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Resources and Environmental Policy
Jan Narveson

Summary:
This paper is a partly empirical and partly conceptual inquiry into the notion of Resources. Current “Environmentalists” evidently think of resources as natural, identifying them with quantities of stuff — oil, say, or land. And they suppose that such resources must be finite in amount and therefore scarce, so that when we use any of these we leave less left — less for others. This way of thinking is, I argue, entirely wrong. Resources for people are not finite; they expand with human thought and effort, without upper limit. There are no global shortages of anything that we have to worry about, nothing requiring the imposition of extra-market controls on our use of the stuff of the world. All environmental policies based on such premises are consequently ill-conceived, and bound to work only harm.

Introduction
No one needs to have it proven that the big news these days is The Environment. People are persuaded that we are “endangering the planet”; walls are decorated with “I Love the Earth” or “Every Day is Earth Day”, and so forth. Canada has put out a “Green Paper”, detailing lots of expensive legislation allegedly designed to “protect the environment”. Styrofoam cups are the object of derision (and, of course, restrictive legislation); DDT has long since been stricken from the list of available resources; a pound of pcb is worth half a million dollars of politically-engendered expenditure. And we have been told for decades that the earth is finite, that resources are limited, scarce, that there is danger of a “population explosion”, about which we must “do something”; and so on.

We cannot take on all of this at once here, but I shall devote attention in this paper to one very major — indeed, in obvious ways, the major— assumption underlying all this, namely, the claim that natural resources are scarce, fixed, finite, limited. From this premise all sorts of interesting and important conclusions are drawn. The most important, perhaps, from the general human point of view is the inference that population “problems” threaten us, and thus that we need to restrict population growth. This translates especially, in current circumstances, into policies that could easily look, to the impartial observer, pretty racist: for the “we” who need to do the restricting, and the “populations” that allegedly need restricting turn out to be quite different in racial respects: of course it is we enlightened middle-class white folks in the rich countries who need to do something to impose restrictions on the supposedly burgeoning populations of the unenlightened brown, black, or yellow folks.

By way of counterbalance to this racist-looking tendency, there is ample room for upper-middle-class hair-shirtism as well — in the end, we are impartially hard on everybody, on balance. For it is often claimed that there is a horrendous “imbalance” between, say, the North and the South. Thus I have heard it said that Canada, the per capita most energy-use-intensive country in the world, uses something like 40 times the energy per capita that India does. Those who point this out seem to think that something important follows from this — not that the Indians could maybe use a bit more, but rather that we need to use quite a lot less. And why? Because energy is “finite”, limited, and so more for us is less for them, which is thought to be unfair.
I shall not discuss here the subject of whether it would be unfair even if it were true, since my main interest in this is to persuade you that it is not true. That people's reasons for thinking it is true rest partly on ignorance of fact, but far more on conceptual confusion, propelled by politically-engendered boondoggling.\(^1\) Admittedly the realm of facts used to be thought to lie beyond the province of us Olympian philosophers — we were not to sully our hands with such things. While there is still some reason to think something of the sort, we should draw the line at levels of ignorance that leave us out of touch with reality, which is the situation today in regard to matters environmental. Besides, typically philosophers have taken this plunge. It's too late to retreat to pristine a priorism.

But the main burden of this paper, which is addressed not just to philosophers’ but to all those who are currently involved with these issues, is the conceptual point about the nature of resources.

One cautionary note. My paper, as befits a philosopher, concerns the global situation, the situation for humankind at large and the whole planet on which we live. Scarcities for particular people and groups of people are, of course, a fact of life and always, indeed necessarily, will be. Part of the object here, indeed, will be to define, or rather, since it's so simple a matter to do so, to remind us of the meaning of the notion of scarcity. But today we are told on all fronts that it is indeed the world that faces scarcities. It is that claim that I wish to lay firmly to rest. In the senses in which these claims are put forward, they are all false.

This is very good news for us humans, though for some reason it seems to fall very unwelcomely on intellectuals' ears these days. That is one of the reasons I am discussing this. The other is that it is extremely important for policy at all levels: personal, local, provincial or state, national, and global. Wrong assumptions about this matter make a drastic difference to our lives, and on a reasonably liberal and humane normative perspective, the differences made by errors on the matter are all very much for the worse.

### Natural Resource Scarcity: The Argument

In general reaction to most of the global environmentalist fearmongers, I shall propose in this essay a general theorem about resources. To explore this, let us look at what would have to be shown by the pessimists. Their standard form of argument must go something like this:

1. There are particular kinds of natural resource, \(X\), such that people require some amount of \(X\) in order to live [or – a critically important variant – to live at such-and-such a “level”];

2. Resource \(X\) is finite;

3. Therefore, Resource \(X\) is scarce;

4. Therefore, “we” must do something – before it’s too late.

The conclusion, (4), is invariably of the form that collective, politically imposed control over the relevant population [the world's, ours, or whichever is in question], and/or that population's consumption of \(X\) — is called for, and soon, before people start dying in droves (or their “quality of life” declines below the threshold implicitly or explicitly
The argument in form seems plausible, and has proved remarkably seductive. I am myself among those formerly seduced: in my own earlier work on population questions, abstract though it was, I assumed that some such argument must be sound: that there are at least some values of X, relevant to the argument, for which some such conclusion holds. But it is wrong. It is wrong in fact, and, more importantly for high-level policy purposes, it is wrong in principle. Specifically, I shall argue:

1. Its opening premise, for all interesting and relevant values of X, is simply false.

2. The reasoning from premise (2) to premise (3) is fallacious: scarcity just does not follow from finitude. Even for many important specific types of what are currently considered resources, indeed, finitude is perfectly compatible with the resource being empirically unlimited, in relation to any feasible level of demand, extending indefinitely into the future.

3. It is wildly off in its third premise, that resources are (globally) scarce in any sense that would support the conclusion; it is empirically refuted at every turn of the clock, for reasons of a very general and fundamental type, of interest to social theorists.

4. The fourth claim wouldn't strictly follow even if the first three were true; under the circumstances, of course, it is essentially irrelevant.

Conclusion: insofar as the conclusion of this argument is thought to follow from the types of premises considered, it should be rejected. There are other and darker reasons why people would want to limit other people's family sizes, consumption of various things people enjoy, and so on, but they are not the immediate concern of this essay. Let us now proceed to detailed analysis.

1. First Premise: On being “necessary”

The opening premise is crucial: that there are at least some resources to which the rest of the argument applies, some specific kinds of things which are essential to life, or at least to a “decent” life or a good one. And it does seem plausible at first glance. Don’t we require food and water, say, and surely living space? Of course, we do. But none of these is necessary for life, or for life at any particular “level”, in any sense in which it is either inherently or in any relevant sense, “scarce” or even finite, in practical terms. Air, for instance, is actually a source of oxygen, which in a pinch can be supplied independently of “air” – witness astronauts and deepsea divers, etc. Water is perhaps irreplaceable but, as we will see below, not even in fantasy “scarce” on a global level. Food is, of course, necessary: however nature does not contain any “food”. All it contains are things like apples, mollusks, yaks, and a very few, very primitive (and no longer much used) varieties of certain grains. No one of these is “necessary for life”. Indeed, if nutritional needs is what we are talking about, then probably all of them, even now, could be met by wholly synthetic substances, just as probably all of them now are met, for most people we know,
by specific substances which never existed prior to a century ago — e.g., specific varieties of grains that never grew in the wilds but were created by geneticists and agricultural biologists.

