The Skeptical Environmentalist

Measuring the Real State of the World

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PART I

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,[4] 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.[5]

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."[6]

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."[7]

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.[8] The April 2001 Global Environment Supplement from *New Scientist* talks about the

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.[9]

This understanding of the environment is all pervasive. We are all familiar with the Litany:[10] the environment is in poor shape here on Earth.[11] 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 is 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.[12]

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).[13]

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.[14] 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 cutbacks 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.[15]

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.[16] 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."[17]

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.[18] Legend has it that when someone remarked to Voltaire, "life is hard," he retorted, "compared to what?"[19] 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

developed world in the nineteenth century, health and life expectancy improved dramatically.[20] 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.[21] 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.[22] 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.[23]

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."[24] 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.[25] 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.[26] Although the growth in yield in the 1990s was small but positive, the absolute grain production increased more than 20 percent.[27]

In many ways this is reminiscent of one of the most cited European soil erosion estimates of 17 tons per hectare.[28] 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.[29] 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.[30] 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?[31]

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,[32] 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.[33] Of course, the pessimist can then tell us about Iraq loosing 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.[34] 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.[35]

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.

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."[36] 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.[37]

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

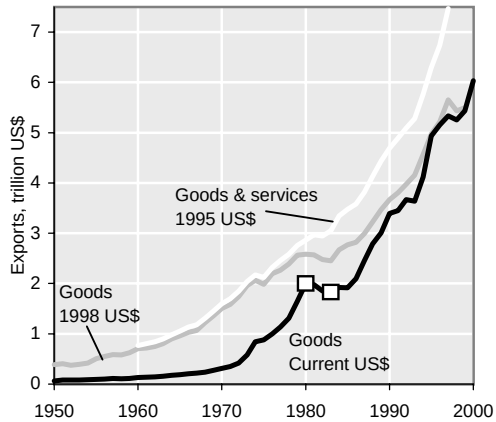

Figure 1 World exports of goods in current US$ 1950–2000, in 1998 US$ 1950–98, and goods and services 1960–97. Worldwatch Institute's worry of declining trade from 1980 to 1983 is marked out. Source: WTO 2000:27, IMF 2000d:226, 2000e, WI 2000b:75, 2000c, World Bank 2000c.[38]

have perhaps even stopped completely, because increasingly we are reaching the physiological limits of the plants[39] (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."[40] 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

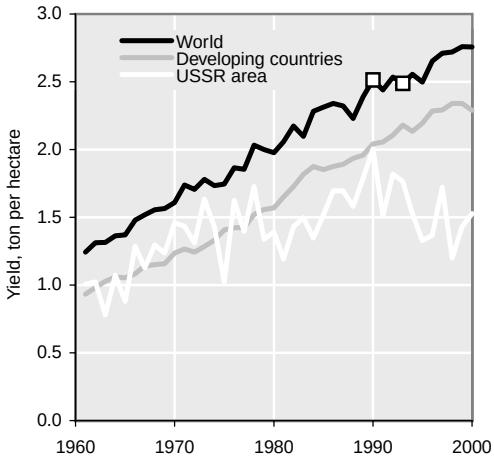

Figure 2 Grain yields for the world, the developing world and the USSR area, 1961–2000. Brown's proof of declining grain yields from 1990 to 1993 is marked out. Source: FAO 2001a.

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."[41] 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.[42] Documenting these trends, the original researcher points out that Atlantic violent hurricane days "show a substantial decrease in activity with time."[43] Since then, only hurricane days have been documented, and they too show a decline of 1.63 days/decade.[44]

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.[45] 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.[46] 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

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?[47] 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?[48] 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.[49]

The magazine *Environment* told us in May 2000 how we can buy a recyclable toothbrush to "take a bite out of landfill use."[50] 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."[51] Never mind that traditional plastics do not decompose and give off gases.[52] 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."[53] Since the municipal waste generated in the US last year was 220 million tons,[54] 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.[55] 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."[56] (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

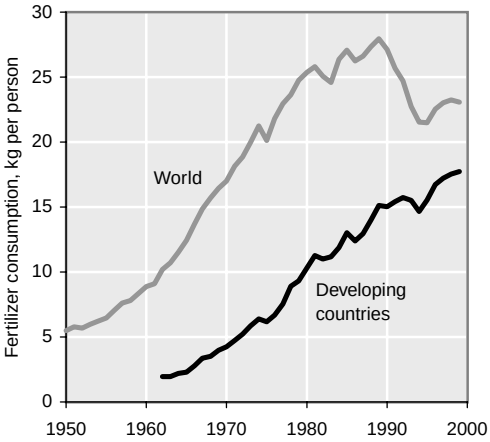

Figure 3 Fertilizer use, kg per person for the world (1950–99) and for the developing world (1962–99). Source: IFA 2000, WI 1999b.

what information is important. Second, this "human dilemma" is also a product of looking at short-term trends. With their data naturally stopping in 1994, Worldwatch Institute finds a clear reversal of trends – but why? Mainly because of the breakdown of the Soviet Union, which the Worldwatch Institute also acknowledges elsewhere.[57]

Another neat example is the way many commentators merely regard one environmental solution as the beginning of another problem.[58] Isaac Asimov informs us that "what has happened to the problem of air pollution is only what happens to most of the world's environmental problems. The problems don't get solved. They simply get pushed aside, because they are swamped with unexpected newer and even worse ones."[59]

