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The Naive Environmentalist

Frank B. Cross

THE NAÏVE ENVIRONMENTALIST

Frank B. Cross[†]

Bjørn Lomborg's book, *The Skeptical Environmentalist*,[1] has produced a firestorm of controversy within the environmental community,[2] as evidenced in part by the existence of this very symposium. The book itself is not terribly remarkable – its contents have been well presented by a series of other texts in recent years.[3] Perhaps the main distinguishing feature of the book is that it was written by an environmentalist (even a former member of Greenpeace and a vegetarian who shuns automobiles for bicycles)[4] rather than an academic economist or political scientist or skeptic. The more interesting story relates to the firestorm of criticism produced by *The Skeptical Environmentalist*. The reaction to the book by environmentalists was vigorous and extensive. This essay reviews this reaction and what it displays about contemporary environmentalism.

Lomborg's book covers an enormous amount of territory. He addresses conventional environmental concerns such as food supply, energy supply, water supply, mineral resources, deforestation, air and water pollution, hazardous waste, chemicals, biodiversity, population growth, and global warming, as well as more general human welfare concerns, such as overall health. The paramount point of Lomborg is not to be heedless of environmental threats such as those he addresses; instead, his central thesis is the title to the first chapter – that "Things are getting better."[5] Juxtaposed

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† Hebert D. Kelleher Centennial Professor of Business Law, Red McCombs School of Business, University of Texas at Austin; Professor of Law, University of Texas Law School.

[1] BJØRN LOMBORG, THE SKEPTICAL ENVIRONMENTALIST: MEASURING THE REAL STATE OF THE WORLD (Cambridge University Press 2001) (1998).

[2] *See Defending Science*, THE ECONOMIST, Feb. 2-8, 2002, at 15 (noting that "[t]he response to the book in many quarters has been apoplectic" and that "Lomborg is being called a liar, a fraud and worse").

[3] An incomplete listing of these books could include WILFRED BECKERMAN, THROUGH GREEN-COLORED GLASSES (1996); GREGG EASTERBROOK, A MOMENT ON THE EARTH (1995); EDITH EFRON, THE APOCALYPTICS (1984); JULIAN L. SIMON, THE ULTIMATE RESOURCE 2 (1996); THE TRUE STATE OF THE PLANET (Ronald Bailey ed., 1995); AARON WILDAVSKY, BUT IS IT TRUE? (1995).

[4] LOMBORG, *supra* note 1, at xix, 355 n. 68.

[5] *Id.* at 3.

against the doomsayers are the "Cornucopians," a group optimistic about the future, in which Lomborg generally falls.

Contrary to numerous doomsaying professions, environmental problems have generally declined over past decades. Pollution is down and resources are less scarce than they were in the past. This happy coincidence is not magical; it is the logical consequence of material and scientific progress under conditions of political and economic freedom. As Julian Simon has noted, "in a free society, solutions are eventually found" to problems and "the new developments leave us better off than if the problems had not arisen."[6] Thus, responses to scarcity have made oil, wood, and minerals more available at a lower price.

Progress is evident for almost all forms of environmental contamination. For instance, air pollution has declined by seventy percent over the past four decades,[7] which is especially noteworthy, because it is the environmental problem for which we have the best historic measurements. Thus, the problem for which the data are the most reliable is the problem for which those data show the greatest improvement. While overall data on water pollution are not quite so reliable, there is good historic evidence on tanker accidents, which shows a rate of twenty-four major accidents per year before 1980, declining to about eight per year in the 1990s.[8] Also, levels of persistent pesticides in U.S. fish have dropped by over eighty percent during recent decades.[9]

The widespread improvements in environmental health have contradicted many of the predictions of past decades. Some projected that chemicals would send us all to our doom via cancer or other disease. Many suggested that we would soon to run out of oil or other basic minerals, with terrible consequences. And a disastrous population explosion and food shortage was projected by others. These doomsayers have now largely moved on to other environmental problems, but the approach remains.

Paul Ehrlich, apparently a fine pure scientist, is surely the wildest and most absurd example of foolish environmental predictions. He reportedly made such claims as that 65 million Americans might starve to death in the 1980s, and hundreds of thousands would die in "smog disasters" during the 1970s, that the life expectancy of Americans could drop to around 42 by 1980 due to

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[6] SIMON, *supra* note 3, at 383 (emphasis omitted).

[7] LOMBORG, *supra* note 1, at 166. For a more extensive review of the extent of air pollution over the past century, see INDUR GOKLANY, CLEARING THE AIR (1999).

[8] LOMBORG, *supra* note 1, at 190.

[9] *Id.* at 205.

pesticides, that the 1980s would see a steep increase in death rates, and that marine fishing would die out completely during the past century, among other statements.[10] While he did not call these actual predictions, he clearly considered them plausible or likely scenarios, and his book wasn't meant to be a work of fiction.[11] Ehrlich has reportedly suggested the possibility of 100% extinction of species by 2010.[12] Ehrlich famously put his money where his mouth was and lost. He bet Julian Simon in 1990 that a basket of raw materials would see price rises over the decade, but every raw material actually dropped in price.[13] Ehrlich was the most extravagant of the doomsayers, but he certainly was not alone.

For instance, Lester Brown incorrectly predicted food shortages and price increases and loss of forests.[14] David Pimental incorrectly projected substantial increases in malnutrition and infectious disease rates.[15] Rachel Carson presented a "[f]able for [t]omorrow," in which chemical pesticides were wiping out the plants, animals and humans of a town.[16] Norman Myers incorrectly expected the loss of one third of tropical forest coverage by 2000.[17] The Worldwatch Institute issues annual reports that "are exposed by later events as simply fraudulent."[18] In the 1970s, Stephen Schneider and Carl Sagan warned of horrific global cooling threats.[19] Some environmentalists claimed that acid rain could destroy all of New England's lakes, based on data that was essentially made up.[20] In 1973, E.F. Schumacher inaccurately suggested that we would soon run out of oil.[21] In 1963, Barry Commoner suggested that pollution was reaching a point where it would "de-

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[10] These claims are collected in RICHARD A POSNER, PUBLIC INTELLECTUALS: A STUDY OF DECLINE 131-32 (2001).

