"WHAT CAN BE DONE TO IMPROVE INTERGOVERNMENTAL SCIENCE AND TECHNOLOGY?"

An Analysis of Responses
From State and Local Government Officials
To an ISETAP Questionnaire

A Report Prepared By

Paul R. Brockman
Manager, State and Local Government Affairs
National Aeronautics and Space Administration

for the

Intergovernmental Science, Engineering, and Technology
Advisory Panel (ISETAP)
Office of Science and Technology Policy
Executive Office of the President

January, 1979

Contents

Introduction and General Summary

Science and technology can make a more significant contribution to State and local governments than they are now making. That is a major conclusion to be drawn from the views of more than 130 individuals who are involved as leaders in current efforts to apply science and technology to State and local needs. These views are expressed in response to a questionnaire administered by the staff of the Office of Science and Technology Policy in the Executive Office of the President in the Fall of 1978.* With few exceptions, the respondents noted specific actions or institutional arrangements which would enhance intergovernmental science and technological contributions. Their proposals address the full range of present activities in this area by Federal agencies, states, and localities. The benefits of science and technology are seen as being of sufficient additional potential value to warrant extensive improvements in the system.

It is clear that most respondents view the field of intergovernmental science and technology as a general system for the development, communication, and application of much of the best available information to guide both policy and operational decisions of State and local officials. As a communications system, it is a system that needs additional messages to transmit, that needs to pick up more existing relevant messages, that needs to become more efficient and effective in its transmissions, that needs better links to its potential receivers, that could involve several times more participants than it does, and that could offer more effective user-assistance aids. With all of these needs, the system is viewed as being rather poorly understood even in the limited environment in which its existence is known. Yet, it is a system that has basic strength, and reasonable objectives, and no effective alternatives.

* For discussion of Survey Methodology and Administration, see Appendix D. The Questionnaire used is Appendix E.

S & T Information/Capacity-Building:

When one respondent observed that increased awareness, among State and local officials, of the value of S & T information "is perhaps the most pressing need at this point in time," she expressed clearly what most others inferred. To achieve that increased awareness of value, a number of possible improvements were widely proposed. These are summarized in Appendix A, pages A-3 and A-4. These responses stress the need to communicate to State and local officials in a way that convinces them of the credibility, reliability, and availability of science and technology to help meet their needs. Thus, the actions needed to increase awareness are linked with the supporting technical information systems. As one put it, "There needs to be encouragement of a climate where the introduction of S & T information is perceived as credible and useful in assisting in the decision-making and policy formulation processes. Additionally, policy and decision-makers" (Governors, State and Local Legislators, Mayors, City or County Managers, Department and Agency Heads) "must be much more aware of availability, accessibility, and sources of S & T information." Thus, the recommendations address the content and format of the information, and the system for access and delivery, just as much as they apply to information about the system.

While pointing out improvements that might be made, the respondents identified various key elements for successful operation of information activities, whether at the national or State levels. These can be viewed as a check-list of desirable system features:

-- a clear locus of responsibility;

-- documentation, written from the user's viewpoint, and evaluative in character, that covers failures as well as successes, and that addresses cost-benefit factors;

-- effective collection, cataloguing, indexing, and cross-referencing of materials;

-- timeliness, simplicity, understandability, and relevance of responses;

-- consistency: ongoing funding/continuity of existence;

-- pinpointed service areas within a total network coverage;

-- accessibility to key State and local decision-makers;

-- practitioner-oriented staff members with the ability to adapt and relate research-produced information to the policy process;

-- related training and development programs for key officials in the systematic use of applied research; and

-- effective publicity of their existence and utility to appropriate audiences.

Commenters recognized that such information service, in support of those who are aware of the general value of science and technology and would like to use it, is not always available at the present and that users "have to separate the wheat from the chaff."

Suggested improvements touched most organizations actively participating in intergovernmental S & T today, as well as those who could or should take part but have not done so as yet. At the national level, greater use of the public interest groups (PIGs) and the more adequate coordination of the several national networks* were suggested. One State official reported being "unfamiliar with the functions of many of these organizations." "So much material already exists that could be of immense value to State and local government," said one, "that current efforts should stress systems that can translate that material into problem-solving proposals for State and locals, and for the expanded dissemination of these 'reality-based' proposals to State and local policy-makers like governors and mayors. Groups like PTI . . . can perform the first service; (the State and local PIGs) can see that the information gets to the people who can do something with it."

The view was frequently expressed that S & T information services to State and local officials would be improved by the designation of a single Federal source to serve as a clearinghouse for Federal S & T information. Provision of consultants by the Federal government was proposed. One called for a Federal S & T Sharing Act comparable to the General Revenue Sharing Act. Several comments focused on the need for better coordination and wider dissemination efforts among the national networks and "PIGs." One suggested that the PIGs establish S & T committees at the

* Urban Consortium, Urban Technology System, Cooperative Technology Initiatives Program -- all Federally-assisted and coordinated by Public Technology, Inc.

