

◆ Science and the Communication Ethic: How an Organization Provides Science to Policy Makers

Kayleen A Niyo

There is a growing need for scientists to become active in their professional societies, to serve on interdisciplinary scientific task forces, to communicate with local and national media, and to approach state and national legislators and regulators. This report is a description of how 1 organization and its many members are meeting the challenges of communicating sound science to policy makers.

Technologic, environmental, and economic concerns about health, food, fiber, environmental, and other agricultural issues will be debated actively by legislators, forged into regulation by executive agencies, and explained by the media to the public. When decision-making at every step requires reliable information, reticent scientists can no longer afford not to provide sound data to policy makers.

The efforts of committed individuals are needed to bring science to the fore in public-policy debates. If reliable science is to be provided quickly and accurately, individual scientists must become more active in the political process.

There is a growing need for scientists to become active in their professional scientific societies, to serve on interdisciplinary scientific task forces for organizations such as the Council for Agricultural Science and Technology (CAST) or governmental entities, to communicate with local and national media, and to approach state and national legislators and regulators. Allen Bromley, former science advisor to President George Bush, stated in "Is Science Lobbying an Oxymoron?" in the 7 July 1995 issue of *Science* that "a combination of arrogance and ignorance stands in the way of effective lobbying by the country's scientists." In this article I describe how 1 organization—CAST—and its many members are communicating sound science to those who need to know.

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What Is CAST?

CAST, established in 1972 to help communicate sound science, uses a variety of forums that scientists and scientific editors may want to adapt to their needs. For those unfamiliar with CAST, it resulted from a meeting sponsored in 1970 by the National Academy of Sciences/National Research Council and is a nonprofit organization composed of 33 scientific societies and many individual, student, company, nonprofit, and associate society members. The CAST Board of Directors is composed of an elected Executive Committee and 50 representatives of the 33 member scientific societies and individual members.

The mission of CAST is to identify food and fiber, environmental, and other agricultural issues and to interpret related scientific-research information for legislators, regulators, and the media to use in public-policy decision making. CAST's strength as an interpreter of this scientific information is based on its ability to draw upon the expertise of eminent scientists in a wide range of scientific disciplines. This unique strength is CAST's most powerful means of delivering, in the form of reports, expert witnesses for congressional hearings and briefings, and conferences and workshops, summaries of the latest information in the scientific literature to its targeted audiences.

The emphasis is on interdisciplinary scientific input. The actions of 1 scientific discipline affect those of other disciplines. Collaboration among disciplines and indeed among peoples is mandatory if world problems related to the environment, diseases and pests, food and fiber supplies and security, and other social needs are to be addressed satisfactorily.

In coverage of the 26 June 1995 Ameri-

can Association for the Advancement of Science (AAAS) meeting, *The Chronicle of Higher Education* reported that the worst scenario would be for researchers to take the position that their own fields are more important than others, that is, "circling the wagons and shooting inward". The article admonished researchers to present instead a united front in support of the full range of scientific disciplines.

Changes in Communication and Science

As the 21st century approaches, the pace of change accelerates. Communication is worldwide and instantaneous. For example, one of CAST's current task forces working on a report titled "Contribution of Animal Agriculture to Meeting Global Human Food Demand" is participating in the Second Food and Agriculture Organization (FAO) Electronic Conference on Tropical Feeds, Livestock Feed Resources within Integrated Farming Systems by receiving e-mail abstracts or papers and discussion by international scientists. Most scientists at universities and research facilities around the world are using e-mail and electronic transfer as the preferred means of communication.

Online scientific journals, other publications, and media sources are becoming increasingly commonplace. Commercial sales of online publications are increasing. Most scientific institutions and organizations and news media now have a World Wide Web site or are creating one.

How Does CAST Assist Scientists in Informing Policy Makers, the Media, and the Public?

CAST uses a variety of forums to present the latest science to Congress, regulatory agencies, the media, and the public. The primary method is the publication of task-force reports, interpretive summaries, and issue papers written by eminent scientists from many disciplines. The task-force reports are usually requested by Congress, regulatory agencies, and others and provide detailed scientific information and, when needed, literature citations. A 2-page interpretive sum-

mary of each report provides essential information for very busy congressional and media personnel, who do not have time to read a long report. From 4000 to 9000 documents are distributed to targeted recipients. A summary and a news release are sent to more than 500 news media.

Second, to enhance the impact of the reports and interpretive summaries, CAST retains representation in Washington, DC, that helps provide scientific information. The representatives work directly with the congressional staff, providing them with reports and contacts with scientists when staff members are developing language for specific bills or need briefings or testimony before House or Senate committees or subcommittees. They also serve as an important CAST link to congressional science fellows sponsored by many scientific societies. The fellows provide valuable assistance as scientists in the offices of senators and representatives and for the staffs of committees and other federal offices.

Third, CAST sponsors conferences such as the one on "Sustainable Agriculture and the 1995 Farm Bill" in Washington, DC, in January 1995 with participants from Congress, the administration, the news media, academia, and industry; CAST published a report with the same title. In November 1997, CAST will sponsor an international conference, "Food Safety, Sufficiency, and Security: Domestic and International Dimensions", in Chicago; a proceedings will be published.

