

Population and Global Security (Environmental Challenges II), Edited by NICHOLAS POLUNIN & MOHAMMAD NAZIM. The Foundation for Environmental Conservation, Geneva, Switzerland, and Energy and Environment Society of Pakistan, Lahore, Pakistan: Limited Geneva Edition for the United Nations Population Fund (UNFPA) and others: price US \$15 for individuals or US \$25 for institutions (in both cases post-free) from the Foundation's Agent, Box 1632, 1211 Geneva, Switzerland, 1994, xi + 285 pp., illustr.

'Mankind is clearly on a collision course with Nature. The multiple forewarnings of an overshoot which could lead to some form of global collapse are now being received loud and clear.' Unfortunately the message of this book and its implications are not being received, or are only partially received and thoughtlessly ignored, by far too many people and notably by too many in high places of policymaking, both governmental and private, who should be addressing the situation with programmes of action. This book, and the Cairo Population and Development Conference of September 1994, indicate the arrival of population policy as a legitimate aspect of environmental policy — a new development in international relations.

The Editors of *Population and Global Security* have brought together twelve essays by eighteen specialist Authors and co-Authors of international distinction. Each essay addresses a different facet of the population problem — including human and planetary health, nutritional well-being, global migration, women and family planning, attitudes and involvement of religions, and of course prospects for economic development, energy, and sustainability. An appendix reprints the 'Joint Statement by fifty-eight of the World's Scientific Academies', signed at the Population Summit held in New Delhi, India, during 24–27 October 1993.

Timed for input to the United Nations' International Conference on Population and Development (ICPD), held in Cairo in September 1994, the book was designed primarily 'to offer enlightenment rather than to draw conclusions or even inferences.' Nevertheless readers are likely to draw conclusions from the cumulative essays. Better informed after reading this timely book, they should be better prepared to consider the various remedial measures that will surely be needed to halt or reverse the movement of the World towards socio-ecological disaster.

The Authors do not present the population issue as a problem of human numbers only. Associated factors — involving levels and patterns of consumption, political circumstances, customary attitudes and behaviours, and chronic wastefulness — contribute to the overall population problem. Yet the message of the book is *not* the inevitability of global disaster. The essays are essentially factual and analytic, presenting the issue in its multiple dimensions. The volume ends on 'Signs of Hope' by Sir Martin Holdgate, who identifies six particular signs of encouragement:

- 1) during the past twenty years there has been a major advance in understanding of how people interact with, depend on, and damage, the environment;
- 2) the leaders of the nations have recognized that development depends on care for the environment, and have committed themselves to the process of 'sustainable development';
- 3) although environmental degradation remains wide-

- spread and major global problems must be attacked urgently, corrective actions are in hand in many regions;
- 4) the need for action to limit human population is now almost universally recognized;
- 5) practical ways of taking such action are now established, based on a blend of technical measures to enable people to limit their fertility, and social measures to relieve poverty, enhance economic growth and personal opportunity (especially for women), and provide health-care and other supportive infrastructure; and
- 6) most important of all, a demographic transition towards population stability is taking place in the developing world — at a faster rate than that previously experienced in the industrialized countries.

Since publication of *Population and Global Security*, the Cairo Conference on Population and Development has been held. One cannot know how influential any single book may be. But this one — including contributors from Europe, Asia, North and South America, and Australia — is representative of viewpoints taken by the majority of national delegations at Cairo. To achieve the UN preference for consensus, some rhetorical compromise was made at Cairo on the issue of family planning and birth control — the principle being retained. Yet of probably even greater significance was the unanimous intention for up-grading the status and education of women. It is possible that this intention, if only it is widely realized, will do more than any other measure to bring the World's population under control.

This being a mere 'Limited Geneva Edition for United Nations Population Fund (UNFPA) *et al.*', it is much to be hoped that a planned World Edition, duly updated since the Cairo Conference, will be made available with the least delay possible and at some such reasonable price. Such an important book would deserve the widest possible circulation and concerned readership.

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Scarcity or Abundance: a Debate on the Environment, by NORMAN MYERS AND JULIAN L. SIMON. W.W. Norton & Co., New York & London: xix + 254 pp., 21.5 x 14.5 x 2.5 cm, illustr., hard-bound US \$21, 1994.

It has been said that an optimist is one who believes we live in the best of all possible worlds, and a pessimist is one who fears that the optimist is right. Nowhere is this more true than in the case of environmentalists, who often seem to fall into two extreme camps: 'cornucopians' (the optimists), and 'neo-Malthusians' (the pessimists). The former — often economists — believe that we are doing quite well, thank you, and that our technological brilliance will see us through any future difficulties, while the latter — often biologists — believe that humans, like any other species, face limits and that population growth and over-consumption are leading inexorably to doom for human civilization, if not for *Homo sapiens* as a species. These two positions are effectively epitomized by Julian Simon, a

professor of business administration at the University of Maryland, and Norman Myers, a British ecologist who is certainly one of the best-known environmentalists as well as one of the most productive writers in that field. They squared off in a debate at Columbia University in New York City in October 1992, producing the flurry of sparks which are faithfully caught in the book under review.

