BOOKS: ENVIRONMENT

Relying on Manna from Heaven?

Michael Grubb

"Good news" generally doesn't make headlines. The good news message of Bjørn Lomborg's book, *The Skeptical Environmentalist*, is an exception. Rarely has a book whose core message is "don't worry" attracted such a fanfare. Senior editors in diverse media, some of whom seem to have been itching for years to give the environmental movement its comeuppance, have showered Lomborg's thesis with unprecedented attention. All the more important, therefore, to ask: "How good is it?"

The Skeptical Environmentalist
Measuring the Real State of the World
by Bjørn Lomborg

Cambridge University Press, Cambridge, 2001. 539 pp. $69.95, £47.50. ISBN 0-521-80447-7. Paper, $27.95, £17.95. ISBN 0-521-01068-3.

That is a remarkably hard question to answer. Lomborg has compiled an immense amount of data to support his fundamental assertion that in many respects the environment is getting better rather than worse and to argue that we should not worry much about the state of the world. These are two distinct theses. For the most part, I find his analysis of the first contention compelling but his case for the second woefully inadequate. Along the way, he revels too much in slaying caricatures and falls into some of the same traps of selectivity for which he lambastes the environmental movement.

The book's breadth is certainly impressive. The 25 chapters and almost 3000 endnotes cover a huge array of environmental, social, and economic trends. Lomborg's individual chapters, such as his early discourse on why we hear so much bad news about the environment, range over wide fields. Through much of the first half of the book he offers a detailed and well-developed antidote to environmental doom-mongering. He establishes a convincing case that, in general, humanity is better off today than it has ever been in terms of standard welfare measures and of many environmental indicators. Lomborg presents extensive data and arguments—admittedly, much of it the fodder of standard debates in the economics community—to argue that the world will not run out of core resources over this century. He sets these optimistic conclusions against "the Litany" of pessimistic prognoses by "the environmental community." Essentially, life is getting better by almost any measure, and there will remain plenty of food, forests, water, energy, and non-energy resources: Malthus, turn in your grave. Considering pollution, the air is cleaner, forests are not dying from acid rain, marine systems have recovered rapidly from oil spills and other insults, and the United States has realms of space left in which to dump any conceivable volumes of this century's wastes. His message is clear: the environmentalists are wrong.

Although the broad coverage and the statistical detail are impressive, three problems emerge with Lomborg's case. One is its presentation as a rebuttal of the Litany, a portrayal of environmentalism focused on barely a dozen veterans of the environmental movement who the author singles out for criticism. By exposing their inadequacies, he implies that the whole panoply of environmental concerns is misguided. So much for statistical representation. To any modern professional, it is no news at all that the 1972 *Limits to Growth* (*1*) study was mostly wrong or that Paul Ehrlich and Lester Brown have perennially exaggerated the problems of food supply. Nor are more balanced views confined to obscure academics. The point about these claims was made clearly and through the mass media a decade ago by Jessica Matthews, then at the World Resources Institute (WRI). But she continued to insist on the reality of other environmental problems, and her name is absent from Lomborg's much-touted footnotes. Indeed WRI, one of the world's leading environmental institutes, scarcely features. Also sparse are the names of innumerable eminent scientists who have offered more nuanced views, except where they can be cited in support of the author's sweeping counter-Litany.

Similarly, Lomborg focuses on his betenoir individuals and institutions at the expense of the most authoritative general efforts to assess the state of the environment. The key reviews by the Organization for Economic Cooperation and Development (*2*), the United Nations Environment Programme (*3*), the World Bank (*4*), and the WRI (*5*) are occasionally mined for data, but their analyses, which are far less reassuring than Lomborg's, get little recognition—one senses these do not provide the soft targets that Lomborg likes. The European Union's official assessment (*6*) is not even in the reference list. Lomborg's coverage cannot be as comprehensive as these collaborative efforts by teams of experts, and, although wide, it is curiously selective. Acid rain may not kill many trees, but Lomborg pays little attention to its undisputed impact on Scandinavian lakes. The volume of waste may be small in the vastness of North America, but that doesn't make either the amounts or the toxicity of waste any less of a problem worldwide. And so forth. The book contains no discussion of the awful incidents that led African nations to negotiate a continental (and subsequently global) ban on the international dumping of toxic wastes that the wealthy industrialized world would not tolerate at home. Lomborg generally pays inadequate attention to serious environmental problems in developing countries, and his casual assumption that they too will improve as we all get richer brings us to the crunch issue.

Banished gloom. The disastrous London fogs of the early 1950s led to the passage of the UK Clean Air Act (1956), which initiated the trend toward broad controls on the sources of atmospheric pollution and was followed by a dramatic improvement in London's air.

