

RUSSIA

Science Agency Hit With 55% Cut

MOSCOW—In an effort to eliminate an \$18.5 billion budget deficit, the Russian government announced late last month that it will slash this year's funding to the Russian Foundation for Basic Research (RFBR), and many other government agencies, by 55%. The new RFBR head, Mikhail Alfimov, says the cuts will damage the majority of research programs supported by the foundation and undermine reforms intended to establish a system of competitive financing of research. "These measures destroy the infrastructure of science. The RFBR has just established itself as a new-style funding body, which marks a new approach to the structure of science, and now it's all under threat," Alfimov says.

The cuts are part of a major budget "sequestration" begun in April by the new deputy prime minister, Anatoly Chubais. The government originally hoped to avoid cutting certain "protected items," including science, but in desperation it has decided that all items in the budget except salaries should be cut in equal proportion. Although the sequestration has not yet been approved by the Duma (the lower house of the parliament), the finance ministry has already started to reassess current funding levels.

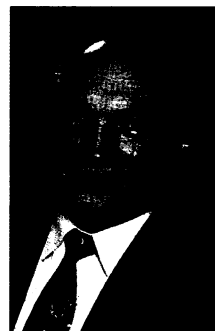
In addition to the RFBR, the government will cut all federal research programs funded on a competitive basis and trim the budget of the Russian Academy of Sciences (RAS) by 25%—a smaller amount because much of its spending is on salaries. As a result, Mikhail Glubokovsky, deputy head of the Duma committee on science and education, told *Science*, the balance will tip away from competitive funding toward the centrally funded RAS. "The Cabinet has taken the liberty of ... reconsidering state priorities. It's a structural counterrevolution," he says.

Alfimov worries that researchers will stop applying to the RFBR if the success rate of applications drops too low. Already, the RFBR can fund only 20% of applications, and although it received a big boost in funding for 1997, the cuts will bring it below 1996 levels. "If we don't have the money, researchers will stop applying to us. Who would want to spend a great deal of his effort and time to get nothing in the end?"

Glubokovsky sees two ways out of the crisis: The Duma could pass a new law making it impossible for the government to cut protected items of the budget, or—much likelier, he says—it will simply delay a decision on the sequestration law for as long as possible. This has been hinted at by the Duma's Communist Speaker Gennady Seleznev, who in a recent interview outlined a

lengthy procedure for polling all the regional administrations in Russia for approval of the sequestration law.

Meanwhile, the recently appointed deputy prime minister in charge of science and technology, Mikhail Bulgak, has announced plans that could pave the way for closing some of the huge number of research institutes left over from the Soviet era. Bulgak wants to begin immediately classifying institutions based on the quality of their research and then fund them accordingly. Institutes carrying out world-class science would be in the first grade, those with re-



Reformer. Deputy Premier Mikhail Bulgak.

search of national importance in the second, and the rest in a third grade.

Gennady Tereshenko, deputy minister of science, says institutions would be graded by a panel consisting of ministry of science officials and representatives of the Russian scientific community. Former Science Minister Boris Saltykov told *Science* that he supports Bulgak's new initiative entirely, but he expects it will be opposed by "the lazy elite" of academicians and institute directors. "I assure you this opposition will be very active," he says.

—Andrey Allakhverdiv and Vladimir Pokrovsky

Allakhverdiv and Pokrovsky are writers in Moscow.

INTERNET INITIATIVE

A Networking Plan for the Rich States?

A \$100 million a year proposal by the Clinton Administration to connect more than 100 universities and laboratories to a faster and more capable computer network ran into its first serious opposition last week as legislators complained that it would leave poorer states behind. "I think you should go back to the drawing board," Senator Ted Stevens (R-AK), chair of the powerful Appropriations Committee, advised a group of

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—Sen. Ted Stevens (R-AK)

federal officials testifying about the Next Generation Internet (NGI) initiative before a subgroup of the Senate Commerce Committee. "The institutions you're supporting, they don't need you—and we do."

Stevens and others are concerned that a separate set of research networking grants from the National Science Foundation (NSF), seen as paving the way for NGI, have gone mostly to elite universities in wealthier states. They also have complained that an advisory committee reviewing federal information technology programs is stacked with representatives from California and, therefore, likely to ignore rural needs. Government officials say, however, that NGI is a research project and that quality rules.

The NGI is designed to give thousands of

researchers the chance not only to exchange large databases and carry out joint research but also to develop better technologies and new uses for such an electronic superhighway (*Science*, 7 March, p. 1412). "This is an experimental project that's intended to push the technology," NSF director Neal Lane told communications subcommittee chair Conrad Burns (R-MT).

Last month, NSF announced 21 grants, averaging \$600,000, to 35 institutions to allow them to communicate at speeds of 155 million bits a second on NSF's fledgling very high speed Backbone Network Service. Program officials say those connection awards, combined with an earlier round of grants last summer, bring them more than halfway toward one of NGI's goals: to connect 100 sites at 100 times the speed of the existing Internet. But some legislators complain that few of the institutions chosen so far are in rural states. "Why would you proceed with a project that will further isolate the rural communities?" Stevens asked Lane. "You're using federal funds to help those who have already benefited from the system."

In response, agency officials say they see the NGI as a scientific work in progress, not just a new electronic highway. "We're looking for the best ideas, and geographic distribution is not a criterion," says NSF's Mark Luker, who runs NSF's \$20 million a year connections program. John Connally, whose Center for Computational Research at the University of Kentucky received one of NSF's new connection grants, says, "My advice to the have-not states is to send in a proposal and tell NSF what research you want to do [on the network]."

