seems for two reasons. First, it's based on the president's 2003 request for a 5% hike, a number that Congress is almost certain to surpass when it finishes work next month on the budget for the fiscal year that began 1 October. (The House has already approved a 13% increase, and a Senate panel has endorsed a 12% hike.) Second, before calculating the 9% increase, budget officials subtracted $76 million from a dead-on-arrival proposed transfer of funds to NSF from three other agencies. The result is a presidential request of roughly $600 million over 2002 levels, which exactly splits the difference between the $633 million hike for 2003 approved by the House and the $564 million added by the Senate panel.

There's no sugar coating on the NIH request, which sources say is a mere $50 million over the expected 2003 total of $27.3 billion. HHS Secretary Tommy Thompson is pushing for his original 5% request. But NIH watchers are dubious of anything more than the 2% that the White House has projected for future years. And unlike previous years, nobody is counting on Congress to come to NIH's rescue.

–JEFFREY MERVIS AND JOCELYN KAISER

HIGH-ENERGY PHYSICS

CERN Council Chooses ITER's Head as Chief

Europe's premier accelerator laboratory has elected a director general without training in particle physics but skilled in managing large projects. That's no accident: CERN's governing council made it clear last week that building the Large Hadron Collider (LHC) on time and within budget is the lab's top priority, with everything else—including a streamlined research portfolio—taking a back seat.

The new leader is Robert Aymar, a 66-year-old French plasma physicist who currently directs the International Thermonuclear Experimental Reactor (ITER). A multibillion-dollar international tokamak project, ITER has survived a downsizing of its original design and the withdrawal of the United States before regaining its momentum; the partners are now in the final stages of selecting a site (*Science*, 20 September, p. 1977). That performance under fire was not lost on the CERN council. "For the time being, CERN's activities are centered about building the LHC and not exploiting the science, and [Aymar] has long-standing experience," says Jean-Pierre Ruder, the Swiss delegate to the CERN council. The outgoing director-general of CERN, Luciano Maiani, agrees: "I find that Aymar is very well qualified, even though he's not a particle physicist."

Aymar, who will begin his 5-year term in January 2004, is best known for directing the Tore Supra project, which used a large magnetic bottle called a tokamak to study very hot plasmas. But he also has had a lot of exposure to particle physicists. During the 1990s, he oversaw particle-physics experiments as head of the Sciences of Matter directorate of France's atomic energy lab, CEA. He also helped design the LHC and chaired the LHC external review committee when the project ran into budgetary problems (*Science*, 5 October 2001, p. 29). "I was involved in the decisions about the LHC at all levels," says Aymar. "The big challenge [now] is to make sure that the LHC is achieved correctly. The timing should be controlled by technology concerns, not financial ones."

Financial concerns have dominated CERN for more than a year. A 30% cost overrun in the LHC's $1.6 billion budget has forced the council to shut down several key experiments in 2005 and pare research and development projects to a bare minimum. Although the council's acceptance of the cuts last week was no surprise—the details had been announced earlier this year (*Science*, 29 March, p. 2341)—physicists remain concerned about the impact of the cuts. "It leaves very little scope for preparing for the long-term future," says Phil Allport, a physicist at Liverpool University in the U.K. and adviser to CERN. "There's pain in the lost physics programs, but more pain in the strategic R&D that underpins CERN's future post-LHC." According to Aymar, the damage can be mitigated by a closer collaboration between

New boss. Robert Aymar (*top*) joins CERN as devices such as the Super Proton Synchrotron (*bottom*) face temporary shutdowns.

CREDITS: (TOP TO BOTTOM) NCI; ITER/CERN; CERN-GENEVA

ScienceScope

Facts in Flux The National Cancer Institute's (NCI's) views on whether abortion raises a woman's risk of breast cancer continue to evolve. And researchers are hoping that the next iteration reflects good science rather than politics.

