

# Working with citizens' groups

In response to the growing demand for expert technical advice on public-interest issues, several organizations now offer help to scientists who want to work with citizen-action groups.

James B. Sullivan

Almost all decisions that affect significant portions of society—whether or not to develop solar energy, to build a local highway or to develop a new pop-top beverage container—are basically political rather than scientific. Nevertheless, technical input can be decisive.

Indeed, it appears to be particularly effective when introduced through adversary proceedings initiated by citizen-action groups. Such adversary proceedings can bring before the public eye views of scientists who are excluded from the traditional advisory mechanism for one reason or another, frequently bringing to light crucial technical input that would otherwise not be considered.

This is an important function, and a number of public-interest groups exist to facilitate its operation. Even the professional societies have begun to provide for their members' concern with the impact of technology on society. In the face of this apparent trend, it is necessary to remember that difficulties remain—not least among them being the problem of communication between scientists interested in public-interest work on the one hand, and citizen-action groups on the other.

Yet the problems are not insurmountable; there are lights to guide the way. Look at what some individual scientists have done:

► Two physicists in Washington, D. C., in conjunction with the Environ-

mental Coalition in Prince George's County, Maryland, calculated the amount of mercury emitted from burning municipal refuse in a District of Columbia incinerator. Presenting their calculations at a public hearing before the D. C. City Council, the physicists convinced the Council that the mercury posed a potential health problem. As a result, the Council ordered the District's Department of Environmental Services to monitor mercury in the stack gases. Initial results from the monitoring program came remarkably close (within 1%) to the physicists' calculations, and the Council is now reconsidering the viability of operating the incinerator.

► A microbiologist, examining the safety of the preservatives, stabilizers and other chemicals added to alcoholic beverages, discovered an oversight in the Food, Drug and Cosmetics Act, which requires ingredients of foods and beverages to be listed on their labels. Somehow alcoholic beverages had never been labeled in accordance with the Act. The microbiologist submitted a petition to the government asking that the omission be corrected. The Department of the Treasury, delegated authority over the additives in alcoholic beverages by the Food and Drug Administration, at first claimed that the beverages were not required to be labeled. The FDA disagreed, however, and threatened to rescind Treasury's authority unless it did set forth labeling specifications.

► An economist with a federal agency

in Washington, D. C. was asked by the local Ecology Center to examine the costs and benefits of a convention center planned for the downtown area. Agreeing to the project, he found that the benefits to be derived from the center had been described very well, but that many of the costs had not been adequately accounted for. Even before he conducted his examination there had been quite a bit of public concern over the center, so that his presentation of the analysis at a hearing before the City Council was much welcomed by several Councilmen. They, in turn, used it to argue for a reevaluation of the need for the center.

► A civil engineer, who wanted to work with more public-interest groups than his job with a big consulting firm allowed, left the firm and since then has been working with citizen's groups up and down the East Coast. Examining a proposal for a road to run through Vermont to the Canadian border, for example, he discovered that the highway department had overstated the number of lanes needed. Working with the Conservation Society of Southern Vermont, the engineer was successful in having the proposed road reexamined from a traffic-needs point of view and in urging the state to prepare an adequate environmental-impact statement on the project.

## A growing demand

These are only a few examples of what scientists can accomplish when they enter the arena of public-policy

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This mass of scarred earth marks the construction of a cloverleaf interchange in Bennington, Vermont, part of a new four-lane highway to replace an existing two-lane route. Robert Morris, a traffic engineer and transportation planner, worked with various public-interest groups to convince the 2nd US District Court that there is no need for the enlarged route, and the Court issued an injunction halting construction.

debate. The demand for scientists to help citizen-action groups has expanded enormously during the past decade, partly because of increased awareness of consumer- and environmental-protection issues, and partly because of new legislation that requires in-depth consideration of the social costs of proposed federal programs.

