

ONE EARTH, ONE FUTURE: OUR CHANGING GLOBAL ENVIRONMENT. Edited by C.S. Silver and R. DeFries. Washington, D.C.: National Academy Press, 1990. Pp. xiii, 200. \$14.95.

OUR COMMON FUTURE. By The World Commission on Environment and Development. Oxford: Oxford University Press, 1987. Pp. xv, 400. \$11.95.

*One Earth, One Future*¹ is a cogent explanation and discussion of global environmental issues. The book is drawn from the 1989 Forum on Global Change and Our Common Future, which was sponsored by the National Academy of Sciences.² *One Earth, One Future* focuses on environmental dilemmas such as global warming, ozone depletion and deforestation, and it provides straightforward descriptions of current scientific theories. The book contains no dramatic "act or perish" rhetoric; instead, it provides a refreshing, informative approach for readers concerned about the environment.

One Earth, One Future reflects the influence of recent works that have alerted the world to the global environmental crisis, most notably *Our Common Future*, the 1987 Brundtland Commission Report.³ In accordance with its United Nations mandate, the Brundtland Commission Report considers the unsustainable rate of environmental degradation, as well as its economic and political bases. The work also suggests possible international solutions.

More descriptive and objective, *One Earth, One Future* is different from the normative and politicized Brundtland Commission Report. The newer book owes a great deal to the groundwork established by its predecessor, but its objective and scientific focus does not signal a replacement of the Brundtland Commission's

1. ONE EARTH, ONE FUTURE: OUR CHANGING GLOBAL ENVIRONMENT (C.S. Silver & R. DeFries eds. 1990) [hereinafter ONE EARTH, ONE FUTURE]. The book was compiled for and published by the National Academy of Sciences.

2. The National Academy of Sciences collected and published the papers presented at the Forum. GLOBAL CHANGE AND OUR COMMON FUTURE: PAPERS FROM A FORUM (R. DeFries & T. Malone eds. 1989) [hereinafter GLOBAL CHANGE]. The papers provide a lively, though rather technical, introduction to contemporary environmental research and theory.

3. THE WORLD COMM'N ON ENV'T & DEV., OUR COMMON FUTURE (1987) [hereinafter OUR COMMON FUTURE]. The United Nation's World Commission on Environment and Development is commonly known as the Brundtland Commission [hereinafter "the Commission"], after its president, Gro Harlem Brundtland, former Prime Minister of Norway.

policy-oriented approach. Rather, the two approaches are complementary. The Brundtland Commission Report highlighted the urgency of the global environmental crisis and helped create a readership that now seeks the scientific information provided in *One Earth, One Future*.

The United Nations General Assembly created the Brundtland Commission in 1983 to re-examine the earth's environmental and developmental problems and formulate realistic proposals to solve them. After three years of study, the Commission published its report. Intended for both the United Nations and the global public, the Report is striking in its tone. The Commission sees the earth in the throes of an environmental crisis. It describes the first view of the earth from space, a "small and fragile ball" now threatened by the impact of humanity.⁴ According to the Commission, this impact has reached acute proportions and requires immediate measures to alleviate it.

The Report centers on the urgency of global environmental problems. During the 900 days the Commission spent compiling it, the earth suffered the African drought, the Bhopal leak, a Mexican gas tank explosion, the Chernobyl nuclear accident and the Sandoz warehouse fire, which released chemicals into the Rhine. During the same period, sixty million people, mostly children, died of diarrheal diseases related to unsafe drinking water and malnutrition.⁵ The Report concentrates on the environmental aspects of population growth, energy policy, industrialization and urbanization. These are presented as global phenomena that require cooperative global solutions. In addition to specific examples of the general environmental crisis, the Report presents its case through imagery. A banking metaphor describes current environmentally unsustainable activities:

They draw too heavily, too quickly, on already overdrawn environmental resource accounts to be affordable far into the future without bankrupting those accounts. They may show profits on the balance sheets of our generation, but our children will inherit the losses. We borrow environmental capital from future generations with no intention or prospect of repaying.

4. OUR COMMON FUTURE, *supra* note 3, at 308.

5. *Id.* at 3.

They may damn us for our spendthrift ways, but they can never collect on our debt to them.⁶

The Commission also stresses the substantive interrelation of economic and environmental issues. It reports that “[p]overty is a major cause and effect of global environmental problems,”⁷ and that “inequality is the planet’s main ‘environmental’ problem; it is also its main ‘development’ problem.”⁸ Developing countries face enormous economic pressure, both internationally and domestically, to overexploit their environmental resource base.

