THE ADVANCEMENT OF SOUND SCIENCE COALITION

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TASSC Poll of Scientists Shows

Public Confidence Erodes; Science Used to Fill Political Agenda

The American scientific community is very concerned that public confidence in scientific research is being seriously eroded by policy makers who use scientific findings to conform to political agendas, according to a poll sponsored by The Advancement of Sound Science Coalition (TASSC).

The poll, conducted by The Tarrance Group of Houston, Texas, showed that 62 percent of scientists believe public confidence in scientific research has decreased in the last 10 years, and 83 percent agree that policy makers use science to achieve their policy goals in controversial issues such as asbestos, pesticides, dioxin, environmental tobacco smoke or water quality.

The poll also revealed that scientists believe that 44.4 percent of research projects conducted by government agencies are done to meet pre-established objectives.

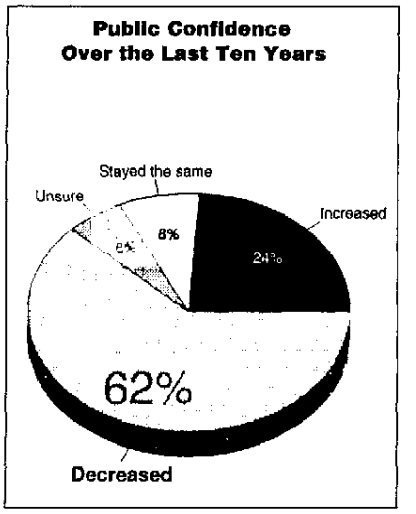
"The poll demonstrates an even deeper concern than I imagined over the conduct and use of government scientific research," said Dr. Garrey Carruthers, TASSC Chairman. "The results reinforce our mission, to ensure that sound science is used to make public policy and emphasizes the need for a set of scientific principles against which to hold government research accountable."

Carruthers released the poll results at a news conference held at The National Press Club in Washington, D.C. Ed Goeas, President and CEO of The Tarrance Group, also attended the news conference and said, "Overall, researchers are critical of the need for more stringent adherence to scientific principles and a thorough review process of research. These data clearly indicate widespread concern over how scientific research is conducted, why it is conducted, and how it is used in the formation of public policy."

"Sixty-eight percent of those interviewed agreed that the scientific community is under more pressure these days to conduct research to substantiate specific results because of objectives provided or suggested at the beginning of a project," Goeas said.

Another key finding was that 67 percent of the respondents said scientific research is used to match predetermined viewpoints of what a government agency is hoping to conclude and that science is too often used to fulfill a political agenda.

Carruthers said TASSC decided to conduct the poll to help in its formulation of a set of principles regarding scientific research and to gauge confidence levels in government use of scientific research.



Key Findings

- By a more than two-to-one margin, respondents think the public's confidence in scientific research and scientific findings

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has decreased (62 percent) versus increased (24 percent) over the last 10 years.

- Six of 10 have an above average concern over the use of government research. These findings show that there is a definite concern over the way various levels of government use scientific research in determining public policy.
- In a series of "agree/disagree" statements, respondents showed strong concern regarding the use of government science.
- 83 percent agreed with the statement that policy makers use science to achieve their policy goals in controversial issues such as asbestos, pesticides, dioxin, environmental tobacco smoke or water quality.
- 82 percent say the public overreacts to environmental health threats because they do not understand the underlying scientific research.
- 68 percent say the scientific community is under more pressure to conduct research to substantiate specific results because of objectives provided or suggested at the beginning of a project.