While new opportunities for citizens' access to information and sources of influences are still developing, most requests for technical assistance by citizens' groups now generally fall into one of three overlapping categories: review of environmental-impact statements, testimony at public hearings and testimony in consumer or environmental litigation.

**Environmental-impact statements**, required by section 102 (2) (C) of the National Environmental Policy Act of 1969, are, in essence, environmental cost-benefit analyses of proposed federal projects that will significantly affect the ecology. Environmental-impact statements prepared for highway projects illustrate some of the problems involved in their preparation, they point up what roles citizens play in the preparation of such statements and they demonstrate how scientists come into the statement-review process.

According to Environmental Protection Agency standards, only 55% of all highway-impact statements contain enough information for an official to make an adequate decision on whether or not to go ahead with a road project.<sup>1</sup> In a review of 76 of the first 100 state-

ments filed for urban highway projects, the Center for Science in the Public Interest found much required information omitted: 86% of them did not mention mass-transit alternatives, 18% did not mention noise pollution, and not one presented data to show how the local air-pollution levels would increase as a result of increased road traffic. CSPI also uncovered statements that were copied paragraph for paragraph from other statements in different parts of the country.<sup>2</sup>

Federal agencies other than the Environmental Protection Agency review these statements only sporadically. Agencies other than the Department of Transportation, moreover, have no legal recourse to block projects with inadequate statements or projects that are potentially harmful.

If there is no public controversy over a statement, it will get little or no attention. The Department of the Interior, for example, usually reviews only such controversial statements. A typical agency response was given to a Department of Transportation reviewer of highway-impact statements when he pointed out the potential environmental harm of a proposed project: "No citizens are complaining, so why are you?"<sup>2</sup>

Thus, the citizen's watchdog role in the statement-writing process appears critical. Preparing a more adequate statement is too complicated for an unfunded and nonprofessional citizens' group. Even critiquing a statement requires a high degree of sophistica-

tion, and this makes expert technical help indispensable.

The Institute of Ecology, a consortium of universities supported by the Ford Foundation, has recruited scientists to critique environmental-impact statements, thus setting an example for the preparation of good statements. The first such critique—on the Interior Department's statement for leasing of federal lands for oil-shale development—has already been completed.

**Testimony at public hearings** is the second growing area where laymen need technical help of scientists. Extensive hearings on proposed projects are now required in many federal and state programs. Federal Highway Administration regulations, for example, require a double hearing procedure on route location and highway design; since their inception in 1969, these hearings have frequently been used by citizens' groups to explore and comment on the environmental and social side effects of new highways.

Several recently enacted laws provide for hearings to set standards for environmental quality, to limit industrial effluents and emissions and to set up enforcement procedures—the Clean Air Act, the Federal Water Pollution Control Act and the Noise Control Act of 1972. In addition, provisions for public hearings and meetings to consider proposals for agency actions are provided for in several other pieces of legislation, among them, the Consumer Product Safety Act, the Federal Insecticide, Fungicide and Rodenticide Act, and the Regional Rail Reorganization Act of 1973.

The effectiveness of citizen groups at these hearings often depends, to a large extent, on their ability to recruit technically competent witnesses. According to a survey of citizens' environmental groups conducted by the National Center for Voluntary Action:

In many areas of the country which are remote from Washington and the federal regional centers, hearings may provide the only opportunity to participate in environmental decision making. Yet hearings, it was felt, usually take place after the basic decisions have been made. Moreover, *citizens wishing to testify are discouraged from doing so by requirements that they state their technical or other qualifications to make a contribution.* [emphasis added]<sup>3</sup>

In a third area, **public-interest litigation**, citizens have gained new rights and opportunities. Under existing air, water and noise legislation, citizens or groups have the right to bring legal action against any person or industry violating EPA or state pollution stan-

dards. Citizen groups also have the right to take court action against EPA should the Agency fail to carry out the mandatory requirements of the law. In July 1970, Michigan became the first state to grant, by statute, similar rights to private persons on all environmental issues. Similar bills have been introduced in congress, but, as yet, none have passed.