Political overtones complicate matters. The Commission notes that “the traditional forms of sovereignty are increasingly challenged by the realities of ecological and economic interdependence. Nowhere is this more true than in the shared ecosystems and in ‘the global commons.’”⁹ Further political concerns arise from linking environmental and military issues. Not only do military budgets consume resources that might be used to implement environmental policies, but major military activities can have substantial adverse effects on the environment.¹⁰

The Commission offers its own suggestions for global solutions and calls for all major international institutions to take steps to protect the environment, largely through the reduction of global inequality of wealth. These suggestions fit with the Commission’s mandate to provide guidance for international legislation. In the final chapter, entitled “Towards Common Action: Proposals for Institutional and Legal Change,” the Commission identifies priority areas for global effort and suggests ways in which existing organizations can contribute.¹¹

The Report reflects the Commission’s belief that current human activities are unsustainable and must be changed to achieve a more equitable and environmentally sound world. The language of the Report is dramatic and normative. The book has had an enormous impact, enjoying twelve reprints in three years and

6. *Id.* at 8.

7. *Id.* at 3.

8. *Id.* at 6.

9. *Id.* at 261. The phrase “global commons” refers to areas such as the high seas, Antarctica and outer space, which lie outside the sovereignty of any state, and which are comparable to the common land in a rural society, owned by no one but used by many.

10. *Id.* at 290–307.

11. *Id.* at 308–43.

spawning countless conferences. The sense of urgency it communicates is largely responsible for the unprecedented political currency of international environmental concerns.

In contrast, *One Earth, One Future* is a comprehensible scientific discussion of environmental problems with essentially no social, economic or political rhetoric. William Clark's introduction¹² begins with an attack on the "earth is fragile" myth: "As the human race prepares to venture into a new century conversations and news reports are peppered with references to our 'fragile and endangered planet.' This phrase almost certainly exaggerates the case."¹³ Clark points out that the earth has endured for five billion years and "no matter what we humans do, it is unlikely that we could suppress the powerful physical and chemical forces that drive the earth system."¹⁴ Clark's introduction and the first section of the book discuss the earth as a unified system, of which humans are one of many parts.¹⁵ The image of the earth first viewed from space appears again,¹⁶ but this time as an example of the earth as a self-contained system, not a tiny fragile one.¹⁷

In keeping with its presentation of human activities as a recent addition to an ancient and enduring earth, the book begins with the creation of the earth. It explains the formation of the ozone shield more than a billion years ago when aquatic organisms began to photosynthesize, releasing oxygen molecules which split as they absorbed energy and recombined to form ozone. The ozone molecules absorbed ultraviolet rays from the sun and formed a protective shield, making the earth fit for more complex life.¹⁸ The book explains how, about 300 million years ago, the earth featured a single megacontinent, called Pangaea.¹⁹

The history then continues with the Ice Ages, which began about 100 million years ago. The book examines several research efforts to explain the cause of the glacial cycles, the most recent

12. This introduction replaces the paper presented by William Ruckelshaus, the first speaker at the 1989 conference. They make many of the same points. GLOBAL CHANGE, *supra* note 2, at 3-4.

13. ONE EARTH, ONE FUTURE, *supra* note 1, at 1.

14. *Id.*

15. For another discussion of the earth as a unified system, see J. LOVELOCK, THE AGES OF GAIA: A BIOGRAPHY OF OUR LIVING EARTH (1988).

16. See *supra* note 4 and accompanying text.

17. ONE EARTH, ONE FUTURE, *supra* note 1, at 15.

18. *Id.* at 21.

19. *Id.* at 21-22.

of which began to wind down about 18,000 years ago and led to the "current warm phase."²⁰ In this historical framework, the book comments that "the present balmy climate is a brief warm spell in a typically icy cycle."²¹

The historical analysis leads to a discussion of system interactions between the atmosphere, oceans, land and humans.²² The book emphasizes that a change in any part of the earth's system has repercussions for other parts. These effects include not only obvious links, such as the currents in the ocean and the atmosphere, but also more indirect relationships, such as the distant effect of clearing a tract of tropical forest on the amount of carbon in the atmosphere. Humanity is described as an agent in the environmental picture, not a manager. Although we have the ability to change the global environment, we also are the ultimate receptors of these changes.²³

The second half of *One Earth, One Future* discusses current global environmental issues, beginning with global warming and greenhouse gasses. The book outlines several models to predict climate changes,²⁴ then examines several effects of the warmer global climate.