[11] *See* CHARLES T. RUBIN, THE GREEN CRUSADE: RETHINKING THE ROOTS OF ENVIRONMENTALISM 89-90 (1994) (noting that while Ehrlich said he was "not predicting," the scenarios were meant to illuminate the future and were modified in later editions as they proved wrong).

[12] *See* Chris Lavers, *You've Never Had It So Good*, THE GUARDIAN, Sept. 1, 2001.

[13] The story is reviewed in LOMBORG, *supra* note 1, at 137.

[14] *See* WALLACE KAUFMAN, NO TURNING BACK 72 (1994) (observing that Brown overstated tropical deforestation by 400%).

[15] *See* LOMBORG, *supra* note 1, at 22 (citing David Pemental, et al., *Ecology of Increasing Disease: Population Growth and Environmental Degradation*, BIOSCIENCE, Oct. 1, 1998, at 817).

[16] RACHEL CARSON, SILENT SPRING 1-3 (1962).

[17] *See* Roger Sedjo & Marion Clawson, *How Serious is Tropical Deforestation?*, 81 J. OF FORESTRY 792 (1983).

[18] KAUFMAN, *supra* note 14, at 72.

[19] *Id.* at 74.

[20] *Cf.* Edward C. Krug, *Environmentalism: Abuse of a Just Cause*, CHRONICLES, June 1993, at 44.

[21] *See* BECKERMAN, *supra* note 3, at 61 ("Schumacher argued that new oil discoveries and exploration could not keep pace with the rise in demand for oil.").

stroy the fitness of this planet as a place for human life."[22] Lewis Mumford in 1970 said that we must abandon computers and mechanical technology or the world would become a "lifeless desert."[23] In that year, Lee Loevinger claimed that "there will not be more than 35 to 100 more years to the end of all human life on earth."[24] The Club of Rome published *The Limits to Growth* in the early 1970s, projecting a steady rise in death rates from pollution through 2003.[25] This is just a fractional sampling of projections of environmental doom. Lomborg calls this list of laments the "litany" of complaints that our environment is ever-deteriorating.[26] Yet this litany has consistently been proved wrong. The "environmental doomsayers . . . predictions of widespread chaos made some thirty years ago have been everywhere falsified by subsequent events."[27]

One common early formulation of environmental risk, deployed by Ehrlich, Barry Commoner, John Holdren, and others, suggests that environmental harm is a function of population, affluence, and technology (sometimes expressed as I = PAT).[28] In this view, the growth of population, increased affluence, and new technology would undermine environmental health. Paul Ehrlich argued that economic growth in affluent countries "is the disease, not the cure."[29] History, though, has shown that the formula is backwards. Technology has provided fixes for innumerable pollution problems, and affluence has been consistently associated with an improved environmental quality.[30] While population growth could be problematic if taken to an extreme, we are not at that extreme, and greater population numbers mean an increase in productive knowledge that can be used to resolve problems.[31] While recent history has demonstrated the falsity of the I = PAT

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22 EFRON, *supra* note 3, at 28.

23 *Id.*

24 *Id.* at 29.

25 *Id.* at 40-41.

26 LOMBORG, *supra* note 1, at 3.

27 Richard A. Epstein, *Does Literature Work as Social Science? The Case of George Orwell*, 73 U. COLO. L. REV. 987, 991 n.7 (2002).

28 *See* Barry Commoner, *The Environmental Cost of Economic Growth*, 8 CHEMISTRY IN BRITAIN 52, 55 (1972); Paul R. Ehrlich & John P. Holdren, *Impact of Population Growth*, 171 SCIENCE 1212, 1212 (1971).

29 *Quoted in* David Brooks, *Journalists and Others for Saving the Planet*, WALL ST. J., Oct. 5, 1989, at A28.

30 *See infra* text accompanying notes 94-116.

31 *See* SIMON, *supra* note 3, at 385 ("The main contribution that additional persons make to society is the new knowledge . . . that they create and leave behind them."). Over the long run, economic growth "arises from the worldwide discovery of ideas, which depends on population growth." Charles I. Jones, *Sources of U.S. Economic Growth in a World of Ideas*, 92 AM. ECON. REV. 220, 220 (2002).

recent history has demonstrated the falsity of the I = PAT formula, some continue to invoke it as an explanation for pollution.[32]

False projections of environmental disaster are not a modern phenomenon. Inaccurate environmental doomsayers date to the 17th century or before.[33] At that time, some declaimed that "the climate was deteriorating, the soil growing exhausted and pestilences multiplying."[34] Some "deplored smoke pollution and deforestation" in Europe, others worried about the colonies and "how rapidly slash-and-burn clearances and plantation monocultures like sugar cane brought on droughts, flash floods and devastating soil erosion."[35] Of course, the godfather of gloom, Robert Thomas Malthus, projected massive overpopulation, with consequent famines, epidemics, and wars, in 1798.[36] Somehow, mankind and the earth survived the eighteenth, nineteenth, and twentieth centuries. These intervening years saw continued foolish predictions. In 1865, there was a prediction that Great Britain would soon run out of coal, and a 1914 American projection said we had only ten years of oil left in the ground.[37] Yet centuries of erroneous projections of doom have scarcely caused hesitation among jeremiahs.

In some environmentalist laments, it is easy to see the public intellectual pathologies identified by Richard Posner.[38] While there is no precise definition for the public intellectual, they are generally those with some expertise who bring ideological ideas to bear on matters of public concern. There is a market for the writings of such public intellectuals from publishers, so long as they can communicate their ideas in an attention-getting fashion. One obvious approach for commanding such attention is the prediction of doom (or at least some sort of dire consequences), which Posner terms the "jeremiah school."[39] Environmentalism fits nicely into this category, because it enables the public intellectual to project

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[32] *See* Anne H. Ehrlich & James Salzman, *The Importance of Population Growth to Sustainability*, 32 ENVTL. L. REP. 10,559 (2002) (identifying I = PAT as a useful model for illustrating the connection between a population's level of consumption and its impact on the environment.).

[33] *See* SIMON, *supra* note 3, at 260 (Suggesting that the Greeks may have had such worries about deforestation in 550 B.C.).

[34] ROY PORTER, THE CREATION OF THE MODERN WORLD 300 (2000).

[35] *Id.* at 301-02.

[36] *Id.* at 470-72.

[37] *See* Stefano Nestor, *Environmentalism and the Disaster Strategy*, 19 UCLA J. ENVTL. L. & POL'Y 211, 211 (2001).

