

ENVIRONMENT

## The Worst Is Yet To Be

Charles Perrow

---

**GLOBAL CATASTROPHES AND TRENDS: The Next Fifty Years.** Vaclav Smil. xii + 307 pp. The MIT Press, 2008. \$29.95.

---

Prolific writer Vaclav Smil characterizes his latest book, *Global Catastrophes and Trends*, as “a multifaceted attempt to identify major factors that will shape the global future and to evaluate their probabilities and potential impacts.” Smil is fluent in many languages of the East and the West, and his voluminous citations demonstrate an impressive command of the literature. His two major themes are sudden, catastrophic events and unfolding trends that are catastrophic in their accumulative consequences.

The past 50 years have been exceptionally stable and unusually benign in global terms, Smil says, but this will change. The risks of what are, in his view, the two most likely cataclysmic future threats—nuclear war and pandemic influenza—can be substantially reduced, he believes. He does not see terrorism as a great risk. He also notes that mega-eruptions of volcanoes are quite rare and that the risk of a near-Earth object striking our planet is even more remote and can be handled. Instead, it is unfolding trends that worry him most and occasion the book’s most striking observations.

Energy is a key variable affecting many trends. Smil’s substantial discussion of this topic connects only loosely to the theme of catastrophe but well illustrates his debunking posture toward scary headlines and faddish “solutions.” He gives short shrift to renewable energy. For example, he considers “massive biomass energy schemes” that have been proposed recently to be “among the most regrettable examples of wishful thinking and ignorance of ecosystemic realities and necessities.” Conversion of enough farmland for the production of biofuels is out of the question, he says—we would

starve. Wind power will be only a marginal and unreliable source of energy. As for energy from nuclear fusion, it is a mirage, on which the United States has spent a quarter of a billion dollars a year for the past 50 years. Large-scale expansion of nuclear power plants would face significant opposition, Smil says, because of concerns about safety and the lack of permanent waste-storage facilities. (He does, however, note with approval Edward Teller’s proposal to build a nuclear power plant completely underground with enough fuel to last its lifetime.) And he sees no realistic possibility of a hydrogen economy for many decades.

Smil offers substantial evidence to back up his claims. He does not mention opportunities for increased energy efficiency, cogeneration and conservation, presumably because he considers them too insignificant. The world will do fine with gas, coal, dams and nuclear plants, it appears.

Other key trends about which Smil is pessimistic include mismanagement of national economies and demographic changes. The book, which was released on September 30, 2008, presumably went to the printer before the dimensions of the current financial crisis were widely recognized. Nevertheless, it predicts unfolding, slow disasters of economic deterioration, impoverishment and disease, and it contains no glimmer of hope that the nations of the world will be able to stem them.

It takes Smil but a few pages to dismiss Europe as a world power and foresee its misery. At its peak in 1900, Europe accounted for about 40 percent of global economic product; by 2050, it may account for as little as 10 percent. It has had a population implosion—the fertility rate there, now 1.5 children per

mother, is well below the replacement level of 2.1 children and is unlikely to rebound meaningfully. Europe’s neighbors are countries whose populations are largely Muslim and are rapidly expanding; their citizens are moving to Europe for economic opportunities, and once there, they are not being assimilated. To survive economically, Europe will be forced to replace its working-age population with Muslim immigrants. By 2050 such immigrants could make up more than one-third of the total population, and Smil appears to imply that they will be an explosively discontented segment. By then, Europe’s economic role may be to serve as “museum of the world”; twice as many Chinese tourists as American tourists will be flooding such destinations as Rome and Paris.

Japan will fare no better than Europe. In the 1980s it was seen as an unbeatable economic titan; now its population is shrinking to the point that whole villages have been abandoned. By the middle of this century it will have become the most aged of all the aging high-income societies, with few pensions and too few workers to provide for the elderly.

As for China, Smil treats the skyrocketing of its economy with considerable irony:

What a remarkable symbiosis: a Communist government guaranteeing a docile work force that labors without rights and often in military camp conditions in Western-financed factories so that multinational companies can expand their profits, increase Western trade deficits, and shrink non-Asian manufacturing.

Yes, China produces more than 90 percent of Wal-Mart’s merchandise, and in 2005 China accounted for 26 percent of the U.S. trade deficit. By 2025 it could be the world’s largest economy; but because of its size, the per capita income level will still be only one quarter of that of the United States. China’s population is aging rapidly (with almost no pensions), and the sex ratio is unfavorable (too few females). Income inequality is quickly

increasing, and the degradation of the environment is extreme. With 20 percent of the world's population in 2005, China had only 9 percent of the world's farmland and 7 percent of the world's freshwater. All of the world's grain exports together would fill less than two-thirds of the country's projected demand for food. It is already the world's largest emitter of greenhouse gases. In Smil's analysis, it will not become a superpower in the next 50 years.

