

# ten pinches of salt

a reply to Bjorn Lomborg

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“green alliance...

## the author

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## Green Alliance

Green Alliance is one of the UK's foremost environmental organisations. An independent charity, its mission is to promote sustainable development by ensuring that the environment is at the heart of decision-making. It works with senior people in government, parliament, business and the environmental movement to encourage new ideas, dialogue and constructive solutions.

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## Introduction: ten pinches of salt

‘The Sceptical Environmentalist’, by Professor Bjorn Lomborg, is published by the Cambridge University Press this week. Professor Lomborg is a statistician and political scientist and, by his own assertion, an environmentalist.

The book has received widespread advance notice in the press - a half page article in the Observer; an invited essay in the Economist; a series of three articles by the author in the Guardian and additional articles in both the Evening Standard and the New York Times.

Professor Lomborg’s argument is that ‘environmentalists’ are responsible for creating a widely held illusion that the ‘environment is in poor shape here on Earth.’ They have accomplished this result by the repetition of a series of false propositions he calls ‘the Litany’. He sets out the Litany on page four:

“this briefing offers ten ‘pinches of salt’ to bear in mind as you read the 352 pages and 2,930 footnotes”

‘The population is ever growing, leaving less and less to eat. The air and water are becoming ever more polluted. The planet’s species are becoming extinct in vast numbers – we kill off more than 40,000 each year. The forests are disappearing, fish stocks are collapsing and the coral reefs are dying.

We are defiling our Earth, the fertile topsoil is disappearing, we are paving over nature, destroying the wilderness, decimating the biosphere, and will end up killing ourselves in the process. The world’s ecosystem is breaking down. We are fast approaching the absolute limits of viability, and the limits to growth are becoming apparent.’

The repetition of this Litany combines with four other factors to cause ‘a disjunction between perception and reality’. These four factors are: lopsided scientific research; the need of environmental groups to generate funds; the media’s preoccupation with bad news and ‘poor individual perception’. Taken together, the Litany and these four factors lead to ‘faulty judgements’ in the allocation of resources, the most significant example of which, as least as judged by page length, is climate change.

In the Professor’s view these ‘environmental exaggerations’ make us ‘scared....and more likely to spend our resources and attention solving phantom problems while ignoring real and pressing (possibly non-environmental) issues.’

This briefing offers ten considerations, the ‘pinches of salt’, to bear in mind as you read the 352 pages and 2,930 footnotes.

## 1. Professor invents caricature

No major environmental organisation anywhere in the world subscribes to the views outlined in Professor Lomborg's Litany. This might explain why the references used to support this assertion come from two magazines and a pair of science fiction writers. Science fiction writers and magazine editors are, of course, entitled to their opinions and are fair game for criticism, but they can hardly be taken to be representative of an environmental community with some tens of millions of professional and volunteer members and a vast array of informational outputs – outputs that could readily have been surveyed to discover what today's 'environmentalists' actually think. As a statistician, Professor Lomborg has the skills to have done so.

What is an influential idea within the environmental community is the idea that there are limits to the extent to which we can degrade biological systems and still go on benefiting from the goods and services they offer. There is a wide consensus, not just within the environmental community, but also within governments and inter-governmental organisations, that the ecological foundations of the economy are being degraded in an increasing number of places, beyond the point at which it is economically or biologically possible to replace that lost productivity with inputs of fossil fuels or non-fossil minerals. This is why 124 nations agreed in Rio de Janeiro in 1992 that the world must make a transition to sustainable development.

It may be that Professor Lomborg, like many other propagandists, has exaggerated for effect. This is a much used literary device and is, generally, well understood by most readers. But its use is, to say the least, somewhat odd in a book that rounds quite so aggressively on others for deploying the same device.

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## 2. Unoccupied position successfully stormed

Professor Lomborg devotes 13 pages to demonstrating that ‘we are not having an energy crisis’. He is right. It is true that we are not having an energy crisis. What is not true is that ‘environmentalists’ think that we are having an energy crisis. To support his belief that an energy crisis is part of the Litany, the Professor cites a CNN report and a magazine called E magazine. He does not cite an environmental organisation or even a leading environmental personality as believing in an energy resource crisis, for the

simple reason that none do. Professor Lomborg has waged a powerful attack on a position that no serious person in the environmental world holds. His success is guaranteed, but his purpose is a mystery.