[38] *See* POSNER, *supra* note 10.

[39] *See id.* at 281. This approach is by no means limited to environmentalists or liberals – many of the most prominent jeremiads are produced by conservatives lamenting the loss of morals or other supposed characteristics of the "good old days." *Id.* at 281-93 (counting Gertrude Himmelfarb and Robert Bork among these conservative "declinists").

horrors on a global scale. Posner counts environmentalists, such as Paul Ehrlich, as prominent examples of this type.[40] Of course, as jeremiahs mount, it takes increasingly dramatic predictions in order to gain the public attention required of a public intellectual.

The existence of the controversy over *The Skeptical Environmentalist* should not be terribly surprising. Lomborg gives the environmental jeremiahs a convenient foil for another round of debate. He has exploited his status as a former environmentalist to promote his book, and that has surely further provoked the ideological ire of the jeremiahs, who picture him as a traitor to the true cause of environmentalism. Some environmentalists seem to divide up the world into friendly members of their own "green team" and enemies to be attacked.

The jeremiah approach may profit the individual public intellectual, who gains prominence, prestige and cash from success, as public intellectuals may be punished for ideological error but not for simply "being wrong."[41] The jeremiahs are fueled by a media industry that can use drama to sell papers.[42] A Defenders of Wildlife representative recognized that the "best way to get on TV is to take an extreme position."[43] Thus, the inducement to sell scientific accuracy and credibility for attention and advocacy.

The radical and erroneous claims of environmental doomsayers hardly advance the overall interests of the underlying environmental policy, however. The loss of credibility is a profound cost to an advocate.[44] The logical effects of the most extreme jeremiahs are "to discredit its side of the political spectrum," to dissipate the energies of allies in "battles over symbols and cultural institutions," and "to provide a *raison d'etre* for the polemics of the op-

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[40] *Id.* at 131-35.

[41] *Id.* at 130. *See also* LOMBORG, *supra* note 1, at 29-30 (suggesting that the inaccurate environmental predictions are based on "rhetorically pleasing arguments" rather than facts).

[42] *See* KAUFMAN, *supra* note 14, at 72 (noting that the "environmental movement has been a blessing to the media," as scientists failed "to provide the excitement the media needs to get readers, listeners, and viewers").

[43] RONALD BAILEY, ECO-SCAM: THE FALSE PROPHETS OF THE ECOLOGICAL APOCALYPSE 171 (1993).

[44] Roger Pielke, director of the University of Colorado's Center for Science and Technological Policy Research, suggests that the extremism and politicization of scientists (on both sides of the debate) undermines their "abililty to advise policymakers on urgent issues such as global warming and biodiversity." See Keay Davidson, Politicizing Science Degrades Research, S.F. Chron., April 1, 2002, at A5. Pielke referred to the debate over The Skeptical Environmentalist and specifically criticized the responses in the January 2002 issue of Scientific American. Id. Paul Ehrlich has joined in this point. See Harold Mooney & Paul Ehrlich, Ecologists, Advocacy and Public Policy (Nov. 4, 1999), available at http://www.nceas.ucsb.edu/nceas-eb/resources/ecoessay/wagner/rev1.html (emphasizing the need for environmentalists to distinguish between their scientific views and their informed political opinions when advocating).

posite fringe."[45] The jeremiahs are therefore no friends to the environmental movement. By "crying wolf" repeatedly and falsely, they only undermine the credibility of the movement and may cause its warnings to go ignored when a true wolf is in the fold.[46]

Environmentalists could establish some credibility by abandoning the jeremiahs and rejecting their unsupported claims. Yet the movement has scarcely done so and clings to fellow members of its "green team" who urge environmental action, regardless of the merits of their particular claims. The movement continues to embrace the very doomsayers, such as Ehrlich, whose past predictions were absurdly wrong. They may even be regarded as heroes of the movement. However, such "movement environmentalists" form only a small percentage of the population. The more typical American, or "median voter," has seen the litany of doomsaying and seen the projections proved false. For them, the association of environmentalism with the jeremiahs only undermines environmentalism and renders suspicious even well-founded environmental problems. This is the effect that Lomborg apparently seeks to combat.

Lomborg's book soon produced a great deal of criticism from the environmental community. Many press outlets have reviewed the book (positively and negatively),[47] but three organizations sponsored an organized series of replies to the claims of *The Skeptical Environmentalist*: the Union of Concerned Scientists (a major environmental group),[48] the online environmental magazine *Grist*,[49] and the well-known magazine, *Scientific American*.[50] Together, they sponsored fifteen essays criticizing parts of the book, many of them written by the most prominent environmental experts in their fields, such as Edmund O. Wilson and Stephen Schneider. Examining these responses can tell us a great deal about the environmental movement and doomsayers. Lomborg has

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[45] POSNER, *supra* note 10, at 296.

[46] *See* LOMBORG, *supra* note 1, at 330-31 (suggesting that the pattern of doomsaying creates a mentality of being under siege, which means "that we will often implement unwise decisions based on emotional gut reactions").

[47] Some of the reviews were harshly negative. *See, e.g.*, Stuart Pimm & Jeff Harvey, *No Need To Worry About the Future*, 414 NATURE 149 (2001) (book review). A somewhat less harsh review was Michael Grubb, *Relying on Manna from Heaven?* 294 SCIENCE 1285, 1285 (2001) (book review).

[48] Union of Concerned Scientists, *Global Environment: UCS Examines* The Skeptical Environmentalist *by Bjørn Lomborg*, *at* http://www.ucsusa.org/environment/lomborg.html (last visited Oct. 7, 2002).

[49] *Something Is Rotten in the State of Denmark: A Skeptical Look at* The Skeptical Environmentalist, GRIST MAGAZINE, *at* http://www.gristmagazine.com/books/lomborg121201.asp. (last visited Oct. 7, 2002).

[50] *See Misleading Math About the Earth*, SCI. AM., Jan. 2002, at 61.

written a very detailed response to the *Scientific American* critiques, going point by point through the arguments,[51] but one need not delve into this debate to understand the big picture exposed by the debate.

Perhaps the most salient feature of the responses is their content. Most of the short essays focused on one particular environmental problem identified by Lomborg, and it is interesting to see the problems that the critics chose, which are displayed in the following table.