State and national levels, another that they conduct technology workshops as part of their conventions, and another that their mailing lists for S & T information be coordinated. Others urged the states to make a greater use of cost-benefit analysis in evaluating the services they provide, and to more actively seek out S & T resources as a way to enhance and expand current technical assistance efforts. While most comments dealt with awareness and supporting information in terms of units of general government, one pointed to the need for closer liaison of Federal S & T agencies with the publicly-owned utility associations and with special district associations.

"Model information activities" cited by various commenters included the USDA Extension Service and USGS "affiliate offices."

A "home" for improved information resources at the State level was a widely recognized need, whether that be in "a high-level S & T department" in State government, universities, State libraries, State academies of science, State offices of science and technology, State DCAs, State Municipal Leagues, State Institutes of Local Government, or independent State clearinghouses.

Localities need contact-points to serve as facilitators, both for awareness and for actual use of S & T. At the metropolitan or local level, interdisciplinary professional teams, under association auspices, were identified as an additional information resource. Local governments also need an open environment for innovation, in which it is acceptable to make some mistakes and in which evaluations can be relatively unbiased. Needed skills and awareness may need to be developed through capacity-building efforts, and closer participation between local units and their State and national associations. Capacity-building was also seen to include the need for more extensive networking for continuity.

Federal funding for the implementation of SSET was specifically urged, for a few years beyond planning, with the suggestion that states should establish this function on a permanent basis. Continued, expanded funding of the "Federal Library Project" linking State and local libraries with the Federal technical library system was suggested.

Rewards and incentives were suggested, along with training, professional development, and similar capacity-building approaches for State and local officials, legislators as well as executives. Both Federal and State governments were seen as sources of such incentive money.

Technology Development, Adaptation, and Adoption:

Supporting the expanded awareness of, dissemination of, and access to information about R & D products are the products themselves: they must be designed, developed, tested, demonstrated, and frequently modified or adapted, before they can be used or adopted on a widespread basis. Over one-third of the respondents proposed improvements in these processes. These are presented on pages A-5 and A-6 of Appendix A.

Relatively greater emphasis was given to the adaptation and demonstration than to the initial development of technology. In both cases, however, significant numbers of respondents called for increased Federal and State funding. These views were balanced by similarly frequent calls for greater local initiative, increased local funding, and greater local participation in the developmental and adaptive efforts. The need for better local staff capabilities was recognized. Yet, the scale of developmental and adaptive efforts is such that continued and increased Federal contributions are seen as essential. Thus, Federal and State seed money, and local "stake" money, all were mentioned as essential.

At the Federal level, it was suggested that there be clarification and specification of the Federal responsibility (in an agency with a strong State/local bias) for reprocessing Federally-sponsored technology. Federal grants for applied research and to develop technological solutions were urged, both to State and local governments and to their associations, for use on State- or locally-determined projects, as well as for staff development and transfer implementation. One respondent suggested that "practical governmental uses" be a consideration in each Federal civilian R & D award of any kind, and another that State or local officials be involved in the monitoring of Federal contracts for work intended to benefit State or local governments. A management incentive grant program analagous to HUD's "701" Program was mentioned as a possible approach. To the extent that funds remain severely limited, one suggestion was to concentrate support in highly visible State and local applications, with greater specificity as to the Federal-State sharing of funding. Others suggested further development (and funding) of such Federal resources as the Federal Laboratory Consortium and Intergovernmental Personnel Act assignments as technology transfer tools. Networking was seen as essential in technology transfer, as well as in improving awareness of S & T, and Federal guidelines for standardization of the operation of the existing networks were proposed by one respondent.

The states' role in development and adaptation was seen as supplementing Federal seed money, sponsoring and expanding programs to identify and develop appropriate technology for small cities, establishing stronger professional/functional contacts between State and local counterparts, and taking a share in funding its own State-related activities (as in the case of New York's ERDA), possibly through State-supported Public Technology Centers.

Suggested resources for State and local government, in addition to their own and to Federal support (including resident Federal laboratories and IPA assignees), included local industry and universities, and foundations.

While most respondents addressed financing as the major stimulus to on-line technological innovation, over ten percent mentioned Federal or State regulations as barriers that should be reduced.

Continued and expanded research on the transfer process also was proposed, including proposals for the use of transfer demonstration sites.

These comments, taken together with the suggestions for capacity-building, as summarized in connection with S & T information, indicate that State and local science and technology activities are intergovernmental in character. They cannot function effectively without firm Federal support. Yet, they can serve State and local governments only as those governments are in a position to determine their needs, and to evaluate and utilize technological alternatives. Thus, when one respondent said it was "most important" that intergovernmental science and technology be approached "from a cooperative perspective," he was expressing a theme that was implicit in most replies. And it was a theme that applies as specifically to development, adaptation, and demonstration projects as it does to information dissemination activities.

Needs Definition and Aggregation/Agenda Setting:

State and local governments should have stronger roles in national R & D decisions that are intended to benefit or expected to impact them. Many of the 52 respondents who pointed to this need gave it their highest priority. In part, this reflects the reality of the Federal government's greater science and technology resources. It also is another expression of the view that intergovernmental R & D sharing should be cooperative.