An Economist's Viewpoint

Julian Simon's basic position is that more people are an economic benefit in the long run. He points out that technology has enabled us to increase consumption per person by a factor of up to forty since the early days of our species. He contends that 'raw materials — all of them — are becoming more available rather than more scarce', that 'there is no reason to believe that the supply of energy is finite, or that the price of energy will not continue its long-run decrease for ever' (leading the objective observer to look forward to the day when consumers will be paid to consume energy), that the increases in the price of labour indicate that people are becoming more scarce economically even though they are more numerous, and that the environment 'is increasingly healthy, with every prospect that this trend will continue'.

Simon is so confident that he puts his money where his mouth is. Here is his offer: you pick (a) any measure of human welfare — such as life expectancy, infant mortality, the price of aluminium or gasoline, the amount of education per cohort of young people, the rate of ownership of television sets, or any other such parameter; (b) a country (or a region such as part of a developing country, or the world as a whole); and (c) any future year. Simon will bet a month's pay that the indicator shows improvement relative to the present, while you bet that it shows deterioration. He repeatedly makes this offer, or a version of it, during the debate both to Myers and to the audience; but his offer is not taken up, perhaps because of the bet he won with Stanford University's Paul Ehrlich where he wagered correctly that the price of a basket of five metals would fall between 1980 and 1990, implying that supplies became more plentiful, while Ehrlich had predicted that, because of increasing population and consumption, these raw materials would become increasingly scarce. The response of Norman Myers to the betting challenges: 'it is inappropriate to bet on matters that concern the bedrock welfare of human beings, especially when it is likely [that] we shall witness human deprivation and suffering on [an] unheard-of scale'. How about winning the bet and spending the proceeds to allay the seemingly inevitable suffering resulting from there being far too many people on our limited Planet Earth?

Simon marshals all sorts of data in support of his position, showing, for example, that air quality trends in major urban areas in the US are improving and that phosphorus, DDT, and PCB, levels in the Great Lakes have been falling steadily. Using his statistics very selectively, he takes as his baseline the highly polluted conditions of the late 1950s and early 1960s, and ignores the fact that the 'improvements' over unacceptable conditions are not due to the market but rather because of growing and increasingly-outspoken public concern about these issues which has been mobilized by such people as Norman Myers.

Simon gleefully points out that a number of the 1970s-era reports, for example on raw materials and population, needed to be reconsidered in subsequent decades as more data became available, seeming to expect scientists to predict accurately all details of the future. But he goes even

farther, stating that temporary or expected shortages tend to leave us 'even better off than if the shortages had never arisen, because of the continuing benefit of the intellectual and physical capital created to meet the shortage'. He is particularly dismissive of the estimates of species extinction rates made by acknowledged experts such as Thomas F. Lovejoy, Edward O. Wilson, Peter Raven, Paul Ehrlich, and Norman Myers, claiming that they have no evidence to support their claims of an extinction crisis.

Quoting statistics which demonstrate that the proportion of the American economy which is based directly on natural resources is rapidly shrinking and that this trend will certainly continue in the future, Simon concludes that resources are becoming less rather than more important. This is rather like arguing that vitamins are becoming less important because they form a smaller portion of modern diets, and that trace-elements such as iodine must not be very important because we consume so little of them. More enlightened economists know that resources provide the basis of all economic development, and that without them nothing else would be possible.

An Environmentalist's Viewpoint

The position that Norman Myers takes will be generally familiar to the readers of this Journal, as he has been one of the most valued of its communicators of current environmental concerns. He effectively marshals voluminous references in support of his environmental concerns, presenting, by my count, more than four times as many references as does Simon. Myers is especially concerned about population, pointing out that if more people meant more progress, as Simon claims, then densely-populated countries such as Ethiopia, Bangladesh, India, and China, must be exceptionally prosperous. And of course some countries with small populations and virtually zero population growth, such as Switzerland and Norway, are among the most prosperous in the world.

The basic hope of Norman Myers can be stated rather simply: 'The global economy cannot grow indefinitely, but it can certainly develop indefinitely — just as we don't need to expand the Earth in order to develop it'. His prescription for dealing with global environmental problems is the emergence of a truly global society. In this sense, Myers too is something of a cornucopian, as the problem with a global society is that it is extremely easy to over-exploit — even to extinction of key resources — any one part because other parts are available to compensate; and when such a tightly connected system starts to unravel, the unravelling can be very rapid and devastating indeed.

The debate often highlighted very different views of reality. Simon contends that, on average, 'Human-beings create more than they use in their life-times', and Myers responds that 800 million people are chronically malnourished and another 400 million are semi-starving — figures that have been increasing since 1980, while the region with the highest population growth-rate, namely sub-Saharan Africa, has lost one-fifth of its *per caput* GNP since 1980.