The point here is that as regards specific substances — the only things that there are — few if any of them can plausibly be regarded as essential to life, either "quantitatively" or at any "quality" level you might wish to specify. Of course there are normative issues kicking around here. You can always find some enthusiast who insists that you "haven't lived" until you've tried X, where X ranges over Wheaties, *paté de foie gras*, Single-malt Scotch, the string quintets of Mozart, and no end of other items. Need I say more?

**Minima and Decency**

The first premise is made to look more plausible by insisting, not on the minimum level of X needed to keep a human life going at all, but on the minimum needed for a "decent" or "acceptable" level. Of course as soon as you get into this, you are into highly debatable and subjective matters. American welfare cases have income levels that would be the envy of any but upper-class Pakistanis. Yet lower class Pakistanis exist, have lived for thousands of years. Not too many theorists in the West are quite arrogant enough to say that we should go and exterminate all those below-the-minimum low-lifers, but a surprising number of them seem to think that it is nevertheless our moral duty to prevent them from coming into existence in the first place. Why?, one might ask. (We'll return to that point later.)

Meanwhile, I will shortly go farther out on my limb and propose that there is no minimum level high enough to make the argument go through.

**Substitution**

One main general point in respect to premise (1) is that for any actual specific substance you can name, call it X — we can do without X just fine, by utilizing something else, Y, instead. And the availability of Y depends, for all practical purposes, entirely on technology (which, of course, also requires human energy) and scarcely at all on the existence of definite quantities of particular natural substances. With the very doubtful exceptions of water, air, and space, there are no other instances in which premise (1) holds true at the global level. And in the case of water, air, and space, substitution (depending on what you count as a "substitute") is unnecessary, as will be detailed below, since they are in no relevant sense "finite" anyway.

**Finitude**

Plato loved mathematics, and philosophers have always been greatly impressed by mathematical notions, among them the notion of the 'infinite' and hence the 'finite'. But when we are arguing about resources, the fact that the number of cubic meters of this or that is not infinite, which is near enough to being a necessary truth anyway, is obviously not relevant. A resource is relative to a use. The word 'resource' is incomplete: to be a resource is to be useful for some purpose. When it is said that "resources are finite", it is of no relevance to point out that the available quantity of a given substance that currently supplies the demand in question is measured by what mathematicians call one of the "natural" numbers. What matters is whether it is realistically conceivable that we might run out of the stuff some day. If a resource is adequate to any realistically possible need, then
it is not *relevantly* “finite”. ‘Finite’ should, in these contexts, imply ‘potentially scarce’, on some reasonable criterion of scarcity (as will be discussed in the next point): that some stuff is in the out-and-out mathematical sense finite is of no interest for present purposes. No argument whose premise is merely that something or other is “finite” is, as it stands, capable of supporting any of the interesting conclusions we are looking at here.

**From Finitude to Scarcity?**

We drink water in at one end — but then, out it comes at the other (and through our pores and in our breath). Clean it up, and it’s all ready to be used again. And again, and again. (The astronauts are a particularly high-tech instance.) The amount of water in the world is, of course, “finite” (though immense). But in global terms, it is in no interesting way “scarce”. It can be very scarce at certain points in the Sahara if you are an ill-prepared traveller, to be sure, and the cost of supplying clean water for populations with fabulously high standards of cleanliness in such matters, such as ourselves, may sometimes go up for awhile. But globally? It’s just not going to happen.

The same is true of food and air (more details below). In goes the food at one end, and out the other comes fertilizer and materials for replenishing the earth. The earth’s “biomass”, as the current jargon has it, does not decrease. Astronauts live in a closed-cycle environment: 100% of what they take in is converted into reusable food, water, and air. For us terrestrials, resources are, at the global level, *infinite in relation to any conceivable demand*. Finitude does not entail scarcity.

The same analysis, more surprisingly, applies to those more specific, less .. essential” resources of which we are so fond: iron, oil, copper, gold, you name it. To a considerable extent, of course, these too are reusable and recyclable. More important, as has already been noted, is that they are *indefinitely substitutable*. Who can straight facedly claim to know what people’s houses, means of transportation, and so on will be mostly made of 100 years hence? Perhaps interesting to the philosophically inclined is that, given enormous amounts of energy, we could probably literally *make* all of these substances if we really wanted to: new and far more sensible versions of alchemy have turned out to be distinctly possible, as has the production of new plants and animals by selective breeding and by genetic splicing. But for the foreseeable term, it is unnecessary, because in fact we are not anywhere near to running out of anything, even with present technologies. Nor will we be. Ever.

With regard to these other sorts of resource, there is a further basic reason why ‘finite’ doesn’t entail ‘scarce’: it is that we learn to use these substances *more efficiently*. We get more miles per gallon, more bridge per ton of steel, and so on. If the rate at which we dig into the earth’s resources declines even as we make more and more things with those resources, then of course the picture of a supply that is dwindling remorselessly already begins to lose its ominous quality. Technology, in other words, is again the essential catalyst. And technology is, of course, driven by the market. (It is also, as we will be emphasizing further below, in principle literally unlimited.) The very fact that a specific resource is getting harder to come by spurs research on how to use them better or avoid them and use something else. And the research is always successful—a fact which should be quite unsurprising.

**3. Scarcity**

Some basic resources are not in any sense even finite, not even potentially scarce.
What about the rest, though? Aren't we running low on some resources, such as oil, copper, iron? And what about food? Isn't there starvation? Isn't there reason for concern? The short answers to these questions are, again, negative. We are not "running low" on anything, and there is no reason to think that we will, either sooner or later. And the kind of concern we need to have about starvation has nothing to do with global scarcity — at least not of food. Brains, decency, political savvy, yes — but not food itself or the means to produce it.

Here are a few broad empirical points regarding some major cases, to buttress the analysis.

**Food**

People just love to prophesy that we are running short of food, even as the surpluses mount skyward in those countries foolish enough to subsidize its production; indeed, those same countries often resort to paying their farmers not to grow crops on their agricultural land. (Yet the Government of Ontario is so shortsighted as to impose severe restrictions on the conversion of "prime agricultural land", which Canada with its trivial population needs like another hole in the head, to residential area, which it can really use, or commercial, manufacturing, sports, and other uses. It's billed as "far-sighted", of course. But as the number of acres needed to grow a given amount of food declines year after year, and the amount grown continues to mount anyway, this is an odd sort of "farsightedness" — it consists in staring fixedly backwards on the technological front, and of course averting your gaze from the expressed interests of mere people.)

Food is, of course, locally scarce in countries foolish enough to keep food prices artificially low, and heartless enough to block entry to the mountains of provisions so readily extended by generous wealthy nations. Coercive restriction of agricultural prices, as in Nicaragua and various African countries, provides highly efficient disincentives to their farmers, and outright starvation can indeed result, especially if you then turn loose plenty of well-armed troops to drive people from the land they know how to farm to land they don't. But that is no reflection on the capacity of either the land or the farmers in those countries to produce food. And the cure for it is by now utterly obvious: don't do it. Let farmers and consumers agree on their prices, i.e. let the food production and distribution system be market-driven, and those farmers will cheerfully supply the demand.

All of the actual starvation in the world, since the first half of this century, has been due to politics, and some of it to poor management and technology as well. None of it can be ascribed to globally limited resources (and almost none even to locally limited resources). And this too is unsurprising, again for essentially the same reason. Basically, as I say, the food that goes into us at one end and comes out in different forms at the other converts, by assorted familiar processes, back into food. It is an inherently recycled class of products. Malthus was wrong in principle.

