

Cambridge University Press  
978-0-521-80447-9 - The Skeptical Environmentalist: Measuring the Real State of the World  
Bjørn Lomborg  
Excerpt  
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# The Litany



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# 1 Things are getting better

What kind of state is the world really in?  
 Optimists proclaim the end of history with the best of all possible worlds at hand, whereas pessimists see a world in decline and find doomsday lurking around the corner. Getting the state of the world right is important because it defines humanity's problems and shows us where our actions are most needed. At the same time, it is also a scorecard for our civilization – have we done well with our abilities, and is this a world we want to leave for our children?

This book is the work of a skeptical environmentalist. Environmentalist, because I – like most others – care for our Earth and care for the future health and wellbeing of its succeeding generations. Skeptical, because I care enough to want us not just to act on the myths of both optimists and pessimists. Instead, we need to use the best available information to join others in the common goal of making a better tomorrow.

Thus, this book attempts to measure the real state of the world. Of course, it is not possible to write a book (or even lots and lots of books for that matter) which measures the entire state of the world. Nor is this my intention. Instead, I wish to gauge the most important characteristics of our state of the world – the *fundamentals*. And these should be assessed not on myths but on the best available facts. Hence, the *real* state of the world.

## The Litany

The subtitle of my book is a play on the world's best-known book on the environment, *The*

*State of the World*. This has been published every year since 1984 by the Worldwatch Institute and its leader Lester Brown,<sup>4</sup> and it has sold more than a million copies. The series attempts to identify the world's most significant challenges professionally and veraciously. Unfortunately, as we shall see, it is frequently unable to live up to its objectives. In many ways, though, *The State of the World* is one of the best-researched and academically most ambitious environmental policy publications, and therefore it is also an essential participant in the discussion on the State of the World.<sup>5</sup>

On a higher level this book plays to our general understanding of the environment: the Litany of our ever deteriorating environment. This is the view of the environment that is shaped by the images and messages that confront us each day on television, in the newspapers, in political statements and in conversations at work and at the kitchen table. This is why *Time* magazine can start off an article in 2000, stating as entirely obvious how “everyone knows the planet is in bad shape.”<sup>6</sup>

Even children are told the Litany, here from Oxford University Press' *Young Oxford Books*: “The balance of nature is delicate but essential for life. Humans have upset that balance, stripping the land of its green cover, choking the air, and poisoning the seas.”<sup>7</sup>

Equally, another *Time* article tells us how “for more than 40 years, earth has been sending out distress signals” but while “we’ve staged a procession of Earth Days . . . the decline of Earth’s ecosystems has continued unabated.”<sup>8</sup> The April 2001 Global Environment Supplement from *New Scientist* talks about the

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impending “catastrophe” and how we risk consigning “humanity to the dustbin of evolutionary history.” Our impact is summarized with the headline “Self-destruct”:

We humans are about as subtle as the asteroid that wiped out the dinosaurs . . . The damage we do is increasing. In the next 20 years, the population will increase by 1.5 billion. These people will need food, water and electricity, but already our soils are vanishing, fisheries are being killed off, wells are drying up, and the burning of fossil fuels is endangering the lives of millions. We are heading for cataclysm.<sup>9</sup>

This understanding of the environment is all pervasive. We are all familiar with the Litany:<sup>10</sup> the environment is in poor shape here on Earth.<sup>11</sup> Our resources are running out. The population is ever growing, leaving less and less to eat. The air and the 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 limit of viability, and the limits of growth are becoming apparent.<sup>12</sup>

We know the Litany and have heard it so often that yet another repetition is, well, almost reassuring. There is just one problem: it does not seem to be backed up by the available evidence.

### Things are *better* – but not necessarily *good*

I will attempt over the course of this book to describe the principal areas which stake out humankind’s potentials, challenges and problems – in the past, the present and the future.

These areas are selected either because it is immediately obvious that they are important (e.g. the number of people on earth), because models show they will have a decisive influence on human development (air pollution, global warming) or because they are frequently mentioned in the discussion on the state of the world (chemical fears, e.g. pesticides).<sup>13</sup>

In presenting this description I will need to challenge our usual conception of the collapse of ecosystems, because this conception is simply not in keeping with reality.

