REFLECTIONS

Should We Have Acted Thirty Years Ago to Prevent Global Climate Change?

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Global climate change is a major public-policy issue in the first decade of the twenty-first century. Although debate continues about the extent to which the global climate will change, sufficient agreement exists among policymakers worldwide that the governments of 140 nations signed the Kyoto Treaty to limit greenhouse gasses into the atmosphere. The treaty took effect among the 140 ratifying nations on February 16, 2005, the signatories committing themselves to meeting targets limiting the emissions of greenhouse gasses by 2012.[1] Although the evidence on global climate change remains subject to debate, a frequently used argument in favor of acting now is that any delays will make it more costly and more difficult to prevent (or to reduce the effects of) global climate change. If we wait until we are absolutely certain, it may be too late to mitigate the harm, so we should act now on the basis of the best evidence on hand.

However powerful that argument may be, it is hardly a new one. Scientists have been concerned about global climate change for decades, and the popular press has been reporting on the problem for half a century. The argument that we should act now to mitigate the effects of global climate change, on the basis of the best

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1. Neither the United States nor Australia signed the treaty.

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information science has to offer, also goes back decades, yet only recently have public policymakers taken any serious action on this issue.[2] As this article's title suggests, I examine here whether we should have heeded scientists' warnings decades ago and acted in the 1970s (or sooner) to prevent global climate change.

By the 1970s, substantial scientific agreement on global climate change had been reached, and the issue was reported in the popular press, along with policy measures that scientists suggested might be taken to mitigate the otherwise impending change. However, none of the concrete policy actions they suggested at that time was taken. It is worth considering the effects of policy inaction in the face of the scientific consensus that existed on global climate change decades ago.

What Did We Know about Global Climate Change?

Scientists have known for a long time that the earth has passed through periodic cycles of warming and cooling and that during the most recent ice age, glaciers extended well into what is now the territory of the United States, Great Britain, and much of Europe. The cause of these cycles was a matter of speculation, but a pair of articles by Maurice Ewing, director of Columbia University's Lamont Geological Observatory, and geologist-meteorologist William Donn published in *Science* in 1956 and 1958 attracted attention, partly by offering an explanation of self-perpetuating warming and cooling cycles and partly by arguing that another ice age would begin soon. As Weart (2005) has noted, "Published in 1956, and picked up by journalists who warned that ice sheets might advance within the next few hundred years, the theory gave the public for the first time a respectable scientific backing for images of disastrous climate change." A popular account of Ewing and Donn's ideas appeared in a 1958 article by Betty Friedan in *Harper's Magazine,* titled "The Coming Ice Age." The article was advertised on the magazine's cover with the words, "The Coming Ice Age: When Will the Glaciers Reach America?" Friedan wrote that "another Ice Age . . . will not come as a sudden catastrophe, but as the inevitable culmination of a process that has already begun in northern oceans" (1958, 39).

Over the next several decades, the scientific evidence that the earth stood on the brink of another ice age grew until, in the 1970s, a substantial scientific consensus had formed. Science writer John Gribbin wrote in the introduction to his book *Forecasts, Famines, and Freezes,* "Early in 1973 . . . I became aware of a growing number of papers being published in the scientific 'literature' . . . which were related in one way or another to the theme of climate change. . . . Nobody, it seemed, was putting the bits of the jigsaw

2. By serious action, I refer to laws and treaties, such as the Kyoto Treaty. One may debate the likely effects of such laws and treaties, of course. My conjecture is that when 2012 comes, many of the signatories to the Kyoto Treaty will be in violation of its terms. Political action does not necessarily translate into real results, but only recently have governments taken any action at all.

together to provide a clear picture which could be understood by the non-specialist—let alone the non-scientist" (1976). Gribbin carried out that task in his book.

Gribbin was well aware of the greenhouse effect, which is much discussed today, but he also noted, "If there is more carbon dioxide in the atmosphere, more of the heat being radiated by the solid Earth and the oceans is absorbed into the atmosphere and then re-radiated. . . . This effect is undoubtedly a real one—but how much warming is it likely to cause? According to the latest calculations, we have nothing to worry about from the greenhouse effect" (1976, 86). Gribbin argued that the greenhouse effect will be small in any event, increasing the average temperature of the globe by less than one degree centigrade; meanwhile, increased particulates in the atmosphere will reduce the sunlight reaching the earth, as will vapor trails caused by high-flying aircraft, more than offsetting any warming effect that increased greenhouse gasses cause.

