While it is well placed to "catalyze" useful research projects, the center lacks the authority to fund these projects without the explicit approval of its member nations' representatives. To avoid rendering the center a "needless and powerless middleman," the report states, its members should allow it to distribute as much as one-quarter of its funding unilaterally.

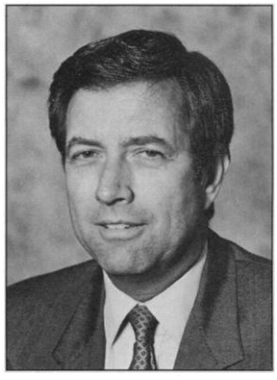
Civilian science in the former Soviet Union also offers the West great opportunities thanks to cheap labor and "unique assets" such as research vessels, observatories, and botanical collections. As a result, the academy recommends that the United States provide at least another $25 million this year to facilitate collaborations between civilian scientists and their U.S. counterparts through the extramural programs of agencies like the National Institutes of Health and the Department of Energy. U.S. science agencies could begin shipping journals and obsolete, but still useful, laboratory equipment to former Soviet scientists involved in collaborations, the report suggests. Finally, the academy endorses Representative George Brown's (D–CA) proposal for a $200 million binational foundation to support peer-reviewed projects.

Interdisciplinary research and technology commercialization could best be helped by changes in laws and regulations in the United States and the former Soviet republics, the academy says. For instance, the U.S. government should revise regulations that currently restrict American firms from purchasing high technology from the former Soviet republics; relax U.S. export restrictions, particularly for computer and telecommunication technologies; and remove barriers to signing research contracts between U.S. agencies and former Soviet laboratories. At the same time, the report notes that the republics need to set up clear intellectual property laws; eliminate high taxes on hard currency provided through research grants and contracts; and create a reliable banking system.

Few, if any, of these suggestions will come cheaply, since the dollar figures cited by the academy are merely estimates of what the U.S. government could spend in the current fiscal year. "We're hoping that this $25 million match will ignite a much larger fire," says Carter. ■ DAVID P. HAMILTON

Science and Science Advice in Favor at EPA

Science and peer review are about to get a big promotion at the Environmental Protection Agency (EPA), according to the agency's chief research officer, Erich Bretthauer. A plan drawn up by Bretthauer and approved last week by EPA chief William Reilly will create a network of about 15 science advisers throughout the agency, all reporting to Reilly. The aim is to make every office aware of the science in actions EPA is considering. The plan also includes an expanded external grants program and a new $5 million fund to support elite positions for five senior scientists at EPA. Reilly cleared a 19-page action memo on 14 March that will put some of these changes into effect immediately. Others will take a year or more to carry out, says Bretthauer, director of the Office of Research and Development.



Science booster. *R&D chief Erich Bretthauer.*

The effort is a response to a critical review* of EPA's science that also came out last week. A panel of experts, created at Reilly's behest, found that "EPA science is of uneven quality, and the agency's policies and regulations are frequently perceived as lacking a strong scientific foundation." The panel, chaired by University of Texas civil engineer Raymond Loehr, also concluded that EPA "does not have a strong science agenda," that scientific advice "is not considered early or often enough in the decision-making process," that the agency needs more and better peer review, and that it "lacks the critical mass of externally recognized scientists needed to make EPA science generally credible to the wider scientific community."

As a remedy, Bretthauer has proposed putting a chief scientific adviser in Reilly's office to supervise the agency's peer-review system and see that technical issues get high-level attention. Just as important, says Bretthauer, a flock of similar advisers would be stationed throughout the agency—one in each major program office and regional center—and all would meet regularly in a science council to discuss agency-wide issues.

The peer-review system would be expanded and made more formal. EPA would deemphasize contract research, Bretthauer says, cutting the amount spent in this category 35% below the 1991 level. The money saved will be channeled to external, academic researchers, who will compete for grants in a peer-reviewed system. Within the agency, scientists in Bretthauer's office will be given a chance to advance on a career ladder without necessarily taking managerial posts. Promotions will be based on merit as reflected in the recent (last 3 years) publication of articles in peer-reviewed journals. "I don't see any better way" of judging scientists' performance, says Bretthauer. Some people at EPA may not welcome this last proposal, says Bretthauer, especially technical workers outside his office who spend more time on regulatory work than on direct research. His solution: retain tough publication standards, but rotate scientists through the regulatory jobs so that everyone has a chance to keep up with his or her research and no one stays too long in one place.

EPA has been criticized for failing to examine its past and assess what it has accomplished with regulations. Now Reilly is proposing to do more retrospective studies and evaluate the effectiveness of the agency's work. This is part of a general plan to look at all environmental concerns in the context of national policy, says Bretthauer. Already, Bretthauer says, the agency has been trying to adopt a risk-based, rather than a legalistic, approach as it plans future research. The goal is to make sure that big decisions are based not on narrow concerns but on a consensus of what will do the most good for the environment.

The common theme, Bretthauer says, is that "we're trying to tilt on a wide variety of issues toward higher quality." This is welcome news to members of the advisory committee that recommended these changes. Says panel member Bernard Goldstein of Rutgers University and the University of Medicine and Dentistry of New Jersey-Robert Wood Johnson Medical School, the reform proposals are "dynamite...if Reilly follows through." Until now, it's been "very difficult for EPA to interact with the external scientific community." Maybe it will change now, Goldstein says. ■ ELIOT MARSHALL

*Safeguarding the Future: Credible Science, Credible Decisions, EPA, March 1992.