

UNESCO falters in bid to draft human genome treaty

Paris. Next month, the general conference of the United Nations Educational Scientific and Cultural Organization (UNESCO) is due to consider proposals for an international agreement to control human genome research and its applications, a brainchild of its director-general, Federico Mayor.

But at a two-day meeting in Paris last week, the organization's International Bioethics Committee (IBC) failed to clarify either the legal status or the proposed content of such an agreement, fuelling sceptics' fears that, even if agreement is reached, it could be either ineffective or unworkable.

The committee is made up of 50 members drawn from both the developed and developing world. Almost a third are scientists, including three winners of the Nobel prize for physiology or medicine (Jean Dausset, Christian de Duve and Rita Levi-Montalcini) and one for chemistry (Sidney Altman).

Eight workshops were held in preparation for last week's meeting. But a planned debate of ethical issues never took place because several speakers ran over their allotted time. And work has not yet been completed by the organization's legal ex-

perts on the form of the accord.

Tom Forstenzer, a senior UNESCO official, defends the time spent on procedural matters as being necessary for people to get to know each other before beginning work. "They have to feel their way through different sets of laws and cultures."

But one member of the committee says that the meeting showed that the diversity of cultures represented at UNESCO makes the debate of ethical issues difficult, and could make consensus impossible. "We need to sort out issues at the national level first. Then countries with broadly similar cultures should see where to go from there."

The chairperson of the IBC is Noelle Lenoir, a prominent French bioethicist and author of the 1991 report that shaped the three bioethics bills submitted to the French Council of Ministers last year.

Lenoir strongly supports the organization's efforts to produce an international agreement on bioethics. UNESCO, she says, "combines the three aspects of the bioethical approach: science, education and culture." The need to take cultural diversity into account, she claims, will be the theme of the agreement. "It's a challenge, but I'm optimistic", she says. "We need to look at the sociocultural consequences of new technology and their effects on [North-South] equilibrium."

According to Lenoir, the IBC will probably draft guidelines rather than a full-blown treaty. The guidelines will be "concrete and pragmatic, and will not stigmatize research", she says. The committee plans to look at the responsibilities of genome researchers, "their right to accede to certain types of knowledge, and how they present results to the public".

The committee is likely to avoid one controversial topic, the ownership of genetic material. UNESCO has previously spoken out against the patenting of cDNA transcripts. But some committee members feel that it lacks sufficient expertise in patent law to reach a consensus.

UNESCO has been promoting the proposed treaty as the main aim of the IBC. But Lenoir says that this is a long-term objective. IBC's first task, she says, will be "to develop programmes to educate and inform teachers, researchers and decision makers, particularly in developing countries".

Clarifying its *raison d'être* may be IBC's biggest preoccupation before its next meeting. "Maintaining the committee simply as a forum — and to encourage participation by developing countries — would not be an unworthy task for UNESCO", says one committee member. "But it must claim to be doing more than that." **Declan Butler**

India fails to lift research spending in industry

New Delhi. Liberalization policies introduced by the Indian government in the mid-1980s in an attempt to boost industrial spending on research and development have failed to achieve their objective, according to a study sponsored by the Department of Science and Technology.

Despite the government's encouragement, such spending has declined, while the dependence of Indian industry on technological imports has increased. As a result, says the study, conducted by the Centre for Technology Studies (CTS) in New Delhi, innovation continues to stagnate.

The process of liberalization was launched in 1985 and completed two years ago, when the government announced a package of measures designed to increase competition in the private sector.

These included the abolition of government controls over industrial enterprises and various steps to encourage foreign investment. Companies have been given freedom to expand, as well as to import technologies and to enter into foreign collaborations without government permission.

The government had hoped that these measures would force companies to increase their research and development spending in order to become more innovative — and thus more competitive.

But according to the CTS study, none of this has happened. Data collected from about 250 companies found that their spending on R&D fell from 1.1 per cent of turnover in 1980 to 0.8 per cent after the economic liberalization.

Faced with stiff foreign competition, many companies preferred to invest in advertising and marketing rather than in product improvement. The study also found that foreign equity in Indian companies had a negative effect on their own R&D efforts, as these companies tended to turn to their foreign collaborators for help.

Many companies cut back on R&D aimed at import substitution after import restrictions were lifted in 1991. No significant technology was acquired after liberalization as the companies lacked the money to make such purchases. Nor was there any evidence of companies becoming more innovative; indeed, the CTS study found that the number of companies taking out patents fell from 22 in 1985 to 13 in 1991.

Ghayur Alam, director of CTS, says that the findings of the study do not suggest that India should return to the restrictive policies of the pre-1985 era. "But they definitely [support] calls for a massive government financial support for R&D in industry, and for more industry-related research in government laboratories." **K.S. Jayaraman**

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REASONS

Ghilleen Prance, director of the Royal Botanic Gardens at Kew and formerly research director of the New York Botanical Garden, has been awarded the first annual prize of the International Cosmos Prize Committee. The prize, worth 40 million yen (\$375,000), is one of the richest in science, and comes from the profits made by the 1990 Expo in Osaka, Japan. Prance, an authority on the rain forests of South America, has said that he intends to use the money to continue his research following his retirement from Kew in 1997.