

How much planning is enough?

REPORTS by the OECD on national policies for scientific research and the like have never been exactly bed-time reading for most scientists. Essential raw material, certainly, for politicians, civil servants and those who study the policies that emerge, but until recently little more than titles on a bookshelf to others. All that is changing, however, as the man on the laboratory floor increasingly realises that his own future is so inextricably bound up with the policies made in London, Paris or Washington that he simply has to take an interest.

The emergence of another weighty OECD report is therefore, perhaps, the time for a few more people to become acquainted with the kind of data on science that that organisation provides. This particular report is called *Changing Priorities for Government R & D* and, be warned, you need plenty of time (and a magnifying glass) to digest it all properly; even the authors admit that "this is by no means a short report".

One of the conclusions reached in the report, and perhaps not a very startling one, is that none of the 12 OECD countries studied had anything like a foolproof system whereby the allocation of funds and their breakdown between activities could be planned in advance through an overall 'science budget' which reflected priorities laid down as part of a government's overall policy. That may sound a laudable thing to be aiming for, until one comes to realise that some 10% of the total government expenditure on research and development in France and the UK goes to the "advancement of science via general university funds" (through the University Grants Committee in the UK), that in countries like the Netherlands, Norway and Sweden the figure is between 20% and 45%, and that in Japan it is a staggering 60+%. Persuading universities successfully that such and such a list of priorities is the right one is tantamount, at least in the UK, to removing much of their autonomy, any talk of which is liable to make the new and diligent bed-time reader of OECD reports toss this latest document to one side.

This brings to mind the calls made a year or so ago by the UK Parliamentary Select Committee on Science and Technology for a Minister of Research and Development to be appointed, and the general opprobrium that was heaped on the idea. Few would support the regimentation in such a way of an area for which regimentation is so obviously inappropriate.

Leaving aside the question of whether completely planned science is necessarily good and useful science, as the OECD seems tacitly to assume, the OECD report contains some interesting revelations about the way the 12 selected countries allocated and divided up their funds for research and development. The policy-making

machinery in each country, although running true to a basic pattern, is nonetheless definitely unique, and yet most of the 12 have come to allocate much the same fraction of total government expenditure to research and development, a trend which became particularly marked in the early 1970s. In 1961, for example, the USA, the UK and Germany spent, respectively, 10.5, 8.5 and 3.7% of their total expenditure on research and development, but by 1971 these figures had become 7.5, 7.1 and 6.0%. Coincidence? Or have three quite different systems for deciding the funding of research and development come up, roughly, with the 'right' answer even in the absence of complete planning and the complete ordering of priorities.

A closer examination of the priority accorded to research and development activities such as 'civil nuclear', 'civil space' and 'defence' reveals more similarities, but also some discrepancies. For example, the authors of the OECD report have set up, for each country, a league table which places expenditures on each of 14 research and development areas in order. Comparing these league tables for the 12 countries shows that the UK, Germany, France and Italy have roughly the same ideas about how to divide up research and development funds, and that Norway, the Netherlands, Belgium and Sweden also work to their own characteristically similar lists of priorities. On a more detailed level still, however, there are of course differences even between countries with superficially similar scientific aims; France and Italy, for instance, spend 1.6 and 0.4% respectively, of total government expenditure on 'civil nuclear'. Not surprisingly, the greatest disparities are to be found in the realms of defence research, with the USA, the UK and the Netherlands, for example, spending 4.9, 2.9 and 0.3% of their total expenditure on it.

Although items such as these appear near the beginning of any government's shopping list for research, the other end of the list contains some entries which are all too often glossed over or ignored in discussing a country's research programme. One such is research and development for the benefit of developing countries. The situation is epitomised by the fact that for 5 of the 12 OECD countries surveyed, no data were available, indicating either that a negligible amount was spent or that the amounts were hard to pick out from the general research and development background (and therefore hard to plan). France and the USA spend most, some \$20 million each in 1972, which represents 1.5 and 0.2% respectively, of the total government funding for research and development—not really too impressive when the target set for the UN Second Development Decade is 5%. □