Of course, such a sweeping statement should at least have a good foundation in its example. Here, Asimov tells us how the British tried to solve London's air pollution by building "very tall smokestacks so that the particulate pollution rose high into the air and only fell to earth as soot hundreds of miles away. Like most technological fixes, that one didn't really fix the problem, it only removed it to a different place. In the final analysis, all London had done was to export its smog, in the form of acid rain, to the lakes and forests of Scandinavia."[60] Former vice president Al Gore tells us the exact same story: "Some of what Londoners used to curse as smog now burns the leaves of Scandinavian trees."[61] And since Britain and most other developed nations have begun removing the sulfur from the smokestack emissions, environmentalists now point out that depositing the removed sulfur slurry constitutes a major health hazard.[62]

In essence, first we had one problem (bad air in London), then we had another (acid rain in Scandinavia), and then came a third (slurry waste). But we still had a problem. So things are not getting better. Or, in the judgment of Asimov, the problem has apparently become even worse. But such argument entirely avoids asking the question "how important?" Urban air pollution in London has decreased by more than 90 percent since 1930.[63] The former urban air pollution probably killed at least 64,000 extra people each year in the UK.[64] Depositing slurry waste causes far less than one cancer death every fifty years.[65] Thus, to describe the transition from one problem to another as simply exchanging one problem for another is to miss the point entirely: that more than 63,999 people now live longer – every year.

Without asking the essential question of "how important" we cannot prioritize and use our resources where they make the most impact.

Fundamentals: people

Counting lives lost from different problems also emphasizes a central assumption in my argument: that the needs and desires of humankind represent the crux of our assessment of the state of the world. This does not mean that plants and animals do not also have rights but that the focus will always be on the human evaluation.[66]

This describes both my ethical conception of the world – and on that account the reader can naturally disagree with me – but also a realistic conception of the world: people debate and participate in decision-making processes, whereas penguins and pine trees do not.[67] So the extent to which penguins and pine trees are considered depends in the final instance on some (in democracies more than half of all) individuals being prepared to act on their behalf. When we are to evaluate a project, therefore, it depends on the assessment by *people*. And while some of these people will definitely choose to value animals and plants very highly, these plants and animals cannot to any great extent be given particular rights.[68]

This is naturally an approach that is basically selfish on the part of human beings. But in addition to being the most realistic description of the present form of decision-making it seems to me to be the only defensible one. Because what alternative do we have? Should penguins have the right to vote? If not, who should be allowed to speak on their behalf? (And how should these representatives be selected?)

It is also important to point out that this human-centered view does not automatically result in the neglect or elimination of many non-human life forms. Man is in so many and so obvious ways dependent on other life forms, and for this reason alone they will be preserved and their welfare appreciated. In many places man actually shares common interests with animals and plants, for example in their desire for clean air. But it is also obvious that a choice frequently has to be made between what is good for humans and what is good for animals and plants. If we choose to allow a forest to stand untouched this will be a great advantage to many animals but a lost opportunity for man to cultivate timber and grow food.[69] Whether we want an untouched forest or a cultivated field depends on *man*'s preferences with regard to food and undisturbed nature.

The conclusion is that we have no option but to use humans as a point of reference. How can we otherwise avoid an ethical dilemma? When Americans argue for cutting nitrogen emissions to the northern Gulf of Mexico to save the bottom-dwelling animals from asphyxiation, this is a statement of a *human* desire or preference for living sea-floor fauna. It is not that such a cut is in itself mandated to save the sea-bed dwellers – not because they have inalienable rights in some way. If we were to use the inalienable rights argument we could not explain why we choose to save some animals at the bottom of the sea while at the same time we slaughter cattle for beef. Why then should these cattle not have the same right to survive as the fauna at the bottom of the Gulf?

Reality versus myths

It is crucial to the discussion about the state of the world that we consider the fundamentals. This requires us to refer to long-term and global trends, considering their importance especially with regard to human welfare.

But it is also crucial that we cite figures and trends which are true.

This demand may seem glaringly obvious, but the public environment debate has unfortunately been characterized by an unpleasant tendency towards rather rash treatment of the truth. This is an expression of the fact that the Litany has pervaded the debate so deeply and for so long that blatantly false claims can be made again and again, without any references, and yet still be believed.

Take notice, this is *not* due to primary research in the environmental field; this generally appears to be professionally competent and well balanced.[70] It is due, however, to the communication of environmental knowledge, which taps deeply into our doomsday beliefs. Such propaganda is presented by many environmental organizations, such as the Worldwatch Institute, Greenpeace and the

World Wide Fund for Nature, and by many individual commentators, and it is readily picked up by the media.

The number of examples are so overwhelming that they could fill a book of their own. I will consider many of them in the course of this book, and we will look specifically at their connection to the media in the next chapter. However, let us here look at some of the more outstanding examples of environmental mythmaking.

