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Policy by press release
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As judged by Sen. Albert Gore's roundtable discussion of Nov. 15, environmental policy seems once again to be driven by press release rather than by proven scientific data.

The latest push: the press conference in New York last month, organized by the U.N. Environmental Program (UNEP) and orchestrated by a hired media consultant, which brought more bad news about the stratospheric ozone layer.

As reported by an international group of scientists, some of them seasoned environmental zealots, "new data" show ozone loss in summer - with alleged dire consequences to human health and ecology unless we speed the elimination of chlorofluorocarbons (CFCs) and other chemicals from the environment.

What's going on here? The existence of an annual, temporary thinning of the ozone over the Antarctic - a genuine phenomenon (not predicted by theory and still not well understood) - started a veritable panic that led to the 1987 Montreal Protocols, which limit and phase back the production of CFC's. But since then, we have had unsupported announcements about global ozone, urging even more drastic action.

A March 1988 UNEP press conference announced a downward trend in northern hemisphere ozone, "exceeding theoretical expectations" twofold or threefold; in April 1991, the Environmental Protection Agency announced that the decrease was twice as fast as stated by UNEP; and most recently, in October 1991, UNEP revealed further "unexpected" decreases. The last two announcements have not been backed by studies in scientific journals; the data for the 1988 announcement were finally published three years later but did not confirm the need for alarm.

Whether intended or not, presenting conclusions with major policy consequences without publishing the data sidesteps their review by independent scientists. Without access to the underlying analysis, criticism can only be based on general scientific principles. But prestigious journals refuse to publish this kind of criticism when the data and analyses have not yet appeared in the scientific literature. This "Catch-22," with potential critics effectively shut out, creates the myth of a "scientific consensus."

So the press releases go out, the media consultants hype scare stories to a corps of dutiful and unquestioning environmental reporters, and governments are pressured into making far-reaching decisions based on shaky scientific assertions. The Montreal Protocols have have been superseded by the 1990 London Agreements that phase out

CFCs completely over the next decade. The 1991 announcements are now being used as arguments to eliminate CFCs even faster.

It is, of course, difficult for non-technical policy-makers to make sense of what is happening. Yet bearing in mind that capital equipment currently tied to CFC use is of the order of \$500 billion (that's half a trillion!), it is important to ask some general questions.

* First of all, are there really new data coming forth or are old data being recycled into new conclusions? There is only one set of ground-based observations of the ozone layer, of variable years (only three solar sunspot cycles). Satellite data, while more global, go back about a decade; published during the past year, they show the generally expected solar-cycle variation, with an ozone maximum at the peak of the cycle and a minimum at the low end, in 1986 (see graph). The data record is far too short to establish a reliable long-term trend.

* Then there is the matter of logic. The public has been told repeatedly that the ozone decreases are greater than expected from the CFC-ozone theory, which predicts modest decreases sometime in the next century. But this disagreement does not provide a compelling argument for panicky action. On the contrary, it tells us: Either the decreases are caused by other factors; or the data are wrong; or the theory is wrong - or a combination of any or all of the above.

The CFC-ozone theory is likely still incomplete, with important features omitted or not understood. Just in the last few years it was shown that the theory neglected the crucial chemical reactions taking place on stratospheric particulates - volcanic dust, aerosols, ice particles, etc. Some years hence could bring further surprises; there may be important effects from increased aircraft traffic or from the growing human contribution to methane gas in the atmosphere - not to mention the effects of volcanic eruptions like Mount Pinatubo.

Policy-makers charged with decisions in the trillion-dollar range should therefore ask for further scientific assurances. For example:

* Where is the smoking gun - the evidence that skin-cancer-causing ultraviolet radiation (UVB) has been increasing? Published studies point in the opposite direction; surface UVB has actually decreased over the last decade - a great embarrassment to the proponents of ozone depletion.

* Where is the evidence for an increase of stratospheric chlorine, matching the increasing atmospheric concentration of CFCs? It is not enough to point to high chlorine levels; "snapshots" don't count because there are natural sources, like volcanic eruptions and oceanic salt particles; a clearly visible trend would provide convincing proof that CFCs are the primary source of stratospheric chlorine.

Policy-makers should also insist on outside scrutiny of the specific claims put forth in the latest UNEP press release.

* An independent statistical analysis is needed to establish whether there really is an ozone trend. The natural fluctuations are so large that a perceived "trend" may be simply an artifact of the analysis. The short-term variations in ozone are often 100 times larger than the reported depletion, and even the 11-year solar-cycle variation of ozone is of the same magnitude. We know little about natural, longer term trends of ozone; but such trends are likely since they certainly exist for sunspots.

Yet the often unpublished and unreviewed ozone reports, and the prospect of safe and suitable substitutes coming on-line, were the basis for pushing ahead so rapidly with the CFC phaseout. With jobs, resources, and half a trillion dollars of equipment in the balance, it seems reasonable to take a long, hard look at the scientific underpinnings of such reports before making major international commitments or taking other drastic steps.

Indeed, with scientists announcing momentous findings by press release, and with the normal peer review process unable to keep pace with policy decisions, perhaps the government, in the public interest, should establish an adversarial inquiry, to allow policy-makers to judge directly the merits of the scientific debate.

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