Gribbin reported, "During 1974, when this book was in preparation, scientific opinion about the development of ice ages was revolutionized. Several developments in different but related areas of research came together, as a result of work during the 1960s and 1970s, to show that ice cover over the northern hemisphere can develop much faster than was thought previously" (1976, 91). One theory is that if something such as volcanic dust were to obscure the sun for only a year or two, allowing more snow and ice to remain on the ground year round, snow and ice cover would reflect more sunlight, keeping the earth cooler and initiating an ice age within a few years. Nigel Calder (1975) named that phenomenon "snowblitz."

Gribbin summed up the scientific view on the subject by dividing opinions among pessimists, superoptimists, and optimists. "[T]he pessimists say that climatic doom is imminent. . . . [T]here are still a few super-optimists . . . [who] . . . say that climate doesn't change very much in any time-scale relevant to man and that there is nothing to worry about." Gribbin called himself an optimist, whose view is "[t]hat an ice age may be upon the world within a few hundred years, and that the immediate deterioration of the climate at the present time requires urgent attention from all responsible people. . . . [W]ithin a hundred years or so we may well be in a position to adapt our global society to withstand even the rigours of a full ice age" (1976, 99). Thus, the range of opinion ran from an imminent catastrophic ice age to no appreciable change, with a middle (and optimistic) view that we have enough time to act to mitigate the effects of the impending ice age.

The view that global cooling was on its way reached a large general audience through the *Newsweek* article "The Cooling World" by Peter Gwynne (1975, 64). Gwynne noted, "The central fact is that after three quarters of a century of extraordinarily mild conditions, the earth's climate seems to be cooling down." He said that scientists "are almost unanimous in the view that the trend will reduce agricultural productivity for the rest of the century." He stated further, "The evidence in support of these predictions has now begun to accumulate so massively that meteorologists are hard-pressed to keep up with it." Commenting on the already-evident cooling trend in the same article, he

mentioned that "Reid Bryson of the University of Wisconsin points out that the earth's average temperature during the great Ice Ages was only about 7 degrees lower than during its warmer eras—and that the present decline has taken the planet about a sixth of the way toward the Ice Age average."

Policies to Combat Global Climate Change

D. S. Halacy Jr. (1978) described some policies that might be tried to limit the amount of global cooling. Two possibilities were using soot to paint snow black to get it to absorb more heat and melt more quickly and increasing the cloud cover over frozen areas to retain more heat in the atmosphere. Halacy noted technical challenges to both these strategies, but also that technical difficulties might be overcome (159). Another possibility, also facing technical challenges, was changing the course of Arctic rivers to alter the climate. Yet another plan, proposed by Russian scientists in the 1950s and seriously considered for decades, was to dam the Bering Strait to prevent cold Arctic water from entering the Pacific Ocean (161–64). Lowell Ponte reported that 1968 presidential candidate Richard Nixon was almost persuaded to endorse construction of the Bering dam, but although he wrote the endorsement into a speech, he never delivered that speech and never endorsed the project during his presidency (1976, 226–27).

Ponte described a number of other policy actions that might be taken to try to stop global climate change (1976, 229–30). Atomic reactors could be used to heat the oceans. Metallic dust or carbon dioxide could be injected into the air to create a greenhouse effect and hold in heat. Hydrogen bombs could be detonated over the polar ice caps to melt them. Giant mirrors could be placed in orbit to reflect more sunlight onto the earth. A Russian engineer proposed launching potassium dust into orbit to give the earth a ring like Saturn's that would reflect more sunlight onto the planet. Thus, the problem of global cooling being widely acknowledged, many suggestions of technical methods to deal with it came forth.

Despite the options for policy action to offset global climate change, Halacy was not optimistic that anything would be done. "When populations were small they lacked the technical ability or the financial backup for weather or climate modification. Now that such requisites are available, our system seems too hamstrung, for various reasons, to act" (1978, 205). In the face of inaction, global cooling seemed inevitable to Halacy, who was concerned that climate change might be imminent: "A snowblitz could result in a full-blown ice age within a decade—a century would be ample time" (175). He went on to note, "The freezing winters of 1976 and 1977 severely strained our capacity for providing energy to keep warm. Consider a *decade* of such winters, alongside even greater fuel shortages as the years go on. And yet freezing in the dark might be a minor inconvenience compared with the prospect of starving in the cold" (178, emphasis in original). Such were the frustrations

expressed by those who argued that we needed to act immediately to combat global cooling.

