MULTI-EDITORIAL

Our Environmental Hopes for 1985–86

Preamble

For the first time in several years, and despite still-rising population pressures, we felt, with the incoming New Year, a little less apprehensive than latterly about our planet's future, and only hope there are good grounds for such relative optimism. For is not Mankind, although sometimes too clever for his own or the world's good, withal quite fantastically adaptive? To convey to our world readership what we believe will be eminently enlightened current opinions in assessing the soundness of these grounds for some ultimate optimism, we have asked an acknowledged authority on or near each of a wide range of the environmental topics involved, to give his or her frank views on self-chosen items within it in which he or she can foresee fair prospects of improvement in the coming biennium. A selection of these authoritative views will now follow, with more to come later on if circumstances prove propitious. All will be reasoned prospects rather than firm predictions, and none should be idealistically biased or politically motivated.

N. P.

Population Prospects

United Nations data indicate that the world's human population increased by 46.2% between 1960 and 1980—from 3.03 to 4.43 thousand millions. Rates of population growth for various regions of the world are presented in the accompanying Table, from which it can be seen that the population of the more-developed countries grew only slightly in that time. In the less-developed regions, although population growth-rates remained at over 2% for both the quinquennia mentioned in the Table, there is clear evidence of a decline in growth-rates during the same period of analysis—with the exception of Africa, where the overall growth-rate has increased.

TABLE:

Rates of Population Growth by Selected Regions.

Region	*Average Annual Rate of Growth*		*Percentage Change During the Interval*
	1960–65	*1975–80*	
World	1.99	1.72	−13.6
More developed	1.19	0.71	−40.3
Less developed	2.33	2.08	−10.7
Africa	2.48	2.90	+16.9
Latin America	2.80	2.45	−12.5
East Asia	1.94	1.38	−28.9
South Asia	2.40	2.22	− 7.5

Source: *World Population Prospects as Assessed in 1980,* United Nations, ST/ESA/SER.A/78; Table 2, p. 7.

As assessed in 1982, United Nations population projections indicate that, between 1984 and the end of the present century, the growth-rate of the world population will continue to decline but more slowly than in the recent past. This is partly due to the fact that, as a consequence of high fertility-levels in the past, the number of women of child-bearing age (15–49) will continue to grow rapidly. Although, according to the medium variant projections, the total fertility-rate during this period is expected to decline from 3.6 to 3.0 children per woman, the annual rate of population-growth will still be around 1.5%.

For the world as a whole, the present annual increment of 78 millions is projected to increase to 89 millions by 1995–2000. Thus, in the 16 years from 1984 to 2000, the world population is expected to increase by 1.3 thousand millions, namely from 4.8 in 1984 to 6.1 in the year 2000.

These global perspectives, however, conceal significant demographic differences that exist at the regional as well as at country levels. According to United Nations estimates, the current total fertility-rates range from 6.4 children per woman for Africa, through 4.7 for South Asia, 4.1 for Latin America, and 2.3 for East Asia, to 1.9 for Europe and North America. During the remainder of the present century, those differences are not expected to narrow significantly. Moreover, those projects assume a continuation of present efforts and policies without which uninterrupted declines in both fertility and population growth cannot be achieved.

The World Population Plan of Action, adopted by the World Population Conference that was held in Bucharest, Romania, in 1974, invited countries to consider adopting population policies, within the framework of socio-economic development, which are consistent with basic human rights and national goals and values. Ten years later, the International Conference on Population, held in Mexico City, Mexico, in August 1984, reconfirmed this approach by recommending that countries which believe '... that their rates of

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population-growth hinder the attainment of national goals [should] consider pursuing relevant demographic policies, within the framework of socio-economic development. Such policies' the Conference stressed, '... should respect human rights, the religious beliefs, philosophical convictions, cultural values, and fundamental rights of each individual and couple, to determine the size of its own family.'

The coming years will show to what extent the declarations of Bucharest and Mexico City are followed by further declines in human fertility—as they must be, if the world is to maintain any kind of decent environment for Man and Nature.

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Pollution Control

Vigilance rather than optimism should be the main feature of our approach to pollution control in 1985–86. There are indications of successful action to deal with some of the problems that have dominated the past decade. A global Convention on the Protection of the Ozone Layer was completed in March 1985. Over 20 European and North American nations have agreed to seek major reductions in national emissions of sulphur dioxide, or in the trans-frontier fluxes of that gas. Most of the same states are pledged to take action against nitrogen oxides. In Europe, tighter controls over motor-vehicle emissions (which are very probably significant contributors to the dieback in German and Swiss forests) have been negotiated. The Regional Seas Programme of UNEP continues to expand. A Conference has reviewed the health of the North Sea and identified the priorities for action. And international measures to identify and control the movement of hazardous chemicals have intensified.