We are not running out of energy or natural resources.<sup>14</sup> There will be more and more food per head of the world’s population. Fewer and fewer people are starving. In 1900 we lived for an average of 30 years; today we live for 67. According to the UN we have reduced poverty more in the last 50 years than we did in the preceding 500, and it has been reduced in practically every country.

Global warming, though its size and future projections are rather unrealistically pessimistic, is almost certainly taking place, but the typical cure of early and radical fossil fuel cut-backs is way worse than the original affliction, and moreover its total impact will not pose a devastating problem for our future. Nor will we lose 25–50 percent of all species in our lifetime – in fact we are losing probably 0.7 percent. Acid rain does not kill the forests, and the air and water around us are becoming less and less polluted.

Mankind’s lot has actually improved in terms of practically every measurable indicator.

But note carefully what I am saying here: that by far the majority of indicators show that mankind’s lot has *vastly improved*. This does not, however, mean that everything is *good enough*. The first statement refers to what the world looks like whereas the second refers to what it ought to look like.<sup>15</sup>

While on lecture tours I have discovered how vital it is to emphasize this distinction. Many people believe they can prove me wrong,

for example by pointing out that a lot of people are still starving: “How can you say that things are continuing to improve when 18 percent of all people in the developing world are still starving?”

The point is that ever fewer people in the world are starving. In 1970, 35 percent of all people in developing countries were starving. In 1996 the figure was 18 percent and the UN expects that the figure will have fallen to 12 percent by 2010.<sup>16</sup> This is remarkable progress: 237 million fewer people starving. Till today, more than 2000 million more people are getting enough to eat.

The food situation has vastly improved, but in 2010 there will still be 680 million people starving, which is obviously not *good enough*.

The distinction is essential; when things are not going well enough we can sketch out a vision: fewer people must starve. This is our political aim.

But when things are improving we know we are on the right track. Although perhaps not at the right speed. Maybe we can do even more to improve the food situation, but the basic approach is not wrong. We are actually saving lives and can look forward to fewer people starving in future.

### Exaggeration and good management

The constant repetition of the Litany and the often heard environmental exaggerations has serious consequences. It makes us scared and it makes us more likely to spend our resources and attention solving phantom problems while ignoring real and pressing (possibly non-environmental) issues. This is why it is important to know the real state of the world. We need to get the facts and the best possible information to make the best possible decisions. As the lead author of the environmental report *Our Common Future*, Gro Harlem Brundtland, put it in the top scientific magazine *Science*: “Politics that disregard science and knowledge will not stand the test of time.

Indeed, there is no other basis for sound political decisions than the best available scientific evidence. This is especially true in the fields of resource management and environmental protection.”<sup>17</sup>

However, pointing out that our most publicized fears are incorrect does not mean that we should make no effort towards improving the environment. Far from it. It will often make good sense to make some effort towards managing our resources and tackling our problems in areas like forest and water management, air pollution, and global warming. The point here is to give us the best evidence to allow us to make the most informed decision as to where we need to place most of our efforts. What I will show throughout the book is that our problems are often getting *smaller* and not bigger, and that frequently the offered solutions are grossly inefficient. What this information should tell us is not to abandon action entirely, but to focus our attention on the most important problems and only to the extent warranted by the facts.

### Fundamentals: trends

If we are to understand the real state of the world, we need to focus on the *fundamentals* and we need to look at *realities*, not myths. Let us take a look at both of these requirements, starting with the fundamentals.

When we are to assess the state of the world, we need to do so through a comparison.<sup>18</sup> Legend has it that when someone remarked to Voltaire, “life is hard,” he retorted, “compared to what?”<sup>19</sup> Basically, the choice of comparison is crucial. It is my argument that the comparison should be with *how it was before*. Such comparison shows us the extent of our progress – are we better or worse off now than previously? This means that we should focus on *trends*.

When the water supply and sanitation services were improved in cities throughout the

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developed world in the nineteenth century, health and life expectancy improved dramatically.<sup>20</sup> Likewise, the broadening of education from the early nineteenth century till today's universal school enrolment has brought literacy and democratic competence to the developed world.<sup>21</sup> These trends have been replicated in the developing world in the twentieth century. Whereas 75 percent of the young people in the developing world born around 1915 were illiterate, this is true for only 16 percent of today's youth (see Figure 41, p. 81). And while only 30 percent of the people in the developing world had access to clean drinking water in 1970, today about 80 percent have (see Figure 5, p. 22). These developments represent great strides forward in human welfare; they are huge improvements in the state of the world – because the trends have been upwards in life expectancy and literacy.

