US woos African states with science

Washington

Trade, it seems, no longer follows the flag but the lab. Washington's top science administrators departed for Africa last week for a ten-day trip aimed at stimulating scientific and technical cooperation with four "moderate" African states — Nigeria, Kenya, Senegal and Zimbabwe.

The sixteen-person delegation is headed by Dr Frank Press, director of the Office of Science and Technology Policy (OSTP). Other members include the administrator of the National Aeronautics and Space Administration, the acting director of the National Science Foundation and the director of the National Institutes of Health.

The practical goal of the delegation is to sign a number of agreements with the four countries for programmes of mutual cooperation. These range from setting up an experimental rural telecommunications system based on satellite technology in Senegal to a broad programme of vocational training courses for Nigerian science and engineering students in US universities and technical colleges.

The delegation's visit is also part of a broader strategy to strengthen links with four African countries with which the United States currently has the best relations. The intention is to help these countries to gain economic stability by promoting their technical efforts — and this in turn should provide a basis for their political stability.

In at least one case there are pragmatic reasons for the United States to want to maintain close political links. Nigeria is at present the nation's second largest supplier of petroleum (after Saudi Arabia); and continuation of this supply is important for the nation's security.

Some money is to be made available by the federal government so that agreements reached during the visit can be followed through, for example by arranging for the reciprocal visit of African scientists and policy makers to the United States. But for many countries, additional fiscal resources are less important than access to people and institutions in the United States able to help with their development problems.

OSTP expects agreements for cooperation to be signed in fields such as marine sciences, environmental resources, agriculture, remote sensing, satellite communications, alternative energy sources and the management of scientific research and technical information.

Three of the countries — Senegal, Kenya and Zimbabwe — will be able to benefit from financial and technical assistance offered under the term of US aid policies. In the fourth, Nigeria, the average income is above the limit for concessional terms to be permitted, and the United States will be looking for costs to be reimbursed.

Many of the agreements due to be signed cover areas that would have been the responsibility of the ill-fated Institute for Scientific and Technological Cooperation (ISTC). The setting up of ISTC was proposed by President Carter in 1978 and authorized by Congress last year, but because of a dispute with the Senate over funding is unlikely to come into existence. However, Dr Press said that the scope of the cooperative agreements, which will include feasibility studies of a Nigerian-based tuna industry and a project on ammonia-based synthetic fuels in Zimbabwe, will go beyond the role that had been intended for ISTC. The mission, according to Dr Press, has the full and active backing of President Carter, who had for example discussed it with Dr Robert Mugabe, Prime Minister of Zimbabwe, who visited Washington last month.

One disappointment for US — and possibly African — officials is that the delegation will not include Dr John Slaughter, a black who has been nominated by President Carter as director of the National Science Foundation.

After an inter-party dispute in the Senate over whether Republican members should assent to the appointment of Democrat nominees in the last few months before the Presidential election, Dr Slaughter's nomination was approved by a Senate committee last Wednesday, and is expected to move swiftly through the full Senate with little opposition. The delay has meant that Dr Slaughter will not be on the delegation and his place will be taken by Dr Donald Langenberg, the foundation's acting director.

David Dickson

Still looser UK guidelines

The Genetic Manipulation Advisory Group (GMAG), responsible in the United Kingdom for the administration of guidelines on recombinant DNA research, has taken a substantial step towards oblivion. From now on, according to the latest revision of its guidelines applicable to university and industrial laboratories, experiments planned for the least stringent of the four categories of safeguards will not be scrutinized in advance by GMAG. Instead, the laboratory safety committee will have to carry through the standard GMAG hazard assessment and assure itself that proposed experiments do indeed belong in Category I. Laboratories will be required to inform GMAG in September each year of all experiments carried out under this licence in the previous year.

Sir William Henderson, chairman of GMAG, estimated last week that this step will relieve GMAG of 90 per cent of its present work. Because of rules which allow much other research to proceed once GMAG has been notified, it is estimated that only some two per cent of the experiments now being planned will have to await formal permission from GMAG.

The proposal that laboratories should be granted an annual licence to carry out experiments in Category I was first considered by GMAG in November 1978, at its first radical revision of the guidelines. The committee then considered that further information was necessary before the matter could be decided.

Sir William and other members of the committee are at pains to emphasize that this most recent revision of the GMAG procedures has been made possible by the accumulation of information in the past two years, and especially by evidence that the capacity of genetically manipulated bacterial cells to produce foreign protein molecules is limited. The assumption is that the production of foreign protein molecules from a single *Escherichia coli* bacterium with a foreign gene at a plasmid site chosen for expression will not exceed 10^6. This, the argument goes, provides ways of quantifying the maximum amount of foreign protein produced in the infection of, say, the human gut by genetically altered bacteria. On this basis, the maximum amount of insulin produced in the gut by *E. coli* carrying an insulin gene could not exceed the equivalent of 0.6 units of the hormone, compared with the 20 or 30 units normally circulating in the body.

Laboratory safety committees will be expected to verify such estimates made by those wishing to carry out experiments, and to adjudicate specific proposals for categorization of the experiments concerned. GMAG itself expects that there will be further revisions of the guidelines, no doubt tantamount to further relaxations, in the not too distant future.

GMAG's own concerns are increasingly with proposals for large-scale manufacture — although the volume of applications so far has, apparently, been surprisingly small. Sir William considers, however, that both in respect of what GMAG requires from industrial applicants and more generally, British regulation of genetic manipulation is now less stringent than in the United States.

On large-scale production plants, for example, GMAG has taken the view that it is not feasible to enclose 100,000-litre fermentation vats in completely sealed containers or to operate them under negative pressure. Safety assessment, therefore, turns on an on-the-spot appraisal of the manufacturing plant and proposals for its

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