TOPICS IN RESPONSES TO LOMBORG

Biodiversity/extinction	Four
Climate/warming	Three
Population	Two
General/statistics	Two
Energy	Two
Forests	Two
Health	One

Of the fifteen response essays, nearly half (seven) dealt with either climate or biodiversity, which make up a relatively small part of Lomborg's book. To the extent that *The Skeptical Environmentalist* has a focus, it is on more traditional air and water pollution problems and overall human health. Only one of the responsive essays (6.6%) focused on this issue, however. This essay largely agrees with Lomborg that health has improved and seeks to assign credit to environmental regulation.[52] Why the overwhelming focus on climate and biodiversity? Two explanations offer themselves. First, these are the contemporary disasters *du jour* and therefore command greater media attention, regardless of fact. Second, these are the issues for which the data is by far the poorest. While evidence of climate change accumulates, the magnitude and consequences of the change are still shrouded by great uncertainty. Data on species diversity and extinctions are extraordinar-

[51] See Bjørn Lomborg's comments to the eleven-page critique in January 2002 Scientific American (February 10, 2002), at http://www.lomborg.com/files/SABLnoInf2.pdf (last visited Oct. 7, 2002) at http://www.sciam.com/media/pdf/lomborgrebuttal.pdf (last visited Oct. 7, 2002). Lomborg also published a much briefer response in the May 2002 issue of Scientific American. See Bjørn Lomborg, The Skeptical Environmentalist Replies, Sci. Amer., May 2002, at 14, available at http://www.sciam.com/issue.cfm?issueDate=May-02 (last visited Oct. 12, 2002). This, in turn, was followed by a rebuttal from the editor of the responses.

[52] Devra Davis, Unhealthy Skepticism: On Bjørn Lomborg and Environmental Hazards to Human Health, Grist Magazine, Dec. 12, 2001, at http://www.gristmagazine.com/books/davis 121201.asp (last visited Oct. 7, 2002).

ily sketchy. When environmentalists must focus on issues where the data is weak and functionally ignore topics where data is substantial and reliable, that speaks to the validity of their positions. It is far easier to retreat to topics where the data is uncertain and ignore those where the doomsayers have been proved clearly wrong.

Of course, if the goal is to attack Lomborg's book, the critics had no other alternative. They cannot realistically dispute that the world population with access to safe water has more than doubled over recent decades.[53] There is no denying that rates of death from infectious disease have been cut more than in half.[54] Nor can one really debate that the daily intake of calories in developing nations has increased steadily over recent decades.[55] It is indubitable that ambient levels of the most hazardous air pollutants (such as lead, particulates, and ozone) have declined as the West grew.[56] Nor could the critics deny that environmental concentrations of hazardous chemicals have dropped precipitously over recent years.[57]

The responses to Lomborg do occasionally acknowledge the track record of failed doomsaying, in an interesting way – they suggest that no one really ever believed those predictions. His litany is called a "caricature," to which "no serious environmental institution subscribes today."[58] One response stresses that all major environmental organizations now "recognize that there are enormous reserves of crude oil, coal, natural gas, shale oil, and uranium, and that the world will continue to find them for decades or centuries to come."[59] Michael Grubb writes: "To any modern professional, it is no news at all that the 1972 *Limits to Growth* study was mostly wrong or that Paul Ehrlich and Lester Brown have perennially exaggerated the problems of food supply."[60] One

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[53] Lomborg, supra note 1, at 22 (citing data from the World Bank, the World Health Organization, and other sources).

[54] Id. at 26 (citing data from a World Bank/World Health Organization publication).

[55] Id. at 61 (citing data from the Food and Agriculture Organization).

[56] Id. at 166-75 (citing data from the Environmental Protection Agency and other sources).

[57] Id. at 195 (citing data from Danish and U.S. government showing drastic declines of DDT, PCBs, cadmium and other pollutants in fish and shellfish).

[58] Allen Hammond, Counter Argument: On Bjørn Lomborg's Use of Statistics, Grist Magazine, Dec. 12, 2001, at http://www.gristmagazine.com/books/hammond121201.asp (last visited Oct. 7, 2002). Of course, those environmental institutions have not generally disavowed the erroneous past predictions or reflected on the implications of the past errors for current projections.

[59] David Nemtzow, More Power to You: On Bjørn Lomborg and Energy, Grist Magazine, Dec. 12, 2001, at http://www.gristmagazine.com/books/nemtzow121201.asp (last visited Oct. 7, 2002).

[60] Grubb, supra note 47, at 1285 (footnote omitted).

would hope this is the case. For the most part, however, environmentalists have not acknowledged these past errors, certainly have not criticized the likes of Ehrlich and Brown, and continue to exalt them and respect their more contemporary projections, notwithstanding their track record. This, I suspect, is what motivated Lomborg's book.

John Holdren notes that Lomborg focuses on "the belief that the world is running out of energy," and characterizes this as a belief "that few if any environmentalists actually hold."[61] However, the Ehrlichs, Barry Commoner, and others have prominently made this claim. Interestingly, in his 1971 book Holdren himself declared that the "time horizon for conventional liquid and gaseous fossil fuels does seem short – possibly only fifty years until the bulk of the exploitable resource is gone."[62] Furthermore, Holdren's subsequent book written with the Ehrlichs referred to imminent "shortages" of "food, energy, [and] raw materials."[63] Holdren has historically worried more about the pollution resultant from energy use, but he had nothing to say about the fact that virtually all the fossil fuel combustion products, at least those that affect health directly, have declined as energy use has increased.

One recurring theme of the critics is Lomborg's occasional reliance on sources that have not been subjected to peer review.[64] While peer review is an important process for reviewing published research, it does not deserve the exaltation given by the responders. Peer review is demonstrably unreliable at screening research for validity.[65] It tends to be infected by ideological biases and replicate the preferences of the editor and reviewers.[66] Simply because something is peer-reviewed does not make it true, nor does the absence of peer review make information false. Claims should

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[61] John P. Holdren, *Energy: Asking the Wrong Question*, SCI. AM., Jan. 2002, at 65.

[62] JOHN HOLDREN & PHILIP HERRERA, ENERGY: A CRISIS IN POWER 33 (1971).