**Land**

People talk of a finite and supposedly dwindling supply of agricultural land, or of fertilizer, and the like, and infer that doom awaits the unwary. Part of the problem with such arguments is conceptual, and we will take that up a little later. But for the moment consider that on recent estimates, enough food can be grown to supply the minimal nutritional needs of an average human on a mere 27 square meters of earth — about the
size of the average living room for a “bourgeois” homeowner. If my mathematics isn’t too
far off, then at this best-currently-possible output, that’s enough to feed 37,000 people
with the output from one square kilometer (or close to 100,000 per square mile). At that
rate, the entire current population of the world could be fed on an area the size of, say,
New Brunswick — one of Canada’s smallest Provinces. If we suppose that even 1/4 of
that efficiency is pretty realistically possible on good farmland, then to feed everyone in
the world nowadays would require an area roughly the size of the State of Kansas. With
hydroponic farming technology, now beginning to come on stream, food output per unit
could beat that by a wide margin. And there is no limit to this process. You have to keep your
head very firmly fixed in the technological sand to mouth Malthusian slogans about food
production in the face of what we now know — not to mention what we will know in the
future.

Obviously much agriculture is currently far less efficient than that. But the doomsayers
need to be talking about necessary limits — about resources being inherently so limited as
to pose serious obstacles to sustained development, even at (mere) current rates. They
should be told that both their figures and their reasoning are wildly off base. The intrinsic
capabilities of known resources even with current technologies are so far beyond
requirements that talk of scarcity of resources in this connection is, to put it bluntly, in
cloud-cuckooland — as the facts keep on confirming. Agricultural production goes up
and up, at a pace in advance of population; so does industrial production of all sorts (and
would far more still, if the human resources siphoned off into the administration of
programs designed to repress it were instead utilized for its further enhancement).

Here’s a lovely example of what people who are bound and determined to find a crisis
around every corner will say about this matter. Anne Ehrlich tells us that “between 1950
and 2000, acreage of land planted in grains per person worldwide will have shrunk by
half. Nearly all the 2.6-fold increase in grain production since 1950 has come from
increasing yields (production per acre).” But supposing that she wasn’t wrong about that
situation (as she is), just what is supposed to be wrong with that? She doesn’t say —
despite the obvious inference from what she does say. For the population of the world
has not increased by anything like 2.6x since 1950 (it’s more like 1.4), so that in fact the
amount of food available, on a per capita basis, has greatly increased. So even if her “facts”
about the absolute amount of farmland available were correct, what her claims would
imply is that acres of farmland available is becoming increasingly irrelevant, since humans
can take care of their needs for food admirably on a decreasing amount of land. Her facts
are wildly off anyway — acreage under cultivation has increased steadily over the past
century and is still doing so; but even if they weren’t, why would it matter, so long as we
can extract more from a given acre, and our capacity to make an acre yield more can
reasonably be expected to continue? After, there is no reason why the food supply per
person should keep expanding: individual people are not expanding at exponential rates,
after all — why should their food supply? (If anything, Americans and Canadians are
struggling to keep their food intake down!) Alas, Ehrlich’s report is no worse than most.

Living space

If we think in terms of units of space on the surface of the earth, then let us concede
abstractly that this is in principle “finite”. But again, no conclusions follow. For one thing,
most living space nowadays is not on the ground. And there is no literally obvious limit
to the height to which buildings can be built, thus accommodating many more people
on the same area of the earth’s surface. When a one-hundred story apartment building
comfortably housing 40,000 people could be built on one acre of land, the meaning of the claim that living-space is limited becomes exceedingly unclear. Recall that the term ‘finite’ in these contexts must be interpreted in a relevant manner: if a resource is adequate to any realistically conceivable need, then it is not relevantly “finite”.

As regards “lebensraum” for people, scarcity in any case is strictly academic. Julian Simon points out that one million people were said to have gathered at once in Tiananman Square in Beijing. At that density, every last one of the one billion Chinese could stand in an area smaller than the city of Beijing alone — and it occupies a minuscule percentage of the whole area of China. For that matter, the entire population of the world could stand in the area occupied by my own modest conurbation in Ontario (ca. 300,000 occupants at present). Of course we don’t want to be standing elbow to elbow on the earth. But there is no humanly conceivable scenario in which people would multiply to that extent, making the point utterly academic.

One of the most densely populated countries on earth is Holland. If the whole inhabitable part of the earth were populated as densely as it, there would be more than fifty billions of us — a figure which there are excellent and familiar reasons to think will in fact never be reached in any case: in all of the “advanced” countries, natural population change from live births is negative and has been for years. Yet in Holland there are lots of open spaces, forests, meadows, fields full of flowers, plenty of purely ornamental (non space-efficient) buildings, walks, and so on. Talk of a world population that is “burgeoning out of control”, with catastrophe around the next corner or so, is simply out of line with reality. The fact, in short, is that the present population of the world could increase tenfold and it would still not be “overcrowded” in any interesting sense of the word. Since there is little reason to think that it will do anything of the sort anyway, there is no “space issue”; it is a non-issue. The case for imposing artificial restrictions on population growth from limited global resources of either food or space is, in short, nonexistent.

Other Resources

When people think that things are scarce and must get scarcer, their argument is probably about a scarcity of something else which they suppose is essential to the production of food: not only land, which we have just discussed, but fertilizer, say, or water, or the energy necessary to desalinate or otherwise clean up the water, or something else. It is for this reason that I address the argument in terms of “all interesting values of X”. What makes a value of X interesting for this purpose is that it is at least in principle plausible to regard it as finite in a sense sufficiently robust to get the rest of the argument off the ground. Iron, for instance, or oil, or whatever, are sometimes claimed to be in such a state of insitu supply that the world must expect serious shortages in the foreseeable future. We can then formulate my “theorem” concerning resources: namely, that in regard to all such resources, the premise of this argument concerning “scarcity” is always false. There are no relevant global scarcities for this purpose. Arguments based on the contrary are utterly unsound.

Energy

When any particular resource begins to run short or become more difficult to get, substitution of some other resource usually requires an input of energy, and in any case we do — thus far! — need energy for heat and the like. And pundits have been quite hyperactive about predicting energy scarcities looming before us, unless we adopt a more
primitive lifestyle quite soon. It is useful to appreciate that they are entirely wrong in all such predictions, and that there is from the point of view of resource availability no reason for concern. There's only the same old familiar reason that each of us always has, and always will have, to economize on our use of resources so that we can have more money to spend on something else. But energy is an especially useful example to illustrate the need to be clear about what scarcity is. We turn to that first, and then present some points about energy sources and resources.

Assessing Scarcity: Two Conceptual Approaches

Scarcity is a relative notion, for one thing: a thing is scarce in relation to need or interest – to what economists call demand. And it is also, of course, quantitatively variable. Things aren't just "scarce" or "plentiful", but rather, they are more or less scarce. But what measures that?

Here I am indebted (even more than elsewhere) to Julian Simon's revelatory discussion of these matters. Simon distinguishes two ways of "measuring" resources: the "technological", and the "economic". (UR, 15-41)

1) The technological method consists in trying to come up with a figure purporting to represent the quantity of a certain kind of stuff left in the earth as a whole, such as crude oil.

2) The economic method, on the other hand, consists, much more simply, in noting price trends for the resource on the market. (To do this, of course, you have to have a market; if "prices" are strictly artefacts of the prevailing government's ideology, then they may imply nothing much about real supply. Luckily, all major commodities are now on world markets, so that no matter what some benighted country may do, it can't keep prices from telling their story.)

When headline-writers, politicians, and environmentally-inclined philosophers talk of scarcity, they invariably produce forecasts of the first, or technological sort. There turn out to be excellent reasons why this procedure is certain to do little but obfuscate the issues. For purposes of global resource estimation — the primary purpose for which doomsday-scenario writers use them — such reports are essentially useless. Here's why.