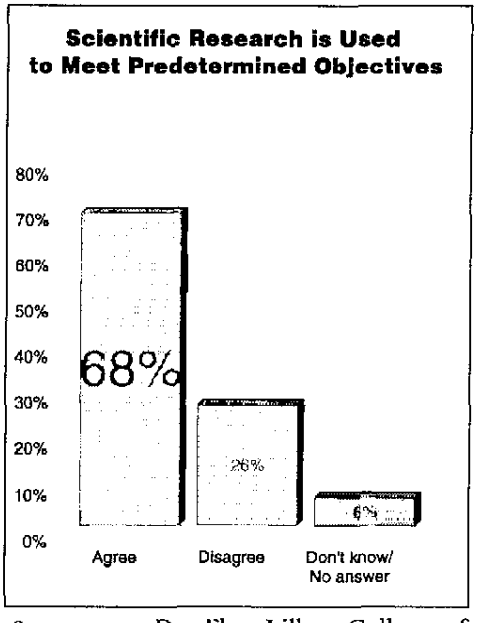
How the Survey Was Conducted

The surveyors interviewed by telephone 508 medical researchers and natural scientists in the United States, with an equal number of interviews (254 each) completed among medical researchers and natural scientists.

Medical researchers were randomly sampled from the American Medical Association's list of physicians who specialize in research.

Natural scientists were randomly selected from a Dunhill International list of scientists and researchers.

- 67 percent said too often scientific research is used to match pre-determined viewpoints of what a government agency is hoping to conclude.
- 65 percent said too often science is used to fulfill a political agenda.



TASSC Issues '5 Guiding Scientific Principles'

After months of research and development, The Advancement of Sound Science Coalition (TASSC) issued its "Five Guiding Scientific Principles" to offer a standard against which policymakers should measure research.

The principles, printed in full in an insert in this issue of *The Catalyst*, were developed with assistance from TASSC member scientists.

"By issuing these principles, we hope to accomplish one of our key goals, 'Sound Science'," Carruthers said. "We are offering federal and state government a yardstick against which to measure science in public policy."

Carruthers said plans are being made to offer these principles to state legislators around the country as a way to resolve some of the waning of public confidence in government research.

The TASSC member scientists who assisted in drafting our Statement of Principles are:

Dr. James E. Enstrom, University of California at Los Angeles School of Public Health; Dr. Alan Gross of the Medical University of South Carolina; Dr. Jay Lehr, senior scientist, Environmental Evaluation Enterprises; Dr. George Levinskas, fellow, director and past president of the Academy of Toxicological Sciences; Dr. Floy Lilley, College of Engineering, University of Texas.

Also, Dr. Margaret Maxey, professor of Biomedical Engineering, University of Texas; Dr. Patrick Michaels, Department of Environmental Sciences, University of Virginia; Dr. Henry Miller, visiting scholar, Hoover Institution, Stanford University; Dr. Stuart F. Spickler, professor, Center for Ethics, Medicine and Public Issues, Baylor College of Medicine; and, Dr. Donald Stedman, Brainerd Phillipson professor of chemistry, University of Denver.

TASSC On the Move

Chairman Carruthers and other TASSC members continued their busy schedules in support of TASSC's mission.

At the **Ohio Cast Metals Association** meeting in October, Dr. Carruthers called for risk assessment legislation and cost/benefit analysis to put environmental policy back on track and restore public confidence in scientific research.

"Government regulation and mandates have become not only overburdensome but in too many cases, down right ridiculous. A sen-

- To clarify terminology, studies that find statistically significant differences shall be considered to have *positive results,* and studies that do not find statistically significant differences shall be considered to have *negative results.*

3. Prepublication Technical Review

The completed study shall be subject to scientific and technical review to ensure that the abstract, summary, and conclusions are supported by the .data, methods, and analyses, and to ensure that it upholds conventional sound scientific practice, including adherence to the principles noticed above.

- The raw data and study results must be available and subject to replication by qualified researchers outside the investigative team.
- Study results that are not consistent with accepted scientific knowledge must be validated by subsequent studies before being used as the basis for the formulation of public policy.
- If research findings are associative, rather than establishing or indicating cause-and-effect, this fact should be noted prominently and clearly, and that limitation fully explicated.

4. Public Communication by Responsible Scientists

All persons involved in the research protocol shall be fully responsible for communicating the study results accurately to the public when appropriate, and when the study results have public policy implications.

- Where applicable, publication of the final results of the study shall include comparative risk analyses, identification of limitations of the study, the need for future research, as well as other relevant information, including factors that may have affected the quality or integrity of the results.