The rising sea level is one of the most widely felt and easily recognized results of the warming. In this century the sea level has risen by about fifteen centimeters.²⁵ The book suggests several possible causes, including higher earth surface temperatures and melting glaciers, as well as the expansion of ocean waters as the surrounding air temperature increases.²⁶ Although considerable uncertainty exists about the exact causes and effects of a rising sea level, the book estimates that as many as one billion people, or twenty percent of the world's population, live on lands likely to be inundated or dramatically changed by rising waters.²⁷ An extreme example is the Republic of Maldives, which will be entirely submerged if the sea level rises two meters. Wetlands and delta areas will also suffer severe effects.²⁸

20. *Id.* at 25-27.

21. *Id.* at 27.

22. *Id.* at 31-48.

23. *Id.* at 49.

24. *Id.* at 73.

25. *Id.* at 90-91.

26. *Id.* at 91.

27. *Id.* at 92-93.

28. *Id.* at 97-100.

Other global changes which *One Earth, One Future* examines relate to the ozone layer, deforestation and vanishing species. Ozone depletion attracted world attention in 1985 with the discovery of the Antarctic Ozone Hole. The book looks at the chemistry of the ozone layer, with particular reference to the impact of chlorofluorocarbons and the effect on life of an increase in damaging ultraviolet radiation.²⁹

The discussion of the ozone layer leads to an examination of deforestation. As both developed and developing countries clear their forests, problems of soil erosion, breakdown of rain systems, and carbon dioxide buildup intensify.³⁰ In addition, the book describes the effect of acid deposition on lakes and forests.³¹ The book carefully outlines the acidification process and lays out the current state of knowledge and speculation about its effects.³²

Man's incursion into the global environment has also caused species to vanish. The book explains human dependence on the natural diversity of living organisms for food, ingredients for pharmaceuticals, fibers and petroleum substitutes.³³

One of the most striking aspects of *One Earth, One Future* is its clear language. The book explains technical aspects of environmental issues with no footnotes and a minimum of charts. As presented, the theories about causes and effects of our environmental dilemmas are understandable to readers with little or no scientific background.

One Earth, One Future achieves its goal of providing a backdrop of scientific information on which decisions about our environment will rely.³⁴ It leaves out all normative or political rhetoric. It provides the reader with the tools to understand global environmental decisions, but it carefully only advocates action, without taking a view on *what* action should be pursued.

Although objective, the book does not abandon the urgency of the global environmental crisis that is so apparent in the Brundtland Commission Report. *One Earth, One Future* is simply more measured. At its most dramatic, the book quotes a forum speaker: "Quite simply, the 'bottom line' of the evolving greenhouse gas

29. *Id.* at 103-14.

30. *Id.* at 120-22.

31. *Id.* at 131.

32. *Id.* at 133-42.

33. *Id.* at 125.

34. *Id.* at 10.

build-up is that we insult the environment at a faster rate than we can predict the consequences, and that under these conditions surprises are virtually certain."³⁵ The book concentrates on scientific facts. The need for change emphasized by the Brundtland Commission Report is either presumed or seen as a natural conclusion from the scientific data presented.

This view is apparent in the excerpt of Gro Harlem Brundtland's keynote address at the forum, included as an afterword and accompanied by a disclaimer.³⁶ In shortening her speech for the book, the editors omitted mostly political assertions, such as her belief that the scientist belongs alongside the politician and the economist at the negotiating table.³⁷ Still, the speech is sharply different in tone and intent from the rest of the book, a reminder of the purpose for which the scientific information will be used.

One Earth, One Future intends to cover a narrow ground. It is an objective description of current scientific understanding of our environment. The Brundtland Commission Report is a normative, politicized effort that succeeded in focusing world attention on global environmental and economic problems. Yet the connection between the two works is important. To some extent the Brundtland Commission Report made *One Earth, One Future* possible. But the scientific approach does not replace the political approach. The two methods are complementary, and both the Report and *One Earth, One Future* are successful at their respective tasks.

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35. *Id.* at 76 (quoting Steven H. Schneider of the National Center for Atmospheric Research).

36. *Id.* at 147. An explanatory note states that her views do not necessarily reflect those of the National Academy of Sciences.

37. *Cf.* GLOBAL CHANGE, *supra* note 2, at 10-18.