

CONSIDER BIOTECH'S FOREIGN POLICY POTENTIAL

Biototechnology is destined to become a tool of ever increasing importance in foreign aid policy, especially in light of important socioeconomic characteristics of its use: successful development of the technologies can have immediate and multiple effects on the economy. Use of the new technologies can directly improve the health of workers, dramatically increase the size of natural resources for use as feedstocks, rapidly improve the quality and variety of processed biological products for internal consumption or export, and often reduce manufacturing costs. In addition, a small portion of the labor force working over a five- to ten-year period exerts a proportionally large influence over the economy; these professional workers require highly specialized training from scientists from more advanced countries. This creates an allegiance to and dependence on the international scientific community while widening the intellectual gap between the scientist and the citizen in developing countries. Furthermore, the core set of necessary techniques and the essential equipment for biotechnology must initially be imported from the most powerful and scientifically advanced nations. All of these characteristics contribute to a setting in which government leaders and researchers from developing countries can be heavily influenced by the promise of biotechnology transfer as a form of foreign aid.

The U.S. is currently the nation in the strongest position to use biotechnology for this purpose, so it is surprising that the Reagan Administration has not implemented any policy in this area. The background for such a policy, however, already exists. The U.S. Agency for International Development (AID) currently funds about \$13 million dollars of biotechnology research annually for export to "friendly" Third World countries; about half of these funds support ongoing research in both the U.S. and Third World laboratories, while the other half is doled out to foreign researchers through a competitive grants program.

The President's Office of Science and Technology Policy (OSTP), which has investigated policy for biotechnology transfer, claims that no federal agency currently supports any bilateral programs focused on the use of biotechnology to aid developing countries. Spokesmen for OSTP claim that little advanced research is actually reaching these countries from AID or any other source. In line with this, there appear to be no specific training programs sponsored by the U.S. for enhancing the basic skills of microbiologists, chemical engineers, and other personnel from the Third World in biotech. Without a core population of properly trained biotechnologists, innovative research for independent economic development in the Third World cannot proceed.

The current tone of the Reagan administration's general policy on technology transfer is quite clear: defend against possible exploitation of U.S. technology for military purposes and prevent competitive countries from using basic research from the U.S. for economic gain. Officials in both the Department of Defense and the Department of Commerce confirm that this policy is an undercurrent in these agencies as biotechnology issues are

reviewed and new policies are formulated.

At some point in the foreseeable future, either the Reagan Administration or its successor may consider the advantages of a policy that directs the development of biotechnology in "friendly" underdeveloped countries to complement the anticipated growth of the U.S. economy. A strategy might follow that would assess which conditions in the Third World would optimize the growth of the U.S. economy by training Third World scientists and implementing selected research programs. An administration that adopts this policy would carefully balance the technology transfer, doling out new techniques and equipment like precious nuggets to ensure that developing countries move towards interdependence instead of independence.

In light of this scenario, it is interesting to note that the Reagan administration has cautiously tried to avoid discussion of biotechnology as a multinational issue. At the Williamsburg summit conference on world economics, U.S. representatives reportedly discouraged discussion of biotechnology, claiming that it was exclusively a private sector affair. The U.S. has also avoided supporting the UNIDO-sponsored international center for genetic engineering and biotechnology, although the U.S. could be the most helpful of all economically advanced nations in promoting biotechnology's development in the Third World. Although the U.S. may have weighed many factors before deciding not to support the center, one fact may have clearly influenced this decision: a well-organized center that trains Third World researchers and supports innovative R&D would diminish the U.S. government's power to use biotech as a bargaining chip in bilateral negotiations with developing countries.

The organizers of the UNIDO biotechnology center must be keenly aware of how important biotechnology may be in determining how Third World economies will function with the economies of developed countries. Expect to see programs funded by this center to bolster the basic internal economy of developing countries, in contrast to programs intended to expand exports. The center's programs, if successful, could weaken the power of developed countries to offer foreign aid in the form of biotechnology as an incentive for favorable trade relations. They should also improve the chances that developing countries can pay back long-term loans granted by the developed countries.

We may have to wait another two or three years before the role of biotechnology in foreign aid and world economic policy becomes a central debating point for the U.S. and other governments. Meanwhile the lines of influence for transfer of new technologies are rapidly being drawn. Now is the time to avoid turning these into lines of battle that could only restrict the marvelous uses of industrial biology. It is incumbent upon leaders in biotechnology to consider whether it is possible to use biotechnology wisely for foreign aid in a way that works to the long-term economic advantage of all participating nations. If mutual benefit is possible, the topic deserves debate between developing and advanced nations at the highest possible level.

—Christopher G. Edwards