First: no technologist, no expert, knows now or will in the foreseeable future know what is supposed to be at stake here, namely, the absolute amount of oil, iron, gold, and so forth left in the earth as a whole. Simon gives just one small but extremely pregnant example of the problem here: In assessing copper resources, do we count the copper salts dissolved in the sea? (UR, 31) We can add to that from familiar cases. Is oil from shale and the Athabaska tar sands to be included in the amount of oil left? What about alcohol that can be made from grains, or gasoline from coal? Grain is an open-ended resource — we can grow an indefinitely large amount. Given what has already been said about food production, this means straight off that there is no practical upper bound to the amount of liquid fuel the world could avail itself of. Coal? That is already known by technological methods to be so plentiful that the earth's supply would last millenia even at current rates of consumption, even without the more efficient utilization that is no doubt possible and is improving daily.

The mention of efficient utilization brings up another subject of crucial importance
here: namely, the method of extraction - mining, say. To illustrate the point here, let's look at attempts at technological estimates of the amount of liquid oil “left”. Well, left how? That is, remaining to be extracted by which means? Even estimates of what is retrievable by current normal technologies vary enormously from one interested party to the next - depending, it seems, on what they are trying to prove. To take a typical but striking example, mentioned by Simon: the U.S. Geological Survey used a definition of recoverable crude oil that includes only what can be brought to surface at atmospheric pressure [UR, 106]. But a writer for *The Wall Street Journal* (Joseph Barnea) pointed out that if instead we count what can be forced to the surface at higher pressures, the figure would rise by a factor of 100! [UR, 369] So which of those two estimates would we use? Since the technology for extracting at higher pressures already exists, it comes down to whether you want it enough to pay more for your extraction equipment. Of course, the prices of all manufactured products decline steadily with increasing use, so that even the price of oil by these new methods will be even lower in real terms than it was before.

Irresponsible people not long ago waved figures in the decades regarding the time left before the “supply” of oil we have left is exhausted. Even as regards holes already drilled, those are known to have been ridiculously pessimistic. (The U.S. Geological Survey, after seeing “little or no chance for oil in California”, prophesied the same for Kansas and Texas in 1891.11) But nobody knows how many more holes one could drill, or how much deeper we could go for more of same, and so on.

Most importantly, as will be emphasized below, everything depends on the growth of technology. But that cannot in principle be predicted in a relevant sense, other than to note that all trends are extremely “up”. Thus, “technological” estimates and forecasts should be regarded with extreme distrust. Until we know precisely which technology is being assumed, precisely what limitations on the relevant locations being considered, what “grade” of natural substance we are talking about, and so on, anything said will be too misleading to be of any use. Most importantly of all, the one assumption we need to make to come up with any estimates of this type is known to be always false: namely, that nothing will happen in the future to change the situation. But it is in principle impossible to predict that technology will cease to develop, and of all the things that have been consistently expanding in the past, it tops the list by a very large margin.

Energy is among the most substitutable of resources, of course, and it is especially this that grounds complete confidence in the unlimited nature of this resource. Will the easy oil run out, a dozen centuries or so down the pike? Even if it will, there’s electricity, which can be generated from various sources – water, uranium, coal, and so forth. Eventually, we may safely conjecture, there will be a way to obtain energy from hydrogen fusion as a source for electricity, and when that happens, nobody will be able to talk meaningfully of scarcity. However difficult it has proven so far, it would be rash to predict that human ingenuity will never effectively harness this unlimited resource.

Bear in mind, by way of concluding this section, that whatever the precise truth may turn out to be regarding anything in this area at any given time in the future, it will be to the effect that we have even more than we thought. What we know at any given time is that relative to current methods, we have such-and-such an amount. What we don't know, because we can’t, is how much more there absolutely is. And what we have every reason to believe is that it will in general be vastly more than anybody thought. (For one small example: The amount of copper estimated to be retrievable by current techniques, after twenty years of heavy and increasing use, was 179% in 1970 compared to 1950.)

The other way of forecasting is the “economist’s” way, which consists simply in noting general price trends over reasonably long terms. Prices, of course, fluctuate locally and
globally for various reasons. But longer-term prices of commodities relative, say, to the
typical income of a working-class family do give us a useful measure. If over the long term
prices in those terms are declining, then there cannot be real scarcity; scarcity cannot
be increasing if prices are decreasing on a free market. For the owners of resources will
hold out for the highest price they can get, and if quantities available decline relative to
demand, then prices must go up. Moreover, if the prospects in the nearish future were
for restricted supply, people would invest in futures for such products.

But the fact is, that they have gone down. All of them have, over the years, as Simon
details. Not just computers, CD players, and so on, but also coal, iron, oil, electricity —
you name it, and a curve drawn over many decades shows a decline. The supply of
resources available to satisfy our various desires has in fact been increasing, right along
with the increase of population and the rest. It’s been increasing for hundreds of years;
it is still doing so; and there is every reason to argue, as Simon does, that this can continue
indefinitely. There is, in sum, no problem of scarce natural material resources, no clear-
eyed view of the future showing only blackness and its attendant support for imposed
restrictions.

Resources and Technology

A further and more “philosophical” reflection on the nature of resources is now in
order. Let us ask: What does it mean to say that resources “exist”? Are there kinds of
material entities which just simply are, as they stand, resources? It is quickly apparent on
modest reflection that the answers to these questions are almost entirely negative. A
deeper look will persuade you that they are in fact entirely negative.

Whether something is a resource depends on two things: (1) whether there is a
demand (a need, an interest, a positive valuation by someone) for what can be made out
of it; and (2) whether somebody knows how to make things that satisfy that demand out
of that stuff. The two factors are by no means independent. We don’t generally
“demand” what is known to be unattainable, and of course, as Marx and others observed,
we do come to demand what newly becomes attainable despite being previously
undreamed of. We develop technologies because we have a fairly good idea what people
do and will want. We can view technology, and therefore, of course, the people who do
the thinking and research necessary to produce it, as itself a resource, and if we do, then
of course it is by every rational measure the primary resource of them all — as Simon puts
it, the “ultimate” resource.

Moreover, we may think of another aspect of all this as either part of the same resource
or an additional resource: namely, the moral “software” of society, which enables people
to get ahead instead of having to devote all their resources to defending themselves from
those who would invade and despoil them, or more recently, impede and frustrate their
efforts. We will return to that theme later.

Meanwhile, it is instructive to see how people think of this human factor in
production. In 1957 and 1962, two researchers, Robert Solow and Edward F. Denison,
attempted to “calculate the extent to which the growth of physical capital and of the
labor force could account for economic growth in the U.S. and Europe.” As Julian Simon
observes, “both found that even after capital and labor are allowed for, much of the
economic growth ... cannot reasonably be explained by any factor other than an
improvement in the level of technological practice.” [UR, 1971] If anyone is impressed
by this finding, then he or she is one of the people I want to talk to. For anyone who
regards this claim as just one more question of fact about an economy has simply not
thought very deeply on this subject. Let us see why.

Economic growth is growth per capita. (Any concern with “GNP” that neglects to relate it to that though it is often enough done – are absurdly nationalistic. Those who attach significance to such gross figures evidently conceive it to be the point of an economy to promote the wealth of “the nation” rather than of the people in it. This silly view might appeal to budding demagogues, but not to thinking people.)

