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Climate Change Risk Communication: The Problem of Psychological Denial

by Peter M. Sandman

A few months ago, I received two emails in the same week asking what I thought should be done about climate change denial. One came from a radio reporter in Boston, the other from a health official in California. Both referenced evidence that most Americans don't seem to care very much about global warming. Neither said anything about "awareness" or "apathy." Those weren't the problem, my correspondents seemed to think. The problem was denial. (The reporter produced a ten-minute [story on global warming denial](#) that's worth listening to.)

I think they're onto something. Their emails forced me to think more deeply about the implications of denial for climate change risk communication – particularly the messaging of global warming activists.

Let me quickly define a few terms:

By "global warming denial" I don't mean the claims of people who aren't upset about climate change and aggressively insist that it isn't real or isn't serious. I'm focusing on people so upset (or hopeless) about climate change they can't bear to think about it: people "in denial," not "deniers."

By "global warming activists" I don't mean just environmental advocacy groups, but anyone trying to sound the alarm about global warming, from NGOs to philosophers, from regulators to academics.

Throughout this column, I will use the terms "global warming" and "global climate change" interchangeably. Many activists today try to avoid "global warming," both because it's not harsh enough (some have suggested "global frying" instead) and

because it's not entirely accurate (climatic effects of greenhouse gases are more complex than just temperature). But journalists like "global warming," the public is used to it, and I believe we're stuck with it.

The last half of this column will explore how the [precaution advocacy](#) messaging of climate change activists is likely to affect audiences that are in or near denial about global warming. Precaution advocacy is designed for audiences whose outrage is too low. But the outrage of people who are in or near denial isn't too low; it's so high they're having trouble bearing it. The correct risk communication paradigm for them isn't precaution advocacy; it is [crisis communication](#).

First I need to sketch in the role of denial in risk communication generally, make a case that global warming denial is important, and identify its sources.

Apathy versus Denial

The life history of any public issue starts with unawareness. People aren't pro or con. They aren't even apathetic. They simply haven't heard about the issue yet.

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Fostering awareness isn't easy. Absent a stunning event, it takes powerful messaging and endless repetition in the media to break through the clutter and establish the existence of your issue in the minds of your audience.

In most of the developed world, that has now been accomplished for global warming. Today, most people know what "global warming" means. And they know it's bad – itself an accomplishment, since most preexisting connotations of "warm" were positive.

Once people are aware of your issue, some of them decide you're right and become supporters. They may or may not be inspired to work on the issue, but at least they're on your side. Others decide you're wrong; they're your opponents, either active opponents or uninvolved opponents. Still others decide to reserve judgment; they're aware but undecided.

But for most people the stage after awareness isn't support or opposition or

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reserved judgment. It's apathy. When people are newly aware of an issue, the most common response is not to have much of a response. Sometimes we have a brief "Oh my God, this is serious" reaction – but it is hard to convert that feeling into sustained action or even sustained interest. It most often recedes into apathy. Yes, we're aware, at least more aware than before. But we're not interested.

"Apathy" has pejorative connotations, but apathy about most issues is our normal state. Nobody has time or energy to deal with every issue that comes along. We have to choose. That is, we have to be "apathetic" about most things. Anyone who wants to get a particular issue onto our worry agenda – not to mention our action agenda – must compete first for our awareness, then for our continuing attention, and eventually for our allegiance.

For any one issue, the vast majority of people who know about it aren't allies or opponents or undecideds; they're apathetic.

Then there's denial.

Denial looks like apathy. In fact, denial actively masquerades as apathy; people in or near denial will tell you they're just not interested. But unlike apathy, denial is unconsciously motivated. If I'm really "just not interested" in your issue, that's apathy – your issue didn't make my list. If I can't bear to get interested, if the issue threatens my sense of how the world works or arouses emotions I cannot tolerate, that's denial.

The distinction matters because the appropriate messaging for apathy and the appropriate messaging for denial are antithetical in crucial ways. If the diagnosis is apathy, the treatment is to get me interested, to arouse more concern. If the diagnosis is denial, trying to arouse more concern will backfire, propelling me more deeply into denial. The treatment for denial is to help me bear the concern I'm already feeling.

But in other ways messaging aimed at apathy and messaging aimed at denial are compatible. A sense of futility often accompanies both apathy and denial. So persuading people that there are useful actions they can take works for both groups. Efficacy is common ground.

Efficacy

Here are some common reasons people give for not getting involved in an issue:



"I'm not a powerful person. Nothing I do is going to help."

"There's really nothing for the individual to do. It's all up to governments and institutions."

"It's too late. The die is cast."

"The issue is simply too big. There is nothing to be done."

"Everything is foreordained."

Psychologists often distinguish among these sentiments: powerlessness, hopelessness, helplessness, fatalism, futility, etc. In particular, believing there's nothing you can do is genuinely different from

believing there's nothing anyone can do. (The psychological literature often uses the terms "self-efficacy" and "response efficacy" to refer to these two kinds of efficacy. See Kim Witte's "[Putting the fear back into fear appeals](#)."") But the sentiments are closely related, and I'm going to use the term "efficacy" to refer to the whole cluster.

Efficacy complicates the distinction between apathy and denial. Here's how:

Low efficacy can lead to apathy. If I believe I can't do anything about your issue, it is sensible for me to focus instead on some other issue I can do something about. So feelings of low efficacy are a major source of apathy: I shrug off your issue in part because I don't see an effective way to help. Almost all successful efforts to arouse concern therefore include some efficacy messaging: "You can help," "here are some things you can do," "together we can solve this problem," etc.

Low efficacy can rationalize apathy. Sometimes people shrug off your issue for other reasons entirely, and then tell you it's all about efficacy. It is more courteous to tell you there's nothing I can do than to admit you're boring me. It is more self-respecting to tell myself there's nothing I can do than to admit I don't really care. Distinguishing between efficacy-as-cause and efficacy-as-excuse is often hard.

Low efficacy can lead to denial. If I care deeply about an issue, the feeling that the issue is hopeless can be extraordinarily painful. The feeling that I am personally powerless to influence the outcome can be just as painful, especially if it worsens other emotions like fear and guilt. Understandably, people may find these feelings unbearable. Robert Jay Lifton has called the result "psychic numbing." It is a kind of denial. When denial is rooted in hopelessness and helplessness, efficacy messaging should help.

Low efficacy can rationalize denial, or result from it. If I'm in denial for reasons other than efficacy, I may retreat to claims that there's nothing to be done, or at least nothing I can do. My feelings of hopelessness and helplessness are real, but they're hiding deeper and even less bearable feelings. When efficacy messaging isn't helping much, it may be because the denial is rooted elsewhere.

The nature of journalism exacerbates the problem of low efficacy. The media tend to define their audience as, well, an audience: bystanders rather than players. What is sometimes called "mobilizing information" – information that would help the audience do something about an issue – is comparatively rare in hard news, relegated mostly to sidebars and features. (Decades ago when I was doing PR for activist groups, I used to try to persuade reporters to put my group's phone number into the story, so interested readers could more easily call and get involved. I rarely succeeded.) Gerhart Wiebe coined the phrase "the syndrome of well-informed futility" to describe this effect of modern journalism on citizenship. Instead of feeling a civic obligation to do something about issues, we feel a civic obligation to know about them.

It is possible that the Web will reverse these trends; I think it's too soon to tell.

Efficacy is where apathy and denial meet. When people are comfortably aware of an issue and comfortably convinced that there's not much they can do about it, they're apathetic – and low efficacy is part of their apathy. When people are so angst-ridden about how powerless they feel that they can't bear it and go numb instead, they're in denial – and low efficacy is part of their denial.

Global warming apathy or global warming denial?

Efficacy messaging is a twofer: an important part of communications aimed at apathy and a crucial part of communications aimed at denial.



In most other ways, those two kinds of communications are antithetical. The most straightforward solution to apathy is to arouse concern. But if people are near denial, efforts to arouse their concern may push them into denial; and if people are in denial already, efforts to arouse their concern will push them more deeply into denial. People in or near denial don't need to feel more upset. They need to feel more supported, so they can bear how upset they are already.

When people are aware of a risk but aren't expressing much interest in it, usually the problem *isn't* denial. Too little concern is usually the right diagnosis; arousing concern is usually the right prescription.

But even though denial is much less common than apathy, it is not rare. And when communicators don't address it, they're mishandling an important segment of their audience. If we assume an audience is apathetic (just not interested) when it is actually in or near denial (can't bear to think about it), our efforts to motivate precaution-taking won't just fail; they will backfire, making that audience even more resistant to future messaging.

Global warming activists have two types of precautions in mind: lifestyle changes to reduce our individual carbon footprints, and political support for policy changes to reduce worldwide greenhouse gas emissions. The question is how best to move people in these two directions. The answer depends on our assessment of why they haven't been moved already.

If people are apathetic about climate change, their failure to act means they're fully occupied with other issues, and global warming hasn't made the cut. The most crucial risk communication task, then, is to pierce the apathy. Piercing the apathy may necessitate offering people things to do and persuading them that those actions will be efficacious. Piercing the apathy almost certainly necessitates arousing concern – getting people more concerned, worried, or even frightened about global warming (and therefore by definition less concerned/worried/frightened about other risks contending for their attention), so they will give it a higher priority.

But if people are in or near denial about climate change, their failure to act is more deeply psychological. It's not that they are giving priority to other issues; it's more that they can't bear to think about *this* issue. The most crucial risk communication task, then, is to make it more bearable to focus on global warming – to diagnose the reasons why people are so powerfully motivated to avoid the issue, and to change our messaging to reduce their avoidance and make it easier for them to face the issue and take action.

How do you distinguish apathy from denial? Apathetic people become less apathetic (at least briefly) when exposed to alarming information. People in denial, on the other hand, retreat more deeply into denial when exposed to alarming information.

So let's do a thought experiment. Picture an audience gathered to watch Al Gore's remarkable global

warming documentary, “An Inconvenient Truth.” I’m not talking about an audience of supporters, seeking out the movie in order to be reenergized by Gore’s intellect and passion. Nor do I mean an audience of opponents, watching under protest and knowing in advance they disagree. Imagine an audience made up entirely of people who are already aware of the issue but haven’t thought much about it, haven’t adopted a position pro or con, and haven’t taken any relevant actions. Assume they happen across the movie by accident – on an airplane, say, or in a classroom. How will it affect them?

If they emerge galvanized into climate change activism – or even moved modestly in that direction – then they were apathetic to start with and the movie has helped.

But if they recoil from Gore’s message and start telling themselves reasons why they don’t have to do anything about climate change (he’s just a lefty propagandist, the economy’s too shaky to worry about anything else right now, it’s too late anyway, whatever), then the movie has done damage. Probably they started out in or near denial and the movie has exacerbated the problem; conceivably the movie scared them directly from apathy into denial.

Other reactions to “An Inconvenient Truth” are also possible. Some people may prefer a less emotional or more emotional approach than Gore’s. Some may be open to the message but not from that particular messenger. Some may simply decide they disagree on the merits. I’m not trying to reduce everybody who isn’t an activist on either side of the climate change debate to the simple dichotomy of apathy versus denial. Still, that dichotomy explains a large portion of the population – and that dichotomy matters in trying to figure out how best to mobilize climate change action.

At nearly every showing of “An Inconvenient Truth,” some newcomers to the issue are inspired and some are put off. That is, there are apathetic people in the audience who become less apathetic, and there are people in or near denial who go more deeply into denial.

The relative size of the two groups may be changing. When “An Inconvenient Truth” premiered in 2006, apathy about global warming was the obvious messaging problem; psychological denial about global warming was barely on the radar. In the short time since then, media attention has increased, public concern has increased, and the seriousness of the crisis has increased. More and more people have transitioned from unawareness to apathy, then from apathy to concern ... and then from concern to denial. Still more are likely to make this transition in the next few years.

Is denial now a bigger messaging problem than apathy? Is “An Inconvenient Truth” now doing more harm than good? I seriously doubt it. But I do think denial is a bigger problem than it used to be. And notwithstanding all the good it does, I think “An Inconvenient Truth” is doing more harm than it used to do.

Never underestimate the staying power of apathy! Most people are “in their lives,” focused on home, job, family, etc. The outside issues we attend to are mostly issues (like the economic recession) that directly, palpably affect our immediate personal affairs. What little time is left over we allocate to local charities and controversies: the soup kitchen, the little league, the city council, the art museum, the nearby polluting factory. National and global issues are too big. We read about them. Our concern is momentarily aroused. We even email the article to friends. Then we go back to our lives.

The battle against global warming apathy is anything but passé. It is far from won, and it will be

hard to win. As my colleague and friend [David Ropeik has written](#):

The psychology of risk perception also confronts us with the reality that issues like climate change just don't ring our alarm bells. We use a dual process of reason and affect [emotion] to gauge the threats we face. Intellectually, climate change is threatening, sure. Majorities say so in nearly every survey. But emotionally, climate change is distant ... an idea ... not a threat that individuals feel is going to directly impact them. You see this in surveys too. Ask a few friends, "Name one way that climate change will significantly negatively impact you in the next 10 or 20 years." Most of the people I know struggle with that one. Which is why, while majorities say they are concerned about climate change, they shrink to minorities when asked to support carbon taxes or higher energy prices or, God forbid, changing personal lifestyles. Without feeling personally threatened, people just don't respond to risks urgently at all. It's just the way it is.

