

Hungarian Science on the Chopping Block

BUDAPEST—Mónika Kovács is the local coordinator of a new Europe-wide project on depression and stress, but the way things are going in her home country she could end up a potential subject. Last week Kovács and two colleagues in the Semmelweis University of Medicine's Institute of Behavioral Sciences learned that their salaries, paid by a special grant for young researchers, have been suspended. "There was no warning," says Kovács. They are not the only victims. The Hungarian Scientific Research Fund (OTKA) has been forced to put on hold all grant payments in the wake of a staggering 27% cut proposed for its \$33 million budget. This and other decreases, if they stand, "will desolate Hungarian basic research for years," warned the 200-member Batthyány Society of Professors in the newspaper *Heti Válasz* last week.

Less than 3 months before it joins the European Union (E.U.) along with nine other countries, Hungary is in crisis. The finance ministry is seeking to impose a stabilization package to shrink the country's \$5 billion debt in accordance with strict E.U. rules. Agency heads are now negotiating with the ministry before the spending package is finalized at the end of the month. But even if science chiefs manage to claw back some funds, the outlook is grim: The cuts would be amplified by a tax, on any item purchased with grant money, that has doubled to 25% in 2004. "It's a disaster," says Tamás Freund, director of the Institute of Experimental Medicine in Budapest and president-elect of the Federation of European Neuroscience Societies.

No discipline would emerge unscathed from the tithe. In addition to the serious belt-tightening at OTKA, the Hungarian Academy of Sciences, which pays the lion's share of salaries and running costs at its three dozen institutes, would see its \$234 million budget reduced by 2%, and the education ministry stands to lose \$53 million, or 3%. With salaries and other fixed costs making up the bulk of the academy and ministry budgets, research will feel the ax first, predicts chemist Gábor Náray-Szabó, president of the Batthyány Society, a multidisciplinary association of professors and senior scientists.

The blow to OTKA is bad news for universities, which rely heavily on agency grants—they get 60% of OTKA's budget—for research. One option is not to fund new grants in 2004 and devote scarce resources to existing contracts, says OTKA president Gábor Makara. That would mean a "deeply unfair" blanket rejection for 655 research teams: "Should we just throw them out of the boat?" he asks. If the decreases hold up, a variety of programs—including a popular postdoc sup-

port scheme and instrument and library funds—would be suspended for at least a year or eliminated entirely, says Náray-Szabó.

The cuts also threaten to take the wind out of the Research and Technological Innovation Fund, a new source of financing that aims to foster joint research between industry and academia. An R&D tax on companies, scaled by size and other factors, will supply half of the fund's resources, with the government chipping in the rest. It would take an act of parliament to tinker with the fund, whose budget is expected to become five to 10 times larger than OTKA's. András Siegler, acting director of the newly established National Office for Research and Technology (NKTH), which runs the fund, says that because innovation is a government priority, he's hopeful he'll get some money restored. "This is just the start of the game," he says.

Makara is less optimistic. "Scientists in general have no political clout," he says. "I don't." According to Freund, the "only hope" for Hungarian scientists is that the European Commission pressures Hungary to bring science spending more in line with that of Western Europe.

In a speech late last month, Hungary's prime minister, Péter Medgyessy, said that R&D is crucial to competitiveness and lauded a new NKTH program to establish technoparks near universities. "This is where the freshest minds and the most potential are," he said. Not for long, warns Makara, if the government doesn't do a budgetary U-turn: "Our young scientists will exile themselves," he says. Kovács agrees that the threat is real. "I don't want to leave my institute," she says. "But the future now is uncertain."

—RICHARD STONE

RENEWABLE ENERGY

Hydrogen From Ethanol Goes Portable

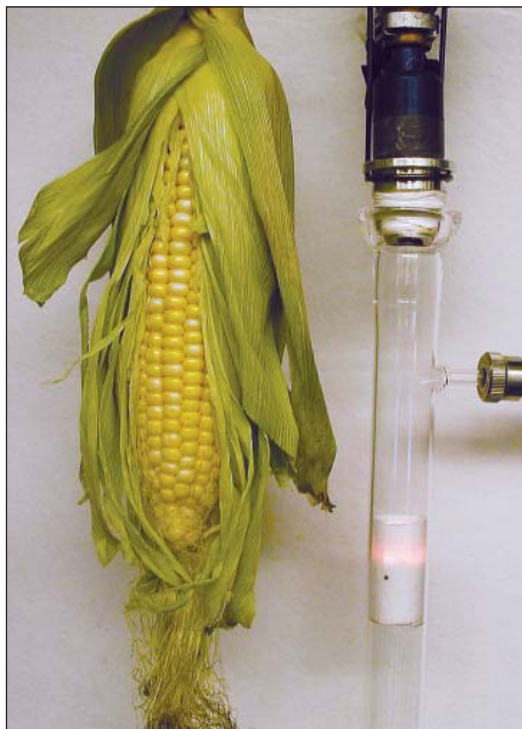
Fuel-injected corn squeezings may sound like a cocktail served at the Daytona 500 stock car race, but researchers hope that someday they may help fuel not spectators but a hydrogen-based economy. A gadget built around an automotive fuel injector transforms easily transported ethanol, or grain alcohol, into

hydrogen gas, a team of chemical engineers reports on page 993. "We need a safe, portable liquid fuel," says Lanny Schmidt of the University of Minnesota, Twin Cities. "And ethanol is one of the best available."

Most hydrogen gas is produced by heating a mixture of water vapor and natural gas, and portable units can convert natural gas to hydrogen on the spot. But the fossil fuel is not renewable, and the process releases heat-trapping carbon dioxide into the air. Hydrogen can also be extracted from ethanol derived from plant matter, or biomass, which stores energy from sunlight and recycles the carbon dioxide already in the air. But previous techniques have required an external heat source and are best suited to large-scale production at specialized facilities.

The new technique generates its own heat and should be portable, report Schmidt, Xenophon Verykios of the University of Patras, Greece, and colleagues. "We include oxygen along with ethanol," Verykios says, "and we burn part of the ethanol and use the heat to drive the reaction." The technology could someday gas up portable power supplies, says Schmidt, and it might even convert ethanol to hydrogen on board fuel cell-powered cars.

The device is deceptively simple. A solution of ethanol and water passes through a fuel injector—a nozzle ▶



Hydrogen from hooch. A self-heating catalyst (glowing plug) produces hydrogen from ethanol, water, and air.

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