[63] PAUL R. EHRLICH, ANNE H. EHRLICH, & JOHN P. HOLDREN, ECOSCIENCE: POPULATION, RESOURCES, ENVIRONMENT 5 (1977). The authors specifically projected that even the best-case scenario provided "little leeway for continued growth in the consumption of oil and gas." *Id.* at 403.

[64] *See, e.g.*, STEPHEN H. SCHNEIDER, *Global Warming: Neglecting the Complexities*, SCI. AM., Jan. 2002, at 62, 63 (explaining that "most of [Lomborg's] nearly 3,000 citations are to secondary literature and media articles. Moreover, even when cited, the peer-reviewed articles come elliptically from those studies that support his rosy view that only the low end of the uncertainty ranges will be plausible.").

[65] *See* Frank Cross, Michael Heise, & Gregory C. Sisk, *Above the Rules: A Response to Epstein and King*, 69 U. CHI. L. REV. 135, 148 n.97 (2002) (reporting studies of peer review process in science that demonstrate its failings and biases).

[66] *See id.* ("There is evidence that reviewers give article submissions relatively little scrutiny before judging them.").

be evaluated on their merits, yet the respondents parrot the peer review criticism at the expense of substantive arguments.[67]

Pimm and Harvey complain of the lack of peer review and observe that over a third of Lomborg's citations come from web pages or news sources.[68] This only leaves a little under 2000 footnotes to which they have not objected. Moreover, most of the web pages cited by Lomborg are official federal government sources, such as the Environmental Protection Agency and Centers for Disease Control, or international official sources such as agencies of the United Nations. They also challenge Lomborg's claims as fictional, such as when he calls Ehrlich and Wilson supporters of a plan to move the entire U.S. population into small city islands.[69] They asked Ehrlich and Wilson who denied this support. However, Lomborg has produced an article in the peer-reviewed *Science* magazine reporting that Wilson and Ehrlich endorsed the project, and Ehrlich was quoted as an "enthusiastic supporter."[70] Thus, the key instance of alleged misrepresentation by Lomborg was actually confirmed, and in a peer-reviewed journal at that.

A final point about the responses to Lomborg is telling. His critics have often returned to *ad hominem* arguments against him, a sure sign of weakness on the merits and perhaps reflecting a certain measure of desperation about their position.[71] Stephen Schneider asks "who is Lomborg . . . and why haven't I come across him at any of the meetings."[72] Jerry Mahlman tasks him

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[67] The respondents themselves generally did not cite peer-reviewed evidence in their responses (most contained no citations). Their space constraints surely limited their ability to make detailed analyses and citations to peer-reviewed research, but their own reasoning suggests that their responses should not be credited.

[68] Pimm & Harvey, *supra* note 47, at 149 ("Like bad term papers, Lomborg's text relies heavily on secondary sources. Out of around 2,000 references, about 5% come from news sources and 30% from web downloads – readily accessible, therefore, but frequently not peer reviewed. . . . [t]his bias towards non-peer-reviewed material over internationally reputable journals is sometimes incredible.").

[69] *Id.* (quoting Ehrlich, "I know of no such plan. If there were one, I wouldn't support it." Wilson concurred.).

[70] Charles C. Mann and Mark L. Plummer, *The High Cost of Diversity*, 260 SCIENCE 1868 (1993) (detailing the plan entitled the "Wildlands" project, which "is nothing less than a transformation of America. . . . [in]to an archipelago of human-inhabited islands surrounded by natural areas.").

[71] See Anthony Trewavas, Open Debate Is Essential on Conservation Issues, 414 Nature 581, 582 (2001) (noting that "[s]uch vehemence invites the conclusion that Lomborg (and Simon) have indeed exposed basic flaws in green political dogma"); see also James K. Glassman, Green with Rage, The Wkly. Std., Feb. 25, 2002, at 14 (characterizing the critics as "[n]asty, bitchy, hysterical, paranoid"); The Litany and the Heretic, The Economist, Feb. 2-8, 2002, at 75-76 (suggesting that environmentalists are "rattled" because the book "is such a powerful and persuasive assault on the central tenets of the modern environmental movement.").

[72] Schneider, supra note 64, at 62 (mentioning also that Schneider "couldn't recall reading any scientific or policy contributions from [Lomborg] either.").

with "ignorance."[73] E.O. Wilson upped the ante, referring to "willful ignorance."[74] The Worldwatch Institute review refers to the book as a "foolish polemic written by a non-scientist."[75] Pimm and Harvey said the book "reads like a compilation of term papers from one of those classes from hell where one has to fail all the students."[76] Similarly, Kathryn Schultz calls *The Skeptical Environmentalist* "C-minus stuff, as straightforward and lackluster as a 10th-grade term paper."[77] Lomborg even received the nonverbal equivalent of the *ad hominem*, being pied in the face when he tried to present a speech.[78]

The greatest *ad hominem* is probably the introduction to the *Scientific American* responses itself, that "science defends itself against *The Skeptical Environmentalist*," leaving the implication that Lomborg is attacking science. Whether one agrees or disagrees with any of Lomborg's evidence or claims, it is indisputable that he is devoted to scientific findings. He relies exclusively on scientific evidence in attempting to make his case. There is a contemporary attack on science – it comes from postmodern environmentalists, who argue that the very concept of scientific truth is bogus.[79] To my knowledge, neither *Scientific American* nor any of the individual responders have taken on this group, though they are academically fairly influential. Because they are "green team" environmentalists, they apparently get a pass.

A recurring sneering theme in the responses is that Lomborg is a junior professor, scientifically unqualified, has failed to cite sufficiently authoritative sources, or has written a "bad term paper." They have thus focused on "such diversionary tactics" as

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[73] Jerry D. Mahlman, *Global Warming: Misuse of Data and Ignorance of Science*, Union of Concerned Scientists, *at* http://www.ucsusa.org/environment/mahlman.pdf (Dec. 6, 2001).

[74] Edward O. Wilson, *Vanishing Point: On Bjørn Lomborg and Extinction*, GRIST MAGAZINE, Dec. 12, 2001, at ¶ 1, *at* http://www.gristmagazine.com/books/wilson121201.asp). Wilson also called Lomborg a parasite, though, given Wilson's views on biodiversity, this may not have been an insult.