Public-interest groups are seeking other opportunities to expand citizens' rights, for example, establishment of citizens' ombudsmen within the government itself. Nine federal agencies and departments have already created such positions, including the Cost of Living Council, the Food and Drug Administration, the Department of Agriculture and the Civil Aeronautics Board. Public-interest groups are also lobbying for a Consumer Protection Agency to provide this citizen-advocacy role throughout all government agencies.<sup>4</sup>

A development especially important for the technical community is the Office of Technology Assessment created by the Technology Assessment Act of 1972. OTA offers citizens' groups an opportunity to influence congressional decisions on new technological programs. Established to inform congress

of the physical, biological, economic, social and political effects of technology, the OTA is directed by a thirteen member Board composed of six senators, six representatives and the OTA director. The Board, in turn, has appointed a twelve-member Technology Assessment Advisory Council consisting of seven academics, two industrial representatives, two government representatives and one public-interest representative. This last member, Hazel Henderson—a writer, lecturer and board member of several public-interest groups—was appointed following a strong campaign by citizens' groups to secure representation on the Council.

A loose coalition of public-interest groups—including the Public Interest Economics Center, the Center for Science in the Public Interest, the Consumers Union and the Sierra Club—has been lobbying during the past year to increase citizen participation in the OTA. Among other things, the coalition is asking for the creation of an office of public participation, similar to those discussed above, and for representation on panels and task forces involved in technology assessments.

In all these forums, the technical issues that citizens find themselves

concerned with—whether turbulent dispersion of atmospheric pollutants in a highway case or the carcinogenic potential of an aerosol propellant—are highly complex and require sophisticated technical expertise.

### Roadblocks to cooperation

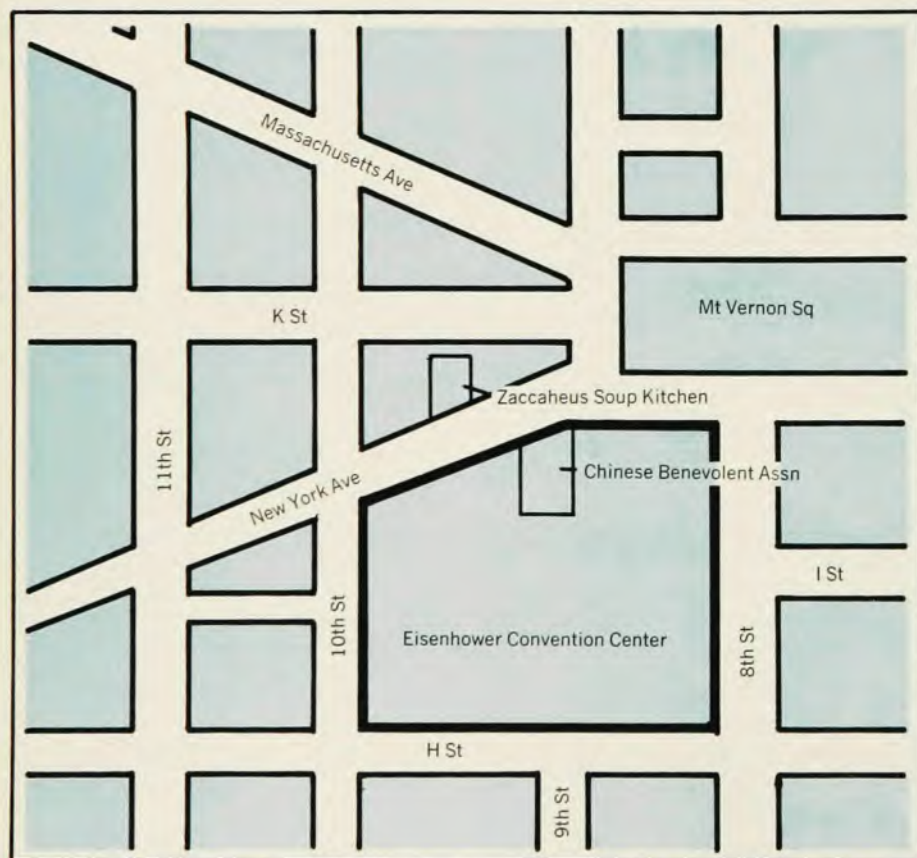
There are a number of roadblocks to effective interaction between scientists concerned with public-policy issues on the one hand, and citizens' groups on the other.