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There was a period in the early 1970s when many environmentalists did believe in an energy resource crisis, but they were hardly alone. Just about every government, business and media outlet in the world also believed that we would soon run out of oil. It was actually leading environmental thinkers who led the counter-challenge, arguing persuasively that we had all the energy resources we could ever need, but we were not using the right technologies to convert them into

services useful to people. This case was first set out by Amory Lovins in his book, ‘Soft Energy Paths’, published when Professor Lomborg was 11 years old. It was derided at the time for proposing that energy efficiency improvements and technology changes would reduce global demand for fossil fuels well below what was then projected. Global primary energy demand only reached his ‘soft path’ level in the year 2000.

The only people that have argued strongly that there is an energy resource crisis of any kind in recent times have been the President and Vice-President of the United States and their allies. Opinion polls suggest that they have not yet managed to persuade their fellow Americans that they are correct. The current evidence from the movement of key prices is that the American people are right.

### 3. Dead dragon slain – again!

Environmentalists do not believe that ‘natural resources are running out’. There has been no such unqualified statement from major environmental organisations individually or collectively, nor, as far as I can recall in any influential environmental book or journal, in the past twenty years. The Club of Rome did make this argument in 1972, and did indeed attract considerable attention to it for a few years. But even they had begun to modulate this position by 1974. Paul Erlich did make, and lose, his famous wager with Julian Simon. This tells you that whilst Erlich knew a lot about ecology he knew somewhat less about economics, a fault he has in common with much of the human race. It is hard to see what is gained in 2001 by resurrecting a long dead argument only to kill it all over again.

It is a common mistake, often made by environmentalists, to argue too quickly from the particular to the general. In so far as there is any concern with things ‘running out’ in the contemporary discussion of environmental and resource issues, it is biological not mineral resources that are in focus. The term ‘natural resources’ does of course cover both, but it is clear from the author’s claim that ‘energy and other natural resources have become more abundant’, and from the other evidence he cites in his book, that what he actually has in mind are mineral resources.

Were Professor Lomborg a natural scientist he would understand that it is either ignorant or a sloppy exaggeration to claim that even these resources have become ‘more abundant’, when what he really means is that our knowledge of the availability of such resources in the earth’s crust, and our technological ability to gain access to them, have grown. It is inconsistent to accuse others of lack of rigour and then to be quite so cavalier with the laws of conservation of mass and energy.

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## 4. Did he say *that*?

Professor Lomborg focuses his most excoriating criticisms on the publications of the Worldwatch Institute, and in particular on the views of its former President, Lester Brown. He identifies Mr Brown, and Professor Paul Erlich, a Stanford University ecologist, as the high priesthood of environmental doom. It is they who ‘keep on telling us that food production is going down the tubes’. Professor Erlich did predict in his book ‘The Population Bomb’, published 23 years ago, that ‘In the course of the 1970s the world will experience starvation of tragic proportions – hundreds of millions of people

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will starve to death’. He was, as we all too often witnessed from the comfort of our living rooms, right. They did starve – though it might be difficult to give an exact count of how many millions actually died from hunger or hunger related disease since accurate record keeping was hardly a high priority at the time. But I cannot recall, and Professor Lomborg does not cite, another occasion on which he made this prediction.

Lester Brown did write in 1965 that ‘the food problem emerging in the less developing regions maybe one of the most nearly insoluble problems facing man over the next few decades.’ This is, indeed, an argument he has consistently advanced in subsequent years. And he, too, was right - it has been a nearly insoluble problem. In 1974, Henry Kissinger promised the World Food Conference that by 1984 no-one would go to bed hungry. In 1996, governments at the World Food Summit in Rome cut this target in half, and doubled

the time it would take to reach it. Three years later it was agreed that even this goal was unlikely to be achieved.

Professor Lomborg rightly points out that food production has greatly increased and the proportion of people starving has gone down, but the absolute number of people starving has remained almost constant because of population growth. Brown’s actual point is that there are now growing signs that the world may not be able in future to sustain such a high rate of growth in food production. In this context, Professor Lomborg’s argument that Brown only looks at short term trends is irrelevant. What is at issue is whether the long term trend, which Brown has frequently recognised, will continue or not. Brown and Lomborg disagree, but this is a legitimate difference of interpretation of the facts, not a conspiracy to mislead. In any case, most of Brown’s key data sets cover four decades, raising the interesting question of when exactly a short term trend becomes long term.

The notion that there is anything resembling a real world price for grain, containing significant information about the availability of food supplies to those who need them, in a market place as distorted as that for food commodities, is simply naïve. Furthermore, as has often been pointed out, most people starve not because there is no food, but because they have no money.