CREDIT: BETTMANN/CORBIS

For although the above flaws are irritating and show some disrespect for the huge effort put into professional environmental monitoring and assessment, the third problem—a stunning lack of attention to cause and effect—is far more dangerous. There are a few grudging references to cases where the role of legislation is so obvious that Lomborg could hardly avoid mentioning it in passing. But through 352 pages of text and 182 pages of footnotes, only

The author is in the Environmental Policy and Management Group, Imperial College, RSM Building, London SW7 2BP, UK, and the Department of Applied Economics, Cambridge University. E-mail: michael.grubb@ic.ac.uk

one paragraph and one note (without a reference) explicitly address the question of whether the observed improvements have come as manna from heaven or have been driven by environmental concerns and the resulting policies. Lomborg simply dismisses the latter suggestion as being

> often misleading or even incorrect. Air pollution in London has declined since the late nineteenth century, but for the greater part of the twentieth century this has been due to a change in infrastructure and fuel use and only slightly, if at all, connected to environmental worries expressed in concrete policy changes.

As far as I could find, that is essentially all the attention Lomborg gives this crucial issue. And the one, unreferenced example he uses to buttress his assertion is simply wrong. The huge improvements in London's air have been very much driven by policy. Most radically, the 1956 Clean Air Act banned raw coal combustion across large swaths of London, and a long series of domestic and European legislation governing vehicle exhausts has done much to clean up mobile sources. The dramatic impact evident from 1957 onwards is obvious in Lomborg's own graph. His denial of the fundamental cause is, at best, inexcusable ignorance, when the issue of cause and effect is so central to the case he tries to build.

Lomborg's basic assertion on this matter is followed by an acknowledgment that legislation might play a role, but he insists that that doesn't mean governmental action was justified. "Even to the extent that worries have mattered in policy decisions, as they undoubtedly have in, say, air pollution," he writes, "this does not assure us that our resources could not have been put to better use. Kindling public concern…as seen from a democratic viewpoint, skews the unbiased choice of the electorate."

Apparently, Lomborg assumes the public believes every environmental scare story and none of the exaggerated claims of opponents to environmental policy. Hence, we will spend too much on environmental protection. His footnote complains of insufficient cost-benefit appraisals of environmental policy, but in invoking democracy as the arbiter he digs a grave for his own policy thesis. If he believes in the democratic mandate, he should consider the popularity of a campaign to repeal the legislation that has made London livable. Indeed, the most striking feature of environmental policy is its durability. With surprisingly rare exceptions, environmental regulations have almost always proved considerably cheaper than their opponents had claimed they would, and hardly any are repealed on grounds of costs. Changing behavior or developing technologies to improve the quality of public life—once policy has mandated it—generally prove easier and less costly than feared. This is well documented for the U.S. experience with acid rain and a host of other cases (*7*)—a statistical trend worthy of citation in this book.

The list of environmental improvements driven by public concerns and policy is almost endless, and I suspect these explain most of the environmental recoveries that Lomborg charts. One can also speculate what the Scandinavian lakes, the ozone hole, and so forth might be like now in the absence of protective policies. In addition, the huge improvements across land, air, and water have been achieved at a cost generally reckoned to be well under two percent of gross domestic product in developed countries (*2*).

The ultimate irony is that Lomborg could have presented his mass of data as a tribute to the effectiveness of environmental policy. That he chooses to do the opposite says far more about him than about any claimed objectivity of his statistical analysis.

The author's perspective assumes particular importance when we turn to the future. It was hard for me to evaluate the chapters on chemical fears and biodiversity loss. I was initially reassured by Lomborg's seemingly well-argued case that these problems are hugely exaggerated. However, these are not my fields, and my reassurance was dented by finding a Web site that lists papers in which fellow Danish researchers rebut Lomborg's claims in these and other areas (*8*).

Climate change (to which Lomborg devotes the longest chapter in the book) is my field, and I can only describe his analysis of it as at best inconsequential. On the scientific issues, he does nothing more than place himself firmly at the optimistic end of a wide spectrum of opinion amid legitimate uncertainties, and he picks somewhat selectively from the work of the Intergovernmental Panel on Climate Change (IPCC) to justify his position. He also views the potential impacts through the painfully narrow lens of a well-off Northerner. He shows no appreciation for the practical or the moral dimensions of impacts on potentially billions of people, who are already far worse off than ourselves and who share no responsibility for causing the problem. There are also significant distortions of mainstream views and the IPCC work. His account offers nothing new or insightful, and readers would do far better to read the IPCC reports themselves and reach their own conclusions.