Citizens often just don't know what scientists do or how they do it. Many of them think of science as a storehouse of fact, rather than a process of discovery and, consequently, expect each scientist to be an expert in every field. Moreover, since most citizens are not technically trained, they are sometimes unable to delineate what technical issues are involved in a particular problem; this often causes misunderstandings. Citizen-action groups are quite naturally emotionally involved with the issues they espouse, and, while their intense involvement is helpful and necessary in many respects, it tends to clash with the scientist's "objective" intellectual approach.

Scientists, unlike lawyers and physicians, do not usually think of their work in terms of service to a client. This is another source of friction. Work with citizen-action groups often necessitates just such a relationship, one radically different in approach from that used in conducting and publishing scientific research.

How a scientist can work effectively with citizen-action groups is difficult to predict, but cases where they have been effective do seem to have several factors in common. For example, in the case of the economist's involvement with the convention center the issue was clear (whether the center would be an economic gain or loss); there was a forum for the citizens to present their views (a public hearing before the City Council); citizens were actively concerned (the residents of the community and others in the city had been trying to influence decisions on the center for years), and finally, the appropriate public body was ready to listen and act upon the citizens' views (the City Councillors were sympathetic to the citizens).

In the case of the microbiologist's study of chemical additives in alcoholic beverages, the public body (the Treasury Department) was not sympathetic to what he was proposing. The FDA, on the other hand, was sympathetic and that made a big difference. The issue was a clear one, and the scientist had widespread public support for his position; the much publicized concern for natural foods laid the groundwork for his request that standards for foods



The Eisenhower Convention Center proposed for the downtown Washington, D. C. area would have had to attract extensive secondary development to be financially viable—causing community disruption in nearby Chinatown, increased air pollution, and dislocation of 237 lower-income residents and 82 small businesses. In addition, the center would have cost at least \$100 million above the original estimate. Economist Bernard Weinstein, in conjunction with the local Ecology Center, presented evidence that persuaded the City Council to reconsider the need for the convention center.

be similarly applied to alcoholic beverages.

The clarity of the issue and the nature of the forum where it will be presented can sometimes guarantee effectiveness. The engineer's work on automobile traffic and its translation into air-pollution terms has been successful because the laws pertaining to air pollution are quite precise. Federal statutes legally define what is meant by "clean air." Both the National Environmental Policy Act and the Clean Air Act require highway planners to consider air pollution in their deliberations.

Unfortunately, not all issues affecting public-policy decisions can be so precisely defined. Community cohesion, for example, must be taken into account in highway planning, according to the law, but it is a difficult issue to bring into public debate. Its meaning, both legally and scientifically, is elusive.

### Bridging the cultural gap

Although obstacles to more effective interaction between scientists and citizen-action groups do exist, several organizations are beginning to bridge this cultural gap.

Professional societies are increasingly interested in involving their membership in community projects. Last summer at the "Scientists in the Public Interest" conference in Alta, Utah, representatives from the American Chemical Society, the Institute of Electrical and Electronic Engineers, the American Physical Society and other professional organizations resolved to put more effort into developing a "science advisory service" to aid various agencies and citizens' groups.

Public-interest groups have been active too. Some link up scientists with citizens' groups, some work directly on environmental and consumer projects, while others focus on encouraging social responsibility among scientists. All contribute to the technical resources the public can call upon for assistance.