Once we accept that, then to speak of “growth of the labor force”, as such, is absurd, unless what is meant is that a higher proportion of the population is doing “useful” work. For after all, 100% of a population is its maximum “work force”, and almost all of us are doing something all our waking hours, something to keep body and soul together. So if we say such things as that the “work force” in a particular group of people has “expanded” or “contracted”, then we must be thinking that work consists in employment for pay. By that reckoning, persons who live without going through the medium of money to do it aren’t counted as part of the “work force”. Still, a lot of those people quite likely work as hard as “employed” people, and make enormous “contributions to the economy” – “nonemployed” housewives, etc. My mother, busy from mom til night seven days a week throughout my youth, didn’t “earn” a dime during the twenty-some years during which she raised five children. A ‘labor force’, in other words, can only grow per capita if we narrow the definition of what is to count as “work” in an irrelevant way.

What is relevant to economic growth, then, is exclusively that more of the services people want are performed with the same (sized) fundamental work force. And that means growth of technology, in the broad sense of “know-how”, of humans coming to know ways of getting more output from the same input of time and effort.

Of course it also means growth of capital. But growth of “capital” is the growth of means of production which can only coherently be said to “grow” if the resulting product per worker is greater; and that can be affected only by technology (including good management practices). “Means of production” only are such means by virtue of the technology embodied in them. A huge and potentially highly efficient plant for manufacturing airplanes, say, will lie idle if nobody knows what to do with it.

When we think about it, then, we realize that there is nothing else that counts. Technology determines whether a given piece of capital equipment is a productive resource, just as it determines whether a given material substance is a resource at all. At the present time, the most important purely material resource there is, apart from food, water, and air, is probably sand! For that is the material component of the microchip. It also happens to be a substance that is unlimited in relation to possible demand — indeed, not customarily regarded as a “resource” at all.

So easy is this to overlook that I think we need a name for the tendency to overlook it. I shall call it the “Materialist Fallacy” — the tendency to identify resources with stuff, matter. A good example is found in that wonderful phrase of Robert Maynard Hutchins, former chancellor of the University of Chicago, who noted the ease with which you can get wealthy people to donate money for buildings on which their names can be inscribed, as compared with the difficulty of raising money from those same people to found the activities that are the sole point of the buildings in the first place. This he called the “Edifice complex”. It’s just one more instance of the Materialist Fallacy. The same is at work in the whole field of environment and resources. Once we look in the right direction, we will quickly see the fallaciousness of the Materialist Fallacy. The true resource, above all, is the human mind, employed in thinking up better ways to use the world around us. Without it we are nowhere. On the other hand, without much in the...
way of gross material stuff, we can nevertheless do very well indeed, given plenty of ingenuity.

Technology Unlimited

One nice thing about technology is that it is intrinsically extremely easy, in “material” terms, to transfer and replicate. Jones thinks up a good idea, writes it up, and anyone who can read will soon have that same idea, with no further effort on Jones’ part and what has now become a trivial use of merely “material resources”. It was not always so: in ancient Sumeria, inscribing rudimentary messages was a good day’s work. (Even now, you will find philosophical periodicals asking their readers to buy copies of articles at 20¢/page and enormous waiting periods, when you could photocopy them immediately for 2¢...)

Even if our engineer’s or scientist’s idea is not shared very widely, yet if they and a few others can translate that good idea into concrete terms, multitudes of consumers can soon be benefiting from it, despite their total ignorance of the underlying technology. Others will then get into the act, finding ways to improve things still more, making the resultant products cheaper so that still more multitudes can get the benefits. That is economic growth, and what enables it to happen is technology, including the technology of information transfer.

Our ancestors in the stone age lived in the very same natural world that we did, and the stock of strictly material substances from which they and we draw is presumably pretty much identical with what it was then. Yet the five billions of us are (comparatively) rich and the few thousands of them were (in the same sense) poor, indeed sub-destitute. The amount of “labor” available per capita, remember, was the same then as now: the day is still but 24 hours long for each of us. 100% of the difference lies in know-how. It is the software of humankind that is its true capital, its true wealth.

And with each new human added to the world’s population, we have one more usable brain, with a concomitant capacity to add to the world’s wealth. As Julian Simon points out, children, while they are children, are usually a net cost. In primitive countries, they are very soon a net benefit; we in the “developed” world must wait a little longer. But in the normal case, that individual will, in the course of his or her life, make a positive contribution to the world’s wealth — not a negative one. And of course some among those extra brains will make very great contributions — they will invent, say, the light bulb or the Macintosh computer, or compose Beethoven’s symphonies.

That is why resources are, in the final analysis, not finite in any relevant senses. That is to say: a “finite” material stock, i.e. a bunch of substances that are in some way quantifiable and when so measured yield “finite” numbers in toto, suffices to enable people with their minds engaged to make themselves and, soon, all of us indefinitely better off in “material” (as well as any other) respects. What this means is that more for us does not mean less for them — or vice versa. So long as wealth grows by free means, that is, by a series of individually agreeable exchanges rather than by some extracting it from others by force, use of “material” resources is a positive sum activity. Then the producers and the users are better off, and those who do not use or produce it at that time are no worse off at that time, either; but in future, they too are better off, for they will be able to avail themselves of goods or services they could not otherwise choose.

It has been insufficiently noticed that to deny the hypothesis of non-finite resources requires a heroic assumption: that we can predict future technology and, moreover, do it sufficiently well to know that, for certain resources, in principle nothing can ever be made that will substitute for them, or that no application of any new methods can ever improve
their supply. To make good on this, one would have to know already what we do not yet know — which of course one cannot. Or one would have to show good reason to think that mankind is running out of intellect or creativity. But that is wildly contrary to the facts, on (again) any reasonable view. Indeed, the sheer fact of population increase makes the reverse enormously more likely: creative technological thought will increase rather than decrease.

It should be pointed out, too, that the direction of technology is inherently upward. This is because once something is known, it stays known, barring genocide and widespread incineration. We always build on the past. What is newly discovered, then, is added to the "sum of human knowledge".

Population Morals

This aspect of the argument ends here. Every specific argument for population restriction on the basis of scarcity depends on a premise to the effect that some particular resource is both necessary and irretrievably scarce. All such arguments are unsound. Either the resource in question is not relevantly finite or it is not literally necessary — something else can be used for the same purpose. If we run out of iron, cars and girders will be made of plastics, which are made out of sand, which is not relevantly scarce. And so on.

A general point must be made about these matters. In all fields of production, everywhere, the familiar story is one of decreasing costs with increasing scale. A firm that produces virtually anything will find itself getting more and more efficient as time goes by, even without revolutionary improvements in its technology. This is due to what has come to be called "the learning curve": the people who do the work simply find ways to do it better, quicker, or with less effort. It is a universally observed phenomenon, and it is entirely comprehensible in common-sense terms. Even academics get better at what they do over the years, despite the initial implausibility of supposing that one can find out better how to have abstract ideas. When we get to the toolroom and the assembly line, the scope for improvements in efficiency is essentially unlimited.

It is a consequence of these facts — (a) that goods cannot be simply identified with quantities of material objects (especially not with quantities of "resources") and (2) that technology is both potent and open-ended — that the very idea that costs of resources will increase as population increases is fundamentally wrongheaded. More people means more brains; more brains means more and better ideas; more and better ideas means more and better desired goods and services forthcoming from the same "finite" stock of material stuff. As population increases, then, so will resources of all the requisite kinds. A working doomsday scenario requires the assumption that we are stuck in the same technological rut we happen to be in during the period over which the prophet in question gathers his data for the projected shortage. In any but the most short-term context, this procedure is certain to give the wrong results, for the data in question are becoming obsolete with each passing day.