I don't disagree with Ropeik that it's still hard for many people to see global warming as personally relevant. In survey after survey on climate change attitudes, far more respondents say they expect negative impacts on the world than on themselves and their families. This is usually interpreted the way Ropeik interprets it: it's not obvious yet that a polar bear struggling to stay atop a shrinking ice floe has anything to do with you and me. But the same data are also susceptible to an interpretation grounded in denial. People in denial push the problem away; they see it as somebody else's problem. So, yes, lots of people still don't realize that polar bear is our warning sentinel. But some people – an increasing number, I believe – are defended against this realization, because they are finding it too hard to bear.

I dealt briefly with global warming apathy in response to a July 2006 [Guestbook comment](#) that asked how to arouse more outrage about climate change. The comment referenced not just "An Inconvenient Truth" but also a wonderful *Los Angeles Times* op-ed article called "[If Only Gay Sex Caused Global Warming](#)." My response stressed that precaution advocacy takes time, that global warming is a tough issue to arouse outrage about, and that surprisingly good progress was being made. I went on to suggest a few outrage components I thought could be better used to arouse more global warming outrage. (For a generic overview on how to arouse outrage in apathetic audiences, see "[Watch Out! – How to Warn Apathetic People](#).")

"An Inconvenient Truth" is still a powerful tool of climate change precaution advocacy. It works for waking up those who are still unaware; it works for arousing higher levels of concern in those who are aware but apathetic; it works for revving up supporters. But like much global warming risk communication, I think it pushes away a growing audience of people who are finding it almost unbearable to think about climate change.

I can't find much quantitative evidence to confirm – or rebut – the importance of psychological denial about global climate change. A small but growing empirical literature is devoted to global warming communication: how to persuade people to change their individual and political choices in the direction of climate change mitigation. But the studies I have seen do not specifically address the distinction between apathy and denial. Paying more attention to this distinction might help explain some of their findings. For example, the mixed results of various studies of the effectiveness of fear appeals begin to make sense if we consider that scaring apathetic people tends to help while scaring people in or near denial tends to backfire.

One good summary of current research is a November 2008 article from the *American Journal of Preventive Medicine*: “[Communication and Marketing as Climate Change-Intervention Assets: A Public Health Perspective](#),” by Edward W. Maibach, Connie Roser-Renouf, and Anthony Leiserowitz. Maibach and Leiserowitz also collaborated on “[Global Warming’s ‘Six Americas’: An Audience Segmentation](#).” This extremely useful 2008 report partitions the U.S. population into six groups – alarmed, concerned, cautious, unconcerned, doubtful, and dismissive – and proposes communication strategies for each group. The word “denial” does not appear in either document. An earlier (2005) segmentation effort from the U.K. distinguishes “settlers,” “prospectors,” and “pioneers.” Written by communications strategist Chris Rose and colleagues, [the report](#) proposes climate change persuasion strategies for each audience segment. Once again, there is no mention of denial.

Also worth a look is a 2004 master’s thesis entitled [Risk Communication on Climate Change](#) by J.A. Wardekker; it actually has a short section entitled “Dissonance and denial.”

Most published writing about what works and what doesn’t in climate change risk communication makes the implicit assumption that apathy is the problem. This column will examine what works and what doesn’t when denial is the problem.

Some other cases of denial

Australian pediatrician Helen Caldicott has helped lead the movement against nuclear weapons for almost four decades. Starting in the 1970s, Caldicott gave countless anti-nuclear speeches in which she briskly narrated the devastation that would result if a small nuclear warhead exploded “right here right now.” Beyond doubt, Helen Caldicott’s “bombing runs” (as insiders called the speech) inspired thousands of new activists. Also beyond doubt, thousands of others walked out of that same speech more numb than they walked in. It was just too upsetting, more than they could bear. 

In 1986, JoAnn M. Valenti and I wrote about nuclear apathy and nuclear denial – and their implications for anti-nuclear risk communication – in an article entitled “[Scared Stiff – or Scared into Action](#).” The editor’s introduction to that article nicely encapsulates our point: “At a time when everyone ought to be working to prevent nuclear war, the ‘bombing run’ tactics of activists have numbed many people. Activists should appeal to more positive emotions to empower people and inspire action.”

In the 1990s, I dealt with another issue that struck me as more about denial than apathy: endocrine disruptors. Zoologist Theo Colborn was first to argue systematically that many environmental chemicals disrupt the development of the endocrine system, causing irreversible damage in animal species, including humans. By the time Colborn’s book, *Our Stolen Future* (coauthored with Dianne Dumanoski and John Peterson Myers), was published in 1996, it seemed almost inevitable that endocrine disruptors would be *the* environmental issue of the last years of the twentieth century. Both environmental groups and chemical-emitting corporations assumed as much; both assigned staff to work the issue. It seemed an irresistible story for journalists, especially in its sexual implications: frogs with stunted penises, humans with diminishing sperm counts, etc.

But it never caught fire – not so far, anyway. Though its scientific validity and health significance

are still unsettled, the endocrine disruption hypothesis should have been a big public controversy. It possessed nearly all the “outrage factors” that I have argued determine how people respond to a risk: coerced, unnatural, unfamiliar, memorable, dreaded, etc. Were people nonetheless too apathetic to focus on it? Or were they too terrified? I think the latter.

A third example is terrorism. One of the risk communication errors the U.S. government made after the attacks of September 11, 2001, was its failure to offer people things to do. In 2003, the government finally started proposing ways we could all help prepare for the possibility of more attacks. This was an important step forward. But the initial public response was disdainful, especially with regard to the inclusion of duct tape on the government’s list of items a prepared citizen ought to have on hand.

So Jody Lanard and I wrote a column on “[Duct Tape Risk Communication](#),” trying to make sense of this weird public response. We likened it to a similar cynicism in the 1950s about precautions against nuclear bombs. Denial wasn’t the only thing going on in the rejection of duct tape in 2003 or the rejection of fallout shelters fifty years earlier. In both cases, a major source of the cynicism was people’s sense of futility (low efficacy). The threats seemed so huge and the recommended precautions so trivial. But denial almost certainly accounted for more than apathy in explaining the widespread public derision regarding fallout shelters and duct tape.

Are we getting it wrong again, this time about climate change?

I think we’re still making pretty good progress with regard to the apathetic segment of our audience. But we must also talk to a small but growing audience segment that is experiencing global warming denial, not global warming apathy. And too often instead of mitigating the denial, we’re provoking it.

This is a fundamental error in risk communication categorization. Global warming activists rightly see their core task as [precaution advocacy](#); the situation is high-hazard but low-outrage, so they’re trying to arouse more outrage. But for people who are in or near denial about global warming, it’s a mistake to assume that outrage is low; *their* outrage is intolerably high. For them, the paradigm is [crisis communication](#): high-hazard, high-outrage. To reach them, arousing more outrage isn’t what’s needed; instead, we need to help them bear the outrage they’re already feeling.

Kinds of denial

The most literal sort of denial is explicitly believing that the risk isn’t real: “No, the world’s climate isn’t changing as a result of accumulating greenhouse gases.” But there are subtler ways of evading a situation that threatens our worldview or our emotional stability. Here are some common variants or cousins of denial that are relevant to global warming:



People sometimes acknowledge the reality of a risk without feeling its emotional punch. A few days after the 9/11 attacks in 2001, a friend I used to play poker with asserted blandly and affably, “I’m not upset about what happened. It’s going to lead to a holocaust.” Psychiatrists call this defense mechanism “isolation of affect.”

People sometimes acknowledge the reality of a risk without acknowledging its importance or its urgency – for example by predicting that scientists will find a

solution, or society will adapt, or it will somehow turn out less disruptive than the alarmists are claiming. The rationales for shrugging off the issue can get pretty complicated. This psychological defense mechanism is called “intellectualization.”

People sometimes avoid worrying sufficiently about X by worrying excessively about Y instead. Psychiatrists have a label for this one too: “displacement.” Some people who overreacted to the anthrax attacks of late 2001, for example, were experiencing emotions displaced from their recent memories of 9/11 and their fear of another serious attack. As [I wrote at the time](#): “[T]he hazard of anthrax for ordinary people is infinitesimal. I think we know that – which is what makes freaking out over anthrax psychologically safer than pondering, say, smallpox, or the prospect of a suitcase nuclear bomb.”

People sometimes make fun of a risk, turning it into an object of ridicule in order to avoid having to take it to heart. I came of age at the height of the cold war, when the fear of nuclear Armageddon was routinely transmuted into humor, *à la* the 1964 black comedy *Dr. Strangelove*. Many psychiatrists see this sort of humor as a defense mechanism in its own right.

The core of denial is motivated inattention. I direct my attention away from information that threatens to upset my worldview or my emotional stability – such as information about global climate change. Denying that global warming is real, denying that I’m upset about it, asserting that it’ll turn out to be just a small problem in the end, obsessing over something else instead, and making fun of other people’s worry about it are all ways of accomplishing the psychologically necessary inattention to what’s happening to the world’s climate.

When I talk about global warming denial, I do not mean conscious, strategic denial. There are people who privately believe that climate change is real and serious, but have reasons for pretending otherwise – paid spokespeople for organizations that have a vested interest in denying the significance of climate change, for example. Strategic denial is rarer than we usually imagine. Those employed to deny the significance of climate change usually manage to convince themselves that they’re on the right side.

But people do occasionally voice opinions that are not what they believe in their innermost hearts. That’s not the kind of denial I’m worried about.

Nor am I talking about intellectual denial, the position of climate change skeptics and contrarians. Some members of this group have reviewed the evidence and decided that the case for a global warming crisis is weaker than the majority of experts now say it is.

Others just smell a rat. Their intuition tells them that the crisis is overblown, and that the expert consensus to the contrary may be just an artifact of herd mentality or political allegiance. Before dismissing this mistrust of the experts as willfully anti-scientific, consider your own skepticism about the ways science is deployed by institutions you disagree with. Environmentalists who insist that global warming climatology is unchallengeable have no trouble challenging, say, corporate toxicology – and vice-versa, of course. The view that “[sound science](#)” is often biased, politicized, and coopted by interest groups is itself grounded in sound science.

Please note that my own belief that the global warming contrarians are wrong is not grounded in the

evidence. Since I lack the appropriate expertise, I am simply playing the odds, betting that the expert consensus will turn out right (as it usually does) and the contrarians will turn out wrong (as they usually do).

So we can distinguish three kinds of global warming denial:

Strategic denial: I pretend to disagree for reasons of my own – to keep my job, enrich my business, get elected by my constituents, placate my spouse, whatever.

Intellectual denial: I genuinely disagree (whether based on evidence or based on intuition and mistrust).

Psychological denial (the focus of this column): I can't bear to let myself agree; I have a strong cognitive or emotional need to avoid the issue or to be on the other side.

In the real world the three can be hard to distinguish. Most people in psychological denial avoid the issue that gives them pain. But some are unable to push it away, and become scoffers instead ... which makes them look like the intellectual deniers, the contrarians. And of course the strategic deniers work hard to look like contrarians.

Moreover, the three are sometimes intermixed. For several years I worked with a CEO who was a high-visibility global warming denier, one of the ones journalists could always count on for a colorful contrarian quote. He ran an oil company that was under significant pressure to reduce its carbon footprint. He had a science Ph.D. and could support his position with lots of data. And he had a big ego that would clearly have taken a blow if he had ever decided that the evidence was trending against him and the problem looked serious after all. Was his denial strategic, intellectual, or psychological? All three, I assume, in proportions I couldn't begin to guess.

Sources of Psychological Denial

A common source of psychological denial is the one I just attributed to my oil industry ex-client: ego. I have built my career on the contention that people's perception of risk results more from what I call "outrage" than from the actual, technical hazard. Suppose evidence were to start accumulating that I was wrong, that people's risk perception is actually highly correlated with risk assessment data. I would find such a development very embarrassing. So I would scrutinize the studies for methodological flaws (as if the studies on my side didn't have flaws too), and I would be among the last to join in any emerging expert consensus that the outrage hypothesis is false. 

Magical thinking is also closely related to denial. We have all learned the aphorism that "if it sounds too good to be true, it's probably not true." But most of us have to keep learning the lesson. The current economic meltdown is widely (and justly) attributed to greed on the part of many financial institutions, and to incompetence or ideology on the part of government agencies that were supposed to regulate those institutions. But it is also attributable to magical thinking on everybody's part – including individual home purchasers and investors who let themselves pretend that prices and values could go up forever. We denied the reality of economic cycles, and we're paying for it now.

The two sources of psychological denial of greatest importance to global climate change are cognitive dissonance and intolerable emotion. I want to look at those two in detail.

Cognitive dissonance

Human beings are superb rationalizers. We seek out information that confirms our preconceptions and validates our existing behaviors, so we can hang onto our sense of how the world works. And we work hard to avoid the “cognitive dissonance” that results from learning information that disconfirms our preconceptions or invalidates our existing behaviors. 

It is extremely painful to discover that a deeply held conviction that you have acted on publicly (or even privately) is mistaken. Most people, most of the time, find ways to avoid such unpleasant discoveries.

