

## To the Danish Committee on Scientific Dishonesty

Subject: Dr. Bjorn Lomborg.

15<sup>th</sup> March 2002

Under separate cover, we have sent 9 published documents that detail a long list of problems with Dr. Bjorn Lomborg's recent book and writings that have followed its publication. This list is far from complete and we are continuing to receive detailed criticisms, some of which have been published, some of which are in press, and yet others are private communications. In order to proceed in a timely way, we are restricted our attention to the 9 documents, plus this analysis of them.

Certainly, it is clear that Lomborg is not telling the truth when he says "I have tried to present all the facts". What he has done is to write a book that is highly deceptive and to load it with references and footnotes and disguise this as an objective overview. But, as is clear below, many, if not most, parts of the book are weighed down with studies bolstering Lomborg's view, thus providing irrefutable evidence of his clear bias. In our experience, we have never seen the immediate and uniformly hostile rejection of a published work by so many senior scientists.

### *1. Construction of data:*

There are many examples where Lomborg presents data or constructs them in such a way as to provide a pre-determined outcome. First of all, he switches back and forth between percentages and absolute numbers, depending on the trend which he wishes to highlight. This is clearly evident in the chapters on water and food production. For example, on p. 61, he says that the proportion of undernourished children in the developing world has fallen from 40 to 30 per cent over the past 15 years. However, data on the absolute numbers, which may have risen, are given only in the notes, as are data from a region where the percentage of starving have risen. Most readers will see only the main text with the relative numbers. Lomborg in response to this has always argued that it is proportions that matter. Responsible scholarship would note both the proportion and the numbers.

### *2. Selective and hidden discarding of unwanted results*

The book is so full of these examples, that we cannot come close to listing them. The attached 9 publications list many examples that suggest a consistent, deliberate bias, not merely an occasional carelessness.

The biodiversity chapter is rife with errors and selective use of statistics.

For example, Norman Myers in 1979 estimated that 40,000 species are lost per year. Lomborg sets Myers up as a straw man to be burned down (pp. 252). Lomborg does not mention that Professor Myers has written more than 250,000 words on this subject since 1979 (Myers, personal communication). Many others have so too. These are books and papers in prestigious journals including *Science* and *Nature*. Lomborg overlooks a detailed analysis of extinction rates published in *Science* in 1995 that assembles a large number of estimates. (Pimm, S. L., G. J. Russell, J. L.

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Gittleman and T. M. Brooks. 1995. The future of biodiversity. *Science* 269:347–350. (This article was the subject of an article in the *New York Times* (July 25th 1995) and of articles in several other newspapers. It was considered in the issue of *Discover Magazine* detailing the year's top 100 discoveries. In short, this was not an obscure publication.)

Professor Myer's estimate is now thought likely to be on the high side, but certainly the correct order of magnitude. (This has to do with the estimates of how many species exist and those estimates have stabilized in the last decade. See the UCS article by Wilson et al. for a review of the last two decades of analyses.)

We find it extremely unprofessional to characterize Professor Myers in the way that Dr. Lomborg does — and does so repeatedly with not only Myers but many others, when Lomborg consistently misses major publications over 20 years or more. Lomborg attacks Myers for making his extinction estimate as a “haphazard guess.” In the chapter on forests, he includes a similar “haphazard guess” made by Goudie (1993) that suggests that global forest losses have been small (pp 112). In fact, Lomborg even misquotes Goudie's estimate of 7.5 million square kilometres as a percentage. Again, these are clear examples where Lomborg is being biased and selective.

Lomborg admits at the bottom of footnote No. 2011 (where it is hard to find!) that “*This chapter is to a large degree based on Simon and Wildavsky 1995*” (fitting your criteria under item 6). The Simon/Wildavsky chapter itself distorts the field. The Pimm et al. review in *Science* shows that Simon's estimates of extinction rates are below those of everyone else by *several orders of magnitude*. This is one of countless examples where Lomborg cites third party sources that support his own opinions, rather than to be clearly objective.

