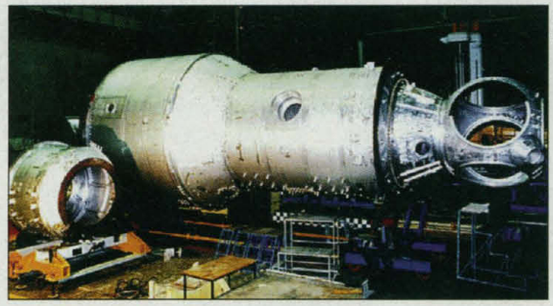
SPACE STATION

Report Sees More Overruns, Delays

Rising costs and slipping schedules may be an old story for the international space station. But the latest independent assessment of its status, released last week, has provoked outcries from congressional supporters and detractors alike. The new report estimates that NASA will need an extra $7 billion and as much as 3 more years to complete work on its pieces of the project, which includes contributions from Europe, Japan, Canada, and Russia. Although the news isn't likely to jeopardize the station itself, the projected cost overruns could threaten other activities, including science programs, that must fit into the agency's shrinking budget.

"I don't think it's appropriate to rob other [NASA] programs and initiatives to pay for the space station," says Senator Kit Bond (R–MO), who chairs the Senate spending panel that oversees NASA. Another station supporter, House Science Committee Chair Representative James Sensenbrenner (R–WI), makes the same point. "We must get this program under control before it undermines NASA's successes," he says. "We cannot allow the station to become a mismanaged black hole."



NASA

Poor service. Problems with Russia's service module is one reason the international space station is behind schedule and over budget.

The report was written by a seven-member task force chaired by consultant Jay Chabrow that was convened last year at NASA Administrator Dan Goldin's request. Five years ago, NASA estimated that the station would cost $17.4 billion, adjusted for inflation, to complete by 2002. But the Chabrow panel says hardware problems, Russian delays, and a slipping schedule will boost that figure to $24.8 billion. The new number takes into account the fact that Russian participation, once estimated to save $2 billion, will actually cost money, and that NASA will need as much as $250 million annually above its current projections through 2005. Some $13.6 billion has already been spent on the project, proposed in 1984 by President Ronald Reagan.

Although NASA has made "reasonable progress" on the station, the report says, a host of technical challenges likely will lead to a delay of 1 to 3 years beyond the current 2003 completion date. Among them are NASA's ability to approve the thousands of pieces of hardware and software before launch, the daunting complexity of putting together all those pieces in orbit, and delays in completing the laboratory that will be the center of U.S. research aboard the station.

Then there's the Russia factor. With the government there in turmoil and money tight, the report projects that the Russian-built service module—a key component containing command and control functions—likely will not be ready for launch until next spring. That would force NASA to postpone its first launches slated for later this summer.

Testifying before Bond's subcommittee, Goldin said "I don't acknowledge or accept the $7 billion overrun" laid out in the Chabrow report. The agency is currently anticipating an overrun of nearly $4 billion. Its latest estimate for the total cost is $21.3 billion—excluding the cost of conducting research on the station between November 2002 and the end of 2003. NASA will have a formal response to the study within 30 days, he added.

In years past, the type of news delivered by the Chabrow panel would have triggered fears among supporters about the fate of the orbiting laboratory. But it is a sign of the program's remarkable political strength that the leading Senate opponent conceded that the station cannot be stopped regardless of its problems. "We're not going to kill the space station," Senator Dale Bumpers (D–AK) told Goldin. "You have nothing to fear."

Those reassuring words still leave Goldin with a fiscal headache, however. Although Administration officials strongly back the program, they say they have no intention of asking Congress to boost NASA funding—already declining—to cover the added costs. And even supportive lawmakers like Bond and Sensenbrenner are loath to pay for the overruns by cutting other domestic programs or decimating popular NASA efforts like space science.

That frustration was clear in the comments of the appropriators. "We're running out of patience," warned Senator Barbara Mikulski (D–MD), ranking minority member of the Senate panel and a leading station supporter. "There's always one more promise." And Bumpers, a perennial program critic who is retiring this year, warned that even Chabrow's gloomy forecast is likely to prove optimistic if additional problems crop up.

That's a sobering thought to the station's legislative supporters, who also want to see NASA move ahead with vibrant space science, aeronautics, and space launch efforts. They are upset that the Administration failed to meet the promises it made in 1993, including holding annual spending on the station to $2.1 billion, and feel pressured to make unpopular choices about which aspect of NASA's portfolio to jettison if money cannot be found elsewhere.

–Andrew Lawler

BIOMEDICAL FUNDING

Counting NIH's Fiscal Chickens

If the National Institutes of Health (NIH) receives the extra billions that Congress has promised, the agency will not have to look far for advice on how to spend the money. Last week, several advocacy groups offered their recommendations on how NIH's added wealth should be used, assuming it's appropriated. And, in a sign of conflicting interests, biologists are focusing on the need for plusher grants, while universities and medical schools emphasize the funding of overhead, salaries, and facilities.

It will be several months before it is clear just how much new money will be available, however. Lawmakers are now hedging on the most generous offers they made in the giddy days of December and January, when a major budget surplus in 1999 was first predicted and a windfall from a tobacco settlement looked more likely. But Congress is still expected to support a boost of from 8% to 15% in NIH's budget this year—and possibly even a doubling to $28 billion within 5 years.