## 5. Simon says

Professor Lomborg's penchant for shooting sharp statistical arrows at the wrong targets is most strikingly evident in his chapter on wastes. If you are not careful, you could miss this discussion of one of the most widely-researched environmental issues – it covers all of three and a half pages, precisely one per cent, of the volume. Nevertheless, it is revealing – though more about Professor Lomborg than about the environment. His dismissal of the issue leans heavily on data from his mentor, Julian Simon, to show that US production of waste has only increased 45 per cent over the past four decades but, since US population has also increased, this only amounts to a 13 per cent per capita increase - so we need not worry about finding space to put it all.

In a series of dazzling calculations, Professor Lomborg goes on to demonstrate that all of America's municipal waste for the whole of the 21st Century would fit into an 18 mile square, 100 feet high. This, we are informed, would occupy just 26 per cent of the land area of Woodward County in the state of Oklahoma, which would be less than 0.5 per cent of the state's area and a mere 0.009 per cent of the area of the 'entire US landmass.' Woodward County may be an entirely suitable site for a landfill for the whole of the US, though the logistical problems do appear daunting, but so what?

Lomborg fails to mention of toxic or hazardous wastes, nothing is said about industrial wastes or the problems of large volume wastes from the mining industry. Radioactive wastes do not get a mention, nor do agricultural wastes. The rest of the world seems to have no waste management problems at all, for all the attention they get. The environmental critique of waste management policies has been primarily about the wastage of resources that go into producing such large volumes of municipal wastes, and the nature of many of our industrial wastes and their impact on the environment and, in the case of radioactive wastes, human health for millennia to come.

Finding enough space is a secondary issue - it has been largely local government officials who have worried about finding space to put municipal waste. This may explain why the environmental authorities Professor Lomborg finds to cite as his source for this spatial anxiety are our two science fiction writers and a casual reference by Al Gore, another favourite in the Lomborg green demonology.

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## 6. ‘Let them eat cake’

Professor Lomborg boldly announces in his *Economist* essay that ‘pollution also is exaggerated’. His argument on pollution is again guilty of many of the very same faults he is decrying in environmentalists. He is correct to point out that air quality has improved greatly in London – this was hardly a secret – though, given his views elsewhere on the difficulties of modelling atmospheric dynamics, it is hard to see how he can come so confidently to the conclusion that it is better than at any time since 1585, on the basis of one model. The rest of his argument relies heavily on US experience, focuses on a limited range of pollutants and contains the following extraordinary, and unsubstantiated sentence: ‘Of course there are many other substances we could also have investigated, such as VOCs, dioxins and heavy metals, but for one thing, far fewer data are available on these, and for another, they probably pose less of a danger to human beings.’

No one contests that emissions of sulphur dioxide and some other pollutants have declined in the developed world in recent years. But, as the current debates in the US make clear, these declines in emissions still leave a very great many cities and tens of millions of people with air quality that does not meet legal standards, especially with regard to particulates and aromatic

hydrocarbons. This picture that is repeated in the EU, where some 70 – 80 per cent of the 105 cities with populations of more than 500,000 people have air pollution that exceeds WHO standards for one or more pollutants. Such progress as has been made would not have occurred without the powerful and sustained intervention of the environmentalists he attacks.

Air pollution in the rest of the world, where two thirds of humanity live, need not be considered, in Professor Lomborg’s view, because this will cease automatically as they get richer. This confuses cause and correlation, not a mistake you would expect from a statistician. Although national wealth and the state of a nation’s environment are observably

associated to some extent, the relationships are complex and not at all well understood. To set this somewhat callow opinion in context, it is worth considering the following comment about the Asia-Pacific region:

‘Environmental degradation in the region is pervasive, accelerating, and unabated. At risk are people’s health and livelihoods, the survival of species and ecosystem services that are the basis for long-term economic development. Economic development and poverty reduction are increasingly constrained by environmental concerns, including degradation of forestry and fisheries, scarcity of freshwater, and poor human health as a result of air and water pollution.’

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The irresponsible, environmental exaggerator making this judgement is the Asian Development Bank, and the judgement was published this year, not thirty years ago. The thrust of the argument is that the people of the Asia-Pacific region may never get 'sufficiently rich' for their pollution to be reduced by Professor Lomborg's micawberish optimism. The alternative to the apocalypse school of environmentalism appears to be that of Marie Antoinette.