Reality: Worldwatch Institute

Often the expressions of the Litany can be traced – either directly or indirectly – to Lester Brown and his Worldwatch Institute. Its publications are almost overflowing with statements such as: "The key environmental indicators are increasingly negative. Forests are shrinking, water tables are falling, soils are eroding, wetlands are disappearing, fisheries are collapsing, range-lands are deteriorating, rivers are running dry, temperatures are rising, coral reefs are dying, and plant and animal species are disappearing."[71] Powerful reading – stated entirely without references.[72]

Discussing forests, Worldwatch Institute categorically states that "the world's forest estate has declined significantly in both area and quality in recent decades."[73] As we shall see in the section on forests, the longest data series from the UN's FAO show that global forest cover has *increased* from 30.04 percent of the global land area in 1950 to 30.89 percent in 1994, an increase of 0.85 percentage points over the last 44 years (see Figure 60, p. 111).[74] Such global figures are not referred to, however; we are only told that "each year another 16 million hectares of forests disappear"[75] – a figure which is 40 percent higher than the latest UN figure.[76] Nor is reference made to figures regarding the forests' quality – simply because no such global figures exist.

Blatant errors are also made with unfortunate frequency. Worldwatch Institute claims that "the soaring demand for paper is contributing to deforestation, particularly in the northern temperate zone. Canada is losing some 200,000 hectares of forest a year."[77] Reference is made to the FAO's *State of the World's Forests 1997*, but if you refer to the source you will see that in fact Canada grew 174,600 *more* hectares of forest each year.[78]

In their 2000 overview, Worldwatch Institute lists the problems staked out in their very first State of the World publication from 1984. Here is the complete list: "Record rates of population growth, soaring oil prices, debilitating levels of international debt, and extensive damage to forests from the new phenomenon of acid rain."[79] Naturally, assessing this list at the turn of the millennium could be a good place to take stock of the important issues, asking ourselves if we have overcome earlier problems. However, Worldwatch Institute immediately tells us that we have not solved these problems: "Far from it. As we complete this seventeenth *State of the World* report, we are about to enter a new century having solved few of these problems, and facing even more profound challenges to the future of the global economy. The bright promise of a new millennium is now clouded by unprecedented threats to humanity's future."[80]

Worldwatch Institute does not return to look at the list but merely tells us that the problems have not been solved and that we have added even more problems since then. But does the Litany stand up, if we check the data? The level of international debt may be the only place where we have not seen significant improvement: although the level of debt declined steadily throughout the 1990s, it declined only slightly, from 144 percent of exports in 1984 to 137 percent in 1999.[81]

However, and as we shall see, acid rain while harming lakes did very little if any damage to forests. Moreover, the sulfur emissions responsible for acid rain have declined in both Europe and the US – in the EU, emissions have been cut by a full 60 percent since 1984 (as you can also see in Figure 91, p. 172).[82]

The soaring oil prices which cost the world a decade of slow growth from the 1970s into the mid-1980s declined throughout the 1990s to a price comparable to or lower than the one before the oil crisis (as can be seen in Figure 64, p. 123). Even though oil prices have doubled since the all-time low in mid-1998, the price in the first quarter of 2001 is on par with the price in 1990, and the barrel price of $25 in March 2001 is still way below the top price of $60 in the early 1980s.[83] Moreover, most consider this spike is a short-term occurrence, where the US Energy Information Agency expects an almost steady oil price over the next 20 years at about $22 a barrel.[84]

Finally, speaking of record rates of population growth is merely wrong, since the record was set back in 1964 at 2.17 percent per year, as you can see in Figure 13, p. 47.[85] Since that record, the rate has been steadily declining, standing at 1.26 percent in 2000, and expected to drop below 1 percent in 2016. Even the absolute number of people added to the world reached its peak in 1990 with 87 million, dropping to 76 million in 2000 and still decreasing.

Thus, in its shorthand appraisal of the state of the world since 1984, Worldwatch Institute sets out a list of problems, *all* of which have improved since then, and all but one of which have improved immensely, and one of which is just plain wrong. Not a great score for 16 years that have supposedly been meticulously covered by the Worldwatch reports. The problem, of course, is not lack of data – Worldwatch Institute publishes fine data collections, which are also used in this book – but merely a carelessness that comes with the ingrained belief in the Litany.

Such belief is also visible in the future visions of the Worldwatch Institute. After all, in their 2000 quote above, they promise us that we will face "even more profound challenges" and "unprecedented threats," clouding humanity's future.[86] These threats are often summarized in a connection that has almost become a trademark of the Worldwatch Institute, namely that the ever expanding economy will eventually undermine the planet's natural systems. In the 2000 edition it proclaims: "As the global economy expands, local ecosystems are collapsing at an accelerating pace."[87] Of course, we should like to see such an accelerating pace being documented. But Worldwatch Institute immediately continues:

> Even as the Dow Jones climbed to new highs during the 1990s, ecologists were noting that ever growing human demands would eventually lead to local breakdowns, a situation where deterioration would replace progress. No one knew what form this would take, whether it would be water shortages, food shortages, disease, internal ethnic conflict, or external political conflict.[88]

Notice, we are not being offered any documentation as to these breakdowns. Moreover, the (unnamed) ecologists are sure that they will come, but apparently "no one" knows what form this breakdown will take. And finally, creating a list as broad as above, including even internal ethnic conflicts, seems like hedging your bets, while they have an entirely unexplicated and undocumented connection to ecological breakdown.

