DATELINE/

OTA WORKSHOP

EXAMINING BIOTECH'S GLOBAL ECONOMIC ROLE

WASHINGTON, D.C.—The Congressional Office of Technology Assessment (OTA) recently invited representatives from 15 countries to discuss national efforts in biotechnology and to present their views on biotech's role in a global economy. While all acknowledged the tremendous economic promise of biotechnology—worthy of attention at the highest political levels—OTA heard a range of opinions about appropriate policies for stimulating basic research and spurring capital investment and product development. What many of the speakers pointed out was that, aside from the European Economic Community, no multinational cooperative framework exists—which is especially worrisome given that many countries' home markets are small and the myriad patent and regulatory mechanisms now in existence make technology transfer across borders difficult. All this, in a two-day meeting, provided OTA staffers with ample fodder for its proposed series of studies on the same subject.

The high level of biotechnology activity internationally has increased both competition between countries and protection of results and innovations, noted Robert van der Meer, project manager for the Dutch business development firm HOM Consultancy BV (The Hague). In such an atmosphere, he suggested, "there must, therefore, be more room for cooperation." But countries have different combinations of internal concerns, resulting in different policy choices.

Taiwan, characterized by a small home market and abundant small sized manufacturing capabilities, is export and consumer oriented. The government must provide the impetus to incorporate R&D by setting up institutional links between academia and industry. And in Singapore, with trade three times the gross national product, an open economy is necessary to maintain the standard of living. But, explained Yong-Sea Teoh of Singapore's Economic Development Board, with little infrastructure in place, his country "must first set up an industrial base to catch up."

Another country with a small home market incapable of supporting mod-

ern biotechnology—Denmark—nonetheless emphasizes the private sector's role in making capital and R&D investment decisions. Peder Larsen of the Danish Research Administration (Copenhagen) says "Market decisions are not the province of the government." Instead, a successful industrial policy should "mobilize resources." Denmark has an established research base, however, distinguishing it from many other export-oriented countries, especially those in the Pacific Rim.

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The U.K. and other industrialized European countries often advocate a *laissez faire* approach. According to Switzerland's Ralf Hütter (Swiss Federal Institute of Research, Zurich), "Industry should prove its value by itself, and not be maintained by government support." Yet Hütter would not dismiss the role of government in basic research, education, or free trade, which he sees as traditional areas of involvement.

Some with an established research base—such as The Netherlands—go further than the Swiss, believing that an active government policy promoting biotech stands the best chance of turning basic R&D into products. And Daniel Thomas (Université de Technologie de Compiègne, France) echoed that, in France, there was "no choice but to be government led. *Laissez faire* would not work...The private sector needs stimulation, a situation much different from Switzerland or Denmark, for example. In Switzerland you have Sandoz, Ciba-Geigy, Hoffmann-La Roche, and Nestle."

Lack of a strong capital market also encourages government intervention. In France, Thomas notes, "There are only 30 venture capital companies." Of concern to others is the protection of existing industries. Ireland's Barry McSweeney (BioResearch Ireland, Dublin) points out that "Biotech won't generate new jobs, but it will protect existing jobs and industries" by improving product competitiveness.

Other factors, too, can play a dominant role in establishing policy—or deterring it. West Germany, and now other European countries, have witnessed the influence of the Green Party. The Greens' focus on public perception and environmental concerns has raised the level of unpredictability. The result? A wait-and-see attitude towards setting industrial policy.

Margaret Sharp, senior research fellow at the Science Policy Research Unit, University of Sussex (U.K.), who chaired an hour-long industrial policy workshop session, noted several general advantages to setting an industrial policy that makes biotechnology a priority: It reorients resources, provides bridging mechanisms for industry to access the research base, and has a catalyzing effect on industry—making it willing to invest money more readily. "Once you declare biotechnology an industrial priority," she points out, "you've set an industrial policy...which gets people thinking about longer-term strategic considerations."

OTA acknowledges that an examination of the international arena is difficult, and these opening sessions were not comprehensive. Chummer Farina of Investment Canada (Ottawa) observed that "We didn't touch very much on the need for international cooperation between companies and between countries in the area of acquiring technology—not just in the area of regulation but also in the area of private enterprise...I wonder if the large multinationals are becoming more dominant players in this arena, and that many of the things that we at one time represented as governments are going to have less of an impact on industrial development."

—Mark Ratner