In line with the argument above, it is a *vast improvement* that people both in the developed and in the developing world have dramatically increased their access to clean drinking water. Nevertheless, this does not mean that everything is *good enough*. There are still more than a billion people in the Third World who do not have access to clean drinking water. If we compare the world to this *ideal* situation, it is obvious that there are still improvements to be made. Moreover, such a comparison with an ideal situation sets a constructive, political ambition by showing us that if access has become universal in the developed world, it is also an achievable goal for the developing world.

But it is important to realize that such a comparison constitutes a political judgment. Of course, when asked, we would probably all want the Third World to have better access to clean drinking water, but then again, we probably all want the Third World to have good schooling, better health care, more food security, etc. Likewise, in the developed world we also want better retirement homes for our elders, better kindergartens, higher local

environmental investments, better infrastructure, etc. The problem is that it all costs money. If we want to improve one thing, such as Third World access to clean drinking water, we need to take the resources from other areas where we would also like to make things better. Naturally, this is the essence of politics – we have to prioritize resources and choose some projects over many others. But if we make the state of the world to be a comparison with an *ideal* situation we are implicitly making a political judgment as to what projects in the world we should be prioritizing.

Thus, with this assessment of the state of the world I wish to leave to the individual reader the political judgment as to where we should focus our efforts. Instead, it is my intention to provide the best possible information about how things have progressed and are likely to develop in the future, so that the democratic process is assured the soundest basis for decisions.

And this means focusing on trends.

### Fundamentals: global trends

The *Global Environmental Outlook Report 2000* tells us much about the plight of Africa.<sup>22</sup> Now, there is no doubt that Africa, and especially Africa below the Sahara, has done less well than other continents, an issue to which we will return (p. 65ff). Sub-Saharan Africa has by far the greatest numbers of starving people – almost 33 percent were starving in 1996, although this was down from 38 percent in 1970 and is expected to fall even further to 30 percent in 2010.<sup>23</sup>

In the most staggering prediction of problems ahead, *Global Environmental Outlook Report 2000* tells us that soil erosion is a pervasive problem, especially in Africa. Indeed, “in a continent where too many people are already malnourished, crop yields could be cut by half within 40 years if the degradation of cultivated lands were to continue at present

rates.”<sup>24</sup> This, of course, would represent a tragedy of enormous proportions, causing massive starvation on the African continent. However, the background for this stunning prediction stems from a single, unpublished study from 1989, based on agricultural plot studies only in South Africa.<sup>25</sup> And it is in stark opposition to the estimates of the major food production models from the UN (FAO) and IFPRI, expecting an annual 1.7 percent yield increase over the next 20–25 years.<sup>26</sup> Although the growth in yield in the 1990s was small but positive, the absolute grain production increased more than 20 percent.<sup>27</sup>

In many ways this is reminiscent of one of the most cited European soil erosion estimates of 17 tons per hectare.<sup>28</sup> This estimate turned out – through a string of articles, each slightly inaccurately referring to its predecessor – to stem from a single study of a 0.11 hectare sloping plot of Belgian farmland, from which the author himself warns against generalization.<sup>29</sup> In both examples, sweeping statements are made with just a single example. Unfortunately, such problematic argumentation is pervasive, and we will see more examples below. The problem arises because in today’s global environment, with massive amounts of information at our fingertips, an infinite number of stories can be told, good ones and bad.

