EUROPEAN SPACE PROGRAM

ESA Members Balk at Space Station Cost

BERLIN—The European Space Agency (ESA) is coming under increasing pressure from some of its cash-strapped member states to throttle back its future commitments to the U.S.-led international space station. In preparation for the next key meeting of representatives from ESA's 14 member states, scheduled for March, and a European space summit later this year, government officials in Germany, France, and Italy—the three biggest contributors to ESA's budget—have been discussing proposals to cap and stretch out Europe's spending on crewed spaceflight.

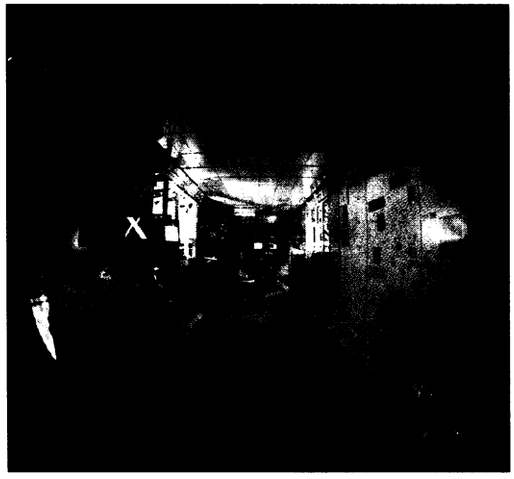
In a letter this month to ESA Director Jean-Marie Luton, Germany's Education, Science, and Research Minister, Jürgen Rüttgers, complained that the cost of implementing ESA's current space station plan is "well beyond the financial capabilities of ESA member states." Rüttgers said he and his French counterpart opposed ESA's most recent proposal to spend $4.8 billion on its crewed-space efforts from 1995 to 2003, most of which would pay for Europe's share of the space station program.

Instead, Rüttgers suggested a "realistic framework" for reducing ESA's crewed spaceflight program to $2.5 billion from 1996 to 2000. This figure includes Europe's "in-kind" contributions to the space station—hardware developed and built in Europe—rather than money paid directly to the international effort, together with a 20% pool of funds for unforeseen costs.

Europe's contribution to the space station was defined at the last meeting of European space ministers in Granada, Spain, in November 1992 and adjusted the following spring when U.S. budget cuts forced major modifications to the station plan. The agreement is up for review at the next ministerial meeting, toward the end of the year. Currently, ESA, which is participating in the station along with Russia, Japan, and Canada, is developing and building:

- The Columbus Orbiting Facility, a European laboratory module that would dock with the international space station;
- The Automatic Transfer Vehicle, a "space tug" that would transfer crews and help the Columbus orbiter dock with the space station; and
- The Crew Rescue Vehicle, a small craft to bring crew members to Earth in an emergency.

Not all ESA members are contributing to this effort; unlike the space science program, in which all ESA member countries participate, membership in the crewed spaceflight program is voluntary. Under the agreement reached in Granada, Germany was scheduled to bear the lion's share of the costs (38%), Italy agreed to pay 31%, and France 10%, with other ESA members making up the difference. All three major contributors are now expressing reservations about the cost.



ESA

Test bed. A mock-up of the Columbus Orbiting Facility, part of ESA's contribution to the space station.

ESA staff members themselves recently made suggestions for modest reductions in the crewed-flight budget, and these were discussed by Rüttgers at a meeting on 18 January with French Industry Minister José Rossi. In his recent letter to ESA, Rüttgers said Germany and France feel strongly that ESA should remain a partner in the international space station project, so long as that partnership reflects strict cost ceilings and a "realistic concept." He also urged other European nations to contribute "substantially" to the crewed space effort.

Harald Müller, chief spokesperson for the German research ministry in Bonn, says Rüttgers's letter simply reflects current financial and political realities. "Germany and France cannot bear all the costs alone," says Müller, noting the Italians' shrinking commitment. "To be realistic, Europe's contribution must be reduced, and that contribution must be shared more among ESA member states," Müller insists.

