British Telecom, which has recently improved its profits, will now be able to invest £2,300 million on capital projects in 1982-83, rising to nearly £3,000 million in 1984-85 mostly from its own resources.

British Telecom is now adapting its business to the liberalization announced by the government last October, the chief effect of which is to allow other companies to attach equipment to the telephone network. The government is, however, now apparently considering taking the liberalization a step further by selling off part of British Telecom. The Department of Industry would not comment last week on suggestions that a new telecommunications bill is being drafted for debate in the autumn. But ministers are discussing a document outlining several options for future telecommunications policy.

The Department of Industry is also in the throes of deciding how to spend its own windfall in last week's budget. Around £30 million of the £130 million promised for new technology projects this year will be spent on teletex, a superior type of telex. Competitors for the remaining £100 million include programmes to support the use of microprocessors in industry and research on flexible manufacturing systems, information technology and electronics.

The department's space budget, however, is likely to receive at least some of the extra money, possibly £5 million a year over the next three years. **Judy Redfearn**

Gene manipulation watchdog

Too smooth?

The uniquely British way of regulating research in genetic manipulation, the Genetic Manipulation Advisory Group (GMAG), may yet be a victim of its own success. The immediate difficulty is that its work seems now to have become so uncontroversial that some of its sponsors and even some of its members are asking whether it should continue to exist. A decision one way or the other is likely by the end of the year, when the chairman of the group, Sir Robert Williams, and several of its members come to the end of their term of office.

Since GMAG three years ago adopted a method of qualitative risk assessment for categorizing experiments in genetic manipulation, at least its academic customers appear to have been satisfied with the informality of the procedures. Most academic work in the field appears to require only that laboratories should follow good microbiological practice or, alternatively, the lowest category of safety containment.

While notification of experiments is still legally required, this may be retrospective (in an annual report) for work carried out in open laboratories, while advance approval is no longer required for the

majority of experiments in the lowest category of containment. Notifications of experiments in the second level of containment appear to amount to only about half a dozen a year.

For practical purposes, the burden of assessing the safety of experiments has been devolved from GMAG to laboratory safety committees. The bulk of GMAG's work seems now to consist of the assessment of safety arrangements in laboratories newly embarking on genetic manipulation and the drafting of guidance notes — a revised (and relaxed) procedure for dealing with manufacturing processes appeared only last week.

One substantial problem remaining is the systematic categorization of experiments involving viruses which are not covered by the regulations on the laboratory use of dangerous pathogens but which would involve hazards not now foreseen — oncogenic viruses for example. GMAG is wondering whether to set up a committee to look into this question. But the group has shied away from the field of human embryo transplants on the grounds that such work does not fall within the statutory definition of genetic manipulation and because its members do not have the necessary expertise.

Although both the Confederation of British Industry and the Trades Union Congress, which nominate members of the

group, still mutter that regulation of genetic manipulation might advantageously be transferred to the Health and Safety Executive, which has a statutory responsibility for safety at work, this view is no longer being strongly promoted.

Academic clients of GMAG, on the other hand, would prefer that responsibility should remain with the group, which has become the devil that they know. Academic investigators would also prefer that GMAG should continue in being so as to deal with whatever unforeseen problems may arise.

The most serious threat to the continued existence of GMAG seems to be *ennui*, the lack of obvious challenge. Keeping the group alive is a modest public expense, making it a target for would-be economizers, but abolition would presumably require legislation — and parliamentary time is as scarce as money.

US electronics industry

Pooling effort

Washington

Faced with increasingly intense competition from the Japanese electronics industry, a number of large American computer companies are developing plans to pool a proportion of their research resources into a new venture, provisionally called Microelectronics and Computer Technology Enterprises (MCTE).

The idea is to achieve economies of scale for the companies, many of which invest up to 10 per cent of their annual revenues in research, by jointly funding research projects in such areas as materials science, computer-aided design, manufacturing processing and quality control.

Sixteen companies met in Florida last month to discuss plans for such a venture, which would have a research budget expected to rise eventually to about \$100 million a year. The meeting was also attended by representatives of the Department of Defense and the

UN assists India

New Delhi

The scheme developed by the United Nations Development Programme (UNDP) to encourage Indian scientists settled abroad to return to temporary work in India seems to be making progress. The TOKTEN scheme (Transfer of Know-how Through Expatriate Nationals) got under way early last year (see *Nature* 29 January 1981, p.343) and since then 32 Indian scientists from the United States, West Germany and Canada have visited India to work with industrial units and research institutions.

India has recently become alarmed at the extent of its 'brain drain', especially among scientific personnel. Although there are no official figures, estimates place the number settled abroad at more than 100,000.

The TOKTEN scheme, already hailed as a success in Turkey, was introduced in India, with an initial contribution of \$1.1 million to encourage scientists settled abroad to give the benefit of their knowledge to their homeland. UNDP pays the fares of those who agree to visit India for a period of two or three weeks to help solve technical problems in sectors chosen by the government. The project, which is being implemented by the Council of Scientific and Industrial Research, has evoked a favourable response from both the Indian experts and the organizations with which they have worked, many of which have asked that these scientists should make a return visit or that more should come forward.

Sunil Saraf

Massachusetts Institute of Technology, both of which have indicated their possible interest in collaborating with the joint research effort.

Pressure to find ways of linking the generic research needs of different companies in the computer industry has increased as the costs of research — both in real terms and as a proportion of revenues — has continued to rise.

