Peer review: NIH urged to streamline bids ...

Washington. Senior scientists in the US biomedical research community last week expressed enthusiasm for simplifying the processing of grant applications by the National Institutes of Health (NIH) by using only outline proposals for initial screening.

Many agreed that peer review is now too nit-picking and needs to get back to the main purpose of evaluating scientific merit. The favoured approach is being referred to as 'just in time', after the concept developed by the Japanese car industry. There was less enthusiasm for a proposal set-price grants for small projects.

But Bruce Alberts, president of the National Academy of Sciences, also admitted that "things can go wrong" with the scientific panels that are central to the NIH's system of peer review.

Alberts was speaking at a meeting organized by Harold Varmus, director of the NIH, to discuss ways in which peer review could be made fairer, more efficient and less cumbersome for both applicant and reviewer.

The NIH has a two-tiered process for evaluating unsolicited proposals. Initially such proposals go to a panel of scientists, known as a study section, who have expertise in a particular field — such as biomedical endocrinology — and review applications for their scientific merit. An application receiving a sufficiently high score then passes to a second panel within the relevant institute. This decides whether the proposal fits the institute's research priorities.

The NIH is already experimenting with one modification intended to reduce the workload of the study sections (see *Nature* **369**, 269; 1994). But many feel that more sweeping changes are needed. As funding has become tighter in recent years, for example, applicants have refined the art of grantsmanship, fine-tuning their applications to meet anticipated questions.

At the same time, in an attempt to make fine distinctions among many high-quality proposals, study section members can find themselves discussing the minutiae of experimental methods. "My concern is to get back to a time when the only thing that a study section considered was scientific merit," says David Botstein, chair of the department of genetics at Stanford University.

The budgetary squeeze that is largely responsible for the close scrutiny is unlikely to go away in the near future, so the NIH is looking for organizational changes that would throw the emphasis of review back to a consideration of overall scientific merit.

The 'just in time' idea met with general approval. Researchers would submit an application detailing the science proposed but containing only a rough outline of costs; a detailed budget would be submitted only if the study section approved the science. "This could do for the NIH and the universities what it did for Toyota," said Botstein.

Other suggestions were more controversial. One was a proposal that scientists in search of smaller grants might apply for preset amounts, say $100,000 or $150,000. This would free the applicant from having to account for every cent spent on equipment, allowing the study section to concentrate on the quality of science, and whether it could be done for the sum requested.

But despite favourable comments — and the fact that a National Commission on Research recommended this approach in 1980 — several participants voiced concern over how the amounts would be set, and what would happen if the price of a piece of research fell between two preset levels.

A less popular suggestion for reducing the time spent on reviewing applications was that scientists with an established track record should be allowed to write a shorter proposal than junior scientists. Sharon Murphy, chief of haematology and oncology at the Children's Memorial Hospital in Chicago, said it might be seen as an "old fogey's network".

The composition and organization of the ▶

. . . as Britain seeks to reassure

London. Britain's Office of Science and Technology has launched what one observer describes as a "charm offensive" designed to reassure university researchers that new procedures for evaluating research grant applications will continue to make significant use of the peer-review process.

Last week, William Waldegrave, the minister for science (and rumoured at the time as a potential victim in this week's anticipated cabinet reshuffle), issued a statement in which he confirmed that peer review would "remain centre stage".

The statement was intended to reassure parts of the scientific community — whose concern has already been picked up by opposition politicians — about the implications of new procedures for evaluating research grant applications being introduced by, in particular, the Engineering and Physical Sciences Research Council (EPSRC).

In particular, fears have been expressed that the explicit mission given to the research councils in last year's white paper of contributing towards wealth creation could reduce the emphasis placed on scientific quality in assessing whether a particular application is funded.

There is also concern that the introduction of non-scientific criteria in allocating research funds — together with a decision by the research councils to streamline the functions of their scientific advisory committees and place greater responsibility in the hands of programme managers — will reduce the influence of the scientific community on the councils' decisions (see *Nature* **368**, 85; & 369, 3; 1994).

In defending the new system after its formal approval by the council last month, Richard Brook, professor of materials at the University of Oxford and the newly appointed chief executive officer of the EPSRC, claimed that his goal is to improve the efficiency with which grant applications are processed.

Most scientists seem to approve of the steps to streamline peer review, agreeing that the present system is both cumbersome and time-consuming. Until now, for example, all applications have been considered by a full peer-review committee; future applications will receive an initial screening by three individuals, and only those passing this hurdle will be considered by a full review group, made up of individuals selected from a pool of members of a subject-based 'college'.

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Brook: seeking greater efficiency.

Grant-holders say that they are also reassured by the Office of Science and Technology's insistence that council officials, in deciding which applications are to be funded, "will not vary the rankings of scientific quality made by the peer reviewers". ▶

Aubert appointed as director of CNRS

Paris. **Guy Aubert, currently director of the Ecole Normale Supérieure in Lyons, has been officially nominated to succeed François Kourilksy as director-general of France's Centre National de la Recherche Scientifique.**

Aubert is a physicist specializing in magnetic materials, and has been director of the Lyons institution, which he helped to create in 1985, since 1988. He was also rapporteur for the series of colloquia on research organized last year by François Fillon, the research minister, and was responsible for preparing the "synthesis" report submitted to the final national colloquium earlier this year. □

study sections also received close attention at the meeting. Alberts lent the weight of his office to the debate by pointing out that biology is changing more rapidly than the composition of the study sections. "Even when the study sections reflect the current fields in biology, their expertise decays and they cannot attract the likes of a Harold Varmus," he said.