Should you be so inclined, you could easily write a book full of awful examples and conclude that the world is in a terrible state. Or you could write a book full of sunshine stories of how the environment is doing ever so well. Both approaches could be using examples that are absolutely true, and yet both approaches would be expressions of equally useless forms of argumentation. They resemble the classic fallacy that “my granddad smoked cigars all his life and was healthy until he died at the age of 97, so smoking isn’t dangerous.” Such a fallacy is clearly not rectified by accumulating lots of examples – we could easily find many grandfathers who had smoked heavily and lived into their late nineties, but still this is no

argument for smoking not being dangerous. The argument fails because it systematically neglects all the men who smoked and died of lung cancer in their late forties, before they even got to be grandfathers.<sup>30</sup> So if we are to demonstrate the problems of smoking, we need to use comprehensive figures. Do smokers get lung cancer more or less often compared with non-smokers?<sup>31</sup>

In the same way we can only elucidate global problems with global figures. If we hear about Burundi losing 21 percent in its daily per capita caloric intake over the past ten years,<sup>32</sup> this is shocking information and may seem to reaffirm our belief of food troubles in the developing world. But we might equally well hear about Chad gaining 26 percent, perhaps changing our opinion the other way.<sup>33</sup> Of course, the pessimist can then tell us about Iraq losing 28 percent and Cuba 19 percent, the optimist citing Ghana with an increase of 34 percent and Nigeria of 33 percent. With 120 more countries to go, the battle of intuition will be lost in the information overload.<sup>34</sup> On average, however, the developing countries have increased their food intake from 2,463 to 2,663 calories per person per day over the last ten years, an increase of 8 percent.<sup>35</sup>

The point is that global figures summarize *all* the good stories as well as *all* the ugly ones, allowing us to evaluate how serious the overall situation is. Global figures will register the problems in Burundi but also the gains in Nigeria. Of course, a food bonanza in Nigeria does not alleviate food scarcity in Burundi, so when presenting averages we also have to be careful only to include comparable countries like those in the developing world. However, if Burundi with 6.5 million people eats much worse whereas Nigeria with 108 million eats much better, it really means 17 Nigerians eating better versus 1 Burundi eating worse – that all in all mankind is better fed. The point here is that global figures can answer the question as to whether there have been more good stories to tell and fewer bad ones over the years or vice versa.

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This is why in the following chapters I shall always attempt to present the most comprehensive figures in order to describe the development of the entire world or the relevant regions. What we need is global trends.

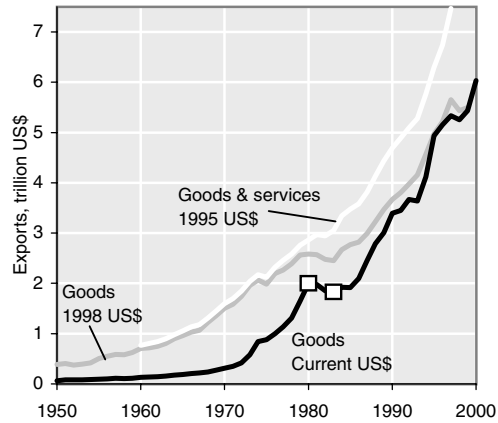
Fundamentals: long-term trends

In the environmental debate you often hear general discussion based on extremely short-term trends. This is dangerous – a lone swallow does not mean that summer has arrived.

Food prices have fallen dramatically during the last centuries (see Figure 25, p. 62). However, Lester Brown said in early 1998 that he could detect the beginnings of a historic increase in the price of wheat. From 1994 to 1996 wheat got more expensive and now we were headed for the abyss. In Figure 49 (p. 94) you will see that he was wrong. The wheat price in 2000 was lower than ever before.

Unfortunately, looking at short-term counter-trends was already firmly established in the first Worldwatch *State of the World* publication in 1984. Here, they worried about an international trade setback. “Nor is future growth in international trade likely to be rapid. According to the International Monetary Fund, the value of world exports peaked at \$1,868 billion in 1980 and fell to roughly \$1,650 billion in 1983, a decline of nearly 12 percent.”<sup>36</sup> This claim can be evaluated in Figure 1. The 12 percent trade setback occurred mainly because of the second oil crisis, and it hit trade in goods but not services. However, Worldwatch Institute measures only goods and only presents figures that are not corrected for inflation – actually the alleged trade setback for inflation-adjusted trade in both goods and services is almost non-existent. Since 1983, international trade has more than doubled from \$3.1 trillion to \$7.5 trillion in 1997. And yes, the years 1980–83 show the *only* multi-year setback since data start in 1950.<sup>37</sup>