The following are descriptions of the most active public-interest science groups:

**The Center for Science in the Public Interest** (Washington, D. C.), founded in early 1971 to provide technical input into the consumer and environmental movements. CSPI matches scientists and engineers interested in public-interest work with citizens' groups in need of help. CSPI has a pilot project in the Washington, D. C. area to develop ways to supply community groups with technical assistance. CSPI conducts its own environmental and consumer projects as well.

**The Federation of American Scien-**

WILLIAM GRIFFITH



**Mercury and other pollutants** are emitted from the stacks of this municipal refuse incinerator in Washington, D. C. Recently constructed in an inner-city residential neighborhood, the incinerator is located near an elementary school and playground. Physicists James Repace (left) and Gordon Wood Anderson helped to expose this potential health hazard.

**tists** (Washington, D. C.), formed in 1946 to campaign for control of nuclear energy. Started by scientists who helped develop nuclear weaponry, FAS is an advocacy organization that has devoted most of its efforts to arms control, but it is now expanding its role to include environmental and consumer problems as well. The Federation's grass-roots arm TACTIC (Technical Advisory Committee to Influence Congress) supplies information to its participants on issues before the congress. TACTIC issues have included the SST, ABM and the Strategic Arms Limitation Talks.

**Scientists and Engineers for Social and Political Action** (Jamaica Plain, Mass.), first convened at the New York meeting of the American Physical Society in January 1969. SESPAs opposes militarism and provides young scientists with a vehicle for promoting their views on science and politics. It is perhaps best known for its magazine, *Science for the People*, and for its demonstrations at annual AAAS meetings.

**The Scientists' Institute for Public Information** (New York, N.Y.), founded in 1963 as an outgrowth of the St Louis Committee for Environmental

Information, which was started five years earlier by Barry Commoner and others in order to address the issue of nuclear fallout. SIPI provides the public with information but does not advocate positions. The Institute has 16 local committees, each of which is legally separate from the parent organization. A recently created SIPI fellows program numbers about 100 scientists, each of whom has made some commitment to work on SIPI projects with citizen groups.

**The Sierra Club** (San Francisco, Calif.). Not a science-based organization as such, its membership does include scientists who volunteer to work on environmental issues. The Sierra Club has initiated a program to help identify scientists and engineers who can assist club chapters and the national offices in working for environmental protection.

**The Society for Social Responsibility in Science** (Bala Cynwyd, Pa.) and the **Committee for Social Responsibility in Engineering** (New York, N.Y.). Both SSRS and CSRE encourage scientists and engineers to recognize the consequences of their work and to take part in more socially beneficial activities.