[75] Richard C. Bell, *Media Sheep: How Did the Skeptical Environmentalist Pull the Wool Over the Eyes of So Many Editors?*, Worldwatch Institute, *at* http://www.worldwatch.org/issues/skeptical-mediasheep.html (2002).

[76] Pimm & Harvey, *supra* note 47, at 149.

[77] Kathryn Schulz, Let Us Not Praise Infamous Men: On Bjørn Lomborg's Hidden Agenda, Grist Magazine, Dec. 12, 2001, at ¶ 3, at http://www.gristmagazine.com/books/schulz.htm.

[78] See Defending Science, The Economist, Feb. 2-8, 2002, at 15.

[79] See Paul R. Gross & Norman Levitt, Higher Superstition: The Academic Left and its Quarrels with Science (1994) (discussing postmodern attack on science generally). Environmentalism is a significant enough aspect of this trend to warrant its own chapter. Id. at 149-78. The authors suggest that "scientific standards are distrusted because of their capacity to bring ideologically unwelcome news" for environmentalists. Id. at 231; see also Martin W. Lewis, Green Delusions 194-95 (1992) (suggesting that radical environmental antipathy to technology extends more generally to science as well).

footnote counting, credential disparaging, and misrepresentation, "everything, in short, but dealing honestly with the evidence."[80] The attacks address "remarkably few points of substance."[81] The responses are not all so bad, and some make well-reasoned arguments and criticisms about the book. Some even concede that environmentalists in the past had "overstated their cases,"[82] though this itself is quite an understatement.

It may well be that the contemporary environmental jeremiahs are in fact correct about biodiversity, or global warming, or some future-oriented environmental problem; I lack the scientific training to evaluate their claims with confidence. The vast majority of voters and policymakers share my position of limited expertise. But when the jeremiahs of the past have been wrong about pesticides, wrong about numerous forms of pollution, wrong about food shortages, wrong about oil and mineral shortages, and wrong about overall human health, why should we credit their predictions about future environmental problems? Environmentalists have burned their credibility. One of the most prominent spokesmen on global warming, Stephen Schneider, declared that he saw the need to "offer up scary scenarios, make simplified, dramatic statements, and make little mention of any doubt[]," in order to strike a balance between "being effective and being honest."[83] Thus, advocates must advance the goals of the "green team," even if science must be misrepresented. When Schneider says that Cambridge University Press shouldn't have published *The Skeptical Environmentalist*,[84] is that because the book is inaccurate or because it is inconvenient for his personal policy ends? Somewhat less explicitly than Schneider, the sponsors of the Club of Rome reversed course shortly after their publication and called for greater economic growth in language suggesting that they had "sponsored and disseminated untruths in an attempt to scare us" into action.[85] This approach is arrogant and patronizing, and anti-democratic, as public intellectual advocates assume that we "unwashed masses" can't be trusted with the truth but must be manipulated into the political policies that the advocates prefer. It enables conservatives to

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[80] Stephen Budiansky, *Diversionary Tactics in Environmental Debate*, 415 NATURE 364, 364 (2002).

[81] *The Litany and the Heretic*, *supra* note 71, at 75.

[82] John Bongaarts, *Population: Ignoring Its Impact*, SCI. AM., Jan. 2002, at 67.

[83] *See* Jonathan Schell, *Our Fragile Earth*, DISCOVER, Oct. 1989, at 44, 47.

[84] Stephen H. Schneider, *Hostile Climate: On Bjørn Lomborg and Climate Change*, GRIST MAGAZINE, Dec. 12, 2001, at ¶ 9, *available at* http://www.gristmagazine.com/books/schneider121201.asp.

[85] SIMON, *supra* note 3, at 509.

credibly claim that environmentalists do not defend science but only use it as "a weapon to advance the cause."[86]

It is distinctly possible that at least some aspect of environmental threats, such as climate change, are real ones that should command policy attention. The response may have been delayed, if anything, by "this 'cry wolf' track record of prediction of atmospheric events," which meant that it was "not surprising that many meteorologists have deep reservations about taking costly actions on the basis of the predictions."[87] Not only does the exaggeration of the harm of warming make any effort appear futile,[88] the past litany of failed predictions hands a sword to critics of taking any action on climate.[89] Relying on predictions of doom potentially undermines environmental action in other ways as well. The focus on "disasters" may also distort environmental law, policy, and budgets and thereby hamper effective regulation.[90]

Posner's cynical theory of the public intellectual suggests that such intellectuals are largely pursuing egoistic interests of fame and money. They may have some measure of concern for the cause they espouse, but they are foremost in it for themselves. While it is impossible to see within the hearts of the doomsayer jeremiahs, their behavior seems consistent with the hypothesis.[91] The criticisms they make of Lomborg, such as his occasional use of non-peer reviewed sources, apply far better to the environmental doomsayers themselves. Yet when the "green team" doomsayers publish their unreliable and unsupported jeremiahs, those who responded to Lomborg are sadly silent. This is the sort of hypocritical or naïve ideological double standard that undermines their credibility and potentially undermines the scientifically-based environmental movement. As *The Economist* notes, "[i]f scientists want their views to be accorded the respect due to science, then they must speak as scientists, not as lobbyists."[92] It may well be

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[86] Glassman, *supra* note 71, at 16.

[87] Robert M. White, *The Great Climate Debate*, 84 AM. SOC'Y INT'L L. PROC. 346, 353 (1990).

[88] *See Green and Pleasant: Doom-mongers Cannot Prevent the Flowers Blooming*, TIMES (London), Jun. 29, 2002, at 25. (noting that by "painting the sky so dark, the green gloom-mongers forfeit trust and encourage a sense of hopeless decline").

[89] A critic of Lomborg has thus criticized Norman Myers estimates of species loss as providing Lomborg too easy a target for criticizing the environmental movement. *See The "Stab" that Stuck the Stabber*, TORONTO STAR, Mar. 24, 2002, at F8.

[90] Nestor, *supra* note 37, at 215-16.

[91] *See Green and Pleasant*, *supra* note 88, at 25 (suggesting that some environmentalists are sincere, "but others are driven by an old Left desire to regulate, meddle and interfere with free human choice while there are undoubtedly groups and individuals who exploit fears to justify their research and campaigning budgets").

[92] *The Litany and the Heretic*, *supra* note 71, at 76.

that some of Lomborg's claims are inaccurate or even biased (a sort of anti-litany), but who can we trust to tell us?