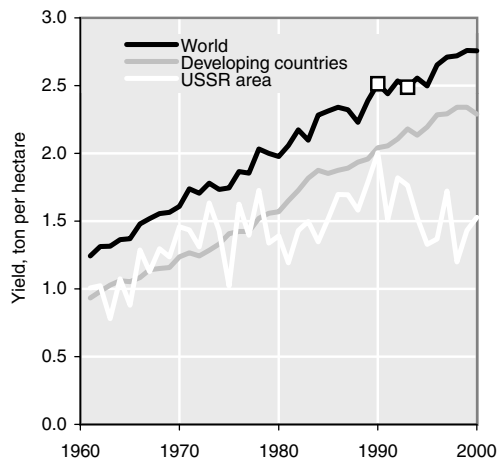
Equally, Lester Brown wants to tell us how grain yields are no longer growing as fast or



**Figure 1** World exports of goods in current US\$ 1950–2000, in 1998 US\$ 1950–98, and goods and services 1960–97. Worldwatch Institute’s worry of declining trade from 1980 to 1983 is marked out. Source: WTO 2000:27, IMF 2000d:226, 2000e, WI 2000b:75, 2000c, World Bank 2000c.<sup>38</sup>

have perhaps even stopped completely, because increasingly we are reaching the physiological limits of the plants<sup>39</sup> (we will look more at this line of argument in chapter 9). Trying to discredit the World Bank grain predictions, he points out that “from 1990 to 1993, the first three years in the Bank’s 20-year projection period, worldwide grain yields per hectare actually declined.”<sup>40</sup> This claim is documented in Figure 2. Here it is evident that while Brown’s claim is technically true (the grain yield did decline from 2.51 t/ha to 2.49 t/ha), it neglects and misrepresents the long-term growth. Moreover, it ignores the fact that this decline did not take place in the more vulnerable developing countries, where yields have steadily grown. Actually, the reason Brown finds grain yield declines in the early 1990s is primarily due to the breakup of the Soviet Union, causing grain yields there to plummet, but this is hardly an indication of physiological limits of the plants.

Isaac Asimov, worrying about more hurricanes from global warming (something we will look into in Part V), cites some seemingly worrying statistics: “The twenty-three years



**Figure 2** Grain yields for the world, the developing world and the USSR area, 1961–2000. Brown’s proof of declining grain yields from 1990 to 1993 is marked out. Source: FAO 2001a.

from 1947 to 1969 averaged about 8.5 days of very violent Atlantic hurricanes, while in the period from 1970 to 1987 that dropped by three-quarters, to only 2.1 days per year . . . and in 1988–1989 rose again to 9.4 days a year.”<sup>41</sup> This seems threatening. Now the hurricane rate is higher than ever. But notice the time-spans: 23 years, 17 years and then just two years at the end. Maybe the two years have been singled out just because they can be made spectacular? Well, at least the two years immediately preceding have 0 and 0.6 violent Atlantic hurricane days. And yes, the two years just after had only 1 and 1.2 days.<sup>42</sup> Documenting these trends, the original researcher points out that Atlantic violent hurricane days “show a substantial decrease in activity with time.”<sup>43</sup> Since then, only hurricane days have been documented, and they too show a decline of 1.63 days/decade.<sup>44</sup>

In 1996 the World Wide Fund for Nature told us that the rate of forest loss in the Amazon rainforest had increased by 34 percent since 1992 to 1,489,600 hectares a year.<sup>45</sup> What they did not tell us was that the 1994/5 year had been a peak year of deforestation, at

an estimated 0.81 percent, higher than any other year since 1977.<sup>46</sup> The year 1998/9 is estimated at 0.47 percent or nearly half of the top rate in 1994/5.

In a highly interconnected world, statistical short-term reversals are bound to occur in long-term trends. If we allow environmental arguments – however well-meaning – to be backed merely by purported trends of two or three carefully selected years, we invariably open the floodgates to any and every argument. Thus, if we are to appraise substantial developments we must investigate long periods of time. Not the two or five years usually used, but as far back as figures exist. Of course, we must be aware that a new tendency may be developing, and we must also be extra careful to include and analyze the latest available figures. But insisting on long-term trends protects us against false arguments from background noise and lone swallows.

In the chapters that follow, I will endeavor always to show the longest and the newest time trends.