In a 1956 book entitled *When Prophecy Fails*, Leon Festinger, Henry Riecken, and Stanley Schachter studied an end-of-the-world cult that had to cope with the world’s failure to end on schedule. In 1954, Marian Keech of Lake City, Utah announced that she had learned from extraterrestrial sources that global cataclysm was about to destroy the world, except for those who were “spiritually mature”; they would be picked up by an alien spaceship at midnight on December 21. The Lake City cult existed for only about five months; it attracted only a dozen or so serious followers. Importantly, those followers made public commitments to their beliefs. They quit their jobs, sold their belongings, and moved to Lake City.

At 5 a.m. on December 22 – five hours past deadline – Keech heard from the extraterrestrials again. They told her that the group’s devotion had led God to save the planet. Her followers spread the word. Then Keech got another message, that the rapture had been rescheduled for 6 p.m. on December 24. About 200 people showed up, but there was no rapture. Keech’s explanation this time: The spacemen had arrived on schedule, but they made themselves invisible to nonbelievers in order not to provoke a riot.

Festinger and his colleagues argued that Keech’s followers could not bear disconfirmation of beliefs to which they had committed so deeply. They simply had too much invested; being proved wrong would lead to intolerable cognitive dissonance. So they suppressed their doubts, reinterpreted the evidence, sought out new rationales for their convictions, and proselytized for additional converts.

The Lake City cult died very quickly. But *When Prophecy Fails* says the same strenuous efforts to prevent or reduce cognitive dissonance characterize all deeply held beliefs that are challenged by contrary evidence – regardless of whether the challenged belief is widespread or rare, regardless of whether it grows or disappears, and regardless of whether it is objectively true or false (or neither: unprovable and unfalsifiable).

A year later, in 1957, Festinger’s masterwork was published. *A Theory of Cognitive Dissonance* argued that dissonance extends to any situation where there is a discrepancy between two beliefs, two behaviors, or (most upsetting) a belief and a behavior. You believe in animal rights but you eat meat. You know smoking is dangerous but you smoke. You consider yourself a loving person but you’re often unkind to your next-door neighbor. Faced with cognitive dissonance, people look for ways to reconcile the conflict.

Some of the implications of cognitive dissonance theory are counterintuitive – and very important to persuasive communication (including risk communication).

For example, people often do something new for reasons that don't make much sense even to them – in response to advertising appeals they don't actually believe, for instance. (Ads implying that using a particular product will give you sex appeal rarely convince people that the product will improve their sex lives – but they increase sales anyway.) New behaviors without intellectual support give rise to cognitive dissonance – so we seek out information to validate the behavior and reduce the dissonance. Thus, while information is a weak motivator to do something we haven't done yet, it is a strong rationalizer and reinforcer to support something we just started doing.

In other words, it's hard to get people do X for sound reason Y. If people aren't doing X already, learning Y would create some dissonance, so they'd rather not learn it. But suppose you get them to do X for *unsound* reason Z – for example, by triggering an irrelevant motivator like sexuality. Now they're actively looking for information to justify X. So telling them Y now won't add to their dissonance, it will actually reduce the dissonance that doing X for reason Z has aroused.

This gives rise to a very effective two-step persuasion strategy, grounded in cognitive dissonance. For example:

Step 1: Switch to long-life fluorescent light bulbs (X) because your kid gets all bent out of shape whenever you use a traditional bulb (Z).

Step 2: Learn about global warming (Y) and congratulate yourself on having reduced your carbon footprint to help save the planet.

Between Step 1 and Step 2, of course, comes the cognitive dissonance: “Why am I letting my child harass me into changing what kind of light bulb I buy?”

And then there's a Step 3: Generalize your new understanding of climate change issues to a whole range of additional behaviors (ones your kid has nothing to do with), from what car you drive to what politicians you vote for.

Starting in the 1970s, I have developed many campaigns for environmental activist groups that followed exactly this structure:

1. an irrelevant and intellectually unconvincing motivator to trigger a new behavior;
2. cognitive dissonance aroused by not knowing any good reasons for the behavior;
3. information to rationalize and generalize the behavior.

For a more detailed description of how such campaigns worked, see Brian Day's book chapter on [“Media Campaigns.”](#) 

The unsoundness of the motivator that launches Step 1 is essential to the process; if the motivator were intellectually convincing the behavior wouldn't arouse any dissonance. In a classic cognitive dissonance experiment, people were offered varying amounts of money to argue an opinion they actually disagreed with. If they were offered too small an amount, people would simply decline. If they were offered too much, they would give the speech but feel no dissonance; they felt

comfortable telling themselves they did it for the money, so there was no need to reconsider their opinions. Somewhere in the middle was a financial offer sufficient to get people to give the speech but not sufficient to get them to feel okay about giving it. That's when people experienced the most cognitive dissonance, and therefore the most interest in finding information to support the view expressed in the speech, and therefore the most change in their own opinions.

When an existing opinion conflicts with a proposed new behavior, people try to avoid the new behavior, because acting in ways incompatible with their belief system would arouse cognitive dissonance. When an existing behavior conflicts with a proposed new opinion, people try to avoid the new opinion for the same reason.

What about when an existing opinion conflicts with an existing behavior? People are usually more deeply committed to the behavior. So we seek out ways to resolve the dissonance that won't require us to change what we do. Ideally, we would prefer not to have to change what we think either. We look for a rationale that makes the two compatible, or we try to avoid noticing the inconsistency. But if something's got to go, it's probably going to be the opinion.

This explains why pointing out people's inconsistency or hypocrisy is rarely an effective way to change their behavior. When I was a graduate student, I was briefly employed on a project to help university professors improve their teaching. We interviewed profs on the goals of their courses; then we studied the extent to which the courses actually achieved those goals and fed the information back to the profs. The educators who designed this project figured the professors would change their curricula to better achieve their goals. What actually happened: They changed their goals to better match what their courses were already accomplishing.

Similarly, telling people they can't possibly be serious about their global warming concerns when they're driving an SUV is not a good way to get them to abandon the SUV. It's far likelier to get them to abandon their global warming concerns. Likelier still, they'll find a way to reconcile their global warming concerns with their SUV. Take your choice:

My carbon footprint is smaller than that of most of my peers. Everyone's entitled to at least one global warming self-indulgence.

My family's safety comes first. It's not my fault that the safest cars the auto industry makes are gas guzzlers. When they make a really safe small car, I'll drive it.

Reversing global warming requires fundamental policy changes. Individual symbolic gestures won't help. In fact, trivial lifestyle reforms might even postpone the radical changes that are needed. Driving an SUV helps sharpen the contradictions and hasten the revolution.

It's too late anyway. This is the last gasp of consumerism. I may as well enjoy myself while I can.

(There are also some people who revel in their own cognitive dissonance. "Yes," they proclaim to anyone who will listen, "my lifestyle does conflict with my values. I'm such a hypocrite!" This is an acquired taste Festinger seems to have missed.)

How might cognitive dissonance lead to global warming denial?

Here's one possibility. I believe I'm a good person. I like my SUV. And I keep reading that environmentalists think my lifestyle is destroying the planet. Dissonance! I can reduce my dissonance either by deciding I'm not such a good person after all, or by junking my SUV, or by concluding that the environmentalists are wrong. Which of the three is easiest on my psyche? The third, obviously – so I seek out information suggesting that global warming is an unproved hypothesis. And another climate change denier is born.

Here's another possibility. I'm a serious conservative, convinced that the free market is the best engine of human happiness ever invented because it harnesses greed to yield an ever-higher standard of living. Many scientists are apparently convinced that global warming is a serious problem. In general I believe in science, but this issue has been championed mostly by liberals, who keep coming up with solutions that require more government regulation, more international cooperation, and a *lower* standard of living. Dissonance! I can either abandon my conservative ideology or decide that global warming scientists are perpetrating an anti-capitalist fraud. The latter is easier on my psyche. And another climate change denier is born.

Those are only two of many possibilities. Once you start looking for ways in which global warming activism might trigger cognitive dissonance in its audience, you won't have any trouble coming up with additional scenarios.

It is important to emphasize that global warming opponents are no more vulnerable to cognitive dissonance than global warming activists. Assume for a minute that there is gathering evidence that the global warming hypothesis is a mistake: that greenhouse gases are good for you; that current climate changes are cyclical, natural, and benign; and that there's no reason to disrupt the pursuit of the good life through material consumption. (That's not what the evidence says – but do the thought experiment.) Does anyone doubt that this emerging scientific consensus would greatly discomfit the leaders of the environmental movement, and that many of those leaders would resist the new paradigm by any means necessary, from questioning the methodologies of the relevant studies to challenging the competence, integrity, and political goals of the study authors?

Because most current evidence suggests that global warming is a serious problem, cognitive dissonance besets the other side, the contrarians. If the weight of the evidence were to shift, the dissonance shoe would be on the other foot.

Strategic denial and intellectual denial are conscious; people who decide to deny global climate change for strategic or intellectual reasons are accountable for their decisions. But psychological denial goes deeper. When people are propelled by cognitive dissonance into climate change denial, that is fundamentally not their fault. That's just because they're human. There's not much they can do about it.

The important question is what *we* can do about it. I assume most readers of this column share my view that global warming is serious, and that getting people to take it seriously is important. What are we doing that arouses cognitive dissonance in our audience, propelling people into the ranks of the deniers when we meant to woo them to our ranks? What can we do differently to reduce their dissonance and thus their denial? These are questions that matter when we're trying to develop climate change risk communication strategies and messages.

Before turning to these questions, I need to introduce the other major source of climate change

denial: intolerable emotion.

Intolerable emotion

Cognitive dissonance is aroused when a situation is incompatible with the way we see the world – with our current beliefs, behaviors, or both. Denying the situation resolves the dissonance.



A situation that arouses intolerable emotion (think of it as “emotional dissonance”) also produces denial. Many situations can arouse both cognitive dissonance and intolerable emotion in significant numbers of people. I believe the threat of global climate change is such a situation.

Although there are plenty of exceptions, the sort of denial that results from intolerable emotion tends to be noticeably different from the sort that results from cognitive dissonance. Dissonance frequently leads people to mock the thing that threatens their worldview. We seek out information to support our opinions and behaviors, and then we actively promote what we have learned in order to bolster those opinions and behaviors. Festinger’s end-of-the-world cultists, for example, proselytized all the more aggressively when it started looking like they were wrong. So if cognitive dissonance is the main source of somebody’s global warming denial, he or she may come on strong. Psychological denial rooted in cognitive dissonance can look a lot like strategic or intellectual denial.

Intolerable emotion, on the other hand, normally leads people to avoid the thing that upsets them too much to bear. If intolerable emotion is the main source of somebody’s global warming denial, he or she isn’t so likely to collect or disseminate evidence for the view that climate change isn’t real or isn’t serious. Even that could arouse too many feelings. Far better not to think about the issue at all. So psychological denial rooted in intolerable emotion can look a lot like apathy.

When somebody says something that people don’t want to hear – and certainly don’t want to have to think about or acknowledge – they sometimes self-mockingly stick their fingers in their ears and sing, “La-la-la-la-la.” This is a very literal representation of the essence of denial. Children do the same thing without the self-mockery, refusing to take in information that makes them frightened, guilty, sad, or otherwise uncomfortable. For example, parents who warn their young kids too emphatically that crossing the street is dangerous, that a truck may come along and squish them, may find that their children now cross the street with their eyes closed – thus avoiding having to see that terrifying truck. (Note that fear appeals are often very useful. They backfire when they’re unbearable.)

Similarly, a classic 1953 study found that high-school students who watched an unpleasant movie about tooth decay brushed their teeth *less* than students who saw a strictly factual movie on the same topic. The emotion-arousing movie featured graphic close-ups of rotting teeth, lots of sound effects (the whine of the dentist’s drill), etc. Students who saw that version remembered awful images from the movie every time they brushed their teeth – so they avoided brushing in order to avoid thinking upsetting thoughts.

What sorts of emotions are likeliest to give rise to global warming denial? Let’s consider some likely candidates.

Fear

The most obvious example is fear. It is entirely understandable that many people fear the direct effects of global warming. Many people also fear the ways our lives and our children's lives may change for the worse as society struggles to mitigate or adapt to the effects of global warming. For those who can bear these two kinds of fear, the fear helps motivate precautionary action. But for those who find their fear unbearable, global warming denial is an escape.

From Helen Caldicott's anti-nuclear "bombing runs" to endocrine disruptors, from fallout shelters in the 1950s to duct tape half a century later, history provides many examples of fear-motivated denial. It would be surprising if a threat as objectively awful as global climate change didn't have a denial problem.

To see how unbearable fear leads to denial, think about women's fear of breast cancer and its role in breast self-examination. A significant percentage of women do not routinely check their breasts for potentially cancerous lumps. Why not?

For some it's awareness; they don't know they should.

For some it's training; they don't know how.

For some it's efficacy; they doubt they could do anything useful about a lump if they found one. (And if they live in the developing world, they may be right.)

For some it's apathy; they're insufficiently worried about breast cancer.