Those actions have almost all been taken by developed countries, and most of them address problems that cannot be evaded. But the past decade has seen a shift of emphasis in such countries from curative action to deal with the obvious, towards preventive action to forestall new risks, and this transition will become more marked in 1985–86. The threat of global climatic change due to carbon dioxide and other 'greenhouse gases'—change which could aggravate the already alarming slide into famine in sub-Saharan Africa—will be the focus of analysis. The possibility of insidious ecological changes in the oceans, due to cumulative pollution, will be another issue for thorough scientific evaluation. Furthermore, we can expect the focus of attention to begin to shift to the developing—and especially the rapidly industrializing—world. The tragedy of Bhopal has brought home the need for preventive action to contain hazardous chemicals. There are signs of deteriorating air-quality—and perhaps of acid rain—around the expanding Third World cities. Bad water-quality and inefficient waste disposal continue to jeopardize health in many of those cities.

The message of 1984, for example in 'The Global Possible' report (Anon: *The Global Possible: Resources, Development, and the New Century.* World Resources Institute, Washington, DC, USA, 38 pp., 1984), is that such problems can be solved. But it does not follow that they *will* be solved. It is, however, clear that while more scientific knowledge is needed, political commitment—especially by developing-country Governments, that have many other preoccupations—will be essential if 1985–86 are indeed to be years of measured progress.

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Freshwater Trends to AD 2000

In recent years, water has become an increasingly important ingredient for development. Experiences from the past two decades clearly indicate that available water resources must be used more efficiently and rationally than ever before, if the living conditions of the world's citizens are to be improved.

At present, on a global basis, nearly 80% of all water used is for agricultural purposes. Assuming a realistic rate of expansion of 1.7% per annum—a rate that is slightly lower than that observed in the recent past—the total irrigated area in 90 developing countries, excluding China, is expected to increase from 105 million hectares in 1980 to 148 million hectares in the year 2000. This is slightly more than a 40% increase over the past two decades. Even after this expected increase, the ratio of irrigated area to total arable area would increase from 14% in 1980 to only 16% in 2000. This 16% of the area, however, is expected to account for 41% of the total crop output.

Water requirements for various purposes will continue to increase in the foreseeable future, at least for the next two decades. Unfortunately, the efficiency of use of irrigation water, both in developed and developing countries, is at present not very encouraging. On a global basis, for each 1.3 cubic metre of water that is used for irrigating crops, *ca* 3 cubic metres have to be withdrawn. This means that 57% of the water withdrawn is lost. The 43% of this water reaching the field is not necessarily used efficiently. Over-irrigation is endemic, which not only constitutes wasteful use of a valuable and limited resource, but also contributes to development of adverse environmental problems such as salinity, waterlogging, and rise of ground-water tables. These side-effects reduce the yield of the very land which irrigation, at substantial investment costs, was supposed to make more productive.

Ground-water resources have been extensively developed in many countries in recent years primarily for irrigation, and this trend is likely to continue. Unfortunately, in many parts of the world—ranging from the southwestern United States to India—the rate of abstraction of ground-water far exceeds the rate of natural recharge, thus contributing to serious overexploitation. Ground-water mining is likely to increase further in the future, resulting not only in continual lowering of water-tables but also contributing to decreased pressure in aquifers, changes in rate and direction of flow, salt water intrusion, and land subsidence. Continued overexploitation, coupled with high energy-costs of pumping the water up from ever-increasing depths, could mean that the water-table would be lowered in many areas to such an extent that it would no longer be economic to use the water pumped up for irrigation.

As water requirements increase for agricultural, industrial, hydroelectric power generation, and other purposes, there will be increasing demands for further water-resources development projects. Competing demands for limited water-supplies, or discharge of effluents to watercourses which would reduce water quality, and hence their potential use, could give rise to international conflicts—especially in the 148 of the world's important river basins that are shared by two or more countries. Similar tensions could arise in relation to coastal fisheries and offshore drilling. Accordingly, it will be necessary to codify guidelines for management of natural resources that are shared by two or more nations or states.

The present decade has been proclaimed by the United Nations as the International Drinking-water Supply and Sanitation Decade. While both the United Nations Conference on Human Settlements and the United Nations Water Conference endorsed the target of clean water for all the world's population by 1990, on the basis of present trends and of a realistic assessment of the future, this target is unlikely to be achieved—even though the number of people, both urban and rural, having access to potable water and sanitary facilities, will undoubtedly increase very substantially.