For decades, environmentalists have projected a series of growing problems and sometimes horrible disasters. Cornucopians have predicted that none of these would occur. The track record over this period is pretty one-sided in favor of the Cornucopians, at least on matters for which there is extensive information. None of the major disasters have come to pass. Most of the measurable environmental problems have declined, and human health and wellbeing has broadly improved. Of course, this improvement has not been universal. But if environmentalists continue to predict doom in every direction and are unwilling to discriminate among potential problems or police their own claims, what can a reasonable person go on but the general historic pattern?

An equally critical question is: When we discover a serious environmental problem, what should we do about it? The essence of Lomborg's book is the claim that radical action is not required to deal with environmental problems, that the growth of the economy and technology will itself help to address the problems, with some supplementary government regulation. In the past, the doomsayers have called for a variety of radical responses, such as zero or negative population growth, a halt to economic development or even de-development, and the prohibition of various technological advances, such as genetic modification. While such proposals may have declined in number, they are still heard today.[93] This is the more severe flaw in the environmental movement. They have identified real problems in the past, even as they exaggerated them. Pollution was a serious problem in the twentieth century. But the radical solutions were unnecessary to solve the pollution problem; in fact, they probably would have exacerbated pollution.

The world does face a number of serious environmental problems in the developing world. The more developed nations, affluent, with well-developed technology, have gone far toward curing their internal environmental problems. This observation would suggest that the answer to our greatest problems lies not in stop-

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[93] *See, e.g.*, Frank B. Cross, *A Syncretic Perspective on Environmental Protection and Economic Growth*, 2 KAN. J. L. & PUB. POL'Y. 53, 54 (1992) (stating that environmentalists "continue to maintain that growth is the enemy and that no growth or even economic constriction is the only way to save the planet."); RORY SPOWERS, RISING TIDES: A HISTORY OF THE ENVIRONMENTAL REVOLUTION AND VISIONS FOR AN ECOLOGICAL AGE (2002) (professing disaster from climate and other ecological consequences and arguing against capitalism and economic growth).

ping growth or new technologies, but advancing them. A plenitude of evidence supports that suggestion.

When the economy is strong, people demand greater environmental protection, but when the economy struggles, environmental protection measures are sacrificed.[94] Moreover, economic and technological growth create the resources necessary to combat environmental threats.[95] During the 1970s and 1980s, the U.S. economy grew by around seventy percent, yet during this same time period, virtually all forms of domestic pollution decreased, some by over ninety percent.[96] Among developed nations, the wealthier countries tend to adopt stronger environmental protection laws and have greater success in reducing air pollution.[97]

The relationship between economic growth and pollution often forms an inverted U-shaped curve, sometimes called a Kuznets curve. That is, in the early stages of economic growth, pollution increases along with the economy and production growth, until a tipping point is reached, and pollution begins to decline as growth increases. A substantial body of cross-national empirical evidence supports the validity of the Kuznets curve for pollution and growth.[98] The best known of this research is by Grossman and Krueger of Princeton, who found that the tipping point for numerous forms of air and water pollution, the point where growth begins to reduce the overall pollution load, comes at a level below

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[94] Cross, *supra* note 93, at 55-57.

[95] *Id.* at 57-59.

[96] *Id.* at 59-60.

[97] *Id.* at 61-62.

[98] *See, e.g.*, Cutler C. Cleveland & Matthias Ruth, *Indicators of Dematerialization and the Materials Intensity of Use*, 2 J. INDUS. ECOL. 15, 26 (1998) (noting decrease in relative materials usage with development); Matthew E. Kahn, *A Household Level Environmental Kuznets Curve*, 59 ECON. LETTERS 269 (1998) (demonstrating Kuznet's curve for hydrocarbon emissions); Kenneth E. McConnell, *Income and the Demand for Environmental Quality*, 2 ENVTL. & DEV. ECON. 383, 385-86 (1997) (reporting on empirical evidence on environmental Kuznets curve); Theodore Panayotou, *Environmental Degradation at Different Stages of Economic Development*, *in* BEYOND RIO: THE ENVIRONMENTAL CRISIS AND SUSTAINABLE LIVELIHOODS IN THE THIRD WORLD 13, 13 (I. Ahmed & J.A. Doeleman eds., 1995) (hypothesizing Kuznet's curve to express the relationship between "the rate of environmental degradation and the level of economic development."); Thomas W. Selden & Daqing Song, *Environmental Quality and Development: Is There a Kuznets Curve for Air Pollution Emissions*, 27 J. ENVTL. ECON. & MGMT. 147, 161 (1994) (reporting "substantial support" for Kuznets curve association); Anastasios Xepapadeas & Esma Amri, *Some Empirical Indications of the Relationship Between Environmental Quality and Economic Development*, 11 ENV. & RESOURCE ECON. 93 (1998) (finding that a country's probability of having acceptable environmental quality increased with economic development). Various other studies are discussed *infra*. A good summary may be found in BRUCE YANDLE ET AL., THE ENVIRONMENTAL KUZNETS CURVE: A PRIMER (Political Economy Research Center, PERC Research Studies No. 02-1, 2002), *available at* http://www.perc.org/pdf/rs02_1.pdf.

$8,000 per capita income.[99] Others found a slightly higher turning point (below $10,000) for other forms of air pollution.[100] Different turning points may apply to different substances. For water pollution the turning point may be as low as $3,300 for nitrates and as high as $17,200 for lead.[101] Other studies have found that the intensity of energy use declines with wealth.[102] Others have found that the Kuznets curve appears to apply to deforestation; as national income rises, deforestation decreases.[103] A study of United States counties found a kind of Kuznets curve for hazardous waste exposure.[104] The even better news is that, over time, the curve seems to be shifting down and to the left, meaning that pollution reduction is occurring at lower levels of income.[105] Lomborg himself presents a clear depiction of the Kuznets curve for particulates and sulfur dioxide, showing that pollution has declined with greater income and over time for all income levels.[106]

Some argue that the Kuznets curve may be attributable not to pollution control, but to displacement. Richer countries, they argue, simply exported their polluting industries to poorer nations.[107] There may be some truth here, but it does not respond to the theory that economic growth restrains pollution increases, it simply demonstrates the need for greater development and growth in the nations that are now relatively poor. As those countries develop, they will demand better environmental quality and force the clean up of their own industries.