5. Rejection of Reinterpretations of Old Data without New Experimental Inquiry

A study based only on reinterpretations of preexisting data should be treated critically (as should all analyses) unless the conclusions are substantiated by subsequent experimental inquiry.

- Meta-analyses of findings from separate research projects shall be conducted only where the protocols, objectives, and methods of the projects are similar; the rationale for using meta-analysis shall be explained and evaluated, and any differences in the protocols, methods, or findings of the separate projects shall be fully described; weaknesses and limitations of meta-analysis should be clearly discussed for the date being analyzed.

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THE ADVANCEMENT OF SOUND SCIENCE COALITION

Five Guiding Scientific Principles from The Advancement of Sound Science Coalition (TASSC)

Through these principles we express our conviction that the usefulness of science as the basis for public policy decisions is based on the integrity of science. We assert that the objectivity and methods of science must be maintained and respected. Scientific evidence or studies used to guide or evaluate public policy should meet certain standards. These standards, or principles, such as those inscribed here, shall be used to judge as objectively as possible the quality and validity of scientific research and evidence, specifically in the realm of public policy when science is used to create, guide, affirm, justify or refute policy decisions. Only scientific evidence and research which is performed in accordance with conventional sound scientific practice, including adherence to the principles noticed here, should be used in connection with the formulation or evaluation of public policy. To ensure that science-based or science-justified policy is of the highest quality and in the interest of the people it aims to serve and protect, we aim to promote the use of sound science in the development and evaluation of such policy.

1. Total Methodological Documentation

Studies that set out to explore specific hypotheses must include, but are not limited to, documented protocols, objectives, and methodology that are consistent with accepted scientific practice and can be reviewed by qualified individuals who are not members of the investigative team.

- Before undertaking a study, a written protocol must be prepared that documents all necessary and relevant information including, but not limited to: research objectives, research methods, methods of data analysis including levels of statistical significance, bibliographic references, dated amendments.
- All deviations from accepted scientific protocols and procedures shall be documented and explained in a written supplemental protocol, including any implications that bear on the study's quality and integrity.
- Where feasible, research involving human subjects shall be conducted on the basis of informed and written prior consent obtained from individuals from whom information will be obtained, or about whom information will be used.
- The study, where applicable, shall have a sample-size large enough to detect the specified level of statistically significant risk.
- All questionnaires shall have analytical exposure data to support and validate participants' written or oral responses.
- The study shall include all available relevant, credible scientific research both at the beginning and during the course of the study (as is reasonable) that would substantially affect interpretation of the results.

2. Comprehensive Review of all Relevent Supporting Information

The final report of a study shall fully document all necessary and relevant information, e.g., research methods, circumstances that may have affected the quality or integrity of data, summary and analyses of data, conclusions, and implication of study results including discussion and documentation of the results of the research that fail to support pre-stated research hypotheses.

- A study shall attempt to account for all confounding factors in the process of deriving any and all results.
- A study report must include the results of all possible risk factors that constitute part of the study's raw data, and these analyses must be published as a single report.

sible approach is to pass legislation that establishes guidelines for the government to follow in assessing risk and what should be done," said Carruthers.

Carruthers delivered a similar message at other events in recent weeks.

For example, speaking to the **American Legislative Exchange Council** (ALEC), Carruthers said the U.S. Environmental Protection Agency (EPA) should put its scientific house in order before it attempts the major "new direction" announced recently by its administrator, Carol Browner. Ms. Browner announced "The Common Sense Initiative," under which EPA would take an industry-wide approach to dealing with pollution rather than its current pollutant-by-pollutant approach.

"I think the EPA is skipping a very important step," said Dr. Carruthers. "About two years ago," he continued, "a report of the Expert Panel on the Role of Science at EPA said, '...EPA science is of an uneven quality and the agency's policies and regulations are frequently perceived as lacking a strong scientific foundation...'" The report also said EPA "does not have a coherent scientific agenda" and that "science should never be adjusted to fit policy...yet the perception exists that EPA lacks adequate safeguards."

