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HOW DOES THE MIND GRASP CLIMATE CHANGE?

A research-based guide tries to narrow the gap between information and action

NEW YORK, Nov. 4, 2009 — A recent poll shows that the number of Americans who accept that human activity is changing Earth’s climate is declining—down from 47 percent to 36 percent—even though the scientific data is overwhelming, and continues to build rapidly. A concise new publication delves into what goes on in the human mind that causes this disconnect, and what communicators of climate science can do about it.

The new 43-page guide, *[The Psychology of Climate Change Communication](#)*, released today by Columbia University’s [Center for Research on Environmental Decisions](#), looks at how people process information and decide to take action, or not. Using research into the reactions of groups as disparate as African farmers and conservative U.S. voters, it offers insights on how scientists, educators, journalists and others can effectively connect with the wider world.

For the nonscientist, climate can seem alternately confusing, overwhelming and politically loaded, say lead authors [Debika Shome](#) and [Sabine Marx](#). The guide shows how evolving scientific knowledge can be conveyed without running into predictable roadblocks. Using eight basic principles, it identifies tactics that scientists and other can use to increase the chances that people will understand what they are saying and, when appropriate, take action. These include framing complex issues in ways that people can relate to personally. (New Yorkers may respond more to the idea that sea-level rise threatens to flood their subways, than to the idea that it also threatens much of Bangladesh.) They say scientists and journalists also need to do a better job of sorting the larger picture from smaller uncertainties—for instance, concentrating on the strong consensus that sea levels will rise in the 21st century, versus confusing readers with disagreements over exactly how much levels will rise.

Scientists generally acknowledge that nothing can be known with absolute certainty; their trade involves reducing the amount of uncertainty. But, as with the numbers they give out, the words they habitually use can be misinterpreted by the public to mean they do not really know what they are talking about. For instance, a recent report from the [Intergovernmental Panel on Climate Change](#) states that global temperature increases that have taken place in the last 50 years have been “very likely due to the observed increase in anthropogenic GHG concentrations.” Panel scientists have agreed that “very likely” means 90 percent certain or more—but when researchers asked ordinary people to assign a percentage to that specific phrase, most came up with a much lower number. The guide also attacks fancy words like anthropogenic (translation: manmade) and acronyms such as GHG, (shorthand for greenhouse gases). These may alienate even educated people, say the authors. Even many graphs that in the minds of scientists show alarming trends elicit only yawns or incomprehension from almost everyone else.

One chart in the guide lists words with columns showing their meaning as perceived by scientists, and by nonscientists. To scientists, a “theory” is the “physical understanding of how [something] works.” Hence, the theory of evolution, the theory that the earth formed over billions of years—and now, the theory of manmade climate change. But to the public, a theory may be just “a hunch, conjecture or speculation.” (Politicians long ago learned the lesson that language is important: one [recent study by the authors and their colleagues](#) finds that conservative Americans find “carbon offsets” more acceptable than a “carbon tax”—even though it might be

argued the two are essentially the same. Climate legislation now before Congress has excluded anything labeled a “tax.”)

The public has its own chronic problems. For one thing, there is a phenomenon that social scientists call the “finite pool of worry”; people can deal with only so much bad news at a time before they tune out. For another, when individuals respond to threats like climate change, they are likely to alleviate their worries by taking only one action, even if it is in their interest to take more than one—an effect called the “single actions bias.” For Americans, recycling often serves as a catchall “green” measure, and people will neglect to take others, such as switching to more efficient light sources. One study showed that farmers in Argentina who had capacity to store grain were less likely to use irrigation or crop insurance, even though the added measures would have made their operations more resilient to changing weather.

“Gaining public support for climate change policies and encouraging environmentally responsible behavior depends on a clear understanding of how people process information and make decisions,” say Shome and Marx. “Social science provides an essential part of the puzzle.”

Free printed copies and an interactive online version of the guide are [available on CRED’s website](#). The project received funding from the Charles Evans Hughes Memorial Foundation and the U.S. National Science Foundation.

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Copies of the guide: cred.columbia.edu/guide

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The [Center for Research on Environmental Decisions](#) is an interdisciplinary center that studies individual and group decision making under climate uncertainty and in the face of environmental risk. CRED’s objectives address the human responses to climate change and climate variability as well as improved communication and increased use of scientific information on climate variability and change. Located at Columbia University, it is affiliated with The Earth Institute and the Institute for Social and Economic Research and Policy. www.cred.columbia.edu