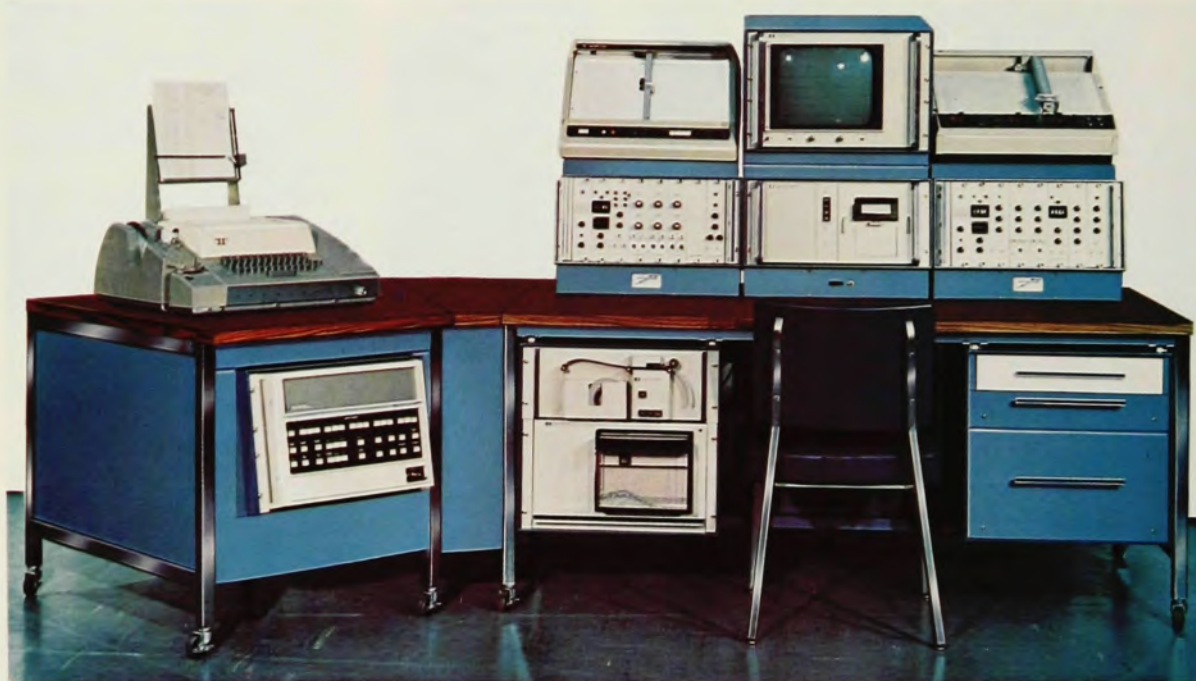
**The Union of Concerned Scientists** (Cambridge, Mass.), which grew out of the 4 March 1969 anti-war research strike at the Massachusetts Institute of Technology. Consisting of faculty and some students, the UCS has been successful in challenging the Atomic Energy Commission on the safety of nuclear-fission plants.

**The Institute of Ecology** (Washington, D.C. and Madison, Wis.), founded in 1971 as a federation of 65 universities and research centers. The Institute serves as a cooperative information mechanism on ecological conditions and public-policy issues affecting the ecology. TIE has recently compiled a list of approximately 10 000 volunteers in the life sciences who are willing to work on environmental projects. Many of them have indicated willingness to work with civic groups. The TIE list is computerized, and information from it may be obtained by contacting the Washington office.

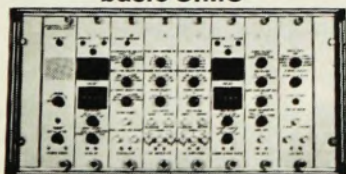
**Volunteers in Technical Assistance** (Schenectady, N.Y.), founded in 1959 to provide volunteer technical assistance for overseas economic and social-development work. A domestic service is now being started; 29% of VITA's requests for aid come from within the US. Serving community groups, community-action programs and VISTA volunteers, VITA handles requests mainly for housing and community-development assistance, business management, health education, and cooperatives. The organization maintains a file that includes over 8000

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volunteers from 96 countries and more than 2000 corporations.

In addition to these public-interest groups, a number of similar organizations provide technical advice:

**The Public Interest Economics Center** (Washington, D.C.) was established to promote economic reform and to provide grass-roots organizations with economic assistance.

**Businessmen for the Public Interest** (Chicago, Ill.) provides assistance in business-related matters as well as advice on a wide spectrum of problems common to many types of reform organizations.

**Accountants for the Public Interest** (San Francisco, Calif.) and **October** (Washington, D.C.) offer accounting and architectural services, respectively.

**The Environmental Defense Fund** (East Setauket, N.Y.) and the **Natural Resources Defense Council** (New York, N.Y.) are public-interest law firms that specialize in environmental problems. EDF has developed a list of specialists in various fields who can help in environmental litigation. While EDF has scientists on its staff, NRDC relies more heavily on outside technical assistance.

### Kinds of services

While there is quite a variation in the kinds of "matching" services performed by the various professional societies and public-interest groups, three basic approaches are prevalent. Many organizations have the resources to perform only the simplest communications functions: They publish newsletters describing their activities and the philosophies under which they operate.