Will this mean that the United States will remain on top? Because no other state seems ready to take its place, perhaps so. In chapter 3, Smil portrays the United States as experiencing inglorious, albeit gradual, retreat, although in chapter 5 he appears to have second thoughts about the matter. By some projections, China will nearly be able to match the United States in military spending by 2020, but in Smil's view China's aforementioned weaknesses make this unlikely. In any case, he considers America's military power to be already essentially irrelevant.

In chapter 3, Smil says that "rapid, nonassimilating Hispanicization" in the United States is possible, and is "a clear reason to worry." (In chapter 5, though, he calls attention to research suggesting that immigrants from Mexico assimilate only slightly more slowly than the average rate.) America's unfavorable trade balance (a \$716.6 billion deficit in 2006) is "unsustainable," he says. The United States' decline in manufacturing exceeds that of Europe and Japan, so its high-tech manufacturing abilities cannot make up for losses in more traditional sectors.

The United States does lead in science and in electronics. But it will soon have to borrow just to feed its own people. It is afflicted with an aging population, multitudinous social ills and rising income inequality. This generates a disturbing prediction:

There will be too few well-off people in the considerably smaller post-boomer generations to buy the stocks (and real estate) of aging affluent baby boomers at levels anywhere near peak valuations.

From his home in Canada, Smil goes on and on about the culture of glutony in the United States. It is the "most obese and physically unfit nation in Western history," he says, and its displays of private excess are accompanied by spreading public squalor. All of this is true, of course, and leads him to de-

clare that the country is "living on borrowed time and yet has no imminent intentions to do otherwise."

But humankind's fortunes will have less to do with the economic policies and strategic moves of nations than with transformations brought about by climate change, environmental destruction and even antibiotic-resistant bacteria. Much of chapter 4, "Environmental Change," is dauntingly technical, but this material rewards close attention. It is evident that we have a great deal of knowledge about these topics, but the complexity of the interactions between environmental factors is so great that we end up with absolutely contradictory findings in many areas.

Smil is blunt in his criticisms of the global-warming pessimists, saying that we simply don't know enough about the complex interactions and feedbacks that may take place to be able to reliably quantify the likely consequences of the warming that is occurring. His estimate is that there will be a temperature increase of 2.5 degrees to 3 degrees Celsius over the next hundred years, a figure that is about at the midpoint of recent projections by the Intergovernmental Panel on Climate Change. Apparently the industrialized nations in the Northern Hemisphere have the wealth and technical capabilities to handle this increase, but poor countries in the global South, which are already carrying an unmanageable load, will find it quite burdensome. (Smil's usual concern with the interaction of variables is not in evidence in this case. Does he think that the multitudes who cannot cope will quietly disappear?) Although he stresses the difficulty of estimating future sea levels, he says that "a cautious conclusion" would be that they will rise about 15 centimeters by 2050—"clearly a noncatastrophic change." He concludes surprisingly that the market impacts of a moderate warming will be "a trivial sum in all affluent countries" (which prorates to about \$180 a year per capita), citing in support work by Yale economist William D. Nordhaus. (Other respected economists disagree.)

Smil's analysis of climate change is more complex and nuanced than that supplied by even sophisticated journalists and essayists. Thus we learn that our actions have already changed the global nitrogen cycle much more than the carbon cycle (which gets all the attention), and that those changes will create problems more intractable than the ones

resulting from excessive levels of carbon dioxide. Losses of biodiversity and invasive species have impoverished our ecosystem and have had major economic consequences. (Presumably these are not included in the "trivial sum.") Finally, the chapter on environmental change takes up the problem of antibiotic resistance. I will spare you the depressing details.

I learned a lot from this sometimes cranky, often cryptic and very opinionated book. Smil dismisses the headlines created by the climate doomsayers. The naysayers he doesn't even discuss. But by enriching our understanding of the complexity of nature and society, he shows that we have much more to fear than accumulating carbon dioxide and drowning polar bears. For those of us living in the world's most affluent society, climate change and other looming catastrophes will hasten our twilight. This book helps prepare us to think seriously about the future.

---

*Charles Perrow is an emeritus professor of sociology at Yale University. An organizational theorist, he is the author of several books, including *The Origins of American Capitalism* (2002) and *The Next Catastrophe: Reducing Our Vulnerabilities to Natural, Industrial, and Terrorist Disasters* (Princeton University Press, 2007).*



Powell's Books

**Sell Us Your Books**

[www.powells.com/sell](http://www.powells.com/sell)