

# SPOTLIGHT

## on engineering manpower\*

'We are going to be short of engineers for the foreseeable future, and particularly short of civil and heavy-current electrical engineers'. This is the basic message that emerges from the report 'The supply of and demand for engineers, 1984'<sup>†</sup>, prepared by Dr Philip Lloyd and Professor Bob Plewman for the Federation of Societies of Professional Engineers (FSPE).

Over the years, FSPE's reports have become required reading for those interested in the country's engineering manpower resources. They chart a growth in annual supply from about 850 in 1973 to 1250 in 1983. Immigration has been a very variable factor in the supply, averaging about 20 per cent of the total supply during the decade, but varying from over 30 per cent of the supply in the early 1970s to less than 10 per cent in the years after 1976. It has risen rapidly in the 1980s, and even during the economic downturn of 1983 immigration provided over 20 per cent of the supply.

However, the annual demand rose during the decade from about 1900 to 2800, and the annual vacancies have accordingly risen from about 1000 in 1973 to 1550 in 1983, the economic malaise notwithstanding. In the boom period of the early 1980s the vacancies approached 2000.

FSPE has tested the predictive ability of its manpower model, and finds that it can predict

- the supply of graduates locally to about 2 per cent,
- the immigration level to about 35 per cent (not surprising in view of the shifts in immigration mentioned earlier,
- the total supply to an accuracy of about 6 per cent,
- the vacancies, also to about 6 per cent, and
- the overall demand accurate to about 9 per cent over the four years after any one survey.

\* Issued by the Federation of Societies of Professional Engineers, P.O. Box 61019, Marshalltown, 2107 Transvaal.

† Copies of the report can be obtained free of charge from FSPE at the above address.

There is thus confidence in FSPE's predictions that by 1987 we shall see a supply of about 1500, a demand of about 3500, and a shortfall of about 2000. The level of economic activity barely enters into these calculations because it is taken into account in the accuracy of the predictions.

There will thus be more than two jobs available for every young graduate engineer for the foreseeable future. However, two disciplines in the profession should be particularly attractive to those thinking of an engineering career:

- civil engineering, where each graduate in the late 1980s should find more than three jobs available, and
- heavy-current electrical engineering, in which each graduate should have four jobs on offer.

FSPE points out that the demand for the whole profession is growing at a rate of about 4,8 per cent compounded annually, which is entirely in line with the growth of both our population and our economy. However, it is clear that, as long as we have to rely upon our White population for most of the supply, the gap between supply and demand must grow.

White women, Coloureds, and Asians are beginning to make a contribution, but it is not growing nearly fast enough to close the gap. There is great hope that the Engineering Careers and Education Project being run in the Black townships will provide a long-term solution, but the Project is very short of funds. Efforts by the profession to make the Project grow are being diverted into keeping it viable.

During the present economic downturn, the engineering profession is able to soldier on. However, it is clear that, in the longer term, the shortage of engineers will have a marked effect. Salaries must rise sharply at the first sign of a boom, but that will be too late to prevent the shortage of engineers from restricting the country's growth. FSPE is correct when it says 'the profession as a whole continues in a crisis situation'.