A report published in 1979 by a panel of computer scientists established by the National Science Foundation suggested that a foundation should be established to raise funds from electronics companies and distribute them to university research departments for carrying out basic research.

As a step in this direction, the California-based Semiconductor Industries Association has established a Semiconductor Research Cooperative (ISRC) to act as a clearing house for companies interested in sponsoring university research. The idea of a separate foundation, however, has remained on the shelf.

Mr William Shaffer, spokesman for the Control Data Corporation which organized the Florida meeting, said last week that the ISRC initiative did not go far enough for the industry and was more limited in scope than the proposal which was discussed in Florida which would embrace not only a range of research activities designed to enhance the production of electronics and semiconductor components — an area in which the United States has lost considerable ground to Japan in recent years — but also provide training and other kinds of assistance to collaborating companies.

Computer manufacturers present at the meeting included Burroughs Corporation, Digital Equipment Corporation, Honeywell Incorporated, Sperry Corporation and Rand Corporation. Among the semiconductor producers were Advanced Micro Devices Incorporated. IBM had been invited to participate but did not attend.

The companies agreed to a general framework for a joint research venture that would embrace both basic and applied research. Such a joint venture will have to avoid conflict with strict American anti-trust laws, which have previously been quoted as a major impediment to collaborative research between different companies in the same industry. The need to "clarify" the application of anti-trust laws to research was one conclusion of an eighteen-month review of domestic policies affecting technological innovation carried out under President Carter; a subsequent report from the Department of Justice, published in November 1980, concluded that "in general, the closer the joint activity is to the basic research end of the research spectrum . . . the more likely it is to be acceptable under the anti-trust laws".

Control Data Corporation says that the outline of its proposals already presented

to the Federal Trade Commission has not met with any objections. The company is hoping that, by stressing the intention of MCTE to carry out research rather than produce electronics components, any potential conflict with the anti-trust laws will be minimized.

David Dickson

UK-Romania cooperation

One-way street

Bucharest

The meeting earlier this month of the UK-Romanian Joint Commission on Trade and Technology produced a novel suggestion from the Romanian delegation: the establishment of long-term joint technological research projects. But the suggestion is unlikely to stimulate a positive response from the British side, since attempts at cooperation over the past decade have almost all become bogged down in bureaucracy and delay.

Even the one moderately viable project — the production under licence in Romania of BAC-111 aircraft — has run into difficulties; and hopes that the finished product might be exhibited at this year's Farnborough air show are rapidly fading.

Joint research and development ventures are impeded not simply by the currency problems endemic in all dealings with Eastern Europe but also by the reorganization of Romanian science during the seventies which has been specifically aimed at eliminating dependence on foreign licences and the development of a native technological base. According to Romanian planners, during the past five years, Romanian research has provided some 90 per cent of the new materials and more than 90 per cent of the new technologies put into production. This appears to leave little room for technological flow and exchange.

Romanian-British cooperation is formally of two kinds. Pure research, including exchange scholarships, is handled by an agreement between the Royal Society and the Academy of Romania. The restructuring of Romanian science has, however, reduced the academy's role.

The driving force in Romanian science is now the National Council for Science and Technology, headed by Dr Elena Ceaucescu, wife of the president, and the main research potential is concentrated in ten "Central Research Institutes" whose emphasis is largely on applications. At the height of the reforms, in the mid-1970s, it seemed that fundamental research might vanish altogether in Romania; now, however, 10 per cent of the science budget is allotted to "fundamental research".

Although at the academic level it has been possible over the past few years to arrange some cooperation projects — such as the exchange agreement between the Polytechnic University of Bucharest and

the Polytechnic of Central London, the types of programmes that would normally fall within the competence of the joint commission are considerably harder to arrange. A joint seminar, held in Bucharest last May, on problems of energy saving in agriculture was — from the Romanian point of view — highly successful, but the British side is reluctant about a return visit, since they felt the "pooling" of knowledge came almost entirely from the British side.

Romanians involved in such ventures admit the disparity. But such one-side arrangements can never prove satisfactory in the long term to the "donor" partner, particularly when all procedural matters are hamstrung by bureaucracy. For, according to a law of 1974, any Romanian scientist contacted by a foreigner must report the matter to the relevant ministry. Although a number of prominent scientists say this regulation is a dead letter, the atmosphere of delay and obfuscation is hardly conducive to international cooperation.

Vera Rich

Bio-fund open

Those wishing to take advantage of the European Community's offer to support research and training in bio-molecular engineering should think fast. Applications for research contracts are needed by 15 May, and for training contracts by July.

After a long and arduous gestation period, the EEC sponsorship of bio-molecular engineering was looked on as something of a disappointment — "we came out with a mouse", said Vicomte Etienne Davignon, commissioner for research and development in Brussels (*Nature* 28 January, p.273).

But for all that, there is about 8 million European Currency Units (£4.5 million) available, and in the United Kingdom the Department of Industry shows signs of being anxious to alert UK scientists to the possibilities of obtaining EEC support for their work.

Research contracts are available for projects mainly related to agriculture and the safety of genetically manipulated organisms. Training contracts lasting 1 to 2 years from January 1983 cover a wider range of subjects including the development of cloning systems and gene transfer in agriculturally important plants. The commission invites submissions from "employed scientists (including those employed by industries) or unemployed scientists (who recently completed a doctoral thesis or postdoctoral assignment) who have demonstrated their capacity for high level scientific research". Applicants should approach the European Commission, but the Department of Industry will advise UK scientists how to apply.

Charles Wenz