Fourth, CAST initiated a program of conversations about the changes occurring within the work place and the future role of scientific societies in the lives of their members. Supported in part by grants from the W. K. Kellogg Foundation and the Farm Foundation, a Phase I CAST Leadership Workshop for Professional Societies involving 183 members of 48 scientific societies and organizations was held in October 1995. A summary was published by CAST. The University of Illinois became a supporter along with the Phase I participants for the Phase II Workshop in March 1997, where

A Bill Becomes Law

1. A bill is introduced in either the House or the Senate. For simplicity's sake, let us say the House.
2. The bill is referred to committee.
3. The bill is subjected to committee action by being placed on the committee calendar.
4. The bill is referred to a subcommittee for review, where it is studied and hearings are held.
5. Mark-up takes place, which means the bill undergoes changes, including amendments. The subcommittee votes to recommend the bill to the full committee or it dies in committee.
6. The bill goes back to the full committee, where additional study and hearings can be held. The full committee votes to have the bill reported to the full House.
7. The staff prepares a written report of the bill, describing the scope, intent, impact, executive branch position, and dissenting views.
8. The bill goes to the House floor for debate.
9. Voting occurs on the bill, including any amendments, and the bill is passed or defeated.
10. If passed, the bill is sent to the other chamber, in our example, the Senate.
11. There, the bill may go through a similar process—may be approved, revised, rejected, or ignored.
12. If approved by both chambers, it goes to a conference committee consisting of representatives from both chambers to work out a compromise bill taking into account the 2 similar but differing bills. If conferees are unable to reach agreement, the bill dies. Both the House and Senate must approve the conference report.
13. After being approved in identical form by both chambers, the bill goes to the president and may be signed into law. If the president takes no action, it becomes law in 10 days. If the president vetoes the bill, it can become law if two-thirds of both chambers vote to override.

society representatives met to develop the goals and activities for future implementation of the program.

Fifth, congressional testimony and briefings before congressional staff and regulatory agencies such as the US Department of Agriculture, Environmental Protection Agency, and Food and Drug Administration are a major method of bringing sound science to the legislative and regulatory process. Because of our large network of highly qualified scientists in many disciplines, CAST often is asked to identify scientists to provide written or oral testimony based on CAST reports or to recommend scientists with the appropriate expertise. For example, CAST task force scientists or officers have provided testimonies or briefings based on CAST reports on many topics including the Delaney Clause, the risks associated with

foodborne pathogens, and the changing global climate. CAST was invited to present a summary of its 87-page report *Foodborne Pathogens: Risks and Consequences* to President Clinton's Science and Technology Policy Committee's Forum on "Meeting the Challenge: Health, Safety, and Food for America" on 21 and 22 November 1994. The majority of the report's interpretive summary was the basis of a final draft presented to the Office of Management and Budget and to Congress for funding decisions. Like CAST, other prominent scientific organizations also make such presentations. The need for sound science is great; therefore, the opportunity for scientists to communicate scientific information is ever present.

Sixth, the members of CAST's board, particularly its officers, executive vice president, and staff, provide an important means

of communication and constant liaison with member societies, other membership groups, scientists, universities, government officials, news media, and the general public. Through these individuals and their contacts, CAST is informed of the issues and concerns for the future of the United States and the world. These issues are funneled through the CAST Board of Directors Work Groups and National Concerns Committee to be approved as task-force reports by the board. The board is the CAST group that recommends scientists to provide testimony.

Seventh, CAST regularly responds to media inquiries including those from Profnet, a Website that provides scientific resources to journalists (<http://www.vyne.com/profnet>). A response by CAST to CBS's Bob Arnot on his health series led Arnot to respond on the Internet the next day as follows: "Because of the scientific

responses received to my query, I soon realized that what I had was not a story; it was misinformation given to me, and as a result I did not have a story so I killed it."

Eighth, like many other organizations, CAST uses a Website (<http://www.Netins.net/showcase/cast/>) as an effective method of communication. We provide CAST news releases, issue papers, and interpretive summaries; links to member society sites; and other information. We quantify the number of "hits" on each item, which provides an indication of need and impact.

Can Reticent Scientists Become Communicative?

My 1st suggestion is to read the other excellent articles contained in this issue of *CBE Views*, all of which are written by outstanding experts on training communicators and on scientists' communicating with Congress,

the media, and the public. I also recommend that readers unfamiliar with the legislative process consider how it works (see sidebar) and how they might participate as scientist-citizens.

This issue of *CBE Views* has armed you with "why and how to" information. I encourage you to be proactive by providing accurate scientific input into the legislative and regulatory processes and to the media and the public or by encouraging your scientific society, its congressional fellows, or other qualified scientists to do so. Several scientific societies currently maintain speakers bureaus or guides to science communicators. Other societies or coalitions of societies could form such groups. Through application of the many methods presented, we can help ensure that sound science is used by policy makers contemplating decisions critical to this country and the world. ♣

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