His remarks stimulated nods of agreement. Ira Mellman, a professor in the department of cell biology at Yale University said that the composition of the study sections was the most important public policy decision facing NIH over how to spend its money. Asked later if he agreed with Mellman's assessment, Alberts said: "Yes, I like that."

The issue is to be addressed by Keith Yamamoto, chair of the department of pharmacology at the University of California, San Francisco, at a meeting in the autumn. Yamamoto points out that work on hormone receptors would once have involved only physiologists, but now it involves X-ray crystallographers, geneticists and developmental biologists.

NIH admits that it can be difficult to recruit people to study sections. Appointments last for four years, and are time-consuming. The feeling at last week's meeting was that peer review carries the same civic responsibility as jury duty. Dissatisfaction was expressed with scientists who have received grants from the NIH yet refuse to serve as peer reviewers. Many can expect a personal phone call from Varmus during the coming months. **Helen Gavaghan**

doubters over policy changes

But even with such reassurance, there remains concern that a commitment to pursue wealth creation will inevitably mean that, whatever peer-review judgement is made, the final decision on a particular grant application will also involve non-scientific criteria. According to the council, for example, even in the pre-screening of research applications, one of the three reviews will be expected to reflect the views of the potential 'users' of the results of the research.

More generally, there is unease among some scientists that the abolition of the council's scientific committees will deprive those engaged in the peer-review process of a chance to develop a proper overview of their discipline. "Peer review is not the centre of our concerns," says John Ringrose of the University of Newcastle upon Tyne, who is president of the London Mathematical Society, Britain's main body for professional mathematicians. "What worries us is that the EPSRC may adopt an approach to research and research training that takes little account of those involved in the peer review process."

According to Ringrose, for example, the only "coherent view" of a field will now be that held by programme managers. He and others suggest that this will inevitably shift the balance of power between the council (and its officials) and the scientific community when it comes to strategic decisions.

Council officials defend the new changes as part of their efforts to increase the efficiency with which research grants are handled. While playing down the extent to which the council has been motivated by government directives to reduce costs, one motivation has been the need to reduce administrative costs.

Brook denies that scientists have been deprived of an opportunity to inject their ideas into the policy-formulating process. He points out that this will now be done through the new 'technical opportunities panel' which, in parallel to a separate 'users panel', is being set up to advise the council on its strategic priorities.

Senior officials of all six research councils last week had a meeting with officers of the Royal Society in London, which had expressed concern at the potential threat to the tradition of reviewing applications purely on the basis of scientific excellence.

After the meeting, Sir Michael Atiyah, the president of the Royal Society, said that he had been "moderately assured". But he added that he was reserving final judgement until further details have been published of precisely how the new mechanisms are to be put into practice.

The EPSRC is planning to circulate its detailed proposals on issues such as the planned arrangements of the discipline-based 'colleges' soon, with a goal of introducing the new procedures on 1 January next year. Both Brook and Alan Rudge, chairman of the EPSRC, will discuss the proposals at open meetings throughout the country in September and October. These promise to be lively affairs. **David Dickson**

World Bank report slams Western-style university model

London. The European model of higher education is inefficient, relies too heavily on government funding, and is inappropriate for developing countries, according to a World Bank study published last week.

Faced with a worldwide increase in demand, countries are having to maintain or improve standards of higher education at the same time as budgets are being cut. The crisis has been most acute in developing countries, says the report, where expanding student numbers have had a dramatic impact.

A contraction in student expenditure — in Sub-Saharan Africa, for example, this fell from an average of $6,300 per student in 1980 to $1,500 in 1988 — has meant that the quality of teaching and research in many countries has deteriorated "precipitously" says the report.

Higher education institutions in these countries are faced with overcrowding, deteriorating physical facilities, and lack of resources for textbooks, educational materials and basic laboratory consumables.

The report says that science and technology has been particularly badly affected in developing countries. This is reflected in the fall in scientific output. In Ghana, for example, the number of science papers published dropped by 67 per cent between 1977 and 1987; there was a decline of 53 per cent in Uganda over the same period.

The World Bank, which has lent US$5.1 billion for higher education since 1980, says that the solution lies in greater private financing of higher education, accompanied by improved efficiency and quality in publicly-funded institutes.

In particular, it wants reform to move in four key directions: encouraging a greater differentiation of institutions (including the development of private institutions); giving public institutions incentives to explore alternative sources of funding; redefining the role of the government; and introducing policies to give priority to quality and equity.

According to Thomas Eisemon, one of the report's authors and a senior specialist at the World Bank's education department, the decline in science research output, particularly in Africa, is the natural consequence of lack of resources. In some countries lecturers are having to supplement salaries as low as US$30 per month by taking on additional jobs, while the buildings themselves fall into disrepair. As he says: "You can't teach biochemistry under a tree."

The controversial findings of the report echo feelings in post-communist east central Europe that countries should not emulate western university systems, but should instead learn by their mistakes (see *Nature* **369**, 600; 1994). **Maggie Verrall**