It is simply inexcusable to quote an old, highly controversial article, as justification for a viewpoint that is statistically extremely biased and then to ignore a huge subsequent literature.

In reply to his critics, Lomborg has often argued that he is only quoting others. That may be case, but that does not excuse his extraordinary selectivity.

Here is one detailed example of how consistently he misquotes and selectively interprets others. It represents no more than a few pages of his text.

<<However, the data simply does (sic) not bear out these predictions. In the eastern US, forests were reduced over two centuries to fragments totaling just 1-2% of their original area, yet this resulted in the extinction of only one forest bird. >>

Wrong on both counts. Pimm and Askins (in the *Proceedings of the National Academy of Sciences*) show that 50% of the original forest remained in 1870, the forest's low point. Four forest birds became extinct as a consequence. That was 15% of all the species found only within. Another species is on the brink of extinct and survives only because of intensive protection.

<< In Puerto Rico, the primary forest area has been reduced over the past 400 years by 99%,>> Lomborg then suggests that all is well in Puerto Rico and that the island gained bird species with the implication that concerns over tropical deforestation are exaggerated. The data show that shade coffee (of a particularly well forested kind) accounted for 9.8% of the island surface in 1899, plus 1% "virgin" forest. The amount of "bush and scrub" is not known, but it was ~19% by 1912 and so likely quite extensive in previous decades. In short, there were always some forests on the islands and perhaps a substantial amount, so Lomborg greatly exaggerates how much forest was lost.

In any case, the island's bird fauna was devastated. Some 11 out of the 20 bird species found on the island either were driven to extinction or survived in very low numbers only because of conservation actions. These are underestimates of the actual damage done, because the first Amerindian colonists eliminated at least *some* species as well, though the record of species found only as bones is inevitably incomplete.

<<All but 12% of the Brazilian Atlantic rainforest was cleared in the 19th century, leaving only scattered fragments. According to the rule of thumb, half of all its species should have become extinct. Yet, when the World Conservation Union and the Brazilian Society of Zoology analysed all 291 known Atlantic forest animals, none could be declared extinct.>>

This is extraordinarily ignorant. A large part of the deforestation was in recent decades. As Brooks and Balmford showed in *Nature*, when one looks at the numbers of species teetering on the brink of extinction, they are exactly what one predicts on the basis of forest losses for the different regions of the Mata Atlantica. Many of these species are so rare we simply do not know whether survive or not. One is extinct in the wild and many more have not been seen despite exhaustive searches. More species have been lost from these forests, but they still survive in the Amazon basin. Lomborg's implication is that all is well in the Mata Atlantica. Nothing could be further from the case.

<< And tropical forests are not being lost at annual rates of 2-4%, as many environmentalists have claimed: the latest UN figures indicate a loss of less than 0.5%. >>

This is most certainly not what the satellite imagery shows. The details of how much forest are clear-cut and how much forest is damaged in addition are also readily available in the pages of *Science* and *Nature*.

<< Moreover, it is likely that as the developing world gets ever richer, it — just like the developed world — will increasingly set aside parks and begin reforestation.>>

Many of us would love to see those data!

<<Thus, the current professional understanding, backed by the UN, centres on an estimate of 0.7% lost species over the next 50 years. And this loss will not escalate but more likely abate within the next 100 years. True, the loss of 0.7% of biodiversity is a problem - one among many mankind still needs to solve – but it is nowhere near the catastrophe of losing 25-50% of all species, which is still so commonly claimed.>>

Quite what "backed by the UN" means is uncertain. What is certain is that these estimates are orders of magnitude different from the majority of those in the profession. "Professionals" publish in and read such journals as *Science*, *Nature*, and *PNAS*. Lomborg's selectivity is amazing, given how much literature there is on this subject. For example, those who compile the lists of species thought likely to become extinct in the near future (<50 years), typically find that 10% or more are (11% for birds, 12% for plants; etc.) These *Red Lists* (as they are called) are numerous, easy to find, very detailed, and updated every few years. Lomborg does not tell us why he chooses the one number that is less than a tenth as large as all the other sources.