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[99] *See* Gene M. Grossman & Alan B. Krueger, *Economic Growth and the Environment*, 110 Q. J. ECON. 353, 370 (1995). In general, studies suggest that the turning point for pollution is between $5,000 and $8,000 per capita. *See* Susmita Dasgupta, et al., *Confronting the Environmental Kuznets Curve*, 16 J. ECON. PERSP. 147, 147 (2002).

[100] Selden & Song, *supra* note 98, at 161.

[101] YANDLE, ET AL., *supra* note 98, at 15.

[102] *See* J. Chesshire, *An Energy Efficient Future: A Strategy for the U.K.*, 14 ENERGY POL'Y 395 (1986).

[103] *See* Maureen Cropper & Charles Griffiths, *The Interaction of Population Growth and Environmental Quality*, 84 AM. ECON. REV. PAPERS AND PROC. 250, 251 (1994); Nemat Shafik, *Economic Development and Environmental Quality: An Econometric Analysis*, 46 OXFORD ECON. PAPERS 757 (1994).

[104] *See* Pingo Wang, et al., *A Risk-Based Environmental Kuznets Curve for U.S. Hazardous Waste Sites*, 5 APPLIED ECON. LETTERS 761 (1998).

[105] *See* Dasgupta et al., *supra* note 99, at 148 (noting that under the revised curve "growth generates less pollution in the early stages of industrialization and pollution begins falling at lower income levels.").

[106] LOMBORG, *supra* note 1, at 177.

[107] *See, e.g.*, Hemamala Hettige et al., *The Toxic Intensity of Industrial Production: Global Patterns, Trends and Trade Policy*, 82 AM. ECON. REV. 478 (1992) (reporting that the growth rate of the toxic intensity of manufacturing tended to increase, especially during the 1970s and 1980s, when developed nations imposed greater environmental regulation).

The evidence, however, does not uniformly support a Kuznets curve for all pollutants and circumstances.[108] The nature of the economic growth surely matters; nor does pollution magically or automatically decline with economic growth. The decline is at least partially attributable to the development of technology and government regulation of pollution. Lomborg recognizes this, and his book is not an attack on all regulatory environmental protection measures.[109] There are several theories of why the Kuznets curve operates and some of them are purely private incentives. However, the development of government regulation with greater societal wealth may be the most critical cause of the curve. The intensity of environmental regulation also rises with national income and provides a logical explanation of the Kuznets curve.[110] A study in the United States found that the Clean Air Act was the key explanation of reduced air pollution.[111] One cross-national study found that the curve for air quality seemed to be contingent upon political rights, civil liberties, and literacy in low-income countries.[112] Another found that better political institutions and an effective rule of law were associated with the pollution reductions of the Kuznets curve.[113] These results suggest that democratic political action is critical to the reduction in pollution that accompanies economic development.

This democratic political action for the environment does not take the form of the highly dramatic anti-growth proposals of the jeremiahs, however. Even conservatives agree that the effective operation of the Kuznets curve requires government action.[114]

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[108] *See, e.g.*, John Beghin & Michel Potier, *Effects of Trade Liberalizationon on the Environment in the Manufacturing Sector*, 20 THE WORLD ECON. 335 (1997) (finding Kuznets curve for some pollutants with obvious short-term harms but not those like carbon dioxide with long-term indirect risks); M.A. Cole, et al., *The Environmental Kuznets Curve: An Empirical Analysis*, 2 ENVTL. & DEV. ECON. 401 (1997) (suggesting that association may not exist for global or indirect pollution problems, or at least has a higher tipping point for such pollutants); Dasgupta et al., *supra* note 99, at 150 (noting that the curve is not universal in its operation); Jeffrey R. Vincent, *Testing for Environmental Kuznets Curves Within a Developing Country*, 2 ENV. & DEV. ECON. 417 (1997) (finding no evidence of the curve's operation in Malaysia).

[109] *See* LOMBORG, *supra* note 1, at 170 (suggesting that "regulation is one of the reasons for the reduction of pollution but that other, technological factors also play a major role"). Perhaps Lomborg doesn't give quite enough credit to regulation, but that would be a rather minor, nuanced criticism of the book.

[110] *See* Dasgupta, et al., *supra* note 99, at 153.

[111] *See* A. Myrick Freeman III, *Environmental Policy Since Earth Day I: What Have We Gained?*, 16 J. ECON. PERSP. 125, 127-28 (2002).

[112] *See* Mariano Torras & James K. Boyce, *Income, Inequality, and Pollution: A Reassessment of the Environmental Kuznets Curve*, 25 ECOLOGICAL ECON. 147 (1998).

[113] *See* Madhusudan Bhattari, *The Environmental Kuznets Curve for Deforestation in Latin America, Africa, and Asia: Macroeconomic and Institutional Perspectives*, *in* THE ENVIRONMENTAL KUZNETS CURVE: A PRIMER, supra note 98, at 15.

[114] *See* YANDLE, ET AL., *supra* note 98, at 17.

However, they argue that the proper policies would take the form of the elimination of government subsidies, creation of more secure property rights, and market-based controls, rather than regulation.[115] Others may reasonably argue that more traditional forms of command-and-control regulation have been most effective in controlling pollution while the economy grew. If environmental progress is to be made, the focus must be on the sorts of government measures that best facilitate the incentives associated with the Kuznets curve and environmental protection during economic growth. The jeremiahs are a distraction, at best. And those who attacked Lomborg did not advance this necessary analysis.

So long as environmentalists subscribe to or accept the litany, they are logically compelled to pursue public policies of a radical and counterproductive nature and risk driving the public into a sense of futile apathy. The best policy for our environmental future is one of pragmatic pursuit of economic growth and environmental protection,[116] which is essentially what Lomborg seeks. Environmentalists could embrace him, but instead they have cast him out of their circle and embraced the jeremiahs.

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[115] *Id.* at 17-18. A similar approach is proposed in Dasgupta, et al., *supra* note 99, at 153-57.

[116] *See* DANIEL A. FARBER, ECO-PRAGMATISM 202-03 (Univ. of Chi. Press ed., 1999) (calling for policies in a "pragmatic shade of green" and stressing that environmentalists, to be effective, "cannot rely too heavily on outright coercion" and need to maintain their "credibility with the public").