Will aplenty, but is there a way?

Chicago

As the science machinery of the former Soviet Union continues to crumble, there are no shortage of ambitious schemes to save it: last week alone, the chairman of the US House of Representatives science committee unveiled a proposal to set up a \$200-million foundation to sponsor peer-reviewed research in Russia, and Administration officials revealed that they were hoping to set up several centres to find and support nondefence research for scientists now working in the country's military research centres. Among the other initiatives is a congressional bill that would spend a portion of \$400 million saved from US defence cuts to bail out Russian science, and discussions involving several private foundations as to how they can best do their part.

In an initiative unveiled last week at the annual meeting of the American Association for the Advancement of Science (AAAS) in Chicago, Representative George Brown (Democrat, California), chairman of the House Science, Space and Technology Committee, announced plans to introduce legislation that would create a \$200 million endowment to fund peer-reviewed research in Russia. Called the "US/Russian Science & Technology Foundation", Brown's proposed fund would require matching contributions (in rubles or indirect support) from the two govern-

ments, much like the joint research foundations that now exist between the United States and Israel. Brown also proposed a similar foundation to support industrial research and development, providing partial funding for high technology ventures linking Russian entrepreneurs with US business partners. The science committee staff plans hearings on both initiatives later this year.

But when it comes to real money, here and now, Russian scientists appear to be far down the priority list, after food, humanitarian aid, arms control measures and economic training. Any substantial US support of basic research in the former Soviet Union appears to be a year or more away.

Even among the sectors that do have Russian science on their list, little seems likely to happen soon. Part of the problem is simply that such large efforts take time; even if the congressional bills are eventually approved, money is not likely to be available until next year. There is also some uneasiness about sending large sums to support Russian researchers when US researchers in many fields are struggling.

But perhaps the most difficult problem to resolve is how, exactly, to ensure that money for Russian science goes to the right people. Research in the Soviet Union has traditionally been funded in classic Soviet fashion, with a central policy-mak-

ing body dividing up the science budget into block grants to various institutions. Directors of those institutions generally allocated those funds as they saw fit, which often meant that the best-connected and most politically aware scientists got the most money. Despite the political changes in the country, this is still relatively unchanged.

Many of the new proposals to aid Russian science aim to circumvent these remnants of Soviet bureaucracy. Brown's proposal, like many others now being considered, would sidestep the 'top-down' funding approach, in favour of individual grants to scientists on the merits of their research alone. He foresees a peer-review panel of Western scientists who would decide which joint US-Russian proposals to fund. This is an idea endorsed by many Russian researchers, who see outside appraisal as the only way to avoid the traditional morass of favouritism and connections. "It is most important to determine the quality of the science," Evgeny Sverdlov, director of the Moscow-based Institute for Molecular Genetics, told a panel at the AAAS meeting. "Otherwise the true scientists will be killed off and the idlers will remain because they have relatives in government."

Peer review is not an issue for Secretary of State James Baker, who is expected to offer a plan to help Russian defence

Stopping the Russian nuclear brain drain

ABOUT 2,000 military scientists of the former Soviet Union are expected to be offered employment in an international scheme for the safe decommissioning of surplus nuclear weapons. The scheme is intended to discourage the scientists from accepting jobs with the armaments programmes of aggressive developing countries. An agreement was reached in principle two weeks ago at a meeting between Presidents Bush and Yeltsin in Washington.

Professor Valeri Mikhailov, publicly identified for the first time two weeks ago as the director of Russia's nuclear weapons establishment, said in Moscow that up to 15,000 specialists employed in the programme had access to classified information on plutonium production and uranium enrichment techniques and about 2,000–3,000 knew a great deal about nuclear bomb design.

The elite military scientists had until recently enjoyed considerable privileges. They now earn salaries worth less than \$150 a year at the official rate of exchange. Former Soviet weapons scientists have been offered up to \$400,000 a year by developing countries, payable through secret Swiss bank accounts, according to Augusto Forti, director-general of the Venice-based European Institute for East-West Cooperation.

Although they are still subject to a five-year ban on emigration, many observers doubt whether it is enforceable in the present state of transition. Mr Roland Dumas, the French foreign minister, has now returned from a visit to the

four nuclear republics where they are employed and where he tried to persuade the authorities to enforce that ban vigorously.

The scientists are expected to be offered work by a projected new international scientific research centre. The plan coincides with warnings of the danger of radiation leaks — which Mikhailov says could turn the country into "one big Chernobyl" — arising from an inadequately executed programme for the dismantling of unwanted nuclear weapons. Britain and the United States have already promised specialist military assistance and technological support for the decommissioning programme.

The employment plan was formulated largely by Germany, Britain and the US. Mr Hans-Dietrich Genscher, the German foreign minister, has warned that the unemployed military experts are "wandering technological mercenaries" who could fall "easy prey to recruiters for irresponsible potentates with ambition to build weapons of mass destruction". Mr Richard Cheney, the American Defence Secretary, has named Iraq and North Korea as countries likely to compete for Soviet-trained scientists; Western analysts also worry about Syria, Libya and Algeria as well as Iran. Britain raised the issue at the recent Washington conference on aid to the former Soviet Union.

Foreign headhunters have already staged some well publicized operations in the former Soviet republics of Central Asia near Iran, where several military research and development complexes are based. Morale at the weapons establishments is low, with salary cuts of 40 per cent being imposed and a staff cut of up to 60 per cent expected.

Thomas Land