Lomborg accepts that there is a climate problem, but he basically believes that technologies will solve it without either economic or behavioral incentives. His position resembles one of the IPCC scenarios, and he essentially dismisses the others. In doing so, he ignores the whole point of scenario analysis, which is built on the experience that the thing most individual predictions have in common is being wrong and the challenge is to minimize risks.

The book reaches its nadir when Lomborg turns to climate economics and the Kyoto Protocol. He appears to swallow all the "seven myths" peddled by many treaty opponents, including exaggerations of its economic costs (*9*). His position reflects ignorance of the protocol and of the underlying economic and political debates that went into its formation (*10*). He neglects the fundamental economics of technical change: the literature of the past 40 years demonstrates unequivocally that development and dissemination of technology respond to economic incentives (*7*, *11*–*14*), such as those embodied in Kyoto's commitments. Improvement does not fall as manna from the heavens, or purely from government research and development laboratories for that matter.

That, at heart, encapsulates the flaws in Lomborg's thesis. Many (though not all) aspects of the environment are getting better—good. Therefore, environmentalists are stupid—a complete non sequitur. And technologies will solve any outstanding problems, so we don't need policy—generally wrong. As a counter-Litany, this seems more misguided and more dangerous than the Litany that Lomborg attacks. Doubtless he would complain that this summary distorts his views. However, the principal tone of the book and the surrounding publicity invite such an interpretation, and Lomborg has done nothing to dispel it. That is the pity of *The Skeptical Environmentalist*; perhaps it was just too ambitious. While reading the statistical analyses, I thought it could help lift the environmental debate to a new level of maturity. It hasn't, and I doubt it can. Reading the rest—and seeing how keen certain media have been to promote some of the less rigorous contrarian fodder it contains—I fear it risks doing the opposite.

References and Notes

1. D. H. Meadows, D. L. Meadows, J. Randers, W. W. Behrens III, *Limits to Growth* (Universe Books, New York, 1972).
2. *OECD Environmental Outlook 2001*, (Organization of Economic Cooperation and Development, Paris, 2001).
3. United Nations Environment Programme, *Global Environmental Outlook 2000* (Earthscan, London, 2000).
4. World Bank, *World Development Report 1999/2000* (Oxford Univ. Press, New York, 2000).
5. World Resources Institute *et al.*, *World Resources 2000*, (WRI, Washington, DC, 2000).
6. *The Environment in the EU at the Turn of the Century* (European Environment Agency, Luxembourg, 1999).
7. D. Anderson, *Environ. Develop. Econ.* **6**, 283 (2001). At a broader level, Anderson, among many others, demonstrates that the relation between pollution

and wealth (extensively studied in economics literature on the "environmental Kuznet's curve") is not automatic but depends upon policy.
8. www.au.dk/~cesamat/debate.html
9. M. Grubb, J. Depledge, *Clim. Policy* **1**, 269 (2001).
10. M. Grubb, C. Vrolijk, D. Brack, *The Kyoto Protocol: A Guide and Assessment* (Royal Institute of International Affairs/Earthscan, London, 1999).
11. K. J. Arrow, *Rev. Econ. Stud.* **29**, 155 (June 1962).
12. C. G. Thirtle, V. W. Ruttan, *The Role of Demand and Supply in the Generation and Diffusion of Technical Change* (Harwood, Chur, Switzerland, 1987).
13. C. Azar, H. Dowlatabadi, *Annu. Rev. Energy Environ.* **24**, 513 (1999).
14. A. Grübler, N. Nakicenovic, D. Victor, *Energy Policy* **27**, 247 (1999).

BOOKS: ENERGY

Working Towards a Sustainable Future

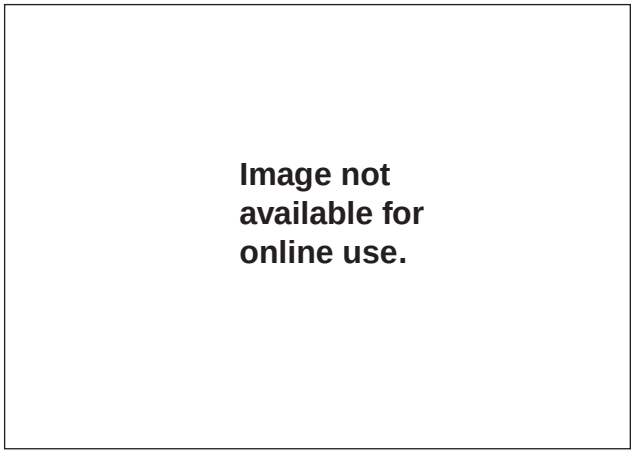
Walt Patterson

In 1985, four scientists from four continents—José Goldemberg of Brazil, Thomas Johansson of Sweden, Amulya Reddy of India, and Robert Williams of the United States—published a paper that advocated a fresh approach to energy policies, "An End-Use Oriented Global Energy Strategy" (*1*). The authors argued that such policies should not focus narrowly on fuel supplies and prices. Instead, policy-makers should begin by asking why humans use energy and how. They should also explicitly address global issues that interact with energy, including poverty and development, nuclear weapons proliferation, and climate change.

