

5-Year Plan Boosts Basic Research

SEOUL, SOUTH KOREA—Despite an economy tottering on the brink of default, South Korea has given a strong vote of confidence to increased public funding for research. The spending blueprint, contained in a “5-Year Science and Technology Innovation Plan” approved last month by a special panel of senior officials, would bolster investment in a variety of fields and strengthen the country’s capacity to do basic research.

The plan (see table) commits the new president, Kim Dae Jung, and his government to spending 5% of its budget on R&D by 2002. That percentage is comparable to U.S. levels, and well above Korea’s current figure of 3.9%. Although loan conditions set by The International Monetary Fund mandate a 10% cut in government spending, officials at the Ministry of Science and Technology (MOST) cite R&D’s value to the economy and recent history to buttress their belief that science will be protected as Korea retrenches. “This plan will contribute to promoting our sluggish economy,” says Kwon Oh Kap, a MOST official.

Researchers applaud the government’s acceptance of the 5-year plan, drafted more than a year ago. They see it as the best long-range solution to the country’s current economic woes. “The current financial crisis is partly caused by the lack of investment into real research,” says Choi Ja Young, a biochemical engineering professor at Seoul National University.

Although the new plan has been approved, the economic crisis could force revisions. “We cannot plan right now. This economic situation is so bad,” admits Kim Eun Yong, a polymer chemist who chairs the Presidential Commission on Science and Technology. Adds Choi, “Of course, the government promises so, but I don’t know whether they’ll really do it.”

Especially vulnerable are large, expensive projects such as Korea’s planned superconducting tokamak, a fusion reactor (*Science*, 22 December 1995, p. 1918). The outlook for projects that require importing expensive equipment or large numbers of scientists from more industrialized countries is also uncertain. South Korea’s currency has depreciated in the past year by nearly 50% relative to the U.S. dollar, and it remains unstable.

Any revision is likely to emphasize research that can be commercialized rapidly, say officials. This would include new materials, information systems, electronics, and biotechnology. Also likely to be spared are many of the so-called G-7 projects—mostly small

efforts designed to move Korea into the ranks of the top seven industrialized nations. These projects range from broadband integrated services digital networks, high-definition television and flat-panel displays to new materials, advanced manufacturing systems, ergonomics technology, and satellite image data-processing technology.

The new plan continues a recent shift away from helping large corporations, called chaebols, improve on existing products through reverse engineering and toward backing more fundamental work at universities. Since the 1990s, science spending has increased 21% annually—twice the rate of the overall budget. “We had supported industry, [but] as our capability goes

- * A 50% increase in the scientific and technological work force, to nearly 200,000
- * A near doubling of the 1050 current slots for postdoctoral students, and a tripling of the number of foreign scientists visiting Korean labs
- * A reduction in the student-teacher ratio at universities and reduced course load for faculty members to allow more time for research
- * Creation of 20 joint overseas research centers and greater international collaboration on R&D projects
- * Support for regional governments to raise their share of the budget going for R&D

SOURCE: MOST

up, we step back to more basic research,” says Chun Eui Jin, a MOST official. “Industry can take care of itself.”

—Michael Baker

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PARTICLE PHYSICS

CERN Picks Maiani to Build the LHC

Last month, the governing Council of CERN, the European particle physics laboratory near Geneva, tapped one of its own, Council President Luciano Maiani, to be the lab’s next director-general. Maiani will take up the post in January 1999 when current incumbent Christopher Llewellyn Smith completes his 5-year term. A major challenge of Maiani’s directorship will be to guide CERN through the construction of the Large Hadron Collider (LHC), which in 2005 will become the world’s most powerful particle accelerator.

Formerly a professor of theoretical physics at the University of Rome “La Sapienza,” Maiani has been president of Italy’s National Institute of Nuclear Physics at Frascati since 1993. Other physicists applaud his appointment. “He is well trusted by the community of physicists,” says Volker Soergel of the Max Planck Institute for Physics in Munich, a former head of DESY, Germany’s particle physics lab in Hamburg. “It is a good tradition of CERN to select a director-general who is a renowned scientist, and Maiani fits this tradition perfectly,” says Soergel.

Along with guiding the LHC’s construction, Maiani will have to cope with the lack of a major accelerator at CERN for 5 years while the LHC is built in the tunnel now

occupied by the Large Electron-Positron collider (LEP). He hopes to avoid having “CERN turn into a construction site only” by trying to find new avenues of research and making use of other facilities, such as the veteran Super Proton Synchrotron, which will not be affected by LHC construction. “This is a difficult task because there are budgetary problems,” he adds.

The CERN Council did give him a hand by voting to extend the operation of LEP for an additional year, from 1999 until 2000. Maiani called the LEP extension “a very wise step,” but it does depend on securing extra funding. Council member Risto Niemi-nen of Helsinki University of Technology reports

that more than half of CERN’s 19 member states have indicated that they may be willing to foot the bill.

Maiani is already looking beyond the LHC. “We must start thinking and do research. ... Is there a next machine?” If the answer is yes, he says, the project should be a collaboration with DESY, Europe’s other big particle physics laboratory: “A joint program or common framework will have to be found.”

—Alexander Hellemans

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Ring cycle. Italy’s Luciano Maiani takes CERN helm next January.