmann, the increase comes up short: The 4% increase per year in the law includes tax incentives for companies and doesn't account for inflation. At that pace, he says, raising science spending in France to 3% of the gross domestic product by 2010, a goal adopted by European Union countries in 2000, "is out of scope. It's impossible."

Combined, the troubles at CNRS and the law make the outlook for science in France "very worrisome," says Bourguignon. "For many years, financing has been subcritical. The lack of money has perverted scientists—it has diminished their ambitions. The main goal for many was to survive. You need more ambition than that to make the profession attractive to young people again."

Toni Feder

Bush Budget Boosts NSF, DOE, and NIST Science for FY 2007

Within the first 10 minutes of the unveiling of the administration's fiscal year 2007 science and technology budget on 6 February, leading federal science officials were using superlatives like "historic," "spectacular," "extraordinary," and "exciting." For those in the US physical sciences community who have seen five years of flat non-defense federal research funding, the superlatives certainly appear apt.

The science budget proposal, the first step in President Bush's American Competitiveness Initiative, calls for doubling "innovation-enabling research" at NSF, NIST, and the Department of Energy's Office of Science over a 10-year period. That includes a proposed \$910 million boost in FY 2007 and \$50 billion more over the next decade.

The good fortune of at least some aspects of the science budget is tied to efforts by the scientific, academic, and industrial communities over the past few years to impress upon the administration that the nation's economic health is tied to a strong education and research base. Several studies, including the recent "Gathering Storm" report from the US National Academy of Sciences (NAS), have warned that the US is slipping badly in science education and funding (see *PHYSICS TODAY*, December 2005, page 25). "We listened," Office of Science and Technology Policy (OSTP) director John Marburger said when asked if the reports had influenced the administration.

Although nearly all non-defense spending takes a big hit under Bush's proposed FY 2007 budget, basic research and science education get strong support.

Although the numbers and programs in the FY 2007 budget proposal were still being analyzed as *PHYSICS TODAY* went to press, proposed funding for science programs at the three research agencies would rise dramatically under Bush's plan. Indeed, science funding is about the only non-defense or non-security spending that increases in a \$2.77 trillion budget that calls for significant cuts in education, Medicare, and more than 140 other domestic programs.

Given that Congress will be voting on the budget at about the same time as the 2006 midterm elections, few Capitol Hill observers believe that many of the domestic cuts will stand. And as Congress shifts money back to those programs, the large science-related increases may be scaled back.

But as the proposal stands now, the Office of Science would see a 14% jump of \$505 million to \$4.1 billion; the NSF, a 7.9% increase of \$439 million to \$6 billion; and NIST, a 24% increase of \$104 million to \$535 million. The proposed NIST increase is to the "core" intramural research and facilities budget of the institute, and is based on what the president proposed in his FY 2006 budget, not on the final budget enacted by Congress. To get

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