

Israeli research manpower

Shortage in prospect

Rehovot

THE need for a substantial increase in the number of academically trained people to work in research and development is widely accepted. The National Council for Research and Development has urged that Israel will need 86,700 such people in 1995, compared with 34,800 in 1974 — an increase of 150 per cent. But there is vigorous disagreement about the steps that need to be taken to ensure that the well-trained researchers actually materialize.

Thus, Professor Josef Singer, president of the Haifa Technion, claims that there will not be enough such people because the institutions of higher learning are being starved of funds. He points out, for example, that there was a 26 per cent increase in students at these institutions between 1974 and 1982, while funds increased by only 18 per cent. If spiralling costs are taken into consideration, he adds, the picture is grimmer still.

The Technion is adversely affected by yet a third factor, the rapid development of science-based industry. High-technology firms now offer much higher salaries than the Technion, which is consequently suffering from a lack of instructors in such fields as computers and electronics. The result is that it cannot train as many students as its physical facilities permit.

Singer's views were, however, challenged by Professor Derek de Solla Price of Yale University, who was in Israel last week for a conference on microcomputers. In the 1960s Price developed a method for measuring scientific manpower in various countries based on the total number of researchers who had papers published in major professional journals, and concluded that Israel then had five times as many scientists as would be expected for its population and gross national product.

Price insists that "the situation is no different today; Israel still possesses an enormous reservoir of trained people, something for which she has every reason to be grateful because her scientists and technicians more than compensate for her lack of oil and minerals". But in Price's view, they must be fruitfully employed, which means that more should be engaged in industrial research and development. Changes should begin, moreover, in Israeli high schools, where Price calls for better experimental training and equipment because "what Israel requires are people with brains in their fingertips".

Professor Haim Aviv, who has taken leave from the Weizmann Institute of Science to establish the company called Bio-Technology General in Rehovot's Kiryat Weizmann Industrial Park, agrees that the country has plenty of researchers, but bemoans the lack of engineers for development work in the rapidly expanding field of biotechnology. Elsewhere, he

says, newly established companies have been able "to steal" the men it required from pharmaceutical companies, a reservoir of talent that does not exist in Israel.

This problem might not have arisen, Aviv adds, had Israel's National Council for Research and Development dealt with long-range planning, as it should have done. But it lacked adequate power, a situation he hopes will change now that Israel has a Ministry of Science and the council has become part of it.

Yet even the establishment of a Ministry of Science does not guarantee a uniform approach to the utilization of research and development manpower. Israel's Science Minister, Professor Yuval Ne'eman, is a supporter of major projects such as the building of a nuclear reactor (if none can be purchased overseas), the production of a new Israeli warplane (the Lavie) and the construction of a Mediterranean-Dead Sea Canal (for power production and other purposes).

In contrast, Professor Arie Lavie, chief scientist of the Ministry of Industry and Trade, puts more emphasis on a large number of smaller enterprises. He points out that smallish companies have made it possible for Israel to develop many high-technology products which already account for more than 30 per cent of its total industrial exports. In addition, Lavie sees less risk in this approach because the inevitable shaking-out process will be less painful if a few small companies fail than if one or two major enterprises prove misguided.

Israeli planners must also take into consideration the unpredictability of immigration and emigration. They had no way of knowing, for example, that the country would receive 6,000 Russian-trained engineers or that a roughly equal number of Israeli-trained engineers would emigrate (although several hundred of them have recently returned, due to the economic downturn overseas and the development of high-technology industry here).

Military needs must certainly be met as well. Retired General Nati Sharon, who headed the planning branch of the Israel Defence Forces before taking up his present position with Tadiran (a major Israeli electronics company), recently warned that the army would soon lack the trained manpower needed to deal with the sophisticated equipment that it is now absorbing.

So far Israel has been able to meet all its needs for scientists, engineers and technicians by simply exploiting the manpower that happens to be available as the result of unplanned and uncoordinated developments. But, this may no longer be possible in an era when high-technology industries have become the fastest growing and probably the most important sector of her economy.

Nechemia Meyers

Falkland Islands

Salmon plan grounded

A PROJECT designed to produce a salmon farming industry in the Falkland Islands from the islands' two main resources — sheep and the sea — has run into difficulties. A feasibility study carried out by a group of British researchers headed by Dr James Muir of the Institute of Aquaculture, University of Stirling, has found that whilst the Falklands are well suited to salmon production, the only accessible markets for the proposed smoked salmon are several thousand miles away and already support a cut-throat salmon business. But the project supervisor, and director of the Institute of Aquaculture, Professor R. J. Roberts is optimistic.

There are two possible ways of raising salmon — farming and ranching. Ranching relies on the ability of salmon to "imprint" on the water in which they mature. Young salmon are released into a seawater loch, mature and move out into the open water. The salmon then return to their

*Never in Stanley?*

release-point to spawn, so a supply of fully-grown fish is obtained without an input of foodstuff. However, this economically sound system has run into biological problems and for the one successful salmon ranch currently being operated in Chile there have been dozens of failures.

It is for this reason that salmon farming is favoured by Professor Roberts. The aim is to feed the salmon on sheep meat, which is abundant in the Falklands. Sheep are raised for their wool, which is tough and used for carpets, and their meat is discarded. Tests at the British Tropical Products Institute have shown that salmon can be raised successfully on sheep meat.

The salmon farming project has been in the pipeline for several years. It would be ironic if the Falklands conflict, which has contributed to sudden availability of supportive funds, should also cause its downfall by taking away the most accessible markets in South America.

Melanie Kee