In case, if any of his estimates sound familiar to ecologists they are: these were the numbers that Simon was throwing around two decades ago and were known to be faulty then. Lomborg is not even original in his mistakes.

Several other chapters also illustrate both your criteria 2 and 6.

For example, if you take figure 98 in the chapter on Acid Rain as an example (comparing the growth of three species of trees in response to altered pH levels in the soil), it can be traced to a non-peer reviewed paper by Kulp (1995) that appears again in Julian Simon's book, "Ultimate Resource" (1995). Thus, it becomes obvious that Lomborg is relying on rehashed NAPAP data in a book by Simon, while ignoring reams of scientific studies in peer-reviewed journals (e.g. *Bioscience* had an excellent article published in April 2001 which came to very different conclusions on acid rain) and the official positions of Environment Canada and the US EPA – a direct example of selective interpretation.

In the chapter "Our Chemical Fears", Lomborg lifts much of the material from a chapter in "True State of the Planet", edited by anti-environmental journalist Ronald Bailey of the Competitive Enterprise Institute. The Bailey book included a chapter written by environmental toxicologist Bruce Ames, a distinguished scientist but also now a Director of the fervently anti-environmental think tank, The George C. Marshall Institute, based in Washington, D.C. In the section on natural and synthetic pesticides, Lomborg spends the first paragraph eulogizing Professor Ames, setting up his credibility as an authority in dismissing concerns over the effects of pesticides on human health. As evidence of his bias, in other parts of the book, Lomborg attacks scientists of equal or even greater standing with Ames in the scientific community (e.g. David Pimentel, Paul Ehrlich, Edward O. Wilson) whose work do not support Lomborg's own opinions. Furthermore, the work of experts in the field like Devra Lee Davis, whose views are very different from those of Ames, are curiously ignored.

On climate change, Lomborg again discards inconvenient results, and deliberately distorts the conclusions of other's work by omitting important sections, and over emphasizes studies which themselves have been heavily criticized (Lomborg does not include the criticisms in his arguments). For example: (pp 270), Lomborg claims that a more refined model by the Hadley Climate Centre in the UK reduced the predicted temperature increase estimate from 5.2 C to 1.9 C – but failed to go on to report that the authors of the study state that the refined model may be no more accurate

than the original model. Lomborg also relies heavily on the results of two contentious studies to support his clear bias that climate change will be moderate rather than extreme.

Other examples of criterion 2: Perhaps the most egregious omissions in Lomborg's book are those which detail the effects of human activities on natural ecosystems: we typed a number of keywords into the ISI Web of Science and found over 3,000 studies detailing anthropogenic changes in terrestrial and marine ecosystems, all of which are ignored by Lomborg\*. Since the vast majority of these studies suggest that human impacts on the structure and functioning of ecosystems is negative, or at least represent a cause for concern, Lomborg dismisses them. Again, another example of selective exclusion of unwanted results.

We end here and refer to the committee to the many other examples in the attached documents.

*Construction of data (this also falls under criterion 4):*

Lomborg uses FAO data sets to calculate global forest cover since 1950. He stitches together data using different methodologies, and the FAO even says their surveys were discontinued in 1994 because they were "unreliable" and not meant to be used for this purpose anyway. More accurate UN Forest resources Assessment data suggests that 4.2% of global forest cover was lost in the 1990's alone, and this total is based only on forests permanently converted (and not land either in various stages of regeneration or designated for replanting). It excludes (among other things) forests that were burned, selectively logged, fragmented, etc. This is a clear example of distorting facts by constructing data to produce a specific result.

Moreover, Lomborg (Gleick, UCS, p. 5) takes data with considerable degrees of statistical uncertainty – such as forest cover – and uses this data to make his points. Some of the data are incredible, as when he argues that "global forest cover has increased from 30.04 to 30.89 percent between 1950 and 1994" (TSE, p. 111). Since our ability to measure forest cover is well below the prediction of these data, Lomborg's claim that "forest cover has increased 0.85%" is a deliberate obfuscation, and what is more startling is that it is made by a purported statistician. Again, clear evidence of bias to make a specific point.