But right after this, Worldwatch Institute gives us its main example of the breakdown, caused by an ever expanding economy crushing the local ecosystems: "The first region where decline is replacing progress is sub-Saharan Africa. In this region of 800 million people, life expectancy – a sentinel indicator of progress – is falling precipitously as governments overwhelmed by rapid population growth have failed to curb the spread of the virus that leads to AIDS."[89] To make the implication perfectly clear, Worldwatch Institute points out that this AIDS infection "suggests that some countries may already have crossed a deterioration/decline threshold."[90]

This prime example of an ecosystem collapse is surprising, to say the least. It is true that HIV/AIDS has decreased and is decreasing life expectancy in sub-Saharan Africa, and

within some states has caused shockingly great declines (this we will look at in Part II). However, is this caused by an ever increasing economy crushing the ecosystem? In one of the newest reviews of AIDS in Africa, the main cause is staked out fairly clearly:

> The high levels of AIDS arise from the failure of African political and religious leaders to recognize social and sexual reality. The means for containing and conquering the epidemic are already known, and could prove effective if the leadership could be induced to adopt them. The lack of individual behavioral change and of the implementation of effective government policy has roots in attitudes to death and a silence about the epidemic arising from beliefs about its nature and the timing of death.[91]

Equally, in a review in *The Lancet*, it is argued that:

> two principal factors are to blame [for the AIDS epidemic in the developing countries]: first, the reluctance of national governments to take responsibility for preventing HIV infection; and second, a failure by both national governments and international agencies to set realistic priorities that can have an effect on the overall epidemic in countries with scarce resources and weak implementation capacity.[92]

To put it differently, the rapid spread of AIDS in Africa is primarily caused by *political* and *social* factors. The tragedy is obvious and demands the attention and efforts of the developed world, but it is *not* an indication of an ecological collapse brought on by an ever expanding economy. Moreover, the Worldwatch Institute's obsession with pointing out how they have finally found an example of concrete decline replacing progress seems ill placed and unfounded.[93]

But Worldwatch Institute also gives us another concrete example of ecological collapse, when pointing out the dangers of complex interactions. Let us quote the entire paragraph to see the extraordinary transition from general claims to concrete examples:

> The risk in a world adding nearly 80 million people annually is that so many sustainable yield thresholds will be crossed in such a short period of time that the consequences will become unmanageable. Historically, when early civilizations lived largely in isolation, the consequences of threshold crossings were strictly local. Today, in the age of global economic integration, a threshold crossing in one major country can put additional pressure on resources in other countries. When Beijing banned logging in the upper reaches of the Yangtze River basin in 1998, for example, the increased demand for forest products from neighboring countries in Southeast Asia intensified the pressure on the region's remaining forests.[94]

Thus, the best example that Worldwatch Institute can give us of the world's unmanageable collapses is a change in timber production of an undocumented size, which by most economists would be described exactly as an efficient production decision: essentially the Chinese government has discovered that producing trees in the upper reaches of the Yangtze is all in all a bad deal, because the trees are better used to moderate flooding. Ironically, Worldwatch Institute actually claims that this logging ban is a proof that "the principles of ecology are replacing basic economics in the management of national forests."[95] The reason is that the Beijing viewpoint "now is that trees standing are worth three times as much as those cut, simply because of the water storage and flood control capacity of forests."[96] Of course, this is just plain and simple (and probably sound) social cost-benefit analysis – good economics, and not ecology.

Thus, the prominent and repeated statements of the Worldwatch Institute analyzed here seem to indicate that the Litany's claims of ecological collapse are founded on very fragile examples or merely offered on faith. (It is also worth pointing out how these quotes underline the danger of arguing from single examples and not global trends, as pointed out above.)

Of course, while these quotes show some of the strongest arguments for the Litany in *State of the World*, Worldwatch Institute offers a long list of other examples and analyses within different areas, and we shall comment on these as we go through the subjects in this book.

Reality: World Wide Fund for Nature

World Wide Fund for Nature (WWF) focused towards the end of 1997 on the Indonesian forest fires which were pouring out thick clouds of smoke over much of Southeast Asia. There is no doubt that these were obnoxious for city dwellers, but WWF stressed how the forest fires were a signal that the world's forests were "out of balance" – tidings which the Worldwatch Institute actually announced as one of the primary signs of ecological breakdown in 1997.[97]

WWF proclaimed 1997 as "the year the world caught fire," because "in 1997, fire burned more forests than at any other time in history."[98] Summing up, the WWF president Claude Martin stated unequivocally that "this is not just an emergency, it is a planetary disaster."[99] But on closer inspection, as can be seen in the forests section later in the book, the figures do not substantiate this claim: 1997 was well below the record, and the only reason that 1997 was the year when Indonesia's forest fires were noticed was that it was the first time they really irritated city dwellers.[100] In all, Indonesia's forest fires affected approximately 1 percent of the nation's forests.