In February, the Administration created a panel of outside experts to review policies on information technology, including issues of network access. But last month, two dozen senators complained in a letter to presidential science adviser Jack Gibbons that 11 of the first 20 members (five more appointments are expected shortly) of the panel live in California, that rural states were not represented, and that the proposed NGI "leaves our states outside the loop."

Testifying before the committee, panel co-chair and computer scientist Ken Kennedy of Rice University in Houston said his group is concerned about the issue of equity and plans to discuss it at its next meeting later this month. "There's no question that the rural states have problems with access," Kennedy said after the hearing. But he added, "I'm not sure that a research project is the right place to fix that."

Some senators at the hearing made it

clear, however, that they are looking for signs that the Administration will address the needs of rural America. "If you don't do a better job," said Senator Ron Wyden (D-OR), "there's a risk that Congress will not fund the initiative. Senator Slade Gorton (R-WA) went even further: "What you heard [from Stevens] wasn't a question; it was a statement from the chair of the appropriations committee."

—Jeffrey Mervis

BIOMEDICAL ETHICS

Clinton Urges Outlawing Human Cloning

In the next few months, cloning a human being is likely to become a crime in the United States, thanks in part to recommendations issued this week by the President's National Bioethics Advisory Commission (NBAC). This 18-member panel of experts—chaired by Princeton President Harold Shapiro—met on 7 June to hammer out the final details of a report on cloning requested by the president. Two days later, Shapiro and the NBAC members delivered the document to President Clinton at the White House. Their main recommendation is strong but narrow: "Federal legislation should be enacted," NBAC says, "to prohibit anyone from attempting, whether in a research or clinical setting, to create a child through somatic cell nuclear transfer cloning." While such a ban would cover both public and private labs, it apparently would not limit biomedical research now under way.

Clinton adopted this recommendation, announcing that he is immediately sending legislation to Congress that "prohibits anyone in either public or private sectors from using these techniques to create a child." Clinton declared that human cloning "has the potential to threaten the sacred family bonds at the very core of our ideals and our society." In a seeming afterthought, he noted that "There is nothing inherently immoral or wrong with these new techniques," if they are not used to clone humans, because they "hold the promise of revolutionary new medical treatments and lifesaving cures."

These messages were both reassuring and disquieting to biomedical researchers. For example, Roger Pedersen, a developmental biologist at the University of California, San Francisco, was relieved that NBAC "did not seek legislative control" over all cloning experiments. But he deplores what he views as an "unprecedented proposal to criminalize an area of research." This action, he says, "makes the specter of human cloning more real than the experimental data" suggest it is. He also worries that once the precedent of outlawing research has been set, "it might lead legislators to draw the line somewhere else," with disastrous consequences.

The NBAC's review began in March, shortly after Ian Wilmut of the Roslin Institute in Edinburgh, Scotland, announced that he had cloned the DNA of an adult sheep into the now-famous lamb, "Dolly." This success triggered an explosion of concern about the cloning of humans. Congress began to talk about new laws, and President Clinton joined the fray. He ordered a moratorium on the use of federal funds for the cloning of humans and asked NBAC to report back in 90 days with recommendations.

In its 90-day analytical sprint, NBAC heard from religious leaders, legal scholars, professional ethicists, scientists, and opinionated citizens—all offering views of a bio-



Mutual applause. President Clinton likes advice presented by NBAC chair Harold Shapiro.

medical event that has not yet occurred. In the end, the 107-page report says, NBAC did not base its policy recommendations on any particular religious or moral view of cloning, because "no single set" of values "enjoys universal acceptance." Instead, it focuses on safety. Noting that it took Wilmut 277 attempts to clone a single healthy lamb, the report concludes that an attempt to clone a child would be "a premature experiment" with "unacceptable risks." It might also do psychological harm. "This in itself," the report says, "is sufficient to justify a prohibition on cloning human beings at this time."

Until a new law prohibiting human cloning is in effect, the NBAC report asks the president to continue the current moratorium on federal

funding of human cloning experiments. It also calls on private medical practitioners, researchers, and scientific societies to "comply voluntarily with the intent of the federal moratorium," observing that "any attempt to create a child" by cloning would be "irresponsible, unethical, and unprofessional."

Despite its emphatic tone, NBAC seeks to draw a clear line between forbidden medical practice and allowable research. The report would prohibit only experiments in which DNA from a human somatic cell is placed in an enucleated human egg "for the purpose of creating an embryo which would then be implanted in a woman's uterus and brought to term." It adds that such a ban should include a "sunset clause" to guarantee that the need for a ban is reviewed by a competent group within 3 to 5 years and possibly ended. (Clinton said he is seeking a 4- to 5-year sunset provision.) Furthermore, the report says, "No new regulations are required" on the cloning of human DNA sequences, cell lines, or animals. The report is silent on the possibility of "twinning" humans by separating early embryonic cells. It also deliberately avoids discussing the cloning of human embryos for research, noting that the president and Congress have already restricted publicly funded human embryo research, although they have not attempted to control private embryo research.

The momentum for some kind of legislative action to limit cloning is certain to increase with this new endorsement, but NBAC hopes its report will head off some of the more extreme proposals. According to the report, 10 states have now proposed laws that would ban human cloning, some of them worded so broadly that they might prohibit the cloning of certain cells and tissues used in research.

In Congress, too, Clinton's proposal is only one of many. Three bills had already been introduced in Congress—one in the Senate, two in the House—that would outlaw or permanently prevent the use of federal funds for human cloning, using what some regard as imprecise language. The next move is up to the lawmakers.

—Eliot Marshall