

SCIENCE AND TECHNOLOGY PROGRAM - USA

more closely together. A recent National Academies of Sciences report on the role of science in foreign policy talked of national and regional priorities to improve the domestic and international market environment for U.S. innovation so the nation can prosper in a global economy.

In a recent speech at NASA's Jet Propulsion Laboratory, the President stated, that his budget (FY2001) will include a \$2.8 billion increase in the 21st century research fund, which will support a billion-dollar increase in biomedical research at NIH. He also talked of major funding increases in areas from information technology (36%) to space exploration to the development of cleaner sources of energy. University-based research provides the kind of fundamental insight that is most important in any new technology and helps produce the next generation of scientists, engineers, entrepreneurs. Noting advances in one field are often dependent on breakthroughs in other disciplines, the President announced the doubling of the NSF budget, giving university-based research a major lift. A major new national nanotechnology initiative worth \$500 million is being proposed, leading to the development of materials with 10 times the strength of steel and only a fraction of the weight, shrinking all the information at the Library of Congress into a device the size of a sugar cube, detecting cancerous tumours that are only a few cells in size. The President stated that some of these research goals will take 20 or more years to achieve, which is why there is such a critical role for the federal government support in basic research.

Innovation partnerships will be the building blocks of the nation's future wealth. Future trends as expounded by NSF feature the following technologies: terascale (ultra high speed computing and photonics infrastructure), nanoscale (sub-micron) and complexity (e.g. biodiversity). Frontiers of scale are being pushed forward by a factor of three at both ends of the spectrum. NSF future funding targets are the areas of biocomplexity in the environment, genomics, robotics (nanoscale) and mathematics (terascale). For example computers working at 10⁰⁵ operations per second, will be required to process protein folding. The "new economy" emerging job titles (for which NSF will need programs with which to fund research) will be in: accounting B e-commerce technologists, agriculture B bioinformatics programmers and sales-marketing B web-promotion managers.

Examples of the challenges of the 21st Century are given in the National Research Council (USA) recent study of visionary manufacturing in 2020. This study looked at the human enterprise being highly integrated with a new corporate architecture, where biotechnology and nanotechnology featured prominently. The future infrastructure requires engineering studies of nano, environmental, service, wireless and other advanced technologies. NSF will promote this study through engineering thematic funding programs.

4. Current Status of Bilateral Relations with Canada

In the scientific community the warm relations between the United States and Canada continue, perhaps strained only by recent years of Canada's reduced S&T funding levels. This has been alleviated somewhat by recent increases in Canadian S&T funding, but there is still a long way to go, particularly in the area of Canadian funding for joint international projects. In response to high-profile allegations of theft of US technology (particularly by China), the US has revised its longstanding International Traffic in Arms Regulations (ITAR) to strengthen US government