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NSF's Budget and Economic Competitiveness

The nation's science and engineering enterprise must have the financial resources to do two things: remain at the leading edge of discoveries and produce the technical personnel that the country needs. Both are essential to our economic competitiveness and must be done even in times of fiscal stringency.

The President has responded decisively to this challenge by taking the unprecedented step of establishing as Administration policy the doubling of the National Science Foundation's budget over 5 years, starting with a major increase of 17 percent in 1988. There are also increases for some of the other federal agencies that support basic research at universities. This is a dramatic statement of the fact that university basic research and education deserve the continuing attention and support of the nation. It is also a major departure from the previous practices of making budgets a year at a time and will make possible the formulation and support of long-term strategies, projects, and programs.

Why this action? Basic research and education are our key assets in the battle for international competitiveness. Where we have a clear lead, we must preserve it; where we are lagging, we must catch up. Investing in basic research and education will not immediately reduce the trade deficit, but it will provide the new knowledge and technically educated people that are prerequisites for anything we do in commerce, industry, defense, or health.

This initiative comes at an opportune point in time: the ferment in the sciences and engineering offers opportunities that we cannot afford to miss. Long-standing problems that defied solutions are now within our grasp, with the use of modern instrumentation and newly developed computational techniques.

NSF is being called upon to participate, in a major way, in support of this number one policy topic, economic competitiveness. Accordingly, the budget for 1988 and the following years will focus on three major themes:

The first concerns human resources. Our people—with their creativity, skills, and education—are our most important resource. Yet too few of our best students study science and engineering, and of those who do, too few finish the Ph.D. We need to make careers in science and engineering more attractive. Better curricula, better equipment, better precollege preparation, research opportunities for undergraduates, more fellowships and postdoctoral awards are some of the approaches we need to employ.

We also need to broaden participation among women and minorities, and other underrepresented groups, as well as institutions not now participating fully, in the educational and research process. We simply cannot afford to waste their talent.

The second theme calls for establishing Science and Technology centers. Patterned after the Engineering Research centers, they will be created in appropriate areas of science. They will be multidisciplinary centers, organized on university campuses but with strong industrial participation, doing basic research that is scientifically exciting in areas that are likely to be economically significant. These centers will provide universities with new resources for research and teaching and facilitate the transfer of knowledge from universities to the marketplace.

Last, but by no means least, NSF will address the cornerstone of the foundation: grants to individual investigators. We must strengthen and provide stability for this, the traditional activity of NSF, and this activity will not be shortchanged.

All this implies change; changes in programs, institutions, and relationships. The science and engineering community must support this effort, participate in priority-setting, continue what is useful in the system, and support new approaches where they are required.

Economic competitiveness is a bipartisan issue that concerns us all, as does support for our universities, basic research, and education. Therefore I am confident that, as in the past, Congress will support this initiative.—ERICH BLOCH, *Director, National Science Foundation, Washington, DC 20550*