In March, NCI officials put out a fact sheet, updated with recent studies, that concluded abortion wasn't a risk factor. In June, new NCI director Andrew von Eschenbach ordered his staff to pull the fact sheet after 28 abortion opponents in Congress disputed NCI's conclusions (*Science*, 12 July, p. 171). Last month, however, NCI announced on its Web site that the evidence is "inconsistent." It plans to hold a workshop to explore the molecular mechanisms by which hormonal changes during pregnancy protect against breast cancer.

NCI epidemiologist Robert Hoover welcomes the workshop, tentatively slated for February, saying that he has wanted to convene experts on this broader topic for years. But attendees will be asked to do more than just talk science, says NCI spokesperson Mike Miller. The institute is looking for a "statement" on what its abortion fact sheet should say.

Opening Up in Japan Japanese legislators have endorsed the drive to give research institutions a freer hand in managing their affairs, passing a package of laws that will allow several government corporations to become independent agencies.

The changes, approved last week, should let institutions adopt personnel policies that deviate from national regulations. They also allow agencies to hold over excess cash from year to year, helping stabilize long-term projects. The laws affect the Institute of Physical and Chemical Research (RIKEN), the National Space Development Agency, the grant-giving Japan Science and Technology Corporation, and a handful of other science-related organs.

"We're not expecting major changes," says RIKEN president Shun-ichi Kobayashi. But there is uncertainty about the future. One issue: the relationship that a new government panel created to evaluate RIKEN's performance will have to RIKEN's long-standing external review committee. The changes go into effect next fall.

Contributors: Charles Seife, Eliot Marshall, Jocelyn Kaiser, Dennis Normile

CERN and other European laboratories, but "CERN has to devote all its financial capacity to make LHC possible." Current estimates put the cost to complete the collider in 2007 at approximately $210 million, with a $96 million contingency budget.

In other actions, the council added a third category to CERN's two formal levels of participation. Traditionally, member states make a yearly budgetary contribution and in return receive full access to the facilities and a vote in the CERN management. Non-European states could contribute to experiments on an approval-only basis or, like the United States, could become observers, with limited access to the laboratory and no voting rights.

India, which has been participating in CERN experiments, including the LHC, is now the newest CERN observer state and may be in line for a new, more active status as an associate member. "India was very happy at being given the observer status, for it was a well-earned recognition of the scientific and technical contribution Indians have been making at CERN," says Ravi Bhushan Grover, the director of India's Strategic Planning Group of the Department of Atomic Energy in Mumbai. Associates can have full-time employees at CERN and can bid on contracts, although they would still lack a vote. In return, the associate state would pledge a yearly contribution to CERN's budget, pegged to the associate's gross domestic product. "India welcomes the new tier that has been opened up," says Grover. However, he adds, "whether we will be able to afford this … will have to be assessed only when the details are made available." –CHARLES SEIFE

With reporting by Pallava Bagla.

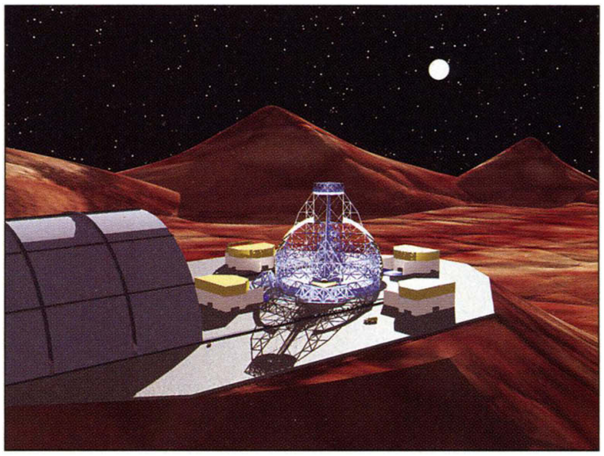
ASTRONOMY

Europe's Telescope Builders Aim High

LONDON—To reach for the heavens, you need to think big. European astronomers are taking that motto to heart. Last week, teams from across the continent met here to start work on a joint design for what they hope, 12 years hence, will be the largest telescope in history. The European Large Telescope (ELT) would take an order-of-magnitude leap from the scale of today's telescopes, which have mirrors about 10 meters across, to one up to 100 meters in diameter, capable of revealing the workings of the universe and examining nearby stars and planets in unimaginable detail. "This is astronomy beyond the wildest dreams of anybody in the world," says Tim Hawarden of the U.K.'s Astronomy Technology Centre in Edinburgh.