But for many women in the developed world, the main problem is denial. Far from being apathetic about breast cancer, many women are terrified about it. In order to avoid intolerable fear, they must avoid thinking about breast cancer; in order to avoid thinking about breast cancer, they must avoid checking for lumps.

This isn't peculiar to women. Denial of fear similarly keeps many men from thinking about prostate cancer, many smokers from thinking about lung cancer, etc. In each case, denial also keeps us from taking action to reduce the risk.

Denial of fear may keep us from taking action in an emergency as well. Many people imagine that the big psychological problem in emergency situations is panic. But crisis communication professionals know that panic is actually quite rare in emergencies. Denial is one reason why panic is rare. (Resilience is another.) People on the verge of panic will generally trip an emotional circuit-breaker and go into denial instead. That's far from optimal; people in denial don't take appropriate action. But at least they don't take wildly inappropriate action, as people in the grip of panic do.

How can we help people bear their fear so that it won't flip into denial (or, less commonly, escalate into terror or panic)? In our 2003 column on "[Fear of Fear](#)," Jody Lanard and I offered a list of strategies. Among the important ones:

Give people things to do.

Give people choices among things to do – that is, things to decide.

Encourage love, camaraderie, and community involvement. People can tolerate more fear when they're protecting others they care about.

Encourage anger (where appropriate). People can tolerate more fear when they're fighting back.

Be a role model – show that you are bearing your own fear.

Then we wrote:

Most importantly, treat other people's fear as legitimate.... "It's natural to be afraid, I'm afraid too" is a much more empathic response to public fear than "there's nothing to be afraid of." If we want people to bear their fear, we must assure them that their fear is appropriate.

Many people are afraid of global warming, afraid of the way it may change our lives, and afraid of the societal and lifestyle changes the battle against global warming may necessitate. For some, these fears are hard to bear, and global warming denial is thus an alluring alternative. Typically, global warming activists work hard to stimulate global warming fear, searching endlessly for a right words and images to scare people into action. But what are we doing to help people bear their fear? What more could we do?

Guilt

In the U.S. and the rest of the developed world, global warming guilt may be as common as global warming fear.

Like fear, guilt can motivate action if it's bearable. But some of us may feel unbearably guilty about our consumptive lifestyles, our enormous carbon footprints. More guilt than we can bear can lead to global warming denial.

Psychologically sensitive environmental activists understand that excessive guilt is a path to denial. In a short 2001 article in *The Ecologist* on "[The Psychology of Denial: Our Failure to Act Against Climate Change](#)," George Marshall writes:

[W]e can intellectually accept the evidence of climate change, but we find it extremely hard to accept our responsibility for a crime of such enormity. Indeed, the most powerful evidence of our denial is the failure to even recognise that there is a moral dimension with identifiable perpetrators and victims. The language of "climate change," "global warming," "human impacts," and "adaptation" are themselves a form of denial familiar from other forms of human rights abuse; they are scientific euphemisms that suggest that climate change originates in immutable natural forces rather than in a direct causal relationship with moral implications for the perpetrator.

Marshall is eloquent on the nature of global warming denial, particularly the denial of moral responsibility. But having described guilt-induced denial magnificently – and very early in the game – he has nothing much to say about how this phenomenon should influence activist communications. He rightly points out that "denial cannot simply be countered with information," describing environmental campaigners as "living relics of Enlightenment faith in the power of knowledge." And I have no quarrel with his proposal to "create a large and vocal movement against climate change" that would provide social support for people to get involved instead of remaining bystanders. But how should we address the denial itself? Like many activists, Marshall might favor some sort of

tough love: forcing people to confront their guilt. I want to help people bear their guilt, a very different proposition.

Helping people bear their guilt calls for a subtler approach than helping them bear their fear. You can't validate their guilty feelings directly, because that's tantamount to accusing them of what they feel guilty about. For example, parents often feel guilty about their inability to protect their children from disasters. "It's natural for you to feel guilty for failing to protect your children" is very likely to be heard as "You failed to protect your children!" Similarly, some disaster survivors feel guilty about their relief that they survived; the relief seems selfish when so many have perished. To a guilt-ridden person, "I can understand why you feel guilty, it seems selfish to be relieved that others died and you didn't" sounds like an accusation: "How selfish to be relieved that others died and you didn't!"

Since acknowledging guilty feelings too directly can worsen the guilt and thus increase the likelihood of denial, it helps to deflect the acknowledgment. "Sometimes people feel guilty about surviving when others died" is better than "You feel..." or even "It's okay to feel..." (See the section on "[Deflection: You → I → They → Some People → It](#)" in my column on "Empathy in Risk Communication.")

Deflection is extremely useful when talking about phenomena that your audience may be tempted to deny. It is used a good deal in this column, in fact. I have consciously tried to frame things in terms of what "people" may feel or even "I" may feel ... trying to avoid accusing you the reader of a feeling you might not want to acknowledge.

But climate change activists aren't merely doing an inadequate job of ameliorating people's global warming guilt. Many are doing everything in their power to arouse global warming guilt. That might be sensible if your audience is apathetic about climate change. But guilt-tripping your audience is the last thing you should do if you're talking to people who already feel intolerably guilty about their carbon footprint.

If people are in or near global warming denial, and the denial is fueled by guilt, then the risk communication goal should be to help them bear the guilt, and thus to prevent or reduce the denial.

Sadness

Sadness is a third emotion that global climate change often triggers. Sometimes the sadness is so intense that it is hard to bear, and can lead to denial. This is true of the entire sadness "family" of emotions, including depression, misery, and even compassion.

Unlike global warming fear and global warming guilt, global warming sadness is often missed. But we all know people who are moved to tears by the plight of the polar bear, or by the plight of the millions of humans whose homes seem doomed to end up underwater as the seas rise.

As with fear and guilt, sadness on behalf of global warming victims is useful if it arouses people to action. It is harmful if it becomes unbearable and thus leads to denial.

The solution is straightforward. We must acknowledge, validate, and share people's sadness about the plight of the world's global warming victims – and thus help them bear their sadness so they

won't trip that emotional circuit-breaker into denial.

But too often, I think, climate change activists aren't thinking about how to help people bear their sadness. They're thinking about how to make people sadder. Once again, they're on target for the apathetic audience, but off-base for the audience that is at risk of going into denial or is in denial already.

Helplessness and hopelessness

As noted above in the section on "[Efficacy](#)," feeling helpless or hopeless can lead directly to denial. It can also exacerbate other feelings that lead to denial, such as fear, guilt, and sadness.

I don't think global warming activists try to arouse feelings of helplessness and hopelessness, the way they do often try to arouse fear, guilt, and sadness. To the contrary, nearly all global warming messaging asserts that effective climate change action is possible, and offers people things they can do. This is sound strategy as far as it goes. Efficacy messaging is an important way to help overcome both apathy and denial.

The problem is that global warming efficacy messaging often lacks credibility. Activists say that climate change is already happening and is projected to get significantly worse even if the world takes immediate action to reduce greenhouse gas emissions. They say that the world doesn't actually seem inclined to do much in the way of immediate action. And then they recommend compact fluorescent light bulbs, small cars, and voting for politicians who at least concede that the problem is real.

There's an obvious discontinuity between what activists tell people about the enormity of the climate change crisis and what they tell people to do about it. That discontinuity gives rise to feelings of helplessness and hopelessness. It also gives denial some cognitive support: "If the activists really thought global warming were as serious as they claim to think, wouldn't they be demanding much more fundamental changes?"

This is an extremely difficult dilemma to resolve. It is neither effective nor ethical to pretend that the problem is smaller than it is, or that the readily available solutions are more effective than they are. Nor is it wise to push instantly for radical changes (even if radical changes are going to be necessary) without first getting our "foot in the door" with more modest remedies.

Perhaps the best way to cope is with messaging like this:

Reducing global warming will demand major changes, sooner rather than later.
Some will be costly and hard on our lifestyles. But let's at least get started now on
the smaller changes, the ones that won't damage our economy or our way of life
... the ones that can enrich our lives and slow global warming all at the same time.
For example, we can....

Since fall 2008, the economic meltdown and the election of Barack Obama has led some U.S. climate change activist groups to deploy this sort of messaging more routinely. There is talk now of infrastructure investments that are both recession fighters and greenhouse gas reducers – investments where economic concerns and environmental concerns are aligned rather than antithetical. This is

important progress.

We also need to acknowledge and validate people's feelings of helplessness and hopelessness. Activist messaging rarely does that. We arouse the feelings but we don't usually address them. Every time we tell people what they can do to help fight global warming, we should think about adding: "Yes, it sometimes feels like a drop in the ocean. It is a drop in the ocean, but it's a start."

Anger

Climate change activists are not immune to the awful emotions aroused by the issue they are so deeply committed to. They feel the fear, the sadness, and the helplessness and hopelessness (maybe not the guilt). Some burn out. Those who don't have somehow found ways to bear these feelings without retreating into denial. Perhaps that's why they keep trying to arouse these feelings in others, even though more and more of their audience may be retreating into denial.

Anger is different. When climate change activists express anger about global warming, they're not necessarily trying to arouse their audience's anger. They're mostly just expressing their own. In fact, their audience may be a target of their anger. (Enraged activists in radical fringe groups sometimes express their anger with violence against their targets. I am not addressing that here.)

Anger is different in another way as well. In other contexts, unbearable anger often leads to denial, just as unbearable fear, guilt, sadness, and helplessness/hopelessness do. Consider for example the victims of domestic abuse, who may deny both that they are abused and that they are (justifiably) enraged. But I think anger rarely leads to global warming denial. People who are angry about global warming tend to be pretty upfront about it. Most activists find their anger eminently bearable.

The effect of global warming anger on its targets is another matter. Bearing the brunt of someone else's anger is a pretty good reason for denial, especially if the anger provokes feelings of guilt. This is a common pattern I will discuss soon: angry activists guilt-tripping their audience.

How We Provoke Denial

The thesis of this column is that there is an increasingly important audience of global warming activism that isn't apathetic, but rather is in or approaching denial. The reason this thesis is important – if it's true – is that the best risk communication strategies for preventing or reversing denial are radically different from the appropriate strategies for addressing apathy. 

The rest of this column will discuss how climate change messaging affects audience denial. Activists are mostly trying to arouse apathetic people – and slowly succeeding. How are their messages likely to affect people whose problem is climate change denial rather than climate change apathy?

In writing generically about activist messaging, I am of course painting with a broad brush. The messaging tendencies I will be talking about in the rest of this column – fear-mongering, guilt-tripping, ideological litmus tests for global warming solutions, etc. – are in my judgment widespread

... but they're not universal.

I shared a rough draft of this column with the California health official whose email helped motivate me to start writing about global warming denial. She wrote back with a list of climate change advocacy websites she thought didn't fit my description. She added:

Many of these campaigns are hopeful and very creative; some are angry (but not so much ideological in the '70s/'80s sense); many use humor or a cool edginess (that I don't think is over most people's heads or talking down to them); most are aimed at political action by working with others. Actually I can't say many of them are first and foremost ideological – at least in the things I've been looking at – probably because it is somewhat *younger activists* doing the work.... It would be a shame if you missed these different approaches.

It's true that the websites she sent me to – most of them, anyway – didn't seem likely to trigger or deepen people's global warming denial. Nor did they seem likely to pierce people's global warming apathy. Most of them struck me as diligently hopeful and more than a little wonky. That's not a bad tone for a climate change website: assuming your audience is already interested in getting involved and serving up a smorgasbord of ways to do so. I can't tell from the websites what sorts of outreach the sponsoring organizations are doing to get to people who aren't yet interested enough to navigate to their websites.

In case you want to check for yourself, here's the list she sent me:

www.repoweramerica.org

www.wecansolveit.org

www.foei.org

www.iclei.org

www.cleanair-coolplanet.org

www.climatecrisiscoalition.org

www.thisisreality.org

www.350.org

I remain convinced that far too many activist outreach efforts, in their zeal to arouse people who are apathetic about global warming, backfire badly on people who are in or near denial about global warming. Here's what I think they're doing wrong.

1. Fear-mongering: How scary is scary enough?

I am generally a fan of fear appeals. I wrote an entire column with Jody Lanard entitled "[Fear of Fear](#)," diagnosing why officials are excessively afraid to frighten the public and urging them to get over it. When I run seminars on [precaution advocacy](#), I often say that trying to get people to take action about a serious risk without frightening them is like trying to write a novel without using the letter "e": It's possible, but it's a helluva handicap.



Well-designed fear appeals are arguably the single most straightforward way to rouse people to action about a risk.

Thus I am not inclined to criticize global warming activists for scaring their audience. I don't usually accuse people of "fear-mongering"; people accuse me of fear-mongering.

But the relationship between fear and action is \cap -shaped curve. Most of the time, for most risks, people are insufficiently frightened. Frightening them is useful, even essential. But not if they're already very frightened. Not if the paradigm is [crisis communication](#) rather than [precaution advocacy](#). Not if they're in denial or getting close to denial. Then frightening them further will only deepen the denial.

How much fear people can tolerate without retreating into denial depends largely on how efficacious they feel. So when people are in or near denial because the situation is so frightening, it helps to offer them things to do, choices of things to do, and reasons to think what they do will matter. Other bulwarks against intolerable fear include love/camaraderie, anger, and role models of others who are bearing their fear well.

