minority applicants. "When you are already looking extremely carefully, regardless of race and gender, and you are already using intangible factors, there is not that much that affirmative action can insert into the process," says Collette Patt, director of the student diversity program in physical sciences at Berkeley. As a result, minority admissions in physical sciences dropped only slightly at Berkeley this year, from 4.3% to 3.6% of admissions.

Some life science programs in the UC system had an additional advantage: They were shielded from the Regent's ruling. The ruling specifies that its implementation is not to jeopardize federal funding, and NIH graduate training grants require evidence that their recipients practice affirmative action. As a result, "our way of dealing with admissions this year was no different than any other year," says David Drubin, who chaired the admissions committee in Berkeley's molecular and cell biology department, which has several NIH training grants.

The federal court ruling that overturned affirmative action in Texas provided no such leeway. That has placed Texas schools in a bind. "We are struggling with what to do with new [federal] grants" that require affirmative action the university is barred by law from providing, says Ruth Prescott, assistant to the executive vice president and provost at Texas A&M University.

Prescott was hoping for guidance from the federal government on how to proceed in a way that doesn't conflict with the ruling. But the government agencies are in too much turmoil to be of much help. In 1995, the Supreme Court ruled against affirmative action in a construction-contract case, and the Department of Justice has not yet completed a review of affirmative action programs at NIH and the National Science Foundation (NSF) to determine if they are in compliance with that ruling. Meanwhile, the programs at NIH and NSF continue, and Congress is calling for more money to be devoted to affirmative action in science (see p. 627).

Encouraging applications. Although the ban on affirmative action has made it harder to maintain the numbers of black and Hispanic students admitted to many graduate programs, officials in many Texas and California schools say their most pressing problem is to get qualified minority students to apply in the first place. "Our numbers [of minority students] have been really small," says Texas A&M biologist MacKenzie, who serves as his department's graduate adviser. Indeed, minority students commonly make up less than 5% of the applicants to science programs in both states, and as little as 1% to 2% in some physical science programs. "The key is how do we go out and expand the application pool," says Rick Cherwitz, associate dean of graduate studies at UT Austin.

Departments are getting ever more creative in that regard, sending representatives to minority science conferences or joining in "name exchanges," in which colleagues from different universities share the names of top minority undergraduates at their schools. Several Texas schools have set up systems to "grow their own" minority students; Baylor has a combined BA/MD program with two primarily minority institutions: the University of Houston and UT's Pan American campus. Some departments at Texas A&M are building bridges between Ph.D. programs at its main campus in College Station and master's programs at the primarily minority A&M campus at Kingsville.

The UC Regents recently voted to encourage outreach, and officials at Texas schools are confident they can practice it without violating their affirmative action ban. Rather than targeting minority students specifically, they are focusing their efforts on the entire population of campuses that have a high proportion of minorities and academically disadvantaged students. "The court has taken away some of the stuff we can do," says Cherwitz, "but we have to think more creatively about how to deal with it."

–Marcia Barinaga

U.S.–JAPAN TIES

Keep Up the Pressure, Urges NRC Panel

A resurgent U.S. high-tech economy has made industry and government officials complacent about Japan's scientific and technological prowess, says a new report* by the National Research Council (NRC). But Japan's rising investment in basic research and its expected rebound from recent economic woes require continued vigilance, says the NRC panel. It especially urges the government to keep pushing Japan—and the rapidly growing economies of its Asian neighbors—to open up its markets and provide access to results from its labs. "I had one computer executive tell me that the computer wars are over and we won," says Rockwell's Jim Martin, chair of the NRC Committee on Japan's Competitiveness Task Force that issued its report on Monday. "That's dangerous and shortsighted thinking."

The $612,000 study was requested by Congress in 1991 at the height of concerns that Japanese high-tech companies were beating their U.S. counterparts to market in several important technologies. Its first report, issued in 1995, dealt with defense-related technologies, while this week's report focuses on commercial technologies. It examined Japanese R&D efforts in five key sectors—automobiles, advanced materials, biotechnology, semiconductor manufacturing equipment, and information technology—and estimated their global status in 2007 in relation to U.S. forecasts.

In a statement accompanying the new report, the committee argues for a "long-term, integrated strategy" of dealing with Japan that can withstand transient political and economic cycles. "Because market forces frequently have not provided U.S. industry with the necessary incentives" to follow Japanese R&D policy and push for open markets, says Erich Bloch, chair of the parent committee, "the U.S. government has a particularly important role to play in pursuing reciprocal relations with Japan."

One of the task force's most surprising findings, says Martin, was the importance of access to Japanese markets in fostering innovation. Without such access, he says, U.S. firms lack the income to develop next-generation products for the Japanese market, the ability to gather constructive feedback from Japanese customers, and the incentive to create the necessary infrastructure in Japan for future sales. "We started out looking at how innovation might lead to more and better U.S. jobs, and what we found tied in directly to Japanese market access," adds Martin, who heads the Palo Alto, California, lab at Rockwell Science Center.

The task force ticked off several essential ingredients for a successful U.S. policy, including government-backed language training and exchange programs, monitoring of patent filings and research results, and government-to-government science and technology agreements. However, it did not recommend increased U.S. spending in any of these areas; rather, it suggested fine-tuning the programs that already exist. "We are not lacking in mechanisms," says Bloch, "but in persistence." Bloch added that Japan is only one of several countries in Asia that will play an increasing role in global R&D issues. The lessons learned from our dealings with Japan, he said, must be applied to these other nations to keep U.S. R&D at the forefront.

Ironically, the 10-year-old committee could itself be a victim of declining fears about Japanese high-tech competition. It met for the last time in June, and council officials say its future hinges on raising funds for a new round of studies about U.S. relations with Japan and other countries along the Pacific Rim.

–Jeffrey Mervis

* Maximizing U.S. Interests in Science and Technology Relations with Japan, National Academy Press, 1997.