## 7. ‘Lies, damned lies and statistics’

Forests are another area in which Professor Lomborg has no fear of wielding his sturdy statistical sword. His confidence stems in part from his belief in the efficacy of ‘official sources’. As he points out, ‘the most important thing is that there is no doubt about the credibility of my sources. For this reason... most of the statistics come from official sources, which are widely accepted by the majority of people involved in the environmental debate.’ Having witnessed the blatant efforts of a succession of British governments to massage the unemployment figures by changing the basis on which they were calculated, you might be forgiven for being sceptical about the wisdom of such reliance. Furthermore, it is hardly a secret that most international agencies simply report the numbers that national governments report to them without any right, let alone capacity, to challenge their veracity. Only very recently, with the advent of satellite monitoring, has it become possible to provide an independent check on some geographical data.

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This makes a comparison of past estimates of forest cover, with a very high degree of unreliability, difficult to compare with much more reliable current estimates. Improved data quality is to be welcomed but it provides no justification for Professor Lomborg’s accusation that some, perhaps most, environmentalists have deliberately misled the public. Simply having a better set of geographical data still leaves open a huge realm within which judgements may legitimately differ.

One reason it is so notoriously difficult to estimate the area of tropical forest is because there is a very wide range of different types of forest that are classified as ‘tropical’, and not all classifiers agree on what should and should not be counted. Furthermore, there is no agreed definition of what counts as ‘loss’, although here again there is a very vigorous technical debate on the subject. In these circumstances, it is difficult to attach much significance to a dispute over the difference in the estimate of 1.95 per cent, as it is likely that the whole argument falls well within the current bounds of error.

Furthermore, argument about the amount of forest is far less important than argument about the quality of forest. Covering Kalimantan with palm oil plantations may leave you with no net loss of forest cover, but what you have now is not what you had before, from the point of view of either biodiversity or of the people who depend on the forest for their livelihood.

## 8. ‘Kill not the Moth nor Butterfly....’

One of the more emotional issues in the environmental debate is that surrounding the loss of species. The advent of television, perhaps more than anything else, has generated a huge public awareness of, and concern for, the fate of the so-called charismatic species such as tigers, pandas and whales. Not that a concern for the fate of our fellow creatures is a new phenomenon. It is powerfully captured in literature by William Blake’s poem ‘Auguries of Innocence’, from which the quote in the title is taken. The scientific debate on biodiversity, however, devotes itself to somewhat more prosaic and less well known species such as insects or amphibians.

There is a wholly unresolved scientific debate about how many living species there actually are, and over the rate at which we are losing species. Estimates vary widely. Professor Lomborg is particularly scathing about the estimate of losses of 40,000 species a year, made by Norman Myers in a book published 22 years ago. Other estimates have actually been larger. E.O. Wilson, widely regarded as the intellectual founder of modern ecological science, estimated that it might be between 27,000 and 100,000 species a year. Paul Erlich, whose professional discipline is ecology, estimated that it might be as many as 250,000.

Mathematical modelling of species dynamics is, to be generous, primitive. This is largely because, contrary to one of Professor Lomborg’s other assertions, there are a very great many problems that have failed to attract large sums of either public or private research funds. Among the most important of those are precisely those to do with research on ecosystem quality and viability – research that would allow more reliable estimates of the ecological consequences of human activities. Clearly, biodiversity policy would be much more soundly based if we know more than we do currently. But where the best is not to hand, we must do the best we can.

In these circumstances, Professor Lomborg is perfectly entitled to choose to believe the work of some rather less well known ecologists who estimate much lower rates of extinction. What he is not entitled to do, in a book that is separating reality from myth, is to fail to explain why, in his judgement, these estimates are so much better, other than that they are later, and perhaps more importantly for him, smaller.

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## 9. Cool views

On climate change, Professor Lomborg is arguing beyond the boundaries of his professional competence, despite having increased the number of pages devoted to the issue from the original 33 in the Danish edition to the current 66. Of the 66 pages, almost two-thirds are devoted to an extended rehearsal of the widely recognised scientific difficulties of forecasting the future climate, and the possible impacts of climate change on the human environment. Yet the scientists involved in the Intergovernmental Panel on Climate Change (IPCC) process have made no attempt to duck the fact that, on many of the most urgent issues, there are only uncertain answers.

This, too, is a normal part of the human condition, and one that we are well used to dealing with. We do not postpone major economic decisions simply

“we do not postpone major economic decisions simply because economists disagree and economic models produce results that are uncertain”

because economists disagree and economic models produce results that are uncertain. In these instances, judgement must be exercised - and democracy is the process by which we choose who should make those judgements. As Winston Churchill pointed out, this is a far from reliable method, it is just better than all the others.