Perhaps most important is "permission" to be afraid. People are most able to bear their fear when it is validated. That's why telling people not to be afraid is the cardinal sin of crisis communication. When people are in or near denial, false reassurance is every bit as harmful as fear-mongering.

In the climate change messaging of activists, it is unusual to encounter sympathetic validation of how scary the situation is. "It is hard for most people – for all of us, really – to stay focused on these very alarming climate change predictions." Climate change messaging that validates people's fears about climate change mitigation is rarer still. "Understandably, many people are upset when they hear how our lives and our children's lives will have to change in order to reduce our emissions of greenhouse gases and forestall the worst effects of global warming."

I think more and more people are in or near denial about global climate change. In many cases their denial is grounded in fear that's hard to bear. Instead of helping them bear their fear, we just keep scaring them.

2. Guilt-tripping: The stupid fight over whether global warming is anthropogenic

Assuming that global temperatures are rising dangerously, is the increase caused by human activity? Or does it have little or nothing to do with us, caused perhaps by sunspots or some other cyclic phenomenon?



Who cares?

The important question isn't what's causing global climate change, but what should be done about it. If it's a serious problem, we should work hard to figure out what, if anything, we can do, and then we should get started doing it – whether the causes are anthropogenic or not.

Obviously, it is useful to understand the causes of a problem when trying to figure out the wisest solutions. But in the debate over global climate change, the tail is wagging the dog. A Google search for the phrase "causes of global warming" yields 357,000 hits; a search for "solutions to global warming" yields only 289,000 hits. These numbers simply make no sense. (Appropriately, "effects

of global warming” nets 1,580,000 hits.)

Both climate change activists and their opponents write and talk as if assessing blame were the core of the debate.

It's true that most supporters of climate change action think human activity is responsible, while those who doubt the problem is serious also doubt it's anthropogenic. People tend either to buy the whole package or to reject the whole package – and perhaps they would have that tendency even if it hadn't been sold as a package. Here's my question: Which part of the package deserves more focus, that global warming is serious and requires action, or that global warming is our fault? And a related question: Which part of the package is likelier to provoke guilt-induced denial, and which part is likelier to gain acceptance without that barrier?

We need to stop imagining that telling people they are part of the problem is the best way to persuade them to be part of the solution.

Climate change activists put incredible emphasis on assessing blame. They blame global warming not just on human activity generally, but on western overconsumption in particular. (The internal combustion engine and power generation from coal are also common targets of activist ire.) How many times have you read comparisons of the carbon footprint of the average American to the carbon footprint of people in the developing world, perhaps linked to the old quotation from Pogo: “We have met the enemy and he is us”?

I don't question the validity of the charge, but I strongly question the utility of harping on it. I question the faulty assumption that telling Americans they should feel terrible for consuming so much more than people elsewhere will help Americans decide to consume less.

It's true that people sometimes refrain from doing bad things in order to avoid feeling guilty. And people sometimes do good things in order to alleviate guilt about bad things they have done. Depending on our upbringing and other factors, we vary in the extent to which we experience guilty feelings as motivational.

But even people who are motivated by guilty feelings aren't necessarily motivated by messaging that tells them how guilty they should feel. Guilt appeals do not reliably induce guilty feelings. Sometimes they induce anger instead – or denial.

When urging the rest of the world to reduce its greenhouse gas emissions, Americans should repeatedly acknowledge that the U.S. is the world's biggest per capita emitter. Conceding your own guilt is very good risk communication. But insisting on your audience's guilt is much more problematic.

Anti-smoking campaigners tried guilt-tripping when they went after secondhand smoke. Suddenly the smoker was depicted as perpetrator, not victim: not just stupid to smoke in the first place, but rude and dangerous to blow smoke in other people's faces. Results were mixed. Passive smoking messages freed nonsmokers to be more aggressive about asking smokers to smoke someplace else; that made smoking less convenient and less socially acceptable, which helped motivate smokers to quit. As a direct appeal to smokers, on the other hand, messaging about secondhand smoke was ineffective. Except for parents worried about their children's health, very few smokers quit because

anti-smoking messaging made them feel guilty about how their secondhand smoke might affect others. Nonsmokers' anger worked much better than smokers' guilt.

When smokers felt victimized, they often supported political action against the tobacco industry ... and then, thanks to cognitive dissonance, they tried that much harder to quit. But smokers resisted efforts to make them into villains rather than victims. Some tobacco companies capitalized on this reaction. They ran ads sympathizing with beleaguered smokers and depicting them as independent thinkers who refused to follow the herd.

The literature on guilt as a motivator is much scantier than the literature on fear as a motivator. But from the research so far, it looks like guilt and fear share a crucial characteristic: Both are effective until the levels get too high, and then they backfire because of denial.

For sure, people are motivated to avoid (or stop) feeling guilty. At fairly low levels of guilt, that can impel us to take action – to reduce our carbon footprints, for example. And at fairly low levels of guilt, feeling guiltier can strengthen our motivation to act. But at some point, the emotional circuit breaker of denial kicks in. The guilt is too hard to bear. Instead of being motivated to act on our guilt, we are motivated to stop feeling it.

Even before our level of guilt gets intolerably high, we are motivated to resist messaging that harps on our guilt. Guilty feelings can be an effective motivator if the guilt isn't too strong. But audiences rarely respond well to messaging that tells them directly how guilty they ought to feel. Such messaging makes us ornery. We get angry at the source of the message, and our attitudes and behaviors tend to move in the opposite direction – a phenomenon known as “reactance.”

Here's what the research suggests:

Reactance is strongest in teenagers, who really hate guilt-tripping by their elders. (When it comes to climate change, fortunately, young people have the least to feel guilty about ... so far.)

Reactance is weakest in parents (especially moms) who are warned about the harm their behavior could do their children. It's not clear whether generalized warnings about what “we” are doing to “our children” – by failing to reduce greenhouse gas emissions, for example – are similarly effective.

Guilt messaging can work if it isn't overt – if it makes people feel guilty (or reminds them that they feel guilty) without letting them realize that was your intent. Even then, you need to be careful not to arouse such intense guilt that you provoke denial. Overt guilt messaging, where your intent is clear, backfires even when people's level of guilt isn't intolerable.

Anticipated guilt arouses less reactance than actual guilt. “You will feel guilty if you don't do X” is thus a more effective message than “You should feel guilty because you haven't done X.”

Absolution is a much more effective messaging strategy than guilt. Product advertising has been very successful selling absolution for preexisting guilt – for example, telling homemakers they'll feel less guilty if they use a particular laundry detergent or serve their family a particular food.

If people are already feeling mildly guilty about global warming, activists can usefully tell them how to alleviate their guilt by becoming part of the solution instead of part of the problem. If people are already feeling intensely guilty, activists should steer clear, lest they drive their audience into denial. And if people aren't feeling as guilty as they should, activists may be able to arouse some mild guilt (so they can then offer absolution) – but they'll have to be subtle and gentle about it. “Global climate change is your fault, you over-consumptive, SUV-driving pig!” is not a winning message. It leads to anger, to reactance – and to denial.

What matters most for climate change activists is that relying on guilt as a message is a disastrous strategy when used on people who feel horribly guilty already ... or on people who would feel horribly guilty if they let themselves feel it, but are protecting themselves from the feeling with denial.

I am indebted to [Monique Mitchell Turner](#) , Director of the Center for Risk Communication Research at the University of Maryland, for helping me think through this section. Turner has done a lot of not-yet-published research on guilt as a risk communication strategy. She doesn't necessarily agree with me that excessive guilt provokes denial; she says that's an “interesting prediction” that would be “tough to study.” But she agrees emphatically that overt, intense guilt messaging arouses reactance and backfires.

Who really gets inspired by guilt-laden messages about American overconsumption? People who judge themselves not to be big-time consumers anymore, who see themselves as having opted out of the lifestyle they blame for global warming. Many climate change activists fit this description. For them, messaging about the overconsumption of their neighbors (and their audience) doesn't arouse guilt; it arouses self-righteous anger. Since it feels so good to guilt-trip other people, it can be hard to notice that guilt-tripping usually backfires.

If they wanted to do so, activists could stress that overconsumption is the root of global warming without guilt-tripping the audience. In fact, it is possible to stress overconsumption in a way that reduces guilty feelings, and thus seduces the audience out of its guilt-induced denial. Here's a message I'll bet you haven't heard much:

The way we live has improved more in the last hundred years than in the previous thousand, thanks to technology. What wonderful inventions we have created to nurture our quality of life! And then very belatedly, just in the last two decades, we have learned that some parts of our wonderful technology are contributing to an unintended, unanticipated, horrible outcome – a horrible outcome we call global warming. Who knew? Who could have known? It's not our fault, it's nobody's fault. But now we desperately need to do something about it.

Compare that to the following exaggeration of the conventional message:

It's you, you greedy, lazy, over-consumptive American! It's your insistence on living high on the hog that is ruining the world! It's your SUVs and air conditioners, your total obliviousness to the welfare of other nations and other species. Wake up and mend your ways before it's too late!

Both messages say that our way of life must change in response to the threat of global warming. The first message blames nobody; it goes out of its way to offer absolution. The second message is

angry, self-righteous guilt-tripping. It certainly helps rev up the activist base, but I doubt it works on the target audience – not even the apathetic segment of the target audience, and certainly not the segment that is in or near global warming denial because of intolerable guilt. For that increasingly important audience segment, the first message is going to work much better.

One of the heroes of global warming advocacy, climatologist James E. Hansen, stakes out a position somewhere in the middle. In his speeches Hansen goes out of his way to say that we are not to blame for what we didn't know – but now that we know, we will justly be blamed if we fail to act. Here's the last paragraph of a Hansen presentation entitled "[Tell Barack Obama the Truth – The Whole Truth](#)": 

Young people realize that they, their children, and the unborn will bear the consequences of our actions or inactions. They do not blame their parents, who legitimately "did not know" what they were starting. Young people have recently worked hard to influence the democratic process. Now they expect the system to take appropriate actions. If that does not happen, surely they will begin to raise their voices louder.

And here is [Hansen testifying](#)  before the Iowa Utilities Board in 2007. He was asked whether past generations should be blamed for global warming. His answer:

No. They can genuinely say "we did not know." The blame will fall squarely on today's adults, if we do not act. We can no longer feign ignorance.... If we allow climate to deteriorate and creation to be destroyed, we will be the generation that knew enough and still had time, but for selfish reasons declined to take actions.

3. Ideology versus regret: Hostility to technological solutions

I played a very small part in the first Earth Day, April 22, 1970. Nobody was worried about global warming back then. In fact, between 1940 and 1980 global temperatures fell; "global cooling" was a second-tier environmental concern through much of the 1970s. (See this *Newsweek* article from 1975, entitled "[The Cooling World](#)." )



But plenty of Earth Day environmentalists were unhappy about overconsumption.

Many of the leaders in today's fight against global warming were hostile to American consumerism before the global warming crisis surfaced. They already hated the oil companies and the internal combustion engine, the power companies and the ever-growing use of coal-fired power plants. There were ample reasons for this hostility, concrete environmental concerns as well as a philosophical attachment to simpler lifestyles. Environmentalism was grounded in a coherent set of values and principles, and in real data about the state of the world. It wasn't grounded in global warming.

When global warming came along, it constituted yet another rationale for an already well-established ideology.

Today, when environmentalists tell us our lifestyles must change because of global warming, the changes they're advocating are pretty much the same changes environmentalists were advocating

before they were aware of global warming.

That's why activist messaging is so often ideological, angry, and self-righteous, and so rarely regretful. Try to find a regretful global warming message – not one that regrets what we have done to the planet's climate, but one that regrets what we must do to ameliorate the damage. Try to find a message that bemoans the “sad necessity” to abandon our SUVs because of their awful carbon footprint. It won't be easy.

Regretful messaging would probably be more effective, but for many global warming activists such messaging would be dishonest. They see nothing regrettable about the need to simplify our lives and reduce our economy's reliance on fossil fuels. That's what they've wanted all along.

And it's what they would want even if the global warming crisis miraculously disappeared. Picture it: Temperatures stop rising. Scientists figure out that the increase was very short-term, that things are back to normal again and there's nothing to worry about. Would you expect environmental stalwarts to shout hosannas and go shopping for a big car? I wouldn't.

I get it that climate change isn't the only rationale environmentalists have for wanting to get rid of SUVs – and for a host of other recommendations. A coherent philosophy and a great deal of technical data underlie the environmental agenda. We're going to run out of oil even if we do find a way to keep it from heating the planet. Burning coal puts dangerous particulates into the air, not just carbon dioxide. A growing biofuels industry has created a huge new food insecurity problem in the developing world, quite apart from using up more energy than it saves. Suburban sprawl makes us drive everywhere we go, and the result is an epidemic of obesity, not just an increase in greenhouse gases. Everything is connected. Sustainability is a network of interrelated challenges. Global warming may be the biggest of those challenges, but it's not the only one – and any narrowly targeted “solution” to global warming misses the point.