Likewise, WWF in 1997 issued a press release entitled "Two-thirds of the world's forests lost forever."[101] Both here and in their *Global Annual Forest Report 1997*, they explained how "new research by WWF shows that almost two-thirds of the world's original forest cover has been lost."[102] This seemed rather amazing to me, since most sources estimate about 20 percent.[103] I therefore called WWF in England and spoke to Rachel Thackray and Alison Lucas, who had been responsible for the press release, and asked to see WWF's research report. All they were able to tell me, however, was that actually, *no report had ever existed* and that WWF had been given the figures by Mark Aldrich of the World Conservation Monitoring Centre. Apparently, they had looked at some maximum figures, and because of problems of definition had included the forests of the northern hemisphere in the original overview of forest cover, but not in the current one.[104]

From this non-report, WWF tells us that: "now we have proof of the extent of forest already lost . . . The frightening thing is that the pace of forest destruction has accelerated dramatically over the last 5 years and continues to rise."[105] The UN, however, tells us that the rate of deforestation was 0.346 percent in the 1980s and just 0.32 percent in the period 1990–5 – not a dramatic increase in pace, but a *decrease*.[106]

WWF confides in us that nowhere is deforestation more manifest than in Brazil, which "still has the highest annual rate of forest loss in the world."[107] In actual fact the deforestation rate in Brazil is among the lowest as far as tropical forest goes; according to the UN the deforestation rate in Brazil is at 0.5 percent per year compared to an average of 0.7 percent per year.[108]

In more recent material, WWF has now lowered their estimate of original cover from 8,080 million hectares to 6,793 million hectares (some 16 percent), while they have increased their estimate of the current forest cover from 3,044 million hectares to 3,410 million (some 12 percent), although their current estimate is still some 100 million hectares lower than the UN estimate.[109] This means that WWF has lowered its estimates from 62.3 percent to 49.8 percent of the earth's forest that have been lost.[110]

Still, this is much more than the 20 percent commonly estimated. However, two independent researchers at the University of London and the University of Sussex[111] have tried to

assess the sources and data used by WWF, the World Conservation Monitoring Centre and others in making such gloomy estimates of vast forest reductions. Considering the enormous amount of data, they have focused on the assessments of forest loss in West Africa, a place where WWF/WCMC estimates a forest loss of 87 percent or some 48.6 million hectares.[112] However, when looking at the documentation, it turns out to be based mainly on problematic bio-climatic forest zones, essentially comparing today's forests with where there *may* have been forests earlier. In general, the researchers find that "the statistics for forest loss in general circulation today massively exaggerate deforestation during the twentieth century."[113] The result is that for West Africa the actual deforestation is about 9.5–10.5 million hectares, *or about five times less than what is estimated by WWF/WCMC*.[114]

Finally, WWF uses among other measures these forest estimates to make a so-called Living Planet Index, supposedly showing a decline over the past 25 years of 30 percent – "implying that the world has lost 30 per cent of its natural wealth in the space of one generation."[115] This index uses three measures: the extent of natural forests (without plantations), and two indices of changes in populations of selected marine and freshwater vertebrate species. The index is very problematic. First, excluding plantations of course ensures that the forest cover index will fall (since plantations are increasing), but it is unclear whether plantations are bad for nature overall. Plantations produce much of our forest goods, reducing pressure on other forests – in Argentina, 60 percent of all wood is produced in plantations which constitute just 2.2 percent of the total forest area, thus relieving the other 97.8 percent of the forests.[116] While WWF states that plantations "make up large tracts of current forest area,"[117] they in fact constitute only 3 percent of the world's total forest area.[118]

Second, when using 102 selected marine and 70 selected freshwater species there is naturally no way of ensuring that these species are representative of the innumerable other species. Actually, since research is often conducted on species that are known to be in trouble (an issue we will return to in the next chapter, but basically because troubled species are the ones on which we need information in order to act), it is likely that such estimates will be grossly biased towards decline.

Third, in order to assess the state of the world, we need to look at many more and better measures. This is most clear when WWF actually quotes a new study that shows the total worth of the ecosystem to be $33 trillion annually (this problematic study estimating the ecosystem to be worth more than the global production at $31 trillion we will discuss in Part V).[119] According to WWF, it implies that when the Living Planet Index has dropped 30 percent, that means that we now get 30 percent less from the ecosystem each year – that we now lose some $11 trillion each year.[120] Such a claim is almost nonsensical.[121] Forest output has not decreased but actually increased some 40 percent since 1970.[122] And the overwhelming value of the ocean and coastal areas are in nutrient recycling, which the Living Planet Index does not measure *at all*. Also, marine food production has almost doubled since 1970 (see Figure 57, p. 107). Thus, by their own measures, we have not experienced a fall in ecosystem services but actually an increase.

Reality: Greenpeace

In the Danish press I pointed out that we had long been hearing figures for the extinction of the world's species which were far too high – that we would lose about half of all species within a generation. The correct figure is closer to 0.7 percent in 50 years. This led to the Danish chairman of Greenpeace, Niels Bredsdorff, pointing out that Greenpeace had long accepted the figure of 0.7 percent.[123] However, Greenpeace's official biodiversity

report stated that "it is expected that half the Earth's species are likely to disappear within the next seventy-five years."[124] The chairman has never officially commented on this report, but he did manage to persuade Greenpeace International to pull the report off the internet, because it did not contain one single scientific reference.

Norwegian television also confronted Greenpeace in Norway with this report and rather forced them into a corner. Four days later they decided to hold a press conference in which they raised all the general points which I had mentioned and reevaluated their effort. The Norwegian daily *Verdens Gang* reported:

> We have had problems adapting the environment movement to the new reality, says Kalle Hestvedt of Greenpeace. He believes the one-sided pessimism about the situation weakens the environment organizations' credibility. When most people do not feel that the world is about to fall off its hinges at any moment, they have problems taking the environmental organizations seriously, Hestvedt maintains.[125]

By way of summary Greenpeace says in brief: "The truth is that many environmental issues we fought for ten years back are as good as solved. Even so, the strategy continues to focus on the assumption that 'everything is going to hell'."[126]

Reality: wrong bad statistics and economics

There is an amazing amount of incorrect statements in many other sources. Let us just try to summarize a few, and also display the often lax attitude to economic arguments.