**Fundamentals: how is it important?**

When we are told that something is a problem we need to ask how important it is in relation to other problems. We are forced constantly to prioritize our resources, and there will always be good projects we have to reject. The only scarce good is money with which to solve problems. But when the Litany is recited, it is often sufficient to point out that indeed there is a problem. Then you have won.

We all hear about pesticides getting into the groundwater. Since pesticides can cause cancer, we have a problem. Thus, they must be banned. Not many other fields would be able to sustain that sort of argument. “The Department of Defense has uncovered that State X has developed so-called Y6 missiles, which is a problem. We will therefore have to develop and set up a missile defense system.” Most of us would probably ask how probable it

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was that State X would attack, how much damage a Y6 missile could do and how much the necessary defense system would cost. As regards pesticides, we should also ask how much damage they actually do and how much it would cost to avoid their use. Recent research suggests that pesticides cause very little cancer. Moreover, scrapping pesticides would actually result in *more* cases of cancer because fruits and vegetables help to prevent cancer, and without pesticides fruits and vegetables would get more expensive, so that people would eat less of them.

Likewise, when the World Wide Fund for Nature told us about the Amazon rainforest loss increasing to 1,489,600 hectares a year, we also have to ask, how much is that?<sup>47</sup> Is it a lot? One can naturally calculate the classical rate of “football pitches per hour.” But have we any idea how many football pitches the Amazon can actually accommodate?<sup>48</sup> And perhaps a more important piece of information is that the total forest loss in the Amazon since the arrival of man has only amounted to 14 percent.<sup>49</sup>

The magazine *Environment* told us in May 2000 how we can buy a recyclable toothbrush to “take a bite out of landfill use.”<sup>50</sup> At \$17.50 for four toothbrushes, each comes with a postage-paid recycling mailer, such that the entire toothbrush can be recycled into plastic lumber to make outdoor furniture. The president of the company producing the toothbrush tells us how he “simply cannot throw plastic in the garbage. My hand freezes with guilt . . . The image of all that plastic sitting in a landfill giving off toxic gases puts me over the top.”<sup>51</sup> Never mind that traditional plastics do not decompose and give off gases.<sup>52</sup> The more important question is: how important will this toothbrush effort be in reducing landfill?

If everyone in the US replaced their toothbrush four times a year as the dentists recommend (they don’t – the average is 1.7), *Environment* estimates the total waste reduction at 45,400 tons – what the company thinks would “make a pretty significant impact on

landfills.”<sup>53</sup> Since the municipal waste generated in the US last year was 220 million tons,<sup>54</sup> the total change (if *everyone* brushed their teeth with new brushes four times a year and *everyone* bought the new recyclable toothbrush) is a reduction of 0.02 percent, at an annual cost of more than \$4 billion. Equivalently, of the daily generated 4.44 pounds of waste per person, recycling one’s toothbrush would cut 0.001 pound of waste a day (a sixtieth of an ounce), down to 4.439 pounds of daily waste.<sup>55</sup> Not even considering the added environmental effects of the postal system handling another billion packages a year, the cost is huge, while the benefit seems slight at best. Moreover, as we shall see in the section on waste, we are not running out of storage space – the entire waste generated in the US throughout the rest of the twenty-first century will fit within a square landfill less than 18 miles on the side (see Figure 115, p. 208).

In the following example Worldwatch Institute combines the problems of looking at short-term counter-trends and not asking what is important. In 1995 they pointed out how fertilizer use was declining. In their own words: “The era of substituting fertilizer for land came to a halt in 1990. If future food output gains cannot come from using large additional amounts of fertilizer, where will they come from? The graph of fertilizer use and grainland area per person may capture the human dilemma as the twenty-first century approaches more clearly than any other picture could.”<sup>56</sup> (We will deal with the question of grainland area below.) The graph they showed us is the world fertilizer consumption (upper line) in Figure 3.

First, if we worry about food production, we should focus not on the *world* average, but on the average of where the potential food problem is – the developing world. And here we see that the fertilizer use per person has been almost continuously increasing, hitting an all-time high at 17.7 kg/person in 1999. When Worldwatch Institute finds a trend to worry about, it is mainly because they neglect to ask