

project grants on the pattern of the British research councils, instead of state subsidies for the overall budgets of institutions.

Following wide consultations, the agency prepared a list of nine priority areas of research, approved by a ministerial committee in June 1979. By October 1980 436 grant applications had been received and some 70 approved projects were already under way. Applications are being dealt with speedily, the process taking an average of seven months including the time required for three referees (at least one from abroad) to report.

Other achievements include eighteen international agreements for joint projects. Solar energy plants are to be built with Germany and France, and a geothermal plant constructed on the island of Melos in cooperation with the European Economic Community.

There are some clouds on the horizon, however. The law setting up the Science Research and Technology Agency sought to exempt it from the notoriously bureaucratic public accounts regulations, but the Ministry of Finance nevertheless managed to block payments of grants for "technical reasons". The Committee of Ministers which oversees the work of the agency has reaffirmed its confidence in it. One hopes that it will now be allowed to function unhindered.

E. M. Pantelouris

UK space policy

Year of decision

Last year was a busy one for makers of British space policy. By November, a committee of the Central Policy Review Staff, the think tank, had submitted to the Cabinet its study of Britain's efforts in space applications; and an inter-departmental committee, under the Department of Industry, had been created to coordinate space policy more effectively and to discuss the think tank's deliberations. The Home Office was also busy preparing a report on direct broadcast television by satellite.

The sudden interest in space seems to have been stimulated by the fear that Britain might miss out on the profits that could be made from selling space technologies, especially telecommunications satellites. The think tank's report is to remain confidential for commercial reasons. The gist of the recommendations is that there is a demand for space applications satellites which British industry should be encouraged to meet.

One important question is whether Britain should try to build up its industry alone or whether it should continue, perhaps at an increased level, in the space applications programmes of the European Space Agency (ESA) which France and Germany, in particular, have used more effectively than Britain to boost their own industries. The most likely outcome is that Britain will continue at more or less the same level in ESA's telecommunications

programmes, but that greater efforts will be made to transfer the results of ESA's research and development to industry.

The government is unlikely to rush to pour money into the industry, seeking rather to encourage private investment. A central issue in the telecommunications field will be the government's attitude to the monopolies held in television broadcasting by the broadcasting authorities and in satellite communications by the telecommunications division of the Post Office, British Telecom. A bill to dilute British Telecom's monopoly is now before Parliament, and could be used by the Department of Industry to liberalize access to satellite communications, leaving the way open for private operators, in particular, of small satellites for business communications. If greater incentives are given to satellite operators, the next question will be the ability of British Aerospace (which not everyone is convinced could withstand open competition) and other UK manufacturers of satellite components to meet the demand.

A government announcement on the subject is expected soon and it may seem rather bland, leaving the question of monopolies at least until the Home Office has reported on direct broadcasting by satellite. A decision will have to be taken fairly shortly, however, on the scale of Britain's effort in another space application — remote sensing — if it is not to miss the opportunity of cooperating in ESA's next programme. This year promises to be a vital one for Britain's space industry.

Judy Redfearn

Herbicide safety

Bill of health

The herbicide 2,4,5-T has been given a cautious but clean bill of health by two recently published reports. One*, by the Advisory Committee on Pesticides of the UK Ministry of Agriculture, Fisheries and Food, says that there is no sound medical or scientific evidence that herbicides based on 2,4,5-T are harmful to humans, animals or the environment in general. The second, by the European Community's Advisory Committee for Safety, Hygiene and Health Protection at Work, says there is no conclusive evidence that 2,4,5-T causes cancer, but asks for further evaluation of the long-term risks.

The British pesticides committee, essentially the licensing body for pesticides and herbicides, has reviewed 2,4,5-T nine times since 1970. Its latest review was undertaken at the request of the Minister of Agriculture after the National Union of Agricultural and Allied Workers claimed,

*Further review of the safety for use in the UK of the herbicide 2,4,5-T. Available free of charge from Pesticides Branch, Ministry of Agriculture, Fisheries and Food, Room 678, Great Westminster House, Horseferry Road, London SW1P 2AE, UK.

in March 1980, that 2,4,5-T was harmful.

The union reviewed the scientific literature on 2,4,5-T and referred to 20 cases where it was alleged to have harmed humans or farm animals. The advisory committee says, however, that the union's evidence does not indicate that 2,4,5-T is a health risk.

Concern about 2,4,5-T has centred mainly on the presence of a contaminant, 2,3,7,8-tetrachlorodibenzodioxin (dioxin), a teratogen and carcinogen in some animal species. The committee now believes that this concern may have been misplaced and that the risks posed "by dioxin contamination in 2,4,5-T formulations may hitherto have been overestimated".

First, the committee says, dioxin contamination of 2,4,5-T formulations sold in the United Kingdom is now at the low level of 0.01 p.p.m. Second, the committee says that new studies enable it to identify for the first time "a daily level of intake below which effects on reproduction do not occur in the rat", that is 0.001 $\mu\text{g kg}^{-1} \text{ day}^{-1}$.

In the circumstances, the committee considers that 2,4,5-T itself would present a problem before its dioxin contaminant, but that there is no convincing evidence that any effects caused by 2,4,5-T will be passed on to succeeding generations "on an heritable basis". The committee also notes that the WHO/FAO authorities have set a "no effect level" for 2,4,5-T in animals at 3 mg kg^{-1} . Employing a thousandfold safety margin, WHO/FAO have set a "temporary acceptable daily intake" for a man at 3 $\mu\text{g kg}^{-1}$ for 2,4,5-T containing 0.1 p.p.m. dioxin.

The committee does, however, accept the union's claim that workers using 2,4,5-T are not always adequately protected. It suggests that exposure to the herbicide should in future be measured in urinary excretion.

On the question of alternatives to 2,4,5-T, the committee is doubtful. Much less is known about their toxicity and the committee, in continuing to allow 2,4,5-T to be used, is relying on the maxim "Better the devil you know . . .".

All of the twenty cases where 2,4,5-T exposure is alleged to have caused health problems are discussed in the report. The advisory committee has harsh things to say about coverage of alleged 2,4,5-T incidents and accuses the press of causing needless distress by publicizing cases without the consent of the individuals involved. The committee may have been unwise in making this accusation, given that most of the individuals referred to in the report seem to have sought out journalists.

Although the committee has given 2,4,5-T herbicides a clean bill of health, it does ask for prospective epidemiological studies of the risk from exposure to herbicides in general. Professor Robert Kilpatrick, chairman of the advisory committee and dean of the school of medicine at the University of Leicester,