One of the new anxieties, about synthetic chemicals mimicking human and animal hormones, has received a great boost with the publication of the popular scientific book *Our Stolen Future*.[127] We will look at the arguments in Part V, but here we can state that the book hinges a large part of its argument on a purported connection between synthetic hormones and breast cancer. It states, that "by far the most alarming health trend for women is the rising rate of breast cancer, the most common female cancer."[128] The link? "Since 1940, when the chemical age was dawning, breast cancer deaths have risen steadily by one percent per year in the United States, and similar increases have been reported in other industrial countries. Such incidence rates are adjusted for age, so they reflect genuine trends rather than demographic changes such as a growing elderly population."[129] A 1 percent increase since 1940 would mean a 75 percent increase in breast cancer deaths by publication in 1996.[130] However, this claim is plain wrong, as you can also see in Figure 119, p. 220. At the time of writing *Our Stolen Future*, the age-adjusted death rate had *dropped* some 9 percent since 1940; the latest figures for 1998 indicate a drop of 18 percent.[131]

The *Global Environmental Outlook Report 2000* also tells us of the Earth's many water problems.[132] These we shall look at in Part IV, but when *GEO 2000* actually mentions numbers, it gets carried away. "Worldwide, polluted water is estimated to affect the health of about 1200 million people and to contribute to the death of about 15 million children under five every year."[133] However, the *total* number of deaths among children under 5 is estimated by WHO to be about 10 million.[134] Equally, the report claims that "the growth of municipal and industrial demands for water has led to conflicts over the distribution of water rights. Water resources are now a major constraint to growth and increased economic activities envisioned by planners, especially in the west and southwestern arid lands of the United States."[135] But its only reference does not even mention water constraints influencing economic growth in the US.[136]

Virtually every year, Worldwatch Institute makes much of the fact that the use of renewable energy sources grows much faster than use of conventional fuels – in the 1990s at 22

percent compared to oil at less than 2 percent.[137] But comparing such growth rates is misleading, because with wind making up just 0.05 percent of all energy, double-digit growth rates are not all that hard to come by. In 1998, the amount of energy in the 2 percent oil increase was still 323 times bigger than the 22 percent increase in wind energy.[138] Even in the unlikely event that the amazing wind power growth rate could continue, it would take 46 consecutive years of 22 percent growth for wind to outgrow oil.[139]

Likewise, the environmental movement would love renewable energy to be cheaper than fossil fuels. But using economic arguments, there often seems to be an astounding lack of rigor. Many argue simply on faith that if the costs on environment and humans from coal pollution and waste products were taken into account, renewable energy would indeed be cheaper.[140] However, three of the largest projects – one European and two American – have attempted to examine *all* costs associated with electricity production, all the way from the mortal risks of mining coal, the traffic hazards of transportation and occupational hazards of production including consequences of acid rain, soot, sulfur dioxide, nitrogen oxides and ozone on lakes, crops, buildings, children and old people and up to the consequences of tax codes and occupation plus a long, long list of similar considerations and costs.[141] And they still find the extra costs to be less than the gap between renewables and fossil fuels (see also the discussion in Part III).[142] However, there is no doubt that renewables will be cheaper in the near-to-medium future, and this will probably be a big part of the reason why we need to worry less about global warming in the long run (see Part V).

An equivalent laxness in economic arguments is obvious when Worldwatch Institute tells us that "wind power is now economically competitive with fossil fuel generated electricity."[143] However, they also tell us that in the future it is necessary that "sufficiency replaces profligacy as the ethic of the next energy paradigm."[144] But according to Worldwatch Institute this will be okay, since it is not a major cut-back: "Modest changes, such as owning smaller cars and homes, or driving less and cycling more, would still leave us with lifestyles that are luxurious by historical standards."[145] Thus, while it may be true that if we merely accept less convenience we will still be better off than by "historical standards," it nevertheless means that we will be *less* well off. Possibly, it will be a more sustainable society with a better environment, but at least the choice should be stated clearly as a trade-off.

Likewise, Worldwatch Institute wants to downplay the costs of avoiding global warming by reducing CO_2 emissions. Quoting Thomas Casten, a CEO from a smaller renewable energy firm, they point out that "the small, extraordinarily efficient power plants his company provides can triple the energy efficiency of some older, less efficient plants. The issue, he says, is not how much it will cost to reduce carbon emissions, but who is going to harvest the enormous profits in doing so."[146] However, Worldwatch Institute also envisions how in the twenty-first century "the climate battle may assume the kind of strategic importance that wars – both hot and cold – have had during" the twentieth Century.[147] Backed up by a number of leading scientists writing in *Nature*, Worldwatch Institute actually asserts that to develop the necessary technologies to combat climate change will require a monumental research effort, conducted with the urgency of the Manhattan Project.[148] It is perhaps as well to note that both the cold war and the Manhattan Project were rather expensive projects.