Okay, fine. But we can't have it both ways. Is climate change the overarching crisis of our times, requiring huge changes in everything we do (except, strangely, our environmental agenda, which somehow remains virtually unchanged)? Or is climate change a convenient symbol, one of many important challenges that need to be faced simultaneously with an integrated approach? When we're urging drastic action on climate change, we depict it as unique: not just a piece of our longstanding agenda but a stand-alone planetary emergency. But then someone suggests a climate change solution we don't like, and suddenly we rediscover the rest of our agenda and insist that such a narrow solution is no solution at all.

Consider how most global warming activists respond to the possibility of a technological solution to the global warming crisis – particularly their contempt for technological solutions that might make it possible to keep emitting greenhouse gases without heating up the planet.

Until his death in 2003, Edward Teller argued aggressively that there were good geoengineering measures available to reduce or counteract the warming effects of greenhouse gases. (Yes, that Edward Teller, the man best known as “the father of the hydrogen bomb.”) One such measure would be to introduce aerosolized fine particles into the upper atmosphere to scatter some sunlight and heat back into space – exactly what volcanoes do naturally. Teller estimated that this would cost somewhere between one-hundredth and one-thousandth as much as cutting back fossil fuel use to 1990 levels in the U.S. alone. And Teller's solution wouldn't require massive changes in lifestyle (at

least until we run out of fossil fuels).

From an environmentalist point of view, that's its fatal flaw. A solution that wouldn't require massive changes in lifestyle is no solution at all.

Teller's solution is far from perfect. There is no consensus that it would work at all, or that it wouldn't work too well and produce a global ice age. At best aerosols would be a stopgap, remaining in the atmosphere for a decade or so, whereas greenhouse gases can remain for many centuries. And fine particulates that settled back down to earth could represent a substantial respiratory health risk. Environmentalists are on solid ground arguing that technological solutions to one problem often cause unanticipated problems of their own. (So do non-technological solutions.)

Still, wouldn't you expect a comparatively cheap possible remedy for global warming to generate some buzz?

Environmentalists have been amazingly successful in convincing most politicians, journalists, ordinary citizens, and even scientists that the only acceptable way to manage global climate change is to reduce human activities that emit greenhouse gases.

Changing people's lifestyles is just about the toughest kind of persuasion there is. And environmentalists want to do it on a global scale. There may be no other answer to global warming. We may be stuck desperately trying to talk the world into changing how it lives. But if we're really hoping to ameliorate the effects of climate change, then any other answer – any answer that's easier to sell – deserves a close look, even if it has serious problems of its own. By insisting that only the most difficult answer to global warming is an acceptable answer, activists are greatly exacerbating the problem of climate change denial.

Global warming activists aren't invariably anti-technology. They like solar power and wind power – especially varieties of these technologies that are local, decentralized, labor-intensive rather than capital-intensive, and unlikely to end up managed by multinational corporations. While they may overstate how soon alternative energy sources will be able to replace fossil fuels, they have come up with plenty of prescriptions that could help preserve our way of life while reducing our carbon footprint. That makes it all the more intriguing how seldom they *say* they're trying to preserve our way of life while reducing our carbon footprint, and how often they say we must change our way of life or else.

Teller's proposed solution to global warming is totalistic. A more partial technological solution is carbon sequestration, also known as carbon capture and storage or CCS. Unlike Teller's solution, CCS has powerful corporate champions, especially the coal and electric power industries. It is at the heart of so-called "clean coal" technology. Most environmentalists hate it.

Long-term environmental thinkers tend to believe the real enemy is coal, not oil. If "peak oil" theorists are right, they note, pretty soon there won't be enough oil left to fuel the world economy. So if global warming doesn't kill off the oil industry, diminishing supply will. But we have enough coal to last for centuries – enough coal to fuel all those additional power plants we'll need if we switch to electric cars.

As usual, industry has grossly overstated the potential of CCS (probably even more than

environmentalists have overstated the potential of solar and wind power). Industry ads imply that CCS is virtually ready to roll. Actually, it's still a largely untested technology, with lots of engineering problems yet to be solved. And even as industry promotes the virtues of CCS, it continues to build facilities that do not use CCS, and that won't be able to use it in the future without extensive retrofitting.

Despite all that, it makes sense to work on ways to keep greenhouse gases from reaching the atmosphere. Yes, not producing those gases in the first place is the sweetest solution to global warming. But injecting them deep underground for a few centuries isn't a bad stopgap measure. It's entirely appropriate for global warming activists to police the exaggerated claims of CCS proponents. What's not so appropriate is their contempt for CCS itself.

But it's not surprising. Some years ago, I consulted for a company that manufactured a low-calorie fat substitute. Junk foods made with my client's product were significantly less caloric than ordinary junk foods. The company didn't expect campaigners against obesity and Americans' bad eating habits to greet the product with wild enthusiasm – but it hoped for at least some tentative interest. Instead, nutrition and obesity activists hated the product on sight. They didn't want a technical fix, a *deus ex machina* that magically made junk food less harmful. They wanted the public to eat less junk food.

Much environmental literature about global climate change reminds me of rightwing literature about HIV: It is punishment for the way we live. And so any solution that doesn't force us to change the way we live is an unacceptable solution. I think people sense this ideological self-righteousness. I think it contributes to our skepticism – and to our denial.

If we have to change the way we live, so be it. But nobody who's punitively gleeful about the change will be capable of selling it.

4. Whatever happened to global warming adaptation?

Suppose I told you that something horrible was coming, that it was too late to prevent it altogether, but that with concerted effort we might be able to prevent the worst of the disaster. Assuming you took me seriously, you would presumably look to me for guidance on two key questions:



1. What we should do to prevent the worst of the disaster?
2. What we should do to get ready to cope with the part we can't prevent?

Now suppose I gave you lots of answers to the first question – unpleasant answers, but still answers – but kept insisting that your interest in the second question was out-of-bounds. Suppose I kept telling you that it was crucial to devote all our efforts to preventing the disaster and none to adapting to it, even though we wouldn't be able to prevent it entirely. Wouldn't you smell a rat?

That's the situation with regard to global climate change.

Even if we enact an immediate, strenuous, worldwide effort to reduce greenhouse gas emissions, most experts agree that it's too late to avoid significant disruption – and of course the longer we wait and the more modest our efforts, the worse things will get before they start to improve. Climate

change activists accept this expert consensus. In fact, climate change activists shout it from the rooftops.

It's a pretty discouraging message – certainly more discouraging than is optimal for purposes of motivating action: “Things are going to be awful whatever we do. Now, let's do as much as we can so things won't be *as* awful.” But that's not my objection. Telling the truth is an axiom of risk communication, even when the truth is discouraging. For example, I routinely urge public health communicators to admit that there will be another influenza pandemic sooner or later no matter what we do, that when it comes we almost certainly won't have a vaccine, that when we develop a vaccine we won't have nearly enough of it, that the measures available in the meantime (like washing your hands a lot) will help only a little ... that it's going to be awful but here's what we can do to make it less awful.

So I'm okay with global warming communicators deploying the same message (even though I wish they wouldn't sound so triumphant when they convey the bad news): “Things are going to be awful whatever we do. Now, let's do as much as we can so things won't be *as* awful.” That's the right message.

Or, rather, that's half the right message. Here's the other half: “Since we know things are going to be awful whatever we do, let's start getting ready now to cope with the global warming we're not going to be able to prevent.” The second half of the message, the missing half, is about global warming adaptation.

The core question is the relationship between the two halves. Most global warming communicators seem to see the two halves as competitors, almost as mutually exclusive: “we've got to do what we can to prevent or mitigate global warming” versus “we've got to find ways to adapt to global warming.” I think they're complementary. And I think the absence of the adaptation piece of the message undermines the prevention/mitigation piece.

I started wondering whatever happened to global warming adaptation when I noticed that a U.S. environmental group client had an elaborate set of recommendations about what governments and citizens should do to reduce greenhouse gas emissions, but nothing to say about what governments and citizens might do to prepare for the hotter, drier, more variable climate that was inevitably coming.

I suggested that this gap constituted a significant credibility problem (not to mention a huge gap in planning). “A lot of your global warming recommendations were on your political agenda before global warming was,” I told my client. “So people need a reason to believe that you're really focusing on climate change now, not just using it as another rationale for the same old recommendations. Yet, even though you keep saying it's too late to avert the problem entirely, you don't seem to care whether we get ready to survive the part we can't avert. Where's your program for creating more tropical medicine centers, or for moving people out of cities that are doomed to end up drought-ridden or underwater, or for beefing up hurricane preparedness?”

The client's global warming specialists fervently disagreed. They told me that any program for helping society adapt to global warming would weaken the fight for greenhouse gas reductions. “People either prepare for a disaster or work to prevent one,” they said. “You don't ask them to do both at once. The last thing we want to do is send a message that global warming is endurable. Any

work on adaptation would send exactly that message.”

There's a genuine empirical dispute here. Does talking about global warming adaptation demonstrate the severity of the problem, and thus underscore the need to reduce greenhouse gas emissions? Or does it imply that the problem is enduring, and thus undermine the need for emissions reductions? I think the former. My activist client thinks the latter. I can't help feeling that there's something self-righteous and punitive about my client's position: "People need to be punished for their sins, and they need to change their sinful ways. Why try to help them suffer less from the effects of their sinfulness? That will just give them more excuses to keep sinning." Nonetheless, I can't find good empirical evidence one way or the other.

My client is not alone. Most of the environmental movement has operated on the assumption that any serious effort to promote global warming adaptation will undermine the public and political momentum required for global warming prevention and mitigation. Activists concede (privately) that adaptation is essential, that even the most successful prevention/mitigation efforts can only delay and reduce the crisis, not avert it. But they fear that the public and the politicians won't be willing to sacrifice to reduce greenhouse gas emissions if they feel society is already adapting to cope with global climate change.

I see the merits of this argument, but I'm on the other side. I believe most people won't take prevention/mitigation seriously until they see the huge sacrifices adaptation will require.

I encountered the same imbalance, even more surprisingly, when I consulted on global warming risk communication for a state regulator in Australia. Largely because it burns a lot of coal, Australia has a very poor per capita carbon footprint. But there aren't a lot of people in Australia, so its overall impact on global warming is minuscule. Moreover, because of its location and its dry climate, Australia will be more vulnerable to the effects of global warming, and will be vulnerable earlier, than most of the developed world. Bottom line: Australia is far more a climate change victim than a climate change perpetrator.

Nonetheless, my regulator client was extremely interested in figuring out how to reduce its citizens' greenhouse gas emissions, and much less interested in figuring out how to prepare them to cope with permanent drought conditions. I disputed this choice of priorities on two grounds.

First, I argued that it was a quixotic, foolish, and even dishonorable stance – that Australians would suffer unnecessarily because their regulators were so focused on reducing their contribution to global warming instead of preparing them to endure it. My client replied that it was important to set a good example, as if the U.S., China, and India were sure to sit up and take notice if only Australia led the way.

The other point of contention had more to do with risk communication. Like my environmental group client in the U.S., my regulator client in Australia was convinced that there wasn't enough political will to make simultaneous progress on climate change adaptation and climate change prevention/mitigation. It was a zero-sum game, my client told me, and any work on adaptation would weaken the momentum toward prevention and mitigation.

I argued to the contrary that serious efforts to get people ready to cope with a hotter, drier, more variable climate are the only thing that will persuade them that it's coming – and thus persuade them

that they ought to do what they can to reduce its extremes. I asked the regulatory agency to imagine going to the state Parliament with an ambitious and expensive climate change adaptation proposal: moving people inland, developing new agricultural strains that require less water, talking Australians out of their backyard flower gardens, etc. Let the Parliament and the public come back with demands for more greenhouse gas reductions, in the hope that some of this onerous adaptation agenda might thereby be avoided.

Similarly, imagine the questions people would ask if major U.S. cities started building tropical medicine centers. More extreme yet, imagine if cities in your area started making plans – concrete plans – to relocate people away from the coasts. Imagine a campaign to resettle the population of Vanuatu in California after Vanuatu is gone.

Excessively moderate adaptation plans might imply that adaptation will be easy, and thus undermine the incentive to take prevention and mitigation seriously. But I think serious adaptation plans build the case for urgent prevention and mitigation.

One of the few times I have seen this question addressed was an April 2008 meeting to assess public attitudes about climate change, sponsored by the U.S. National Oceanic and Atmospheric Administration and the George Mason University Center for Climate Change Communication. [The summary report](#) of the meeting puts the question fairly:

To the extent that climate literacy education has focused on response options the emphasis has been almost entirely on GHG [greenhouse gas] mitigation. A serious national discussion about adaptation to climate change has yet to begin. Some in the public health field have suggested that discussing adaptation strategies inevitably leads people to greater issue concern about mitigation (i.e., as people learn about the consequences of climate change their desire to avoid those consequences grows). This perspective is new; the more common view among informal educators and some scientists has been that splitting the public's attention between mitigation and adaptation either adds too much complexity to the subject or causes people to give up on mitigation altogether. These hypotheses have not yet been fully tested.

The emphasis on prevention/mitigation over adaptation isn't just characteristic of the way we *talk* about climate change. It is characteristic of our policy prescriptions as well. Climatologist Roger A. Pielke, now at the University of Colorado, has been complaining about the imbalance for more than a decade. In a 1998 journal article entitled "[Rethinking the role of adaptation in climate policy](#)," he wrote that "adaptation responses must occupy a larger and more formal role in climate policy." A decade later, he [pointed out at a conference](#) that "Unfortunately, the current nature of the climate debate has them [adaptation and mitigation] as competing policies."