Müller says the research ministry has not yet received an official response to Rüttgers's letter. The next few weeks leading up to the March meeting should see some intense negotiations.

–Robert Koenig

Robert Koenig is a journalist in Berlin.

U.S. TECHNOLOGY POLICY

House Panel Cuts Industry Programs

Eager to eliminate federal support for industry-led research—and cut the budget deficit while they're at it—House Republicans have taken their first bite out of the Administration's technology policy. Last week the House Appropriations Committee, on a party-line vote, approved taking back $609 million that Congress had previously approved for two efforts—the Technology Reinvestment Program (TRP) and the Advanced Technology Program (ATP)—aimed at increasing collaboration between industry and university scientists. Although the full House is expected to approve the cuts, perhaps as early as next week, sources in Congress and industry predict the Senate will be less inclined to jump on the industry-bashing bandwagon.

The cuts would wipe out $502 million in appropriations made during the last 2 years to the Department of Defense for TRP (*Science*, 25 March 1994, p. 1676), as well as $107 million given this year to the National Institute of Standards and Technology (NIST) for ATP. The cuts would halt the TRP program, begun in 1993 as a way for the military to provide funds for joint industry-government research on dual-use technologies. They would also slow the growth of the 5-year-old ATP program, focused on improving economic competitiveness, with a 1995 budget that soared from $199 million to $431 million. Both programs provide significant funding for university researchers in a variety of fields, although the awards are typically made to industry-led teams.

The attack on the two programs was included in a $2.9 billion package of rescissions proposed by the committee to offset most of an increase of $3.2 billion in this year's Pentagon budget to pay for the military's global peacekeeping activities and to improve troop readiness. The timing surprised some program partisans, who anticipated that the battle over support for industrial technology would not be joined until spring, when Congress took up the president's 1996 budget request. That request contains $500 million for TRP and $491 million for ATP.

Those same partisans worry that industry may never really mount serious opposition. Although high-tech companies have formed a coalition to battle the cuts, some officials admit that corporate executives are divided on how hard to push. "Technology is only part of a larger mosaic that includes tax reform, regulatory relief, and product liability, and by and large, this Congress is doing the

Lord's work in a lot of these areas," says Bill Morin, who handles technology policy for the National Association of Manufacturers. "Like everything else, federal R&D is going to have to shrink to pay for other changes. But we'd like to see those cuts made on their merits, not on ideological grounds."

The TRP cuts, if allowed to stand, would allow completion of the first round of projects funded in 1993, typically for 18 to 24 months. But the cuts would halt a competition scheduled to be announced next week, as there would be no funds for new projects. The second year of projects funded last fall is also in jeopardy. "We would have to reassess whether it makes sense to continue with them," says Lee Buchanan, who directs the program. Buchanan took issue with the committee's comments that the "Defense Department has yet to identify any military benefits from the program," saying that TRP "was created as a long-term program and that, as R&D, it will be years before any of this shows up on the battlefield."

The ATP cuts, for their part, would "have a disastrous effect" on a new round of competitions focused on 11 fields that NIST has selected, according to agency officials; projects in unspecified areas and those that have already been funded would still proceed. The committee report said that ATP has been allowed to grow too quickly without an assessment of whether it can meet its goal to foster new technologies, but NIST officials defend its value as the only federal program designed to bridge the gap between basic research and short-term product development.

Supporters hope that the Senate, with help from members who created the programs—in particular Senators Jeff Bingaman (D–NM) and Ernest Hollings (D–SC)—will be able to shift the debate away from cutting budgets to a look at the merits of the research being funded. "These programs offer the government the cheapest and fastest way to get this technology," says chemist Steve Borleske of Dupont, which is involved in several projects that require matching funds from industry. He and other supporters say the programs will save the government money by giving industry the ability to switch more quickly from civilian to military production as needed. The industry coalition hopes to give research project directors a chance to "present their story," says Taffy Kindscott, director of science and technology policy for IBM, which has 17 TRP projects. "But we don't have much time," she adds. "This thing is moving pretty fast."