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Forests and Reafforestation

The world's forests still cover about 44 million km^2, nearly one hectare for every person on Earth. Their estimated annual production of wood amounts to some 7–9 thousand million m^3, whereas the total annual consumption by the world's population is only about 3 thousand million m^3. These forests should be enough to provide for the much greater populations expected in the next century and for the likely increase in consumption per person. Yet there is little real ground for optimism about the future of forests even though there are a few small indications that things may be changing for the better.

About half of the world's forests are situated in the tropics, with the remainder in the boreal and temperate regions. The circumstances in each of these are very different. The area of 'northern' forests is increasing slightly because of new plantations, whereas that of the tropical forests is declining—at present at the rate of about 0.8% a year.* There is also a great difference in the ways in which the wood is consumed: 80% as timber in the 'north', but 80% as fuel in the tropics.

The problems are of several kinds. The forests in the tropics constitute the main possible reserve of new soils for agriculture to meet present and future needs for food.† The forests are often remote from the centres of population, with people living densely where there are no forests to meet their demands. As a result, huge

* We might add that something like a further 1% a year is being grossly disrupted though not destroyed outright.—Ed.

† A referee comments '... less than 10% of all tropical forests are growing on soils that can support agriculture of conventional sorts with present levels of technology. The myth that they constitute a potential 'bread basket' of the future should be stoutly dismissed by [*Environmental Conservation*]!'—Ed.

populations may only supply themselves with fuel by overexploiting and destroying the resource upon which they depend. Yet substantial areas of forest ought to be exploited only very lightly, if at all, because of their importance in protecting water catchments or preserving the genetic resources that they contain.

If the cultivation of trees for wood were to be as revolutionized as has been the cultivation of wheat or rice, less than one-quarter of the present area of forest would suffice for the projected world populations until the middle of next century. But this would require massive investment in the management of natural forests and in the development of plantations (tree-farming) near to the sources of need. Such investment is not yet forthcoming; nor is there adequate recognition of either the economic or the environmental importance of forests by governments or those who finance international aid.

While it still remains possible to obtain substantial amounts of timber and fire-wood by 'mining' the natural forest or overexploiting woodland for fuel, there is little incentive to invest what is needed in new plantations or in the proper management of natural forest. Rising prices for wood, and crises such as the recent forest fires in Borneo and 'acid precipition' in Europe and North America, may bring about the change that exhortation has failed to effect. But there is not much time left.

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Human Health and Hygiene

The outlook for 1985–86 must be pessimistic. Of all mammals, Man has least successfully husbanded the resources to which he has access. Though smallpox apparently remains eradicated, the other big killer diseases continue to spread. WHO's brave cry 'Health for all by the year 2000' is a pious pipe-dream. Malaria is spreading. Of the causal Protozoa—all members of the genus *Plasmodium*—the worst by far, *P. falciparum*, is becoming increasingly resistant to the most effective drug hitherto used in its control, chloroquine. Suppression of malaria-carrying *Anopheles* mosquitoes is mostly neglected in third-world countries. Schistosomiasis is an ever-increasing problem. Acquired Immune Deficiency Syndrome (AIDS) is spreading at an alarming rate. The probable causative organism is human T-cell leukaania virus III, and at present it seems uncertain whether an effective vaccine can be developed.

Perhaps there is a glimmer of hope. Genetic manipulation may make it possible to produce malaria vaccines, vaccines against snake-venoms, and an effective influenza vaccine. But, alas, such vaccines will be too costly for use in the countries that need them most. The writer has just returned from the Eritrea–Ethiopia–Sudan borderland. Severe measles epidemics in the grossly undernourished refugee children could have been prevented if vaccine had been available and all spare funds had not been spent on arms.

Further grounds for pessimism are the increasing tendencies in the West, for instance among the British public, to let matters of health fall into the hands of extreme lay-groups. Someone has to take decisions about life and death. The British public will have to decide whether they want the Chairman of the Animal Defence Union or a highly-trained medical man to make such decisions. At present the lunatic fringe is given every opportunity, even encouragement, to carry out witch-hunts against the medical profession. The public will be the losers if this continues.

All this flourishes on the background of the continuous munch of millions of goats eating what remains of vegetation in Africa. Nuclear weapons are far too dangerous to be in the hands of Man. Perhaps the Big Bang is no more than *Homo sapiens* has earned, but it is certainly more than the other animals and plants deserve.

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Conclusion

From the above and some other frank comments which are being received, we are unhappily forced to conclude that our New Year's feeling of relative but guarded optimism was unjustified in many important respects, though supportable in some others. Like the curate's egg, it seemed good until investigated!

N. P.

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