Simon claims that Myers is basing his arguments on 'phenomena that we don't see and are not counting because we can't count them and don't know what they are'. Myers responds that 'We operate in a situation of deep-seated uncertainty. Many factors can't be quantified — not every last parameter'. Simon bases his perspective on historical trends, while Myers draws on available evidence and science-based theoretical propositions (such as extinction

rates) to reach conclusions about what must be happening — based on physical, chemical, or biological, principles. Myers defends his sometimes speculative projections by analogy with insurance, suggesting that the appropriate response to undetermined risk is to hedge bets through insurance.

Different Stations Maintained

According to Simon, the long-run outlook is for a more abundant material life rather than for increased scarcity, in the United States and in the world as a whole. Norman Myers quotes the 1992 statement of the National Academy of Sciences in Washington and the British Royal Society in London, that environmental problems and excessive population growth are running the risk of undermining the very capacity of Earth to support life itself.

Both of the debaters worked hard on mobilizing factual support for their usually opposing positions. But the use of 'facts' can be highly misleading. For example, Myers points out that, while the figures presented by Simon on the falling price of gasoline in the US are accurate as far as they go, the prices are artificially deflated through hidden costs ('externalities') which may amount to as much as \$700 thousand millions per year in the US.

Simon concludes that 'We must consider not just the short-run effects of an action that we might take but also the effects well into the future, and not just the local effect but also the effect on far-away communities. That is, we must take into account not just the immediate and obvious impacts, but also the slowly responding adjustments which diffuse far from the point of initial contact and which often have the opposite result from the short-run localized effects'. This is from Simon, not Myers; but the arguments upon which Myers builds his case are precisely these. It is disheartening, and a little frightening, that cornucopians such as Simon seem to be gaining the upper hand, at least in the US, by using selective data to argue that we can expand population and consumption for ever. While Norman Myers may not be correct in all details, it seems far more prudent to worry about resources — even where he proves wrong, we will still have options. If Simon is wrong, our options will be foreclosed, as will our future. But why won't anyone take up his bet?

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Handbook of Environmental Physiology of Fruit Crops, Vol. 1: Temperate Crops, and Vol. 2: Sub-tropical and Tropical Crops, Edited by BRUCE SCHAFFER & PETER C. ANDERSEN. CRC Press, 2000 Corporate Boulevard NW, Boca Raton, Florida 33421, USA: each volume is hardbound, 26.7 x 17.8 x 1.8 cm in dimensions, illustrated, published 1994.

These two extremely valuable contributions to our understanding of the effect of environmental factors on plant growth and development need to be reviewed together, as there are so many similar or identical influences resulting from environmental variables that the two volumes com-

prise a most thorough understanding of a highly complex aspect of plant physiology and horticulture.

The two Editors are outstanding plant physiologists and horticulturists, full professors in the University of Florida: Schaffer with more than 60 research articles to his credit and Andersen with more than 100. In addition to their own contributions, they have been able to bring together for these two books contributions from 14 specialists from four countries for volume 1 and 17 specialists from five countries for volume 2. It is indeed a most impressive accumulation of knowledge on this basically important aspect of horticulture, for, as the Editors point out: 'Previous review articles concerning physiological growth and developmental responses of fruit crops to the environment have typically addressed a specific or multiple plant response to a single environmental factor, or alternatively, a specific plant response to multiple environmental variables'.

The chapters are arranged according to the plants: 10 in volume 1 and 11 in volume 2. The sections of each chapter concern environmental factors, ending usually with a conclusion and a comprehensive bibliography often containing from 50 to 300 or more items. The whole volume is a model of encyclopaedic inclusiveness.

Both of these volumes are to be highly recommended, especially to academic researchers, advanced students of horticulture, and commercial fruit-growers.

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Resources and Global Food Prospects: Supply and Demand for Cereals to 2030, by PIERRE CROSSON & JOCK R. ANDERSON. (World Bank Technical Paper Number 184.) The World Bank, Washington, DC, USA: 122 pp., 19 tables, 27 x 21 x 1 cm, paper cover, no price indicated, 1992.

Much justifiable criticism has been levelled in the past at the World Bank's behaviour. The way it has operated has been a consequence of the post-World War II culture — aggressive, assured, and optimistic — in which the Bank was spawned. Now the euphoria of that culture has evaporated, and the Bank has begun to react positively to criticism — to the extent that some of its more recent publications are healthily pessimistic about the future state of Planet Earth. The Bank has enlisted the help of outsiders in preparing its compilations, but has combined this help with its own substantial skills in digesting, analysing, and presenting, statistics.

The result of this 'new look', as manifest in the volume under review, on '*Resources and Global Food Prospects*', by J.R. Anderson (Principal Economist in the agricultural policies division of the Bank) with P. Crosson (enlisted from the Washington, DC, organization 'Resources for the Future'), is a thoughtful summary of the relationship between food supply and projected population in the year 2030.

The prognosis for the world's food supply is not cheerful reading, predicting as it does that many of the burgeoning