2. "The Environment"

What I have been saying is directly relevant to the general subject vaguely referred to by the currently modish term "The Environment". Natural resources are, of course, part of our environment. But we now need to turn to two other general issues. First, there are extensive questions these days about environmental deterioration. Those questions raise the underlying issue of just what counts as 'deterioration' for something so
ubiquitous. There are two sorts of answers to consider. The first concerns the potential of our environment for making our lives worse, e.g. by making them less healthy or shorter. But the second concerns the status of alleged environmental considerations themselves. Is there a separate set of values to be attached to the environment as such? Does it, in fact, make any sense to say that x or y harms “the environment”? I shall address both of these, in very general terms, in the next part of this inquiry.

Three Concerns

Alleged deteriorations of our environment may be divided into three sorts:

First, and primarily, there are pollutions that are so called because they negatively affect human health.

Second, there are the “deep ecology” theorists, who seem to think that animals, plants, canyons, indeed the “earth” itself is actually just like us – more moral agents who have rights on their own account.

Third, there are aesthetic concerns: things that are thought, by those who consider them to be blemishes, to make the world around us visually, or perhaps sonically or olfactorily, less attractive.

I shall consider them in reverse order.

Beauty

Clearly health is a pervasive and reasonable concern of all of us, and the questions to be asked in that regard are basically about whether the measures that people propose and enact really do promote the goal they are allegedly aimed at, and promote it in a rational way. That will be the main burden of my next remarks. But beauty is another matter.

This second kind of concern raises very difficult problems of how to resolve disagreements. We all have our tastes, our special aesthetic values. Some can express these better than others, to be sure. But why should the aesthetic views of the articulate outweigh those of the people whose aesthetic values would be steamrollered by his proposals? Those who love uninhabited wildernesses, for instance, can have them if the rest of us commit suicide – in an environmentally clean way, of course. But is this a good reason why we should do so? We must at least appreciate that as soon as aesthetic concerns are what are really being invoked, then we are into a very different ball game from claims about health and safety. Moreover, there is no escape, at the public level, from the time-honored maxim that “beauty is in the eye of the beholder”. We can’t expect agreement on matters of taste. Therefore, the public agenda simply can’t specify what is beautiful and what isn’t, or which beauties shall be respected and which not.

Still, there is a good way to handle this. We can invoke a rule that each person may incorporate his own selection of beauties on his own property; when he deals with others, he must either convince them of the rectitude of his own tastes, or else he must negotiate with them, perhaps buying the other person’s property, at a mutually agreed price, so that he can redecorate it on his own terms. The same can be true of nature. If you and I think that such-and-such a bit of nature should be “preserved”, or altered, fine: buy it, and go to it! Admittedly, few will like this suggestion – because it is the only fair and rational one,
the only one that can work with anybody's tastes. We'd all like to dictate the public taste. But we can't, if we are serious about us all being in this together, on equal terms. There should be no aesthetic dictators, any more than there should be any other kind.

Among the ideas that are proposed in this connection is the curious one that nature as such is beautiful. Those who have this idea presumably must think that any landscape is as good as any other, all animals and plants equally beautiful, and so on. Pools of noxious liquids, horned toads, you name it — all are equally worthy of our delighted contemplation. If that doesn't strike you as pretty absurd to start with, consider a further point: that everything, after all, is "natural": everything is part of the natural world, governed by cause and effect. Oil spills, garbage dumps, and so on: all of these are natural in the most general sense. If nature-lovers don't want to count that, they need to explain where and why to draw the line. If a Rembrandt painting is not to be counted "natural", O.K.: but then, do you really want to say that nature is better? Do nightingales beat out Beethoven's Quartet in C# Minor? Not in my book!

Environmental Depth

The second kind of claim has it that the environment has, so to speak, rights of its own — that "the environment" is intrinsically valuable. Dealing fully with this view would take a fair amount of separate discussion, for it raises fundamental issues about the very meaning of moral notions. I shall therefore say only a little about it.

Morals are rules and principles for appraising our actions in relation to each other. They are rules for groups, directing each individual in that group how to act, and in particular, how to act in society, that is, in relation to one's fellows. The only reasonable view of morality in a contemporary mixed society such as ours is the view that the rules of morals must be in the interests of each and every member of that society. His or her life is to be better, by virtue of following those rules, so long as everyone else does too, than it can reasonably be expected to be given any other set of such rules.

But morals thus represent a sort of "agreement". This agreement is among people. Anything other than people comes into the discussion only under the aegis of being an object of somebody's interests, of some kind or other. Some of us like Nature one way, some another. Some like seals to be alive, some like to wear seal fur coats. We have to deal with each other in the face of such varying interests. But the depressingly popular (with philosophers) view that Nature itself is a sort of moral agent in "her" own right is, I am bound to say, one of the most deeply incoherent views in the whole philosophical world, not easily matched by any of the legendary metaphysicians. It is also, not coincidentally, a gold mine for "rent-seekers" — people interested in power-trips, in bilking an uncomprehending and thus gullible public into performing what from their point of view are objectively useless activities. Nature is not a person, nor is it any sort of "organism"; and in any case, no organisms apart from ones with minds that we can communicate with are in on the Moral agreement.

Of course it also, and necessarily, shares all the problems of the first category discussed — of which it might charitably be regarded as a species, for that matter. For as soon as it is admitted that one is not claiming that cutting the trees, or whatever, will actually damage some human's health or happiness, and yet it is insisted that we should desist for the sake of the trees themselves, one is treating trees and other nonhuman entities as though they too were moral beings, with interests, desires, values of their own, to be taken into account in their own right. It is that aspect of "deep ecology" that is strictly incoherent. For there is no such thing as "the interest of the environment", taken as a moral being in itself,
apart from human interests. To say any such thing is on all fours with saying that we should all accept policy X on the ground that that's what the Great God Vishnu wants. Those of us who don't accept that there is any such personage will not give any weight to such a demand, and rightly so. We can and ought to do exactly the same with those who advance the supposed interests of canyons, rocks, and forests in their own right. (In fact, it is not at all unfair to describe such views as a sort of pantheistic religion.)

There is also no such thing as the "interest" of a canyon or even a flower, for that matter. The canyons that we might want to preserve do not care what happens to them any more than the dismal swamps we might want to drain, or the trees we might want to turn into furniture. To think otherwise is to engage in mumbo jumbo anthropomorphism, something for which there is no room in the public debate about anything.

Moreover, there is a single utterly fair and just way of treating people in relation to their special interests of this type: tell them they're welcome to buy some property and build their own preferred kind of church on it, or get together with fellow believers and preserve weird endangered species, trees, whatever. No problem! But as to considering such claims for one moment as legitimate bases of public policy, forget it! Yet you will find much legislation nowadays devoted to protecting endangered species, swamps, you name it, quite irrespective of what such "protection" does to the poor blokes who thought they owned the areas in question. This is not liberal government, it is government gone berserk, government sold out to bizarre special interests.

Pollution

In no area are we more bedevilled with the same general type of ill-conceived reasoning, harnessed to emotions and instinctive snap judgments, as in the general area of pollution. It is too large a one to go into great detail here, but the thoughtful reader will already have begun, I am sure, to anticipate the point.

Health and Us

That leaves health. And here too there is a definite message: namely, that the paramount need is to appreciate that health, for any remotely normal person, is one good among others. It is not a privileged kind of good that takes total priority over all others. In virtually all of the things we do, we take risks to our health and life: when we drive to the grocery store, when we eat too much dessert, and so on and so on. To take such risks is, in general, perfectly rational. Obviously, if risks are too great, we would reasonably change our activities to reduce them if we can. If the probability of getting run over on my way to the store were 80% instead of .00000008%, then of course I'd want to reconsider walking there. But it is, necessarily, all a matter of degree. We are always weighing benefits and costs, where the "costs" are in the form of risks engendered by or in the course of the activities we consider engaging in. Always the question is: Do I gain enough from what I propose to do to make it worth taking whatever risks it entails? How great a risk I am willing to bear depends on how great the gain is, to myself or to those I care about. Most of us will risk our lives to save the lives of spouses or children. Most of us will take virtually no extra risk to save the life of a squirrel or a rodent — or a tree.