The *Newsweek* article cited earlier closed by noting, "Climatologists are pessimistic that political leaders will take any positive action to compensate for the climatic change, or even to allay its effects. . . . The longer planners delay, the more difficult they will find it to cope with climatic change once the results become grim reality" (Gwynne 1975, 64).

Ponte made an argument then that is often made today. "The problem is, how much must we know before we can take action? Assuming we will never know everything, what degree of certainty (and uncertainty) makes such a risk acceptable? Presumably such methods can be tried when and if the risk of inaction exceeds the risk of action. Some experts believe we are fast approaching that point" (1976, 239). He went on to quote Stephen H. Schneider of the National Center for Atmospheric Research, who said, "We can never gain certainty about the consequence of any method we could use to modify climate, . . . so we should be willing to accept a lesser standard, plausibility, in judging whether to try such methods" (240).

Global Climate Change, Then and Now

Thirty years ago, when scientists referred to *global climate change,* they meant an impending global cooling from a coming ice age. Now, the same term is used to refer to global warming from man-made greenhouse gases. This transition in climate-change expectations occurred around 1980. Among the shelves of books on global climate change in the Florida State University library, where I looked for information, the authors of books published before 1980 saw the coming ice age as the most serious threat, whereas later authors focused on global warming from greenhouse gasses. It is fascinating to see how the term *global climate change,* as used by scientists who study the subject, changed so abruptly from the one emphasis—and threat—to the other. Although all scientists never agree on an issue, there was at least as strong a scientific consensus on the threat of global cooling in the 1970s as there is on the threat of global warming in the first decade of the twenty-first century. The issue of greenhouse gases was clearly recognized in the 1970s and was part of the debate. However, the consensus then was that other factors would more than offset the greenhouse effect, causing cooling on balance. In the 1970s, greenhouse gases were viewed by the scientific community as a possible solution, a way to mitigate the global cooling that otherwise was inevitably going to occur, rather than as a problem. Scientists recommended increasing the production of greenhouse gasses to slow down global cooling.

Another factor warrants a mention in passing. The world was in the midst of the Cold War in the 1970s, and scientists were concerned about the possibility of a nuclear winter brought on by a nuclear war. A detonation of nuclear weapons on both sides might inject enough particulate matter into the atmosphere to block the sunlight significantly, triggering global cooling. As the snowblitz hypothesis

suggested, a few years of cool temperatures might allow enough snow to remain on the ground to reflect sunlight away from the earth, triggering an abrupt beginning to the next ice age. However, the bulk of the discussion of global climate change did not factor in the possibility of a nuclear winter. The scientific consensus was that the ice age was on its way in any event, and the debate focused only on how rapidly it would change the climate.

Conclusion

I am an economist, and the science of climate change is well outside my area of expertise, so nothing in this article should be taken to imply my disagreement or agreement with any of the science behind the analysis of global climate change, either then or now. My point here is to comment not on the science itself, but on public-policy measures taken in response to scientific findings. I deliberately asked "Should we have acted to prevent global climate change thirty years ago?" If we had done so, those actions would have been intended to warm the planet. Now, just thirty years later, however, the scientific consensus points in the opposite direction. It is interesting to observe such an abrupt change in the reigning scientific opinion in such a short period, but it is also somewhat disconcerting to realize that if we had acted on scientists' recommendations in the 1970s, we would have implemented policies that today's scientists view as harmful.[3]

References

Calder, Nigel. 1975. *The Weather Machine*. New York: Viking Press.

Ewing, Maurice, and William L. Donn. 1956. A Theory of Ice Ages. *Science* 123 (June 15): 1061–65.

———. 1958. A Theory of Ice Ages II. *Science* 127 (May 16): 1159–162.

Friedan, Betty. 1958. The Coming Ice Age. *Harper's Magazine* 217, no. 1300 (September): 39–45.

Gribbin, John. 1976. *Forecasts, Famines, and Freezes: Climate and Man's Future*. New York: Walker and Company.

Gwynne, Peter. 1975. The Cooling World. *Newsweek* (April 28): 64.

Halacy, D. S., Jr. 1978. *Ice or Fire? Surviving Climatic Change*. New York: Harper and Row.

Ponte, Lowell. 1976. *Cooling*. Englewood Cliffs, N.J.: Prentice-Hall.

Weart, Spencer. 2005. The Discovery of Global Warming. Available at: http://www.aip.org/history/climate/simple.htm#M49.

3. If we had undertaken policies that scientists recommended in the 1970s to warm the planet, then today those scientists could present data on global warming to show that the policies worked, that they were effective in allaying, or at least delaying, the next ice age.