–Jeffrey Mervis

CANCER THERAPY

Brookhaven Prepares for Boron Trials

Researchers at Brookhaven National Laboratory are on the verge of receiving government approval to treat 28 people dying of brain cancer with an improved version of a therapy that was abandoned three decades ago after several patients died from the treatment. The Food and Drug Administration (FDA) is expected to give final approval, perhaps as early as this week, to the trial, which involves boron neutron capture therapy (*Science*, 23 September 1994, p. 1799).

That's welcome news for terminally ill patients who have run out of conventional treatment options, but it will generate a problem for Brookhaven, which is bracing for a flood of requests from dying patients. Brookhaven plans to use a lottery to choose from among those who meet stringent initial requirements for treatment, but researchers worry that politicians—who already have played a role in speeding the revival of the therapy—may try to influence the selection process.

So far, two people have undergone the updated treatment, in which patients are given a boron compound and then exposed to a stream of neutrons generated by a nuclear reactor. The compound, which is designed to concentrate in the tumor, captures neutrons and becomes radioactive, delivering a dose of radiation to the surrounding tumor. Joann Magnus, who underwent the therapy in September after appealing successfully to Department of Energy (DOE) Secretary Hazel O'Leary, has benefited from the therapy, according to her neurosurgeon, Richard Bergland of Beth Israel Hospital in New York and a collaborator in the experimental treatment. "The tumor has been controlled," he says. "Basically it's still the same size." A second woman was treated on 2 February after the FDA granted conditional approval for the trials, and her condition is stable, Bergland said. Brookhaven officials say it is far too early to draw any conclusions about the impact of the therapy.

Now that Brookhaven can treat more patients, "the real story is going to be in the rationing over the next year," says Bergland. "Everyone who has a friend in government is going to be banging on Brookhaven's door. It's going to be a tremendous problem." He says that one woman with connections to Senator Alfonse D'Amato (R–NY) hopes to win admittance by following in Magnus' footsteps. Darrel Joel, chair of the Brookhaven medical department, says "we will resist at all costs" pressure from politicians to override the lottery plan. But he admits that holding the line could prove difficult.

JOHN CORNELL/*NEWSDAY*

High-powered meeting. Energy Secretary O'Leary and cancer patient Joann Magnus, who was treated at Brookhaven National Lab last September.

The Brookhaven team expects to begin treating two patients a month, starting in March, after the FDA has granted final approval and a treatment plan is in place. The trials will run for 8 or 9 months, Joel says. Bergland criticizes the timetable, noting that patients like Magnus with a cancer called glioblastoma normally die within 6 months. "It's ridiculous," he says. "The right way to do it is 28 [patients] in one month."

Brookhaven has good reason to be cautious. Tests of the therapy conducted between 1951 and 1960 went awry when the radiation failed to control the tumors and killed a handful of the 70 patients. The new therapy is based on a different boron compound that concentrates better in tumors and has a good track record in animal experiments. Despite these improvements, Joel says what happened in the 1950s should not be forgotten. "The history is not a pleasant one, and we can't afford to make the same mistake twice," he says.

Outside observers remain skeptical of the trials, questioning both the efficacy of the therapy and the role being played by politicians. "[Brookhaven] has been bullied into this much too quickly," says William Happer, a Princeton physicist and former head of DOE's Office of Energy Research. "But I don't blame Brookhaven—they didn't have much choice. I just hope this time they have better controls."

Brookhaven officials say they could treat several patients a day if the trials prove successful. And because conventional radiation therapy in a typical U.S. hospital costs $20,000 to $30,000, Bergland says the procedure "could be a tremendous cash cow" for the laboratory. But Joel isn't looking that far ahead. "First we need to establish that this is a viable therapy," he says.

–Andrew Lawler