Those who impose heavy costs on us on the ground that they are necessary in order to effect a scarcely measurable decrease in the likelihood that we or somebody will get cancer, or whatever else your current favorite disease is, are asking us to behave irrationally. And the result is that we are worse off, not better.
all of its smog and even with its panoply of social problems, enjoy much better health now than did the bands of natives who occupied the area five centuries earlier, despite the complete absence of smog (outside—for they burned wood fires in their wigwams, likely at considerable reduction in life expectancy).

Canada currently spends well over two thousand dollars per individual per year on health care. This is a level of expenditure that probably makes no sense from the point of view of most of the people who “benefit” from it. Spending a lot less on medical attention and a lot more on other things that matter a lot more to them would, in most cases, make sense. And when it would, only bad arguments about resources stand in their way, “justifying” governments in forcing those people to shift their personal resources in the medical direction rather than elsewhere. Health is no more a fixed, finite, global resource than anything else. And any policies on pollution, and on a “green” environment, based on such assumptions can only work ill—work to make us worse off on the whole.

Tiny Effects, Linearity, and Paracelsis’ Principle

Many centuries ago the famous doctor Paracelsis observed, in response to a question about which things are poisons, that everything is, if you take enough of it in the right circumstances; and also that nothing is, given small enough quantities and, again, the right circumstances. He had the right answer. But almost all modern regulations depend on violating Paracelsis’ dictum. All it takes for an enterprising politician to get on a bandwagon for prohibiting free market access to item X is a “finding” by “scientists” to the effect that X is “poisonous”, as shown by the fact that if you forcefeed some poor unsuspecting rat with an incredibly large amount of the stuff, that rat will get very sick, probably with cancer. For the politician’s purposes, the news that substance Y is a “known carcinogen” is great news; and to establish this, all he needs is the information that it can cause cancer. The next move is to trot out the latest fancy scientific measuring devices and discover that there is a bit of stuff Y in, say, the water supply, or your favorite brand of ice cream, or whatever. In no time at all, Y will be verboten. In Canada you can’t buy saccharine over the counter, and manufacturers aren’t permitted to install it in your favorite drinks. And why? Because somebody discovered that if you forcefeed rats with more of the stuff than any human could conceivably consume no matter how much they want to, then the rat’s grandchildren show a higher likelihood of getting cancer. Neat!

Two general assumptions are needed to justify this kind of regulation, and one specific one. The general ones are (1) Linearity: if X is bad for you, then any amount, no matter how tiny, is also bad for you; and (2) that the goal of promoting health is sufficient to justify imposing any amount of inconvenience and expense on the public. The special assumption needed is (3) that rats are good models for people, and that it is reasonable to infer from the bad effects of huge quantities inflicted on rats that normal, voluntary exposures by humans will also result in bad effects.

The interesting thing about these assumptions is that all of them are known to be false. Linearity down to vanishing input levels is practically unknown in the biological portions of nature, which just aren’t that simple; and there is ample new evidence of its falsity regarding various specific substances or processes. No rational person values his health to the absolute subordination of all else. And rats aren’t good models for people; moreover, forced consumption isn’t a good model of normal consumption. (Force-feeding of anything, such as water, will hasten the onset of cancer, for instance. Paracelsis strikes again!)
To provide a few interesting details. Modern equipment enables us to detect vanishingly small quantities of, for instance, asbestos, another of those famous "known carcinogens". Assumptions (1) and (2) combined have thus far cost the North American public billions of dollars to pay for the removal of asbestos from buildings, despite the facts, well known to engineers, that (1) the danger of removing the asbestos to the workmen who remove it, and to occupants of those buildings for considerable periods thereafter, is hundreds of times greater than the danger of leaving the stuff where it is, forever; and (2) the amount of asbestos floating around in perfectly ordinary air is typically greater than the amount found in the vicinity of asbestos-insulated ceilings and walls. While this is a flagrant example, like the Canadian saccharine one, it is not, alas, unique. Indeed, it is really typical. Any recent newspaper entry about a new environmental action is likely to be at the same level — chlorine in the Great Lakes, radiation from nuclear reactors, ethanol in those delicious odors that emanate from bread bakeries — you name it!

Here's another interesting one. Physicist Bernard Cohen of the University of Pittsburgh did an in-depth study to determine the correlation of cancer incidence with the incidence of radioactive radon gases in homes. Gathering data from some 1,700 counties across the country, with data from hundreds of thousands of dwellings, he soon discovered a curious fact: that incidence of cancer, instead of being directly proportional to that of radon, as the linearity hypothesis would imply, was inversely proportional to it over the range of basically low levels being investigated. Of course high-level radiation exposure, as experienced by fire-fighters at Chernobyl, rapidly produces fatal cases of leukemia and stuff; but we are here considering low-level exposures, and the facts seem to be that higher levels within that range are healthier than lower ones.

Assumption No. 2 has already been discussed in a general way. But it is useful to add a further dimension to it. It turns out that what's wrong with it isn't just that we reasonably weigh health against other values without assigning it absolute priority. For it is also true that wealth translates into health. The wealthier are in general healthier, and this too can be quantified. We can say pretty definitely that if we reduce income, we reduce life expectancy. And so if we tax away a whole lot of money from some people in order to try to "save" the lives of others, then at some point, the transfer becomes medically uneconomic: the cost in life-expectancy of the transfer outweighs the proposed saving. When does this happen? Precise figures would be hard to give and of course vary, but it seems to be in the range of a half to one million dollars per saved life. Programs that spend fifty million dollars to save ten lives are not just wasting a lot of money — they are also, quite possibly, costing a net of forty lives lost. Even those who think that health must have priority over all else will have to be impressed by this, if (as seems very likely) the premises are right.

I hasten to add that the last assumption is not necessary to show that environmental interventions against vanishingly tiny risks is unjustified. All we need is that the amount of supposed protection you are getting is an amount you wouldn't be willing to spend the amount of money that's being exacted from you to get it. That the protection is often less than none at all, is actually counterproductive, is important, but is really conceptual overkill.

Assorted Catastrophes (Latest Trends in)

If science delivers a scrap to a politician, we may be sure that it will turn into a veritable feast by sundown. This is the more so when the scientist in question is being a little less
than purely scientific in his or her deliverances. One of the wonder stories of modern times is that of Global Warming, fear of which is generating expenditures in the billions, with trillions waiting in the wings if the doomsayers play their cards right. The Global Warming scenario seems to have got its main start from two sources. One was a familiar phenomenon to climatologists known as the “Greenhouse Effect”. The “effect” in question occurs when heat is trapped near the earth by assorted gases, instead of escaping to outer space. Not too many lay people are aware that the Greenhouse Effect is not new; not only has it been known to scientists for a century and more, but the Effect itself is also what makes life on earth possible. Absent all greenhouse effects, planet earth would be as pleasant an environment for life as, say, the moon.

Meanwhile, it is a fact that “greenhouse gases” have been increasing in our century. This is supposed to cause an increase in the earth’s temperature, and many and dire are the predictions about what will happen if the increase in question gets out of hand: melting of the polar ice caps, with consequent raising of ocean levels, thus inundating New York and London as well as places we can do without…; droughts, desertification, the works! You can have a field day with these effects, if you like that sort of thing.