I don't mean to imply that no one is arguing for simultaneous mitigation and adaptation. In a [February 2007 comment](#) on a newly issued report of the Intergovernmental Panel on Climate Change, President Martin Rees of the (U.K.) Royal Society said: "We need both to reduce our emissions of greenhouse gases and to prepare for the impacts of climate change. Those who would claim otherwise can no longer use science as a basis for their argument." The statement figured in a number of blog threads, including one with the wonderful title: "[Climate change mitigation and adaptation \(both, not versus\)](#)."

Another sign that change may be coming: In January 2009, sustainability consultant Alan AtKisson [posted an article](#) on his “WaveFront” blog entitled “Climate Change Adaptation: from Big Taboo to Business Opportunity.” He begins by describing a meeting in Stockholm:

First and most importantly, the room was full. Not long ago, a seminar on climate change adaptation would have been a low-profile event. It might have drawn a few dozen people, most of them academics, activists and development workers. Even the topic would have been seen as controversial, even taboo: “Don’t talk about adaptation,” went the argument, “because that will signal that we’ve given up on stopping global warming.” But as the evidence [grew] that climate change is here, and that adaptation is imperative, that taboo has finally begun to crumble away.

And today, there was a room full of officials, business execs, and consultants like me crammed into a rather small auditorium to hear about “Climate Change Adaptation – Finding the Business Opportunities.”

There are serious climate change adaptation projects underway from California to the Netherlands (which has plans to augment its famous dikes to cope with rising ocean levels). And in February 2009, just as I was finishing up work on this column, the International Union for the Conservation of Nature and WWF International announced the creation of the Ecosystems and Livelihoods Adaptation Network to help threatened ecosystems and societies adapt to coming climate changes.

Nonetheless, the main focus of global warming activism remains – by far – prevention and mitigation, not adaptation.

What does all this have to do with denial? Not as much, perhaps, as some of the other sections of this column. The other sections deal with global warming messaging that might work fine on apathetic audiences but seems likely to backfire on audiences in or near denial. But I doubt the neglect of adaptation works on any audience. I think millions of apathetic people won’t start taking climate change mitigation seriously until the advocates of mitigation start taking climate change adaptation seriously.

Activists’ (and regulators’) failure to pay attention to adaptation doesn’t exacerbate climate change denial directly, the way fear appeals and guilt-tripping do. But it contributes to denial in at least two other ways.

First, like the failure to pay attention to possible technological solutions, it reveals the punitive, self-righteous, ideological side of global warming activism. It suggests that activists want people to sin less – but don’t really want people to suffer less for their sins. (The specific sin in question here is greenhouse gas emissions; the underlying sins include overconsumption and our love affair with the internal combustion engine.) That’s probably enough to push an audience that’s running away from intolerable guilt more deeply into denial.

Second, the activists’ failure to take climate change adaptation seriously implies that they aren’t really serious about climate change, that it’s just the *rationale du jour* for the same old environmental agenda. Whether that’s actually true or not, the absence of an adaptation agenda makes it seem true. For an apathetic audience, this would presumably be a source of skepticism, which is bad enough. But it’s worse for that part of the audience that is in or approaching denial. Remember how cognitive dissonance works. It makes people seek out information to justify their

preexisting beliefs and actions. People who are experiencing cognitive dissonance about global warming aren't listening objectively to the activist spiel, hearing both its strengths and its weaknesses. They're listening with jaundiced ears, looking for reasons to reject the threatening message. Even weak evidence of hypocrisy would be enough. Activists' determined unconcern about helping the world adapt to the climate changes that are coming feels like pretty strong evidence.

One of the first things that persuaded me personally that global warming was a big deal was when some environmentalists announced that they were reconsidering nuclear power. It was so important to reduce greenhouse gas emissions, they said, that even nukes might be acceptable as an alternative to fossil fuels. "If enviros are willing to back off their longstanding opposition to nuclear energy," I said to myself, "they must really be serious about climate change."

"If enviros aren't interested in helping get ready for climate change," I think many people in or near denial are asking themselves today, "how serious could they be?"

5. Doom and gloom: When bad news is good news

In the 1970s, when I was running an environmental communication graduate program at the University of Michigan, I got interested in the fondness of environmental activists for bad news. Several of my students did research studies to explore the phenomenon. I'm going to describe two of these studies, as I remember them. (I probably remember them as more definitive than they actually were; I last read them about 30 years ago.) 

In the first study, a research team put together a collection of photographs. Some showed beautiful natural phenomena: sunsets over the ocean, pristine waterfalls, gorgeous jungle landscapes, cuddly wild animals ("charismatic megafauna," we liked to call them), etc. Others showed pollution in action: grimy junkyards, belching smokestacks, iridescent oily puddles. A mixture of both kinds of photos was shown to students, some of whom had expressed a commitment to environmental activism and some of whom had little interest in environmental issues. Respondents were asked the extent to which each photo made them want to do something about the environment.

The key finding: Students with strong environmentalist leanings were more motivated by the pollution photographs than the nature photographs. Students without such leanings found the nature photos more motivating; the pollution photos tended to make them want to think about something else instead. My grad student researchers concluded that activists (like themselves) tend to be inspired by the problems they're fighting against, whereas normal people are inspired by the goals they're being asked to work toward.

Presumably most of the students in the second group were apathetic about environmental issues, not in denial about those issues. Even so, the ugly photos motivated these newcomers (potential converts) less than the beautiful ones. For any who were in or near denial – who found it unbearable to contemplate such horrendous images of pollution – the ugly photos would have backfired badly.

But the ugly photos were the activists' favorites.

The second student study focused on a documentary on endangered species entitled "Say Goodbye." Narrated by Rod McKuen, the movie had exactly the right title. It built a strong emotional case that

human greed and indifference would inevitably eliminate more and more of our fellow creatures. It interspersed elegiac passages about how magnificent various doomed species were with accusatory passages about how some of us (the fur industry, for example) were actively evil while the rest of us were unconcerned about the evil and therefore just as bad. It was meant to be depressing, and it was.

The researchers asked fellow students who had just seen the movie to specify whether it made them feel mostly angry or mostly guilty. They also asked respondents how much the movie motivated them to want to do something about the endangered species problem. Those who were moved to anger were more interested in taking action than those who were moved to guilt. A few weeks later, a different researcher revisited the respondents in their dorms and asked them to sign a petition to save endangered species. (“Say Goodbye” wasn’t mentioned.) Sure enough, those who had been angered by the movie were likelier to sign than those who had felt guilty. The researchers concluded that an endangered species movie that aroused more anger and less guilt would be a better recruiting tool for endangered species protection.

Although this second study was interpreted in terms of the motivational power of anger versus guilt, there were really three emotions in play: anger, guilt, and sadness. For virtually everyone who watched it, “Say Goodbye” was a profoundly sad movie. I would wager that viewers with environmentalist leanings readily converted their sadness into anger, and their anger into determination to act. But viewers who were new to the issue probably had a different response. For them, I suspect, the sadness was linked to guilt, and neither was linked to action.

These two student studies weren’t specifically about denial, but they’re not hard to interpret in terms of denial. If I see myself as a foot soldier in the battle to save the environment, then I experience photographs of pollution and a movie mourning doomed species as calls to action. Dramatic evidence of other people’s misbehavior makes me mad. I probably feel some sadness too, but it’s bearable because it’s linked to anger and an action agenda. If I feel any guilt, I can bear the guilt without denying the problem, since I have things to do to remedy the problem and expiate my guilt. Or I can deny the guilt, and still not deny the problem: I remind myself of my environmental credentials and convert the guilt into more anger.

But if environmental issues aren’t my thing, then I’m likelier to find pollution photos and a movie about doomed species depressing and guilt-inducing. Maybe I can bear those feelings. Maybe I even enjoy wallowing in them once in a while. Even so, they don’t tend to rouse me to take action to solve the problem. Perhaps if I had never before thought about such matters, the photos and the movie might shock me into awareness. But if I’m aware already, just uninvolved, then what do the photos and the movie teach me? That the situation is dire, and I’m a jerk for being uninvolved.

If I’m normal, I’d rather not continue to feel depressed and guilty. Those feelings are at least unpleasant, perhaps unbearable. I could escape them by jumping onto the activist bandwagon. But another escape path is less onerous: denial. So I shrug off the photos/movie, and remind myself to try to stay away from such aversive stimuli in future. Or I ridicule the photos/movie – a more aggressive way of not letting the depression and guilt get to me.

Bottom line: Depressing messages motivate environmental stalwarts, but in much of their target audience they trigger avoidance and even denial.

I started this column by talking about Al Gore’s “An Inconvenient Truth.” I argued that this global

warming documentary has the potential to shock unaware people into awareness and rouse apathetic people into concern, but also the potential – too much potential – to push others into denial or more deeply into denial. “An Inconvenient Truth” is in the same tradition as ugly photographs of pollution and depressing movies about endangered species.

What I’m emphasizing now is that committed activists *like* ugly photographs of pollution and depressing movies about endangered species. They liked Helen Caldicott’s speech about what a nuclear bomb would do to their community. They like “An Inconvenient Truth.”

This is a recurring problem in risk communication. Almost by definition, committed activists – the people who work on campaigns to get others to care about an issue – are very different from the people who don’t care about that issue. Committed activists don’t tend to have good intuitions about what’s likely to interest an apathetic audience. They don’t tend to have good intuitions about what’s likely to push an audience in denial more deeply into denial. And they don’t tend to have good intuitions about who is in their audience: apathetic people or people in (or near) denial.

I believe an increasing segment of the audience for global climate change risk communication is in or near denial. Activists keep missing this shift because they’re activists ... and activists get motivated to anger and action by messages that non-activists are likely to find depressing, guilt-inducing, terrifying, numbing, and immobilizing.

When I wrote [my Guestbook response](#) about global warming in July 2006, I said that one of the difficulties of motivating people had been the absence of dramatic climate change imagery. The issue was too distant, too abstract. I was paradoxically heartened by stranded polar bear cubs and melting icecaps, because I saw them as powerful tools to arouse the apathetic. They still are. Plenty of people are still having “Oh My God” epiphanies when they encounter vivid images of stranded polar bear cubs and melting icecaps.

But a growing minority may have had enough of climate change messages that are saddening, guilt-inducing, or terrifying – all emotions that tend to induce denial. People in that growing minority don’t need still more awareness-raising and apathy-piercing. They need messages designed to entice them out of their denial and into action. Since activists find repeated “Oh My God” epiphanies energizing rather than denial-inducing, this is a need that activists are virtually programmed to overlook.

6. Trashing the enemy: One-sided versus two-sided communications

Back in the 1990s, the controversy over the seriousness of global warming was still wide-open. There were plenty of high-profile scientists on both sides. Today, the distribution of scientific opinion is much more skewed; the “yes, it’s serious” side has pretty much won the debate. Nonetheless, it remains possible (albeit unlikely) that the winning side is wrong. There are still some experts among the skeptics. And they sometimes claim that they have a lot of silent allies, fellow scientists who share their skepticism but are reluctant to say so for fear of repercussions.



(In fact, both sides argue that they have been subjected to pressure of various sorts. Alarmists accuse

skeptics of sabotaging their government grant applications over the last eight years. Skeptics accuse alarmists of creating a hostile work environment in the faculty lounge.)

Today, in short, the global warming controversy is no longer wide-open, nor is it entirely settled. The skeptical position is a minority position. But it does have arguments on its side of the debate – bits of data (factoids) that can be deployed to support the skeptical position, methodological disputes over the evidence (especially the modeling), etc.

Many global warming activists don't concede that there is still a debate. That's part of why they like the term "denial" so much. When activists call the other side "global warming deniers," they don't usually mean that the other side is having a tough time coming to terms cognitively or emotionally with the reality of climate change. No, they're being intentionally insulting, invoking a comparison to Holocaust deniers. People on the other side never call themselves deniers; they call themselves global warming "skeptics" or "contrarians."

As a rule, global warming activists respond to the contrarians' arguments in one of three ways. Sometimes they ignore them, pretending that the controversy is settled and there is no other side. Sometimes they dismiss them contemptuously, asserting that the controversy is settled and the other side is asinine. And sometimes they rebut them, proving (as best they can) that the controversy is settled and the other side is sadly mistaken.

What they rarely do is acknowledge any validity whatsoever to the contrarians' case.

The question I want to address is whether this is a wise strategy, especially with regard to its impact on people who are in or near global warming denial.

The research on one-sided versus two-sided communications is extensive. There are situations when it is wise to ignore your opponents' arguments and simply sell your half of the truth (or your 99% of the truth). And there are situations when it is wise to concede your opponents' arguments, even if the vast majority of the evidence is on your side.

One of the situations when you should concede the opposition's piece of the truth is directly relevant to global warming denial: when your audience is actively engaging the opposition arguments already.

Much earlier in this long column, I made the point that global warming denial that's rooted in intolerable emotion tends to lead people to avoid thinking about the issue at all, whereas denial that's rooted in cognitive dissonance tends to lead people to seek out opposing arguments. Emotion-based denial typically looks like apathy. But dissonance-based denial can look like scoffing.