Reality: water problems

A lot of worries go into the question of water – do we have enough, will scarcity cause water wars, etc. In recent years water scarcity has become one of Worldwatch Institute's favorite

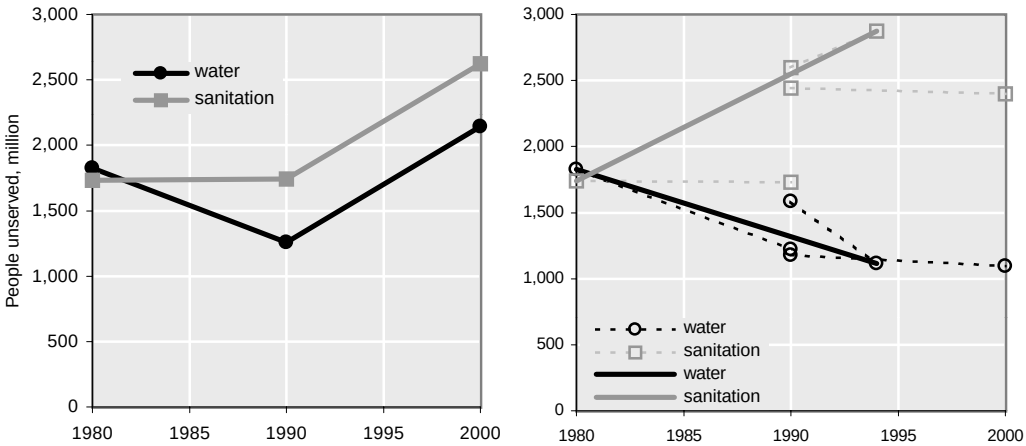

Figure 4 Two attempts at showing the development of access to clean water and sanitation. Left, number of people unserved 1980–2000. OBS: Numbers for 1990–2000 are incorrect. Right, number of people unserved 1980–90, 1990–4, 1990–2000 in broken lines. OBS: Solid lines for 1980–94 are incorrect. Source: Gleick 1993:10, 187–9. 1998:262, 264, 1999, Annan 2000:5.

examples of future problems. While we will discuss these water questions more thoroughly in chapter 13, we will here look at two of the most common claims.

One of the most widely used college books on the environment, *Living in the Environment*, claims that "according to a 1995 World Bank study, 30 countries containing 40 percent of the world's population (2.3 billion people) now experience chronic water shortages that threaten their agriculture and industry and the health of their people."[149] This World Bank study is referred to in many different environment texts with slightly differing figures.[150] Unfortunately, none mentions a source.

With a good deal of help from the World Bank, I succeeded in locating the famous document. It turns out that the myth had its origin in a hastily drawn up press release. The headline on the press release was: "The world is facing a water crisis: 40 percent of the world's population suffers from chronic water shortage."[151] If you read on, however, it suddenly becomes clear that the vast majority of the 40 percent are not people who use too much water but those who have no access to water or sanitation facilities – the exact opposite point. If one also reads the memo to which the press release relates, it shows that the global water crisis which Lester Brown and others are worried about affects not 40 percent but about 4 percent of the world's population.[152] And, yes, it wasn't 30, but 80 countries the World Bank was referring to.

However, it is true that the most important human problem with water today is not that we use too much but that too many have no access. It is estimated that if we could secure clean drinking water and sanitation for everyone, this would avoid several million deaths every year and prevent half a billion people becoming seriously ill each year.[153] The one-off cost would be less than $200 billion or less than four times the annual global development aid.[154]

Thus, the most important water question is whether access to water and sanitation has been improving or declining. Peter Gleick, one of the foremost water experts, has edited a substantial, engaged book about water, *Water in Crisis*, an erudite Oxford publication of almost 500 large pages. However, when estimating water and sanitation access, Gleick seems to stumble on the Litany, as illustrated in Figure 4.

From 1980 to 1990, Gleick makes the same general point as this book, i.e. that things have become better: fewer people in the world are denied access to water, and because 750 million more souls came into the developing countries in the same period, 1.3 billion more people have actually gained access to water. The proportion of people in developing countries with access to water has thus increased from 44 percent to 69 percent, or by more than 25 percentage points. As far as sanitation is concerned, more or less the same number of people are denied access (about 6 million more), but once again, because of the growth in the population, almost three-quarters of a billion more people have access to sanitation – making the proportion increase from 46 percent to 56 percent.[155] However, the period from 1990 to 2000 in the left side of Figure 4 indicates that things will now get worse. Far more people will end up without water or sewage facilities. In fact the proportion will again fall by 10–12 percentage points. But if you check the figures it turns out that all Gleick has done is to expect that 882 million more people will be born in the nineties. Since none of these from the outset will have access to water or sewage facilities their number has simply been added to the total number of unserved.[156]

Of course, this is an entirely unreasonable assumption. In essence, Gleick is saying that in the decade from 1980 to 1990, 1.3 billion people had water supplies installed, so we should assume that for the period 1990 to 2000 the figure will be *zero*? However, the graph has been reproduced in many places, and has for instance been distributed in a seminal article on the shortage of water.[157]

In 1996, the UN published its official estimates for access to water and sanitation in the period 1990 to 1994.[159] What constitutes water and sanitation access is naturally a question of definition. (How close to the dwelling need a water pump be? Is a hole in the ground sanitation?) In 1996, the UN used its most restrictive definition of access on both 1990 and 1994.[160] This caused the UN estimate for the 1990 number of unserved to increase substantially.[161] Thus, in the right-hand side of Figure 4 we can see how the number of people without access to water in 1990 was no longer 1.2 billion but 1.6 billion, now declining to 1.1 billion in 1994. Equally, the number of people without sanitation was not 1.7 billion but 2.6 billion, increasing to 2.9 billion in 1994. Gleick gives us both sets of numbers in his academic book,[162] but when presenting the evidence in a popular magazine only the original 1980 and the revised 1994 figures are presented.[163] This, of course, compares two entirely non-comparable figures. It suggests that the decline in the number of water-unserved has been much smaller than it really is, and suggests that the increase in sanitation-unserved has been much higher than it really is.

