Chapter 83
Research–Based Climate Change Public Education Programs

Mary Beth Hartman
Florida Atlantic University, USA

ABSTRACT

Despite widespread natural disasters being linked to a warming planet, Americans continue to be a nation divided on climate change-related issues. This division and resulting disengagement stand between the implementation of new and effective policies. There is a critical need to move beyond the gridlocked debate on global warming to a place where decision makers can begin to develop effective strategies to make our communities and future more resilient. An informed and engaged public is necessary to implement change. Utilizing the research behind science communication, opinion leadership, and issue framing, effective public education programs and campaigns can be developed to build public understanding and engagement. This is explored in this chapter.

INTRODUCTION

Despite the massive wake-up call of Superstorm Sandy, and other recent natural disasters being linked to a warming planet, a lack of understanding and engagement on climate change issues continues to exist. Decades of empirical science battles against special interests, politics and the implementation of new and effective policies. There is a critical need to move beyond the gridlocked debate on global warming to a place where decision makers can begin to develop effective strategies to make our communities and future

more resilient. An educated and engaged public is a critical part of this equation and by utilizing existing research, effective public education programs and campaigns can be designed to engage a citizenry.

BACKGROUND

The climate related science readily available to the general public has been backed and peer-reviewed by the world's top climate scientists. This research is a major part of what constitutes

the Intergovernmental Panel on Climate Change (IPCC) reports, which are updated every six years. In 1999, climate scientist Stephen Schneider wrote *Science as a Contact Sport: Inside the Battle to Save the Earth's Climate.* As an integral member of the IPCC, he explains that "the IPCC's purpose is to provide a comprehensive and objective assessment of scientific, technical and socio-economic information that could lead to a better understanding of human-induced climate change, its potential impacts, and the options for adaptation and mitigation." The IPCC reports are the product of thousands of scientists from around the world who serve as volunteer authors, contributors or reviewers.

The IPCC's reports set forth conclusions about the causes and effects of climate change as well as the costs and benefits of solving the problem. These reports are intended to assist policymakers worldwide make informed decisions and develop effective strategies to reduce greenhouse gas emissions and control climate change related issues. The IPCC redoes its assessments every six years (the most recent was released September 2013) since new data and improved theory allows scientists to update their prior assumptions and increase their confidence in the conclusions.

As a historical climate scientist, Schneider provides clear, peer-reviewed evidence for things that 'should keep us awake at night'. It has been said that it is far better to plan for things such as climate change related sea level rise as a 'no regret strategy' than to plan for nothing at all. At the top of Schneider's consequences of worse case scenarios, human life would be vulnerable in many ways.

Cities on river deltas or close to coastlines, particularly in Asia, would suffer because of rising sea levels and intensifying tropical cyclones, potentially creating hundreds of millions of environmental refugees and consequent political instability. The extent to which environmental refugees would create a military security problem is controversial, but a group of retired high-ranking US senior military officers, when asked to examine the role of climate change as a security threat, called it a "threat multiplier." They meant that climate doesn't by itself create stressed human conditions but that climate change can be the final straw that breaks the already stressed systems and thus multiplies the threats. (p. 198)

"Ninety-seven percent of climate scientists agree that climate-warming trends over the past century are very likely due to human activities and most of the leading scientific organizations worldwide have issued public statements endorsing this position." (http://climate.nasa.gov/scientific-consensus) Despite this, climate scientists have struggled with climate skeptics, contrarians, deniers and a disengaged public for over three decades.

Climate change deniers seem to be ubiquitous and well represented in the popular media. Examples of techniques used to distract the public or discredit mainstream climate scientists include support of special interests that heavily block the transition to renewable energy by spreading doubt, supporting powerful anti-climate science lobbyists and public information campaigns that portray climate change mitigation options as unfair economic burdens.

A key tactic, though, is aggressively framing the debate as 'uncertain theory' and thus creating widespread doubt and ambiguity. Mazo (2013) examines multiple 'strategies of denial' and uses George Will as an example of an opinion leader with an impressive audience. Over 450 newspapers syndicate Will's column in the Washington Post and since 2008 he continues to proffer the same climate change fallacies "despite multiple refutations and debunkings" (p. 42).

Dunlap and Jacques (2013) examined 108 climate denial books published through 2010, in addition to exploring conservative think tanks and their considerable role in perpetuating the on-going denial of global warming. While sci-

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