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HNOLOGY WASHINGTON, D.C.-At times during a two-day meeting in September, the Commerce Department's Biotechnology Technical Advisory Committee (BTAC) seemed poised to resign en masse, complaining that Commerce Department officials had ignored the group's advice in the past and were providing little guidance for future activities. Although key issues-particularly the panel's recommendation to ease the burdensome controls now covering export of most microorganisms-remain unresolved, apologies by department officials for recent administrative turmoil helped to mollify the panel.

STRATEGIC TECHNOLOGT

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In conjunction with the Department of Defense (DoD) and the State Department, the Commerce Department is authorized to restrict the commercial flow from the U.S. of high-technology products and knowhow. Enthusiasm for biotechnology, along with anxiety about its potential military misuse by political adversaries of the United States, has led some government officials to consider restricting biotech exports. The call for more stringent controls, however, is

at odds even within the Commerce Department, some of whose officials are counting on future profits from biotechnology exports to help reverse currently massive U.S. trade deficits.

EXPORT CONTROLS CRIT

The federal government exerts at least two distinct levels of control over commercial exports. One set of regulations, known as CoCom ("coordinating committee") controls, cover militarily strategic items. A list of prohibited items is formulated by representatives from the United States, many of its Western European allies, and Japan. CoCom members, who are not bound by any formal treaty, meet periodically in Paris to evaluate which high-technology products should not be shared with the Soviet Union, its allies in the Eastern bloc nations, the Peoples Republic of China, North Vietnam, and North Korea. Additions to the CoCom list are made only after a consensus is reached.

Besides items designated by Co-Com, the United States restricts the export of some high-technology products on a unilateral basis, noted Timothy Brand of the State Depart-



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ment. Justification for doing so is often to suit political rather than strictly strategic purposes, he added. During the course of the BTAC meeting, distinctions between these two categories of items often were blurred.

Members of the advisory committee, particularly chairman Robert Stevenson (who is director of the American Type Culture Collection, Rockville, MD), repeatedly voiced concern for the broad restrictions now being applied to the export of microorganisms. Currently, the vast majority of microbes may not be exported by U.S. commercial concerns without prior licensing, a process that although time consuming and burdensome often involves only cursory review by government officials, according to Stevenson. Hence, there is considerable skepticism regarding the strategic efficacy of the process. Instead of focusing on commercial exchanges, federal concern should be on keeping dangerous microbes out of the hands of "terrorists and crazies," particularly because most pathogens are already available to most nations, he pointed out.

"We need to review the regulations; some are archaic," said Randolph Williams of the Commerce Department. However, according to his colleague Irwin Pikus, reviewing the list of microorganisms proved too daunting a task within the department because of the length of the list. "Analyzing every one of these items is time consuming, so we're looking for a different, more integrated approach," Pikus said. U.S. officials, however, are exerting

pressure within CoCom to broaden controls on biotechnology, according to Wolf-Dieter Busse of the Association of the German Chemical Industry. "Restrictions are coming mainly from the U.S., [posing] some threat to our liberal interactions," he said, urging that this "emerging technology... not be restricted."

From a practical standpoint, it may be impossible to impose any useful restrictions on biotechnology, suggested University of Maryland (College Park, MD) microbiologist Robert Yuan, who has been studying biotechnology's commercial growth in Western Europe and the Far East. Industrial biotechnology is "global," the people doing it have "high mobility,' and the only serious shortages seem to be "technical management teams to bring items to fruition," he noted. -Jeffrey L. Fox