Lomborg's recitation of the science identifies in a clear and accessible way all the points where his judgement differs from that of the majority of the climate scientists in the IPCC process. He is entitled to his opinion; we are entitled to wonder about its authority.

Where he is not on such firm ground is in making the assertion that 'economic analyses clearly show that it will be far more expensive to cut carbon-dioxide emissions radically than to pay the costs of adaptation to the increased temperatures'. The state of knowledge of the impacts of climate change, as has been often pointed out by many of the critics of the IPCC, is currently so low that no-one is in a position to make a reliable estimate of the costs, either of the temperature rises or of any adaptations that might be made to those rises.

Calculating the true costs of things in the past is very difficult, as William Nordhaus pointed out in a widely read essay in *The Economist*. Doing so into the future is even more so.

Furthermore, the whole art of economic modelling is, as yet, so immature as to make such estimates relatively useless as a guide to public policy. A World Resources Institute study, for example, found that different modellers using different assumptions, estimated the impact of tackling climate change on the US economy as ranging from +3% of GDP to -7%. It is often overlooked

that, for all their well documented difficulties, models of the climate are like Rolls-Royces when compared to those of the economy. Interestingly, Lomborg's entire economic argument relies heavily on the outputs of an economic model developed by the same William Nordhaus who pointed out how difficult it was to estimate costs that had occurred in the past. His work has been widely criticised in the technical literature for exaggerating the costs and ignoring the benefits of acting on climate change – something Lomborg omits to mention – and which was pointed out to Professor Lomborg by his Danish colleagues some time ago. It is inconsistent to fail to apply the same test of intellectual rigour to one part of an argument but not to another.

The most egregious element of Professor Lomborg's climate change argument is the proposition that the world faces a choice between spending money on mitigating climate change and providing clean access to clean drinking water and sanitation. We must and can do both, and indeed, that is exactly where the world's environmental community actually stands. Such artificial choices may be possible in an academic ivory tower, where ideas can be arranged to suit the prejudices of the occupant, but they are not available in the real world.

## 10. First stone thrown ?

The paradox of Professor Lomborg's book is that in making the case for a more rational debate on the environment, he has committed all of the offences for which he attacks environmentalists. He exaggerates for effect, substitutes forceful assertion for weight of argument, sometimes makes sweeping generalisations from particular instances, presents false choices and is somewhat selective in his use of evidence and quotation. These are the familiar features of all polemics - they are only illegitimate in scholarship.

All that renders this book dishonest is only its claim to tell you the real truth about the state of the world - its pretence to scholarship. Were it presented more directly as a forthright expression of the author's opinions - which is

**“in making the case for a more rational debate on the environment, Lomborg has committed all of the offences for which he attacks environmentalists”**

what it is - it would be a more valuable contribution. There is undoubtedly too much sanctimony, self-righteousness and, indeed, self-satisfaction within the environmental community. Disagreement and debate are an essential feature of democracy which withers their absence. Unchallenged ideas eventually become tired and irrelevant.

It is undoubtedly true that there is a large gap between perception and reality within the public at large. This is not a new or previously unremarked phenomenon, and it is certainly not confined to the environment. This does often lead to a considerable wastage of financial resources when compared to some idealised optimum. We could solve this problem, and many others, if we could first find a way to invent better people and then persuade them to conform their behaviour

more closely with the dictates of economic rationality. Unfortunately, we are stuck with the people we have got and we must stick with them.

It is also true that some environmentalists exploit, sometimes aggressively, the gap between perceptions and reality, playing on people's fears in order to generate headlines and revenues. In doing so, they are primarily following an example set by, and deploying techniques developed by, the business community and by those in the political world seeking office: when did you last see a tiger get out of a petrol tank, and just how big was the famous Kennedy missile gap? It would be better if we lived in a world with a more rational and judicious realm of public discourse. Were Professor Lomborg's book a contribution to building that world, there would be little to quarrel with him about.

The idea that the environmental community has collaborated in some

implicit conspiracy with the mass media to gull most people into thinking the environment is in a much worse state than it actually is, is not convincing. There is indeed a litany, and it is a litany of tragedy. It reads DDT, Bhopal, Torrey Canyon, thalidomide, CFCs, Seveso, Flixborough, Minimata, Exxon Valdez, Love Canal, Chernobyl. These are not words that people have written, but events that have happened. These events, and many more, were brought to the public's attention by the carelessness or ignorance of businesses and governments, not by environmentalists. In my thirty years as an environmentalist I have never, to my regret, had as much influence on public opinion. Journalists and environmentalists, and professors too, spend more time riding waves than making them.