The expert panel's report fits also with the findings in the recent TASSC poll where scientists said government research too often is pre-determined to fit a political agenda. Regarding Ms. Browner's initiative, Dr. Carruthers said "since that report (the expert panel's) was issued, we have seen nothing that has improved the situation. No steps have been announced to change how the science is conducted. In fact, we have seen EPA reports criticized even more so for manipulating the science."

The issues of risk assessment and sound science highlighted Dr. Carruthers speech to the **American Wood Preservers Institute** annual meeting in September.

Dr. Carruthers also addressed the **Chemical Specialties Manufacturers Association** Environmental Affairs Conference in Annapolis, Md. The conference dealt with current legislative and regulatory issues in the environmental area. His panel was titled, "Alternatives to Household Products: Is this Sound Science?"

Members of TASSC's Science Advisory Board and Dr. Carruthers participated at the **Dixy Lee Ray Memorial Symposium**, sponsored by the Franklin Institute of Temple University. The symposium included a number of presentations from leading scientists on current environmental issues. Dr. Alan Moghissi, TASSC member, served as symposium chairman and did an outstanding job.

Another recent event was the **Arizona Hydrological Society** conference that discussed issues in the legal, technical and institutional aspects of water resource management in Arizona and western water states. TASSC was represented not only by the Chairman, but also by Dr. Margaret Maxey of the University of Texas and Dr. Jay Lehr, senior scientist at the Environmental Education Enterprises.

Dr. Alan Hedge, professor at Cornell University and member of the TASSC Science Advisory Board, provided written testimony at a recent New York City hearing on legislation that called for unreasonable restrictions on smoking in buildings.

Sponsors of the legislation cited the EPA's study on ETS as a reason for the restrictions. The EPA's study has been criticized by a number of scientists and groups, including the Congressional Research Service for lack of solid scientific basis.

Hedge is a leading authority on indoor air quality issues — actively researching the issue since 1978.

According to Hedge's testimony:

> "Results of studies show little difference in the effects of alternative smoking policies on indoor air quality issues. . . .
>
> "I believe that the proposed rule is too restrictive in requiring either a smoking ban or restriction of smoking only to separately ventilated spaces. . . . [F]acility managers and building owners perhaps should have discretion in their choice of the most appropriate policy for their situation."

"These data clearly indicate widespread concern over how scientific research is conducted, why it is conducted, and how it is used in the formation of public policy."

Ed Goeas, President and CEO of the Tarrrance Group, speaking at the National Press Club in Washington, DC.

Letter from the Chairman

Busy and productive times continue for TASSC. TASSC recently released its "Five Guiding Scientific Principles" and a poll we commissioned to obtain a better understanding of scientists views regarding government research and sound science.

The results of the poll were even stronger than I anticipated. When we started TASSC, we knew there was a need for such an organization in this country. The poll's results, though, tell me that the need is even greater than I had realized. Clearly, our nation's scientists are concerned not only about the integrity of their research, but also that the public's confidence in their work is declining, through no fault of the scientists.

As a former elected official, I know the pressures on various government workers to work toward the political agendas of those elected. Politics, though, should never invade the facts and figures world of science. Experiments and tests provide facts and figures, not fodder for political debate. When it comes to scientific research, we cannot allow political manipulation to creep in, and the poll shows creeping would be a light word for what's happening.

As the poll clearly shows, scientists believe public confidence has gone way down in the last 10 years. One of the more surprising numbers to me in the poll, is that these scientists, 70 percent of whom have done some sort of government research, believe that nearly half the government scientific projects are done with predetermined objectives laid out. That is alarming!

The poll reinforced in us the need for the "Five Guiding Scientific Principles," a standard against which policymakers should measure science. We are working on plans to make these principles better known and taking steps to see if state legislatures will adopt them as their own guiding principles. I want to thank the scientists who volunteered their time to help us write these principles and those scientists who have made presentations and participated in events on behalf of TASSC.

Harry Cummings

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