When global warming activists put too much stress on fear-mongering, guilt-tripping, and the like, they risk exacerbating emotion-based denial. When activists refuse to concede that climate change contrarians have any valid points whatsoever, they risk exacerbating dissonance-based denial.

People in the grip of cognitive dissonance about global warming are biased in their information-seeking and information-processing. They reliably beat the bushes for information they can interpret to mean that global warming is a foolish fantasy or a liberal plot ... or at least a debatable hypothesis. When that's what people are looking for, it's not hard to find. They can find it on Rush Limbaugh's talk radio show. They can find it in books by "Skeptical Environmentalist" Bjørn

Lomborg. They can find it on hundreds, perhaps thousands, of websites.

Global warming activists cannot keep cognitive dissonance from motivating a biased search for contrarian arguments. And global warming activists cannot keep that search from succeeding. The activists' only choice is how to respond to the contrarian arguments: whether to ignore them, dismiss them, rebut them, or even on occasion (when they are valid) concede them.

Ignoring or dismissing the contrarian arguments gives them strength. In fact, the tendency of global warming activists to ignore or dismiss the contrarian arguments may well be the single best contrarian argument left: "The Establishment refuses to engage with our position. What are they afraid of?"

Respectful rebuttal is far superior. But remember: People experiencing cognitive dissonance about global warming aren't neutrals trying to assess the merits of the debate. Their information-seeking is highly biased; they're on a scavenger hunt for information that can reduce their dissonance. Listening to your rebuttal will tend to *increase* their dissonance. So they're not likely to listen, or at least not likely to listen objectively.

When we talk to people for whom climate change arouses cognitive dissonance, our goal should be to find less dissonance-arousing rhetoric to express our global warming warnings. That could mean going out of our way to voice regret rather than jubilation that lifestyles may have to change. It could mean focusing more on win-wins, ways of reducing greenhouse gas emissions that can also sustain our economy and our way of life. It could mean championing market mechanisms, not just government programs, as pathways to a reduced carbon footprint.

Above all, I think, it means trying not to sound contemptuous of the contrarian position. The mutual contempt of many global warming activists and their contrarian opponents polarizes the issue. If people experiencing cognitive dissonance are forced to choose up sides, they will probably choose the side that doesn't arouse so much dissonance – the contrarian side (or at least the skeptical side). A less polarizing approach can help them reconcile the evidence that climate change is serious with the dissonance that evidence is arousing.

Conceding that climate change contrarians may be right about some things doesn't mean conceding that they're right overall. Asserting that the overwhelming weight of the evidence is on your side doesn't mean asserting that there are absolutely no holes in your case or factoids that point the other way. Acknowledging that there is still a debate doesn't mean acknowledging that the debate is a tossup.

There is still a debate but it's not a tossup. The contrarians have some points in their favor but the overwhelming weight of the evidence is on our side. That's what good science says is the truth. And that's what good risk communication says is strategically wise messaging – especially when talking to people whose cognitive dissonance is luring them into denial.

I understand how hard it is to avoid polarization when advocating such an urgent cause. The sense that we are engaged in a holy war to reduce worldwide greenhouse gas emissions before it's too late makes it difficult to address the contrarians' quibbles with anything other than dismissive contempt. But dismissive contempt is backfiring, I think, especially for the growing audience of people experiencing global warming denial rooted in cognitive dissonance.

Here's an extremely challenging take-home assignment. Granted that you are convinced (and so am I) that global warming is real and serious, make a list of the other side's sound arguments. If you can't find any, look harder. Sure, their arguments don't add up to the convincing case they claim it does. But their arguments don't add up to zero, either. Gather together the things global warming contrarians say that aren't lies, that are true as far as they go. Assume that people whose global warming denial is rooted in cognitive dissonance have heard these arguments and taken them to heart. Start building an activist case that doesn't ignore, dismiss, or even rebut these arguments – that concedes them.

One of the other side's strongest arguments, in my judgment, is uncertainty. Even today, even in the face of ever-better evidence of global climate change, uncertainty is still the contrarians' ace-in-the-hole. For those of us who are convinced that climate change is real and serious, there remains enormous uncertainty about how best to address it. And those who doubt that the problem is real and serious can capitalize on our uncertainty, especially if we are unwilling to admit it: "If our leaders can't even figure out how to unfreeze the credit icecap, how can they possibly pick the right ways to respond to global warming? Even if the experts are right about what's happening, why should we believe they know what to do about it?"

One of the biggest defects in recession-fighting risk communication is our failure to concede that we're making it up as we go along, that we have no road map, that some of what we're trying is bound to fail or even backfire. That same defect contaminates climate change risk communication as well.

What about the possibility of a deeper error: that global warming might turn out to be no big deal, that the contrarians might be right after all? Should we still be conceding that too? Or has the time come to declare climate change contrarians out-of-bounds?

Bear in mind that the size of a risk has two components, probability and magnitude. So when we try to convince people that global warming is serious, we have two key messages: It's likely to happen (risk probability), and it's likely to be horrific if it happens (risk magnitude).

Back when the climate change debate was wide-open, it was obvious to risk communication professionals that the magnitude argument was a lot stronger than the probability argument. It was a mistake, albeit a common mistake, to pretend or claim that the case for global warming was a sure thing. It was wiser – both more accurate and more credible – to tell people that global warming worst case scenarios were truly horrible and we couldn't afford to wait for certainty before doing something about the problem.

Warnings about worst case scenarios are usually like that. Three quick examples:

If you're thinking about whether to buy flood insurance, a wise insurance salesperson doesn't insist that your home is bound to get inundated. Instead, the agent reminds you how awful it would be to have your house flooded out.

George W. Bush was unwise to launch the invasion of Iraq by saying he was certain that Saddam Hussein had weapons of mass destruction. He would have been wiser to say that the possibility was too dire to tolerate.

Pandemic preparedness advocates shouldn't try to convince people that an influenza

pandemic is imminent. Nobody knows when the next pandemic will come. We're on much solid ground basing our argument for preparedness on the hundreds of millions who could die in a worst case.

I've written a whole column about "[Worst Case Scenarios](#)," so I won't belabor the point here. See especially the last section, entitled "[Postscript for Sources that Like Talking about Worst Cases](#)."

In the last few years, as the alarmist side of the global warming issue has gained intellectual and political strength, activists on that side have pretty much stopped saying we can't afford to wait till we're sure. Now they mostly say we're sure.

Of course people who *are* sure should say so. I'm not advising a strategic pretense of uncertainty if you're certain. And I'm definitely not advising pretending that the evidence is weaker than it is. But it's crucial to remember that key groups in your audience are not so certain. Some of them – especially those experiencing cognitive dissonance – may be hanging onto their uncertainty for dear life, and may see your claims of certainty as dishonest and unscientific. So even if you're telling people you're certain, I would point out that they don't have to share your certainty to support your action agenda.

I'd tell them something like this:

The evidence of a serious global warming problem gets stronger every year. Today only a few scientists disagree that urgent action is needed. Of course there are still some holes and uncertainties in our case, and the minority who disagree have a case of their own. Do we know for sure that only urgent action stands a chance of preventing the world from getting hotter and hotter, until melting icecaps flood our coastlines, wars are fought over access to water, hurricanes become ever more frequent and more powerful, and tropical diseases are routine throughout Europe and North America? Personally, I am pretty sure of these predictions. But if you're not so sure, consider this: By the time even the few remaining skeptics are convinced, by the time we're all absolutely certain about the looming effects of global climate change, it will be too late to do much to mitigate those effects or to manage them. If we're smart, we won't wait. We will take action now.

I like the tone of this excerpt from climatologist [Mario Molina's 2005 testimony](#) before the U.S. Senate Committee on Energy and Natural Resources:

While there is a growing scientific consensus around the science of climate change, there is of course much that we do not fully understand about the timing, geographic distribution, and severity of the changes in climate – and the economic, environmental, and social impacts of these changes – that will result if heat-forcing emissions continue to increase. However, not knowing with certainty how the climate system will respond should not be an excuse for inaction. Policymakers are frequently, indeed usually, in the position of making decisions in the face of uncertainties.... Most people buy car insurance even though they don't know with any degree of certainty what their individual risk of being in a car accident might be, just as most doctors would advise an individual with a history of heart trouble to choose low-fat foods and exercise despite the many complex and usually unknowable factors that go into determining any individual person's risk of having a heart attack.

If we apply the same logic in setting goals for limiting the risks associated with future climate change, it becomes very clear that our current course now places us far outside the kinds of risk thresholds we typically apply in other areas of public policy. Put another way, there is now an overwhelming consensus that failure to limit greenhouse gas emissions will produce a risk of significant adverse consequences that is far higher than we find acceptable in other arenas. When facing a substantial chance of potentially catastrophic consequences and the near certainty of lesser negative effects, the only prudent course of action is to mitigate these risks. And let us be clear – when we speak of potentially catastrophic consequences in this context we are talking about devastating impacts on ecosystems and biodiversity; severe flood damage to urban centers and island nations as sea level rises; significantly more destructive and frequent extreme weather events such as droughts and floods; seriously affected agricultural productivity in many countries; the exacerbation of certain diseases; population dislocations; etc.

This passage doesn't sound like Molina lacks confidence that global warming is serious – yet it focuses not on how certain he is, but rather on how foolish it would be to wait for certainty before taking action against such horrific possibilities. In Molina's shoes I would go a little further: I would concede a few of the contrarians' best arguments. But unlike so many climate change activists, Molina isn't implying that there are no respectable contrarian arguments left.

At its worst, the activists' tendency to avoid giving respectable contrarian arguments their due keeps company with a parallel tendency to advance less-than-respectable arguments of their own. Probably the most common example of this is attributing specific weather events (and sometimes disease outbreaks) to global climate change. Such debatable and unprovable attributions are all too easy for the other side to rebut. And the rebuttals are all too easy for people experiencing cognitive dissonance to seize on as reasons why they can't trust global warming activists and therefore needn't take global warming seriously.

It is possible to capitalize on a teachable moment without going beyond the science. In an article entitled "[Should We Talk About the Weather?](#)" science journalist Chris Moody offers this advice:

My own view is that while hurricanes can and even should be used to discuss global warming, it must be done with rigorous fidelity to the current state of scientific understanding – something that's hardly easy to achieve when scientific understanding on this topic is a moving target. Nevertheless, using a language that emphasizes risk rather than certainty – and, of course, avoiding the causal attribution of any individual storm to climate change – generally insulates against criticism. For instance, regarding an eerie, record-breaking storm like 2007's Category 5 Cyclone Gonu, I might say something like this: "Scientists predict that hurricanes should worsen due to global warming ... and when you see a seemingly unprecedented storm like Gonu, doesn't it at least make you worry that they're right?"

As I write, Australia is suffering its worst drought, heat wave, and bushfire disaster in decades. The Australian media are full of stories attributing the situation to global climate change, as well as stories decrying that attribution as irresponsible, exploitive fear-mongering ... and stories carefully staking out the middle position that climate change will probably make such extreme weather

conditions more common but cannot be blamed for any specific instance.

Every time we give in to the temptation to attribute some awful weather event to global warming, we trigger credible counterclaims that we are ignoring science and fostering fear. We also “give permission” for contrarians to similarly misuse their own examples, as in this March 2008 *New York Times* article: “[Skeptics on Human Climate Impact Seize on Cold Spell.](#)”

Three Simple Points

Despite the length of this column, its basic recommendations can be summarized in three simple points:



Whenever you're trying to persuade people to take global climate change seriously, consider the possibility that the barrier you need to overcome may not be apathy, but rather psychological denial. If your persuasion efforts routinely backfire – that is, if people seem to get more apathetic when you start telling them why they should be getting more concerned – it's almost surely denial.

When you suspect denial, try to figure out what kind. Are there deeply held beliefs or patterns of behavior that your global warming advocacy is challenging, leading to cognitive dissonance and a concerted search for evidence that you're wrong? Are your messages arousing intolerable levels of fear, guilt, sadness, helplessness, or other emotions, leading people to avoid considering the issue at all?

Once you think you know what kind(s) of denial you're up against, change your messaging to seduce people out of their denial. At a minimum, try to avoid messaging that seems likely to exacerbate global warming denial:

Avoid fear-mongering.

Avoid guilt-tripping – such as harping endlessly on the charge that global warming is anthropogenic.

Avoid coming across as an ideologue, more committed to changing people's lifestyles than to addressing global warming – and therefore as hostile to technological solutions.

Avoid focusing on climate change mitigation to the exclusion of climate change adaptation.

Avoid taking pleasure in bad news – venting your anger and self-righteousness in ways that add to your audience's guilt and sadness.

Avoid arguing a one-sided case that fails to acknowledge that climate change skeptics have some decent arguments too.

Finally, a crucial reminder: Don't get so preoccupied with denial that you forget about apathy. And, in fact, don't imagine that apathy and denial are all there is. Some people are still unaware that

global warming is an issue they should be thinking about; some have acquired misinformation that keeps them from getting involved; some are on our side already and need support to do even more than they're doing now.

Denial is one aspect of climate change risk communication. I believe it is important, growing, and neglected. But it's not the whole ball game.

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