small ultrasound imaging systems used in medicine.

But the effort to lure researchers into business faces plenty of hurdles. Government policies traditionally have favored the chaebol, and financial regulations make it difficult for new businesses to raise capital. Korea's compulsory military service, a 26-month stint facing most university students upon graduation, can disrupt the career plans of budding entrepreneurs. And still-standing government regulation prevents national university professors from serving on the boards of private corporations—a rule that keeps Sunyoung Kim off the board of the company he started.

D. NORMILE

Starting small. SNU's Jang Moo Lee says universities still have a lot to learn about incubators.

No one expects the incubators to produce success stories overnight. The average start-up may need 3 to 5 years to get on its feet, KAIST's Kim says. He admits that only one company, Mari Telecommunication Co., has "graduated" from its incubator, although he expects two or three more to take off shortly. Mari, with 26 employees, had sales last year of $1.2 million from two computer games. Ironically, the company is moving its head office to San Jose, California, to be closer to the U.S. market and its competitors, although it will keep an R&D center in Korea.

The universities are also wrestling with such issues as intellectual property rights and whether successful ventures should return some portion of their earnings to academia. SNU's Lee says one possibility is for academic departments to ask for stock options in the companies they spawn. "We're in an incubation period ourselves," he says.

Despite those unresolved issues, Sunyoung Kim's venture has benefited from the warmer climate for entrepreneurs at universities. The company aims to commercialize a retroviral vector, a vehicle used in gene therapy to implant target genes in the host. Kim had modified the vector, a murine leukemia virus, to make it safer, more versatile, and easier to use than other vectors. A presentation at a conference at Cold Spring Harbor, New York, in September 1996 drew the attention of several pharmaceutical companies, which offered to support further development work.

Kim was excited by the prospect of having an impact on real-world medicine. "You publish a paper and nobody reads it, because there are so many good papers," he says. "I think curing one patient is better than publishing one good paper."

Acting on the advice of one firm, Sunyoung Kim and seven other investors gathered $250,000 in capital and established ViroMedica Pacific Ltd. Earlier this year, the company signed contracts with Seoul-based Korean Green Cross Corp. and the U.K.'s Oxford Biomedica for $1.6 million over 3 years to support further development work in return for rights to use the vector.

Although not under the wing of any formal incubator, ViroMedica is treated like a member of the SNU molecular biology institute's family. It occupies a corner of the institute's lab, its four full-time employees are recent SNU graduates, and the company also employs several grad students on a part-time basis. The additional duties have been a strain, Sunyoung Kim admits, but they haven't diluted his love for science. "I am working even harder on regular university duties," he says, "as I do not want my colleagues to think that I am neglecting [them] because of a money-making business."

Even so, Kim already talks like a veteran entrepreneur, describing plans to commercialize spin-off technologies and to raise money for his own building. Through it all, he exudes what may be the most important characteristic of a successful entrepreneur. "You have to be optimistic," he says.

–Dennis Normile

FRENCH RESEARCH

Government Restores Funding Cuts

PARIS—Most of France traditionally shuts down for the month of August. In contrast to what usually happens, French scientists returning to their labs next week will get a pleasant surprise. The Socialist government plans to restore about $43 million in higher education and research funding cuts that the previous conservative administration—which was turned out of office in last June's elections—had intended to enact this September. In addition, the new government will immediately create 220 new research positions and 300 new scholarships for doctoral students.

Scoring points. Research minister Claude Allègre.

The news is sure to be welcomed by French researchers, who in recent years have become accustomed to receiving bad tidings when they returned from vacation, usually in the form of temporary funding freezes that later became permanent. As a result, scientists have lived in constant fear of overspending their budgets. "We are told not to spend more than one-twelfth of our research budget each month," says microbiologist Richard D'Ari of the Institut Jacques Monod, a major research unit in Paris of the giant CNRS public research agency. "And we never know for sure whether we will get all 12 installments."

Vincent Courtillot, chief adviser to education and research minister Claude Allègre, says the intended cuts were part of severe austerity measures the previous government had been planning before it lost the election. "Everyone would have found out about it when they went back to work in the fall," he adds. The funds saved from the chopping block include $7.9 million for CNRS and $9 million for university research.

The government added the 220 new research jobs—120 permanent posts and 100 temporary positions, mostly in public research organizations such as CNRS and the biomedical research agency INSERM—as a first step in a long-term plan to step up recruitment of young scientists, which has not kept up with the retirement of senior scientists. Courtillot says the government eventually hopes to boost the annual recruitment rate from the current figure of 2.3% to 4%. But some researchers caution that the desire to increase the total number of scientists must be balanced against the limited funds available for research. "It is necessary to have a fairly solid influx of young people each year," says D'Ari, "but at some point you reach a ceiling."

The new government, which has scored points with French scientists for its positive attitude toward research, will have another opportunity to increase its popularity when it unveils its proposed budget for 1998, probably in September. Yet Courtillot says scientists should not expect a major rise in overall research spending: "Claude Allègre doesn't want to ask for more money." Rather, Courtillot says, Allègre hopes to free up money for laboratories by redirecting scientific priorities and cutting administrative costs (*Science*, 18 July, p. 308). Ultimately, the government's long-range plans to overhaul French research will depend on the success of this effort. But as Courtillot points out, "it's easier to make reforms when you're increasing research spending than when you're decreasing it."

–Michael Balter