Japan threatens U.S. biotech lead

The United States leads the world in the fastball game of biotechnology, but Japan may challenge U.S. preeminence in the future, according to an Office of Technology Assessment (OTA) report released this week by Rep. Albert Gore Jr. (D-Tenn.). West Germany, the United Kingdom, Switzerland and France are also contenders. To hold its position, U.S. industry must master two plays: "scale-up" and "bio-processing production," according to the report.

"A well-developed life-science base, the availability of financing for high-risk ventures, and an entrepreneurial spirit have led the United States to the forefront in the commercialization of biotechnology," the report says. Increasing financing and tax incentives for firms, government funding of basic and applied research and personnel availability and training could beef up U.S. strength. Changes and more defined stands in health and safety as well as environmental regulations and patent law could also improve the U.S. stance, according to the report.

Those countries that are successful at bio-process engineering — industrial harnessing of biological growth — as well as the basic sciences may gain the competitive advantage over the next decade. This situation may test the United States because of "the relatively low level of U.S. government funding for generic applied research in biotechnology," the report says.

The Japanese may gain strength at this point. "The Japanese consider biotechnology to be the last major technological revolution of this century and the commercialization of biotechnology is accelerating over a broad range of industries, many of which have extensive bioprocessing experiences," the report notes.

The European contenders may lag because of hesitation by established concerns and traditions hindering venture capitalism, the report says.

Harvey Price, executive director of the Industrial Biotechnology Association in Washington, D.C., says that he hopes that gains made by cooperation between countries now can outweigh international economic problems later. He adds that no one is asking Congress for prompt action on the report or for current support but that what will happen down the road is uncertain.

Gore, chairman of the House Science and Technology Subcommittee on Investigations and Oversight, says, "A wise government investment has created a burgeoning and preeminent industry, which creates jobs and helps our trade balance. It is imperative that we not let this advantage slip away from us, and we need to ensure that this industry is not crippled."

— J.C. Amatniek

Science caught in U.S.-UNESCO crossfire

The Reagan administration plan to withdraw the U.S. from the United Nations Educational, Scientific and Cultural Organization (UNESCO) at the end of this year has left many U.S. scientists feeling like overlooked victims of politics. In its announcement Dec. 28, the State Department charged that UNESCO has "politicized virtually every subject it deals with," is hostile "toward the basic institutions of a free society," and "has demonstrated unrestrained budgetary expansion."

Although scientists were consulted prior to the decision, many argue that political factors having little to do with UNESCO science programs motivated the government's decision to withdraw the United States and its $50 million from UNESCO's $200 million budget. Scientists do acknowledge administrative problems with UNESCO science projects, but most believe these can be solved by more active U.S. participation. The withdrawal, they say, would hurt American efforts in earth sciences and related disciplines requiring international cooperation.

UNESCO Director-General Amadou-Mahtar M'Bow says he hopes that the United States will reconsider its decision and indicates in a Jan. 18 letter to Secretary of State George Shultz that UNESCO's board will consider the matter May 9.

Like most scientists responding to the State Department's request for a review of UNESCO, Paul Baker, National Academy of Sciences (NAS) representative to the U.S. National Commission for UNESCO, believes that the problems plaguing UNESCO science programs are managerial and not political. He says that a disproportionate amount of UNESCO science funds (which constitute 28 percent of its total budget) goes to support a rigid bureaucracy that splinters programs into less efficient, competitive units. Other critics add that UNESCO, in an attempt to satisfy all of its member states, dilutes its effectiveness by creating too many programs on a limited budget.

Both the U.S. National Commission and a National Science Foundation review concluded late last year that the scientific benefits warrant continued participation in UNESCO, especially if the administrative problems are worked out. The management of science programs can be improved, the reviewers stressed, by more active and serious U.S. leadership. However, Baker points out that no resources have been allocated to monitor, let alone coordinate the U.S. science effort in UNESCO.

One consequence of the lack of information is that no in-depth studies of the impact of the withdrawal on U.S. science have been done. Even so, most scientists agree that oceanography, climate studies and other disciplines concerned with global phenomena would be the hardest hit. Without access to UNESCO and its programs such as Man and the Biosphere (MAB) and the International Geological Correlation program, U.S. scientists would be hard-put to set up equipment or receive data from other countries. Harvard biophysicist Arthur K. Solomon, long involved in UNESCO programs, is among many who stress that there is no existing alternative to UNESCO's unique legal web of multinational agreements.

Samuel McKee, of the U.S. MAB program, agrees, saying that nongovernmental groups such as the International Council of Scientific Unions (ICSU) can't command the attention of Third World nations that don't have well developed science institutions of their own. He also believes that without UNESCO sharing responsibilities, some projects, such as those requiring oceanographic ships, would be too expensive and difficult for a few U.S. scientists to initiate alone.

Scientific fields having little to do with the earth sciences would not be immune to the effects of withdrawal either, McKee notes. UNESCO has played a role in starting and supporting CERN (Europe's nuclear research organization) and the International Center for Theoretical Physics, he says, as well as putting together the fabric of international science after World War II. UNESCO has also been instrumental in arranging meetings between U.S. researchers in all fields and their colleagues in countries not approachable because of political or economic limitations.

While an official U.S. withdrawal would probably not preclude continued participation by individual U.S. scientists in UNESCO (which would certainly not be put out of business by the cut in funds), many scientists feel that ongoing access to UNESCO programs and services, such as statistical yearbooks and inventories of copyright laws, would be limited. And the withdrawal might make dealings with UNESCO researchers awkward for U.S. scientists.

The most vocal critics of the decision have been individual scientists. It is too early to expect an official response from most science organizations since such resolutions require board approval. The NAS plans to study the impact of withdrawal on U.S. science, after which it may address the issue publicly.

The State Department insists that it will follow through with the withdrawal unless UNESCO can show this year that it has radically changed its policies.

—S. Weisburd