At the time, the authors' approach put them at odds with most of their colleagues, not to mention most organizations analyzing energy policy for governments and companies—groups such as the International Institute for Applied Systems Analysis and the World Energy Council. Nevertheless, the four continued their intercontinental collaboration and developed their thesis into the landmark 1987 book *Energy for a Sustainable World* (*2*). In subsequent years, they teamed up in various combinations to analyze key subsectors of energy policy from the same perspective. The fruits of their efforts appeared in many presentations and publications, among the most important of which were the major studies *Electricity* (*3*) and *Renewable Energy* (*4*). Throughout the 1990s their views steadily gained ground within the energy communities of countries both within and outside the Organization for Economic Cooperation and Development.

World Energy Assessment
Energy and the Challenge of Sustainability
José Goldemberg, Ed.
United Nations Development Programme, United Nations Department of Economic and Social Affairs, and World Energy Council, New York, 2001. 528 pp. Paper, $65. ISBN 92-1-126126-0.

Now, at the start of the new millennium, comes the *World Energy Assessment*, prepared by a team with Goldemberg as chair and his three long-time colleagues on the editorial board. Unlike *Energy for a Sustainable World*, however, the new volume cannot be dismissed as the work of maverick visionaries. The assessment was initiated jointly by the United Nations Development Programme, the UN Department of Economic and Social Affairs, and the World Energy Council. The three groups co-published the final report as input to the 2001 session of the UN Commission on Sustainable Development, to the "Rio Plus Ten" meeting scheduled for 2002, "and beyond," as the foreword puts it.



Diffusing technologies for concentrating energy. The use of solar cookers, such as this parabolic concentrating type that has been widely distributed in China, can reduce the environmental and health effects of collecting and burning biomass resources.

The report is the most comprehensive and far-reaching single volume on energy policy ever published. It is also one of the most readable, even for nonspecialists, although the sheer scope and depth of its content make the thought of reading it from cover to cover daunting. Fortunately, the volume begins with a concise "Overview" that highlights its key features and findings, and which has also been bound as a 40-page pamphlet.

Part I sets the tone for the study, placing energy in the context of major global issues including poverty, population, gender, urbanization, environment, health, and security. Part II considers world energy resources and the technologies, both currently available and prospective, to mobilize and use them. The longest part of the book, it is packed with fascinating details, which are accompanied by authoritative references. And, as it needs to be, the analysis is couched in the language of systems, not of individual fuels or technologies.

Part III asks "Are sustainable futures possible?" The authors examine six scenarios of energy system alternatives developed by the International Institute for Applied Systems Analysis and the World Energy Council (*5*). Three, including what might be called a "business as usual" scenario, fail to meet the study's criteria for sustainability. The other three succeed, using different assumptions of prevailing conditions. However, each sustainable scenario requires what the report calls "significant policy and behavioural changes in the next few decades." As the authors note, we now have a brief opportunity:

> The choice of the world's future energy systems may be wide open now. It will be a lot narrower by 2020…The achievement of sustainable development dictates a global perspective, a very long time horizon, and immediate policy measures that take into account the long lead times needed to change the system.

Accordingly, Part IV takes up the question "Where do we go from here?" The authors do not pull any punches. They realize that overcoming the economic, social, and political obstacles to sustainable development will take time. The long life cycles of some investments resist efforts to accelerate changes. Even after environmentally friendly technologies are developed, they must become affordable and available in the quantities and at the locations necessary for them to be effective. Inertia in human behavior and consumer choices will have to be overcome. Today's purchasers are reluctant to pay for benefits that will not be delivered until some uncertain time in the future. The transition to an energy framework that will support sustainable development will require widespread public support along with informed political leadership and policy-making.

The data and analyses in this volume demonstrate that changing energy systems offers a powerful instrument to shift cur-

The author, from the Royal Institute of International Affairs, is at Little Rushmoor, High Bois Lane, Chesham Bois, Amersham HP6 6DQ, Buckinghamshire, UK. E-mail: waltpattersn@gn.apc.org