The pitch for the single investigator comes from the Federation of American Societies for Experimental Biology (FASEB), which represents 52,000 scientists. FASEB President Ralph Yount, a biophysicist at the University of Washington, Seattle, released a four-point agenda on 23 April, drawn up at an earlier conference organized by biochemist Tony Hugli of The Scripps Research Institute in La Jolla, California, and cell biologist Lawrence Goldstein of the University of California, San Diego. Near the top of FASEB's wish list is a proposal to create two new NIH awards similar to those given to top biologists by the Howard Hughes Medical Institute of

Chevy Chase, Maryland. The idea is to have NIH underwrite the salaries of the "crème de la crème" as Hughes does, says Hugli. These awards would reduce paperwork and allow researchers to concentrate on science, says Goldstein—"get them away from the word processor and into the lab."

In FASEB's proposal, outstanding young scientists at the end of a postdoc would be eligible to receive what FASEB calls an "NIH scholar" award, and senior scientists could get an "NIH professor" position. These awards would convey not just special honor, but a guaranteed salary—in the case of a senior scientist, for up to 7 years. The junior award would differ from the existing grants for young scientists in that it would go directly to the postdoc, not to a mentor or host institution, enabling that young person to break free rapidly and launch an independent career. Hugli said he would like to see NIH support 500 or more awards in the junior category.

FASEB also urges NIH to offer small grants to scientists who want to develop untested ideas or who make an interesting discovery in an ongoing project and need extra money to explore it. It also backs some less specific ideas for encouraging interdisciplinary studies, collaborating with industry, expanding animal care facilities, and rebuilding research facilities.

A wish list from the Association of American Medical Colleges (AAMC) puts a greater stress on the needs of research institutions. In its 38-page, footnoted report,* the AAMC calls on Congress and NIH to "revisit" or eliminate a series of cost controls imposed in recent years—including caps on investigators' salaries, limits on reimbursement of indirect costs at institutions like medical schools, and caps on tuition reimbursement for trainees.

The report also proposes a new Research Innovation Opportunity program. This would provide "flexible funds to biomedical research institutions," giving them ready money to pay for "new, promising lines of research, procure critically needed instrumentation, and respond to new staffing requirements." Because research on genetically engineered mice is growing rapidly, AAMC urges the government to build regional animal facilities to be shared by academic institutions. And it asks Congress to approve an "NIH construction authority," which would have a 10-year mandate to spend $5 billion on new facilities.

Like FASEB, the AAMC voices support for peer review and investigator-initiated research, especially clinical and interdisciplinary work. It also suggests that NIH grants be extended from the current average term of 4 years to 5 years.

All these ideas have been forwarded to NIH and Congress. NIH has not yet responded, and Congress is still in the early stages of debating broad spending allocations. Republican leaders have endorsed potentially incompatible goals this year—including tax reduction and highway building as well as doubling biomedicine and science funding. It will take months to sort out the real winners. But if NIH does receive the new money it has been promised, the clamor of advice is sure to grow.

–Eliot Marshall

* "Maximizing the Investment: Principles to Guide the Federal Academic Partnership in Biomedical Sciences Research," Association of American Medical Colleges, Stephen Heinig (sheinig@aamc.org).

GENOME RESEARCH

Private Help for a Public Database?

When a group of scientists urged the National Institutes of Health (NIH) last fall to create a public database of genome markers called single nucleotide polymorphisms (SNPs), they evidently struck a chord. NIH promptly pledged $30 million for the effort, grant applications are flooding in, and the National Center for Biotechnology Information (NCBI) is gearing up to receive deposits of SNP data later this year. That's lightning speed for a government program. But there's still one big unknown about this venture: Will private companies, which are likely to generate vast quantities of SNPs, also join in?

"The capacity exists to create a standard set of about 100,000 SNPs in 12 to 18 months."

—Alan Williamson

An indication could come within weeks, thanks to an initiative launched by Alan Williamson, retired vice president for research strategy at the pharmaceutical firm Merck & Co. Inc. of Whitehouse Station, New Jersey. Worried that NIH's $30 million planned expenditure for SNPs collection may not be adequate to move the field forward as rapidly as possible, Williamson organized a private meeting of drug company executives on 8 April in New York City to try to interest them in contributing "in cash or in kind" to a public SNPs database. Private contributions of $10 million to $20 million (or equivalent) would make it possible to put together a usable data set within 18 months, he has concluded. How well his plea is succeeding may be evident at a second meeting he is planning later this month.*

If Williamson is successful in persuading his colleagues in industry to go along, it would provide a big boost to a venture that many researchers believe could greatly speed a variety of genome studies. SNPs—single-base variations in the genetic code—may soon become important as location markers for use in high-volume, automated scanning of human genomes. SNPs may be incorporated into electronic chips to decipher genetic patterns of disease, assist in the development of targeted drugs, and identify high-risk individuals for therapy (*Science*, 19 September 1997, p. 1752).

Indeed, that promise convinced Francis Collins, director of the National Human Genome Research Institute (NHGRI), to move NIH's effort into high gear last fall. On 9 January, NHGRI invited researchers to submit proposals for 3-year grants to support both technology development and data gathering, due by 7 May. Already, at least 75 letters have been received, says Lisa Brooks, the NHGRI program officer in charge. Grant winners will be reviewed this summer and selected for funding in October.

Williamson says that the New York meeting heard from NIH officials about its proposed SNP database and from scientists about what it would take to build a SNP collection within a few years. "It became clear that the capacity exists to create a standard set of about 100,000 SNPs in 12 to 18 months," says Williamson. "The quicker you generate a large set, the quicker you can start to do all sorts of studies on a population basis."

Industrial contributions of cash and SNPs would speed the database along, but one big issue may still entangle the venture: intellectual property claims. Williamson says private donors to his SNP support effort will not be asked to completely forswear patenting their SNPs, although they

* Companies interested in attending should contact Williamson at alan-williamson@home.com