There’s just one trouble. Although the scientific basis for the hypothesis that an increase in greenhouse gases will, other things being equal, result in increased temperatures is absolutely solid, there is the embarrassing detail that the earth’s temperature has not risen significantly. Worse yet, the greenhouse effect, if it happens anywhere, is supposed to happen nearer to where all those gases are emitted, namely in the industrialized Northern Hemisphere, which is also where most of the landmass is. But—wuddya know?—the only significant increase in temperature (and it’s very small) has been in the Southern Hemisphere, which has no excuse for behaving like that. The Northern Hemisphere, on the other hand, has enjoyed no net warming in the last 55 years. (It did get a little in the earlier part of this century—before greenhouse gases were emitted at anything like their current rate.)

Economizing

Let me conclude by emphasizing a note on which I began. Each particular person on this world operates in an environment of scarcities. There are lots of things we would like more of, but our limited budget, of time, energy, money, or of specific other resources, requires us to choose among them. Economy is optimization: trading some resources for others that we suppose have higher value for us.

But from the fact that each personrationally operates in this manner, it does not follow that there are global scarcities, “shortages” in the world as a whole, such that collective policies are required to deal with them, even though these policies impose uneconomic costs on the individuals concerned. Thus we are required to use paper cups instead of styrofoam, despite the fact that the former costs several times as much, is in every respect worse from the disposal and energy-consumption points of view, and is much less convenient—cold coffee, burned fingers, and so on. And all this, why? Because of a highly speculative (and now refuted) hypothesis about the influence of styrofoam on the ozone layer and its alleged implications for our ultimate health. That the risks involved even if the hypothesis were correct would, when related to any particular individual, show the cure to be much worse than the disease does not deter environmentally rabid governments from imposing those costs on us gullible citizens. But that is the story of virtually all of the currently contemplated legislation, and its reasoning is the same. Clean air, health, etc. are held to be resources superior to others even if you or I would, given
our choice over the actual values involved, prefer the others. And they are held to be intrinsic goods, necessary, and globally scarce.

The moral is: don't you believe it. By all means, let us have more technical investigation into pollution, water purity, and so on. But let's integrate all this important information into rational decisions, rather than having it operate as the minor premise in an argument whose major premises have to do with globally finite resources and the like. What we have today is a classic case of misuse of science by government. It has already cost us considerable, and it will continue to do so. I have shown that a major part of the reasoning behind most environmental policy forays is hopelessly unsound. And the policy implications from their erroneous premises are certainly going to make life worse for you and me.

**An Environmental Book List [non-PC version]**

Dixie Lee Ray, *Trashing the Planet* (Washington: Regnery Gateway, 1990) A scientist, sometime governor of the State of Washington, voted Woman of the Year in 1973 by the Ladies Home Journal, many other distinctions. Professor Ray produces the basic scientific results on all of the major environmental issues: global warming, ozone, PCBs, nuclear power, and the rest — all of which are almost completely at variance with the current PC Environmentalist trends. *This is the one to read if you read only one.*

Terry L. Anderson and Donald R. Leal, *Free Market Environmentalism* (Boulder, Col: Westview Press, 1991) — A number of essays on a wide range of environmental issues, showing how (or, if you prefer, arguing that) secure and marketable property rights provide the right solutions to the problems. A groundbreaking work.

Ronald Bailey, *Eco-Scam* (NY: St. Martin's, 1993). Fertile source of quotations from the various ecological prophets of our time; and of the evidence against their apocalyptic predictions.

Robert C. Balling, Jr., *The Heated Debate* (San Francisco: Pacific Research Institute, 1992). He too provides extensive hard data on climate, and offers a plausible hypothesis why the “greenhouse effect” is not in fact producing general warming; also that the combination of forces at work, including Man's contribution, is likely to be on the whole beneficial rather than detrimental to people. Excellent for its explanations of the various theories and findings. (See also Michaels, below)

C. Roy Bennett, *Risks in Environmentalism: Comments on the Canadian Green Plan* (U. of Waterloo: Institute for Risk Research, 1992). A devastating analysis of Canadian “Green Plan” programs, demonstrating that “most environmental regulatory proposals are based upon inadequate scientific knowledge. In many cases, they are firmly founded upon the wrong scientific assumptions, particularly where public health is concerned.”

Patrick J. Michaels, *Sword and Fury: The Science and Politics of Global Warming* (Washington: CATO Institute, 1992). A climatologist details how the current brouhaha regarding “global warming” is in total conflict with the facts. Provides extensive hard data on climate, and offers a plausible hypothesis why the “greenhouse effect” is not in fact producing general warming: also that the combination of forces at work including Man’s contribution, is likely to be on the whole beneficial rather than detrimental to people.

Julian Simon, *Population Matters* (Rutgers, NJ: Transaction, 1991). Professor Simon points out that the alleged population crisis simply isn’t happening, and shows why there is no reason to suppose that “resources” necessary for the flourishing of humanity are going to run out, now or ever.

Julian Simon, *The Ultimate Resource* (Princeton, 1981). This book provides the generalized theoretical argument that is buttressed by the more extensively empirical work in *Population Matters*. People are the real resource, and it is because they are that natural resources are not going to be a “problem” as so widely thought, and why there is no reason to suppose that “resources” necessary for the flourishing of humanity are going to run out, now or ever.

Aaron Wildavsky, *Searching for Safety* (Rutgers, NJ: Transaction, 1988). Wildavsky’s book is a real primer on the fallacy of trying to focus exclusively on the “worst case”. He demonstrates how doing so will make the very things one is worried about worse instead of better.

**Notes**

I don’t think it would be, in fact, and argue this in “Property Rights: Original Acquisition and Lockean Provisos” - currently unpublished but available from the author.

In the sixties and seventies, especially, other prophets were busy forecasting mass starvation, and it became popular for everyone, including philosophers, to think of the earth as a sort of “lifeboat”. At the same time that all this forecasting was being publicized at a remarkable rate, the facts were busy proving them wrong, as they had been doing in the previous century or so that had elapsed since the publication of Thomas Malthus’ *Essay on Population*.

This paper was prepared originally for the meetings of the Ontario Philosophical Society in Ottawa, Canada, October, 1991. It has since benefited from discussions at several Universities, with community groups, and with individuals.


As of 1995, this figure can be multiplied by at least ten. The agricultural technology assumed in the text actually dates from 1969, and things have changed since then. With developments in hydroponic farming, there is no
realistic upper limit to the number of persons whose lives can be sustained on a given unit of land. It is thought to be, not 27 square meters, but more like 2 square meters.


Advances in the art of house insulation, however, can reduce our requirements of energy for this purpose virtually to zero. Super-insulated houses — which are by no means uneconomic to build, costing only perhaps 20% more than conventional ones of similar size — already require no energy to heat beyond that supplied by the people in them, plus their usual burning of lightbulbs.

Most primitive people, in fact, squander energy and generate massive pollutions while they are at it. Those following this course have to accompany their recommendations with proposals to severely reduce population on top of it, not realizing that this is due precisely to the inefficiency of the proposed alternatives.


Simon, op. cit. Ch. 2, pp. 63-158, presents a wealth of information on these matters.


Wall Street Journal, April 13, 1994 · front page.

Bernard Cohen’s lecture was presented at the conference on Managing Risks to Life and Health, sponsored by the Royal Society of Canada, the Canadian Academy of Engineering, and Health Canada, at Ottawa, Oct. 18, 1993. Publication pending.

See Robert Bidinotto, The Green Machine. Mr. Bidinotto is a staff writer for Readers Digest but this material does not (as yet) appear in that journal. It is currently available from the author at 422 Park Avenue, New Castle, PA 16101, for $4.50, postage included.