OLD WORLD

ENVIRONMENT

Global Watch

from a Correspondent

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A FRUITFUL meeting in Canberra on September 1-3 has ensured that several ambitious and promising proposals for putting global environment monitoring on a firm scientific footing will be put to the Stockholm Conference on the Human Environment in June 1972. The proposals, prepared by working groups of the Special Committee on Problems of the Environment (SCOPE) of the International Council of Scientific Unions (ICSU), were adopted at SCOPE's first general assembly here. The chief proposal is for a world-wide monitoring system aimed at helping to detect significant and potentially harmful changes in the environment early enough to take preventive action, and eventually to predict harmful trends before they occur. To back this up, a SCOPE committee is examining methods of analysis for major pollutants in air, water and biological tissue and hopes to make recommendations on the best methods for measuring each pollutant by the end of 1972.

The proposals were prepared at the request of Mr Maurice Strong, the Secretary-General of the Stockholm Conference, who was an invited guest at the meeting. They call for the regular collection of data from a global network of a hundred or more selected areas exposed to minimal, medium and intense human impact. Every nation is being urged to set up a national monitoring office to integrate its own monitoring effort and to contribute to international coordination. Also existing monitoring activities would be fed into the system.

The working group listed three sets of problems which deserve the highest priority for global monitoring: potentially adverse climatic changes resulting from human activities; potentially adverse changes in biota and man from contamination by toxic substances; and potentially adverse changes in biological productivity caused by improper land use. Highest priority is given to atmospheric measurements of turbidity, carbon dioxide, surface solar radiation and standard meteorological variables; monitoring mercury, lead cadmium, DDT and polychlorinated biphenyls in air, water, soils and biota; keeping check on a variety of data reflecting the state of human health; and implementing studies of vanished or endangered ecosystems and vertebrates and of the population size and distribution of birds. The documents say that research activities and pilot studies are essential for defining and evolving detailed monitoring programmes where necessary, and

recommend the establishment of internationally funded and staffed laboratories in at least three monitoring areas subject to minimal human impact.

Mr Strong told the assembly there had been a gratifying response to requests for contributions to the conference from governments, United Nations agencies and scientific organizations. He predicted that the main constraints on necessary environmental projects after Stockholm would be political unwillingness on national levels, not a lack of sufficient ingredients for action. Mr Strong also said that another conference, similar to that at Stockholm, might be needed within three or four years, and argued a case for continuing and consolidating the present organization for Stockholm—in effect advocating a new UN agency for the environment. This proposal runs counter to the views of the existing UN agencies with fingers in the environmental pie (for example, UNESCO, FAO, WHO) and the scientific unions, who see it as, on the one hand, a threat to their existing responsibilities and, on the other, as an unnecessary proliferation of international bureaucracies. In pressing his case, Mr Strong said “I don't think we are at a sufficient state of readiness in terms of knowledge and particularly political willingness, to do all the kinds of things that are going to be necessary”.

BIOLOGICAL MANPOWER

Broadening the Base

PROFESSIONAL biologists are the latest to be told that their education should be broader and that they must be more ready to change disciplines in mid-career. The *Report of the Working Group on Biological Manpower* (HMSO Cmd Paper 4737, £0.85), published this week, also echoes previous declarations by, for example, the Swann committee (of which it is a descendant) that qualified scientists must broaden their concept of what constitutes a professional job as the output of the universities and other institutions of higher education grows so as to outstrip what is at present considered to be the demand. The working group, the chairman of which is Dr Richard D. Keynes, director of the ARC Institute of Animal Physiology at Cambridge, is, like other bodies, anxious that university departments and grant-giving bodies should in future discriminate more carefully between graduate students who can make proper use of a PhD course and those who have less aptitude for original research.

Sir Frederick Dainton, chairman of the Council for Scientific Policy, is one who plainly finds the group's recommendations to be acceptable. In his introduction to the report, he says that

“much of the report could be applied to science in general”. Taking his cue from his own report on the subject, now five years old, he goes on to say that “it will have to be recognized increasingly that on the one hand a specialist scientific education will not guarantee employment at a professional level in the subject of a graduate's specialization” and that graduates in science have valuable jobs to do outside the confines of their profession.

The members of the group are as follows: Dr H. O. J. Collier, Mr D. J. B. Copp, Dr F. A. E. Galley, Professor J. M. Mitchison, Professor S. J. Pirt, Professor M. M. Swann and Professor C. P. Whittingham. Apart from statistics which exist already, the working group had access to the results of employment surveys carried out within the research councils and a questionnaire survey within industrial organizations.

By 1968, the 10,918 biologists employed in Britain accounted for more than ten per cent of all scientists, but their numbers were growing more quickly, at an annual rate of 5.5 per cent, compared with 4.4 per cent for scientists as a whole. Understandably, most biologists appear to be teachers at some level, 8,100 of them in schools, universities and further education. These calculations, of course, omit those who work in medicine, dentistry and health, more than 95,000 in 1966.

The essence of the employment problem identified by the working group is that the annual growth of the production of first degrees in biology is accelerating and amounted to 19.9 per cent per year in the late sixties, while the annual percentage growth of biologists with higher degrees amounted to 21.7 per cent per year. These rates of growth are greater than the corresponding rates in other branches of science, but not markedly so. On the other hand, the number of extra jobs likely to arise each year by natural causes is estimated to be something between rather more than 1,000 and rather less than 1,200 qualified people, or roughly ten per cent of the working population of qualified biologists. Either the remaining ten per cent have to be unemployed or have to find jobs elsewhere.

On the broadening of the curriculum, the working group says that this is the best way of minimizing “the undesirable effects of an imbalance between the supply of biological graduates and the demand for their services in specifically biological fields”. It recognizes that one consequence must be more mathematics and physics in the training of biologists at all levels. The working group is a little heartened to see that only 33 out of 44 universities now offer separate courses in botany and zoology. At the postgraduate level, the working