It's no dream, ELT boosters say. Over the past 15 years, astronomers building today's top-rank telescopes have refined key new technologies needed to make larger scopes—techniques such as building big mirrors from smaller hexagonal segments and tweaking a telescope's optical system in real time to compensate for atmospheric turbulence. Astronomers in the United States have set their sights on a 30-meter Giant Segmented Mirror Telescope, which a 2001 decadal review by the National Research Council identified as the top priority for U.S. ground-based astronomy. But researchers from the European Southern Observatory (ESO) and a number of national institutes across Europe have decided that a much bigger telescope is technologically feasible. "No one has as yet managed to find anything [in these plans] that we can't do," says Gerry Gilmore of the University of Cambridge.

Last Friday, at a meeting hosted by the Royal Astronomical Society in London and attended by most of the European and American teams working on extremely large telescopes, Gilmore announced that the European groups will work together on a single project. And although the telescope's size, optical design, and location are still to be decided, the ELT steering committee met for the first time this week in Garching, Germany, to plan future work. "This is a big step ahead for Europe," says Torben Andersen of Lund Observatory in Sweden.



All-seeing eye. The proposed OWL telescope would gather more light than all the scopes in the history of astronomy.

CREDIT: ESO

The ELT will build mainly on the results of two large design studies carried out over the past few years. Euro50 is a proposed 50-meter telescope under study by scientists in Finland, Ireland, Spain, Sweden, and the United Kingdom. Like all of the planned giant telescopes, Euro50 would have a segmented mirror consisting of hundreds of hexagonal tiles combined to make a reflecting surface longer and wider than a Boeing 747. Euro50 would cost about $600 million, says Andersen, its technical project leader. Much more ambitious is the Overwhelmingly Large Telescope (OWL), designed by ESO. With a 100-meter mirror, OWL would stand almost as tall as the Great Pyramid but still cost a "mere" $900 million, says project engineer Philippe Dierickx, thanks to standardization and mass production in its design. Even a 50-meter ELT would have more light-gathering power than all telescopes in the history of astronomy put together and would revolutionize the study of just about every possible class of objects, scientists at the London meeting said.

Members of the design team acknowledge that building ELT won't be easy. "These are very exciting prospects, but many details need to be worked out," says Isobel Hook of the University of Oxford. In particular, astronomers still have to design workable adaptive optics for very large telescope apertures. But Andersen is confident: "Many bright people are working on adaptive optics, and they have already made wonderful progress."

Funding will pose another huge challenge. Gilmore estimates that operating costs alone will add up to $1 billion over 10 years. To garner such sums, the European partnership may have to go global. Andersen and Dierickx say they would welcome a collaboration with colleagues in the United States. But American astronomers might need to be convinced that jumping straight to a 50- or 100-meter mirror will work. "Thirty meters is the next logical step," says Richard Ellis of the California Institute of Technology in Pasadena, one of the leaders of the 30-meter California Extremely Large Telescope project, which got a boost this fall when Caltech made it the centerpiece of an ambitious fundraising campaign (*Science*, 8 November, p. 1151). Building a much larger telescope is just too risky, Ellis told those attending the London meeting.

But ESO's Dierickx says that the American approach, which scales up the design of the 10-meter Keck telescopes, is too conservative. ESO plans to come up with an entirely new design that makes maximum use of standardization and mass production, he says. According to Gilmore, the ELT design study will likely take 4 years to complete. After that, another 8 years will be needed to build the monster telescope, probably at La Palma in the Canary Islands or in Chile's Atacama Desert. "If Europe could build it without the U.S., we would," says Gilmore. "Competition is a good thing. It makes you try harder." –GOVERT SCHILLING

Govert Schilling is an astronomy writer in Utrecht, the Netherlands.