Furthermore, Lomborg expresses changes in forest cover as a percentage of the total land area of the world, a technique that reduces changes to fractions of a per cent. He also misinterprets the term "closed forest" as meaning forest cover instead of tree canopy cover. Lomborg makes up a bad-case scenario of 1.5-4.6 per cent forest loss per year, but attributes this to no source. Lastly, without any statistical verification and without citing alternative studies, Lomborg states that the 1997 Indonesian fires claimed "only" 165,000-219,000 hectares of forest, and perhaps 1.3 million hectares overall (the Indonesian government made a cumulative appraisal of 520,000 ha burned). These results are at odds with the German-based Forest Fires Management Project, which, using satellite data and ground checks, derived a total of 5.2 million ha, 10 times the official estimates.

Lomborg appears to rely on the credibility of official estimates for much of his book, even though time and again we have seen countries provide

misleading data to provide a better picture. For example, Lomborg states that “marine productivity has nearly doubled since 1970”, a point that overlooks some salient facts. First, when more profitable species have been overexploited, catches include more “trash” species, i.e. the value of the catch declines; second, catches now include many immature stages which are not sexually mature; third, many nations have reported higher catches than were actually made (e.g. China) because fisheries managers were under pressure to achieve targets. Moreover, Lomborg ignores the effects that unsustainable overharvesting of many marine species and destructive benthic trawling practices have had on marine food webs. Many marine biologists are deeply concerned that a transformation of the “green seas” could unravel food webs and predicate large scale systemic collapse. Lomborg ignores all of this.

Gleick (UCS, p. 4) reveals that Lomborg combines data sets on access to drinking water and sanitation that he admits were collected using different definitions, different time periods, and different combinations of countries, then attempts to draw a logistic “best fit” to the data. These data are incompatible.

Gleick (UCS, p. 6) shows how Lomborg selectively quotes his book to create a misleading impression. For example, in his 1993 book, “Water in crisis”, Gleick argues that the combined processes of population growth and lack of water services means that during the 1990’s the total population requiring service will be about 900 million.

#### *7. Deliberately distorted representation of others’ results.*

Every scientist makes statements that are seen to be flawed as new information become available. Lomborg consistently does more than this. As documented above and in the 9 supplemental articles, he consistently ignores the estimates that do not fit his preconceptions. The work he criticizes is that of Nobel prize winners, and those who have won international prizes deliberately designed to complement Nobels in field where they are not awarded. (The include the Craaford Prize, the Japan Prize, and others.)

Not withstanding Lomborg’s massively selective use of data and his propensity to miss large bodies of recent literature that disagree with his conclusions, we are struck by Lomborg’s disdain for other scientists. The book starts with a “litany” of what he considers to be false. Yet this is not about scientists; the references are to magazines and journalists. (See attached article by Burke.) Lomborg does not draw a clear distinction. Worse, he later attacks those scientists in the same way that we have documented in his approach to Norman Myers (a member of the National Academy of Sciences, USA, a winner of major prizes etc.)

In some cases, Lomborg impugns scientists motives suggesting that the scientific community ignores the truth in order to gain research grants. In other cases he seriously misquotes what others have said in order to portray their views in an unfavorable light. Examples appear in the article by Lovejoy (and Lomborg’s quoting Colinvaux and Ehrlich and Ehrlich out of context) and in the matter of the correspondence between Soulé, Ehrlich, and Wilson (see the letter submitted to Prof. Madsen.)

It is hard not conclude that Lomborg has deliberately set up serious scientists and their positions for his attack, casts doubt their motives, and damages their reputations by misquoting them.

Given Dr. Lomborg's new position, we cannot but conclude that these actions put Danish science in a most unfavorable light internationally,

Stuart Pimm  
Jeff Harvey

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Habitat and fragmentation = 1740  
Fragmentation and extinction = 514  
Ecosystem and functioning = 520  
Wetland and drainage = 410  
Biodiversity and ecosystem and function = 238  
Coral and reef and bleaching = 198  
Ecological and deterioration = 178  
Wetland and eutrophication = 111