A second and more useful approach is the "register" of scientists who want to help public-interest groups. Such registers are maintained by CSPI, PIEC, VITA and TIE, and the American Biophysical Society has led the way among professional societies in establishing a register of biophysicists interested in public-interest work. The American Physical Society, through its Forum on Physics and Society, has also begun compiling a roster of physicists interested in volunteering for work with local or state governments or with citizens' groups. SIPI's fellows program offers an even more refined ver-

sion of the register of scientists.

One difficulty with the register approach is, again, the problem of communication: how to inform citizen activists that the registers exist and how to let scientists on register know exactly where they could be of most use.

As a partial solution to these problems, the Center for Science in the Public Interest publishes a newsletter, *Public Interest Letter*, aimed at activists and scientists alike. It covers the activities of all public-interest groups at the national level: environment, consumer, health and nutrition, corporate responsibility, equal rights and arms control. Its purpose is to inform scientists and other professionals of what is happening, where technical help is needed and whom to contact to get involved. Also of use to citizen activists is the newsletter's description of programs that scientists and their professional societies have established to help involve professionals in public-interest work.

A third approach is the organized technical committee. While the first two communications approaches are straightforward and work quite well with clearly defined problems, they tend to break down in the face of the more amorphous, hydra-headed issues that inevitably crop up. SIPI's committees have proved quite successful in providing scientific help to community groups. The committees are usually organized by scientists themselves, and a good committee usually results when a scientist who is a good organizer takes interest in forming one. Without strong organization and leadership, technical committees become less effective.

CSPI, in conjunction with PIEC, is now conducting a pilot project to show how a "community organizer" can establish committees that depend equally on community participation and on participation from the scientific community. A full-time organizer, Lenore Cooley, works in the Washington, D.C. metropolitan area, attending community group meetings, talking to activists, and generally keeping in touch with all citizen activity in the area, whether it is already underway or only in the planning stages. At the same time, she has organized a committee of professionals—scientists, engineers, economists and physicians—from the various universities and consulting firms in the area. The committee directly assists citizen-action groups, and, when necessary, recruits other professionals with special skills.

Once a team of scientists begins work with a community group, Cooley usually has to do quite a bit of follow-through to make sure the scientists are not put off by the citizens, and the citizens, in turn, are not put off by the

scientists. Several of the examples cited at the beginning of this article resulted from matches made by this project. This committee and organizing approach has proved useful in getting scientists and engineers together with citizens' groups and in bringing technical information into controversial public debates.

### Two proposals

More effective technical assistance for citizens' groups could be achieved if the societies and public-interest groups maintaining registers of professionals cooperated more fully with each other and with citizen-action groups. No elaborate formal arrangements need be established; all organizations could simply agree to make their volunteer technical resources available to one another and to community groups requesting help. A person in each organization could be designated to handle requests and find the scientists or engineers who might be able to help.

A coordinating center might also be established in Washington, D.C., where most national citizens' groups and professional societies have headquarters or offices. Each participating organization could request technical help from the coordinating center, which would then poll the other organizations for the necessary technical talent to fill the request. The coordinating center would alert citizens' groups to the existence of this service. Most local citizens' groups have some communications with national organizations, and the groups could be informed of the matching service through their national office.

This second proposal is addressed directly to the reader. Explore what social problems touching on your expertise seem to be most important, and then set about trying to remedy them. Find out what groups are taking action on the problem and talk to them about how you can get involved; effective citizens' organizations will not pass up your offer to help. Whether or not groups receive the help they need depends upon how many individual scientists are willing to donate their time and their expertise to the effort.

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4. *National Journal* (3 Nov. 1973), page 1627. □

### For further information

Addresses and telephone numbers for all public-interest organizations mentioned in this article may be obtained from the Center for Science in the Public Interest, 1779 Church Street, N. W., Washington, D. C. 20036. A sample copy of the CSPI newsletter, *Public Interest Letter*, is also available for the asking.