In April 2000, the UN's latest estimate for 1990–2000 was published, indicating that unserved of both water and sanitation had indeed declined over the decade.[164] Since the decade added some 750 million people to the developing world, this means that more than three-quarters of a billion more people got access to clean drinking water and sanitation. Thus, the share of people with access increased substantially. In Figure 5 you can see how the share of people in the developing countries with access to drinking water has increased from 30 percent in 1970 to 80 percent in 2000. Equally, the share of people with access to sanitation has increased from 23 percent in 1970 to 53 percent in 2000.

Although there is still much left to do, especially in sanitation, the most important water problem is indeed improving.

Reality: Pimentel and global health I

Most basic environmental research is sound and unbiased, producing numbers and trends as inputs to evaluations such as Worldwatch Institute's *State of the World* or indeed this

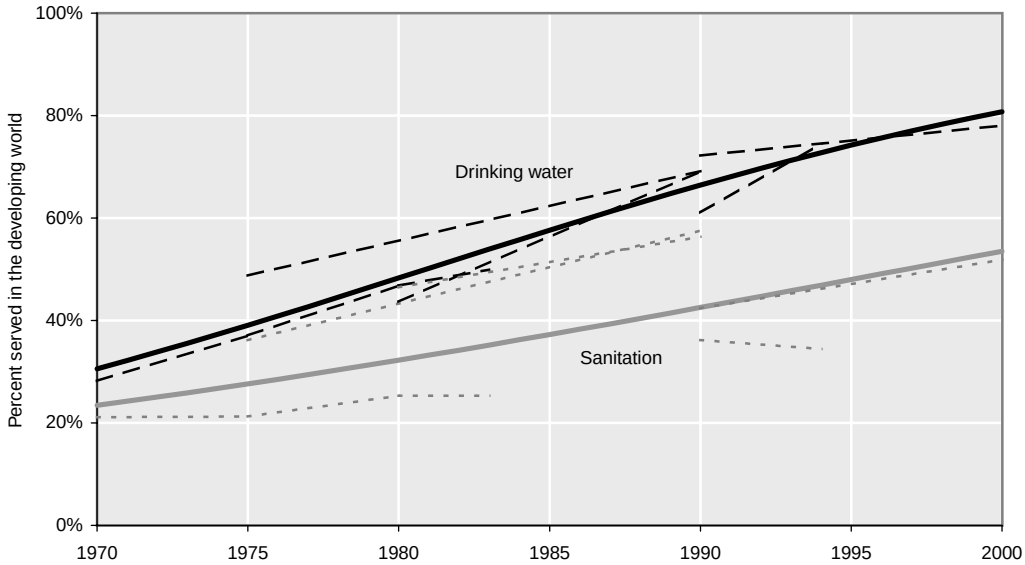

Figure 5 Percentage of people in the Third World with access to drinking water and sanitation, 1970–2000. Light, broken lines indicate individual, comparable estimates, solid lines is a logistic best fit line – a reasonable attempt to map out the best guess of development among very different definitions.[158] Source: World Bank 1994:26 (1975–90), WHO 1986:15–18 (1970–83), Gleick 1998:262, 264 (1980–90, 1990–4), Annan 2000:5 (1990–2000).

book. However, there is a significant segment of papers even in peer-reviewed journals trying to make assessments of broader areas, where the belief in the Litany sometimes takes over and causes alarmist and even amazingly shoddy work. Most of these poor statements are documented throughout this book, but nevertheless it might be instructional to take a look at the anatomy of such arguments. As I do not want just to show you a single example or pick out a lone error, but to show you the breadth and depth of the shoddiness, we will actually have to touch a number of bases that we will return to during the book.

Professor David Pimentel of Cornell University is a frequently cited and well-known environmentalist, responsible – among many other arguments – for a global erosion estimate far larger than any other (we will discuss this in Part III) and for arguing that the ideal population of a sustainable US would be 40–100 million (i.e. a reduction of 63–85 percent of the present population).[165]

In October 1998, Professor Pimentel published as lead author an article on the "Ecology of increasing disease" in the peer-reviewed journal *BioScience*.[166] The basic premise of the paper is that increasing population will lead to increasing environmental degradation, intensified pollution and consequently more human disease. Along the way, many other negative events or tendencies are mentioned, even if many have very little bearing on the subject.

The Pimentel article repeatedly makes the mistakes we have talked about above, but most importantly it is wrong and seriously misleading on all of its central conclusions. However, this has not hindered the article in being cited and frequently used in pointing out the decline of the world.[167]

When looking at trends, Pimentel happily uses very short-term descriptions. He looks at the biggest infectious disease killer, tuberculosis, claiming it has gone from killing 2.5 million in 1990 to 3 million in 1995, and citing an