The major stress was on Federal agency arrangements to provide for State and local participation. However, there were significant numbers who pointed to the need for better State and local needs analysis and definition. Here again, the conclusions are (1) that the capacity of the total intergovernmental R & D system to develop, communicate, and use basic information needs to be strengthened, and (2) that users and providers need more adequate and cooperative needs-response mechanisms. The responses related to this topic are summarized on pages A-7 and A-8 of Appendix A.

The views expressed included endorsement of the current solicitation, synthesis, and prioritization of State and local needs by ISETAP, directly or through the "PIGs," using State and local professionals while doing so.

Institutionalization of the ISETAP "needs process" was suggested by several, to include annual State/local inputs. Also proposed was the institutionalization of a "State and local interest" in Federal agencies and departments primarily responsible for the development of new technology. A State role in providing intermediary linkages or brokers between needs and responses was recognized. Other approaches suggested are the establishment of "user requirements committees" for each major Federal R & D Program, active recruitment of State personnel to take part in advisory committees which would still be systematic in eliciting S & T advice. Analytic models that guarantee more complete State and local participation in policy formulation were recommended.

Related to this concern for involvement were the observations that State and local officials need additional orientation and training in S & T as it relates to the relevant policy domains, that positive Executive and Congressional action may be needed to make aid to State and local governments a matter of priority in the allocation of Federal R & D funds, and that similar action may be needed to encourage the use of science and technology (by both Federal and State/local participants) in existing domestic assistance programs.

While much of the initiative for increased involvement lies with Federal officials, there was recognition that State and local governments could take initiative, through their State and national associations, to increase awareness and set priorities. A role for State associations of local units in developing needs agendas was suggested, in cooperation with State governments and universities. Better definition of needs at the local level is seen as essential. An additional view is that greater numbers of local officials need to be involved, which requires raising their ability to define their problem, as well as opening the channels for the participation.

Organizational/Program Relationships:

New or expanded State and local organizational capacities for R & D activities were widely recognized needs, within a context of networking and cooperative activity. The need for institutionalization, and for permanent or long-term commitments, was observed, starting with the Federal government's support. Specific suggestions as to the shape which changes should take were numerous, but few were widely proposed. This was also true of proposals for the involvement of universities, public interest groups, professional associations, and industry in intergovernmental science and technology activities. These are summarized on pages A-9 through A-11 of Appendix A.

"There must be a process linking what exists," one noted. Another observed that "transfer of paper is generally nonproductive. Technology sharing must be accomplished from person to person. . . ." The peer role was stressed. Hence, the recommendations to build responsive networks on existing institutional and personal relationships and the expressed feeling of several respondents that new institutions are not needed.

A strong State role, as well as a role for State associations of local units and for professional associations, and the collaboration of these with universities and with innovation groups were suggested.

At the local level, attention focused on the need for positive local action and on inter-local linkages: expansion of the networks to include more local governments, joint or cooperative projects among neighboring units, the use of regional councils in transfer agent roles, circuit-riding technology agents, professional development exchanges, closer ties with functional professional associations (as APWA), and mutual support and capacity-building arrangements. However, it was perceived that all these improvements require improved communications in the linkage mechanisms, improved central coordination at the national and State levels, and -- behind all the effort -- continuity of support. As one observed, support of S & T sharing networks should move from "experimental" to "functional" or operational. The governments that need S & T the most were viewed as having the least ability to use it.

For localities not able to have their own S & T specialists, the State was seen as having a major role in providing the needed advice and assistance, whether through grant support to assure risk-minimization, or through innovation groups,

circuit riders, and other consultative arrangements. More formal State departmental liaison with metropolitan functional departments was suggested, as was the greater use of DCAs in a technical assistance role. Some commenters feel that Federal support for these efforts also is essential.

Institutions Whose Roles/Actions Would Be Affected:

The questionnaire (Appendix E) was structured to invite comments as to the roles and activities of the several sets of institutional participants* in intergovernmental science and technology. As a result, the responses provide recommendations for actions by, or for changes in the work of, these participants. These responses have been grouped in Appendix C according to the institution to which they relate.

Textual summarization has not been undertaken, since it would largely repeat what has been reported in the preceding, topically-arranged text.

* I.e., Federal government, State government, local government, universities, public interest groups and professional associations, ISETAP, etc.

APPENDIX A

Responses to a Questionnaire on Intergovernmental Science and Technology Fall 1978

RECOMMENDATIONS GROUPED ACCORDING TO TOPICAL RELATIONSHIPS

Notes on Grouping of Items Under Topics

1. Items have been grouped in this summary on the basis of their topical relationships to each other. Therefore, an item may be listed under two or more of the four major topical headings. For example: "Local government employment of technology agents, analysts, or facilitators" is relevant to all of the first three major topics.

2. Within each topic, items also have been generally grouped according to their relationship to each other. When related to each other with this in mind, the listing should help the reader understand what the respondents were, or were not, recommending.

RECOMMENDATIONS GROUPED ACCORDING TO TOPICAL RELATIONSHIPS

Topic	Recommendation	Times Mentioned*
S & T Information/Capacity-Building:		
	Improvements in the system for dissemination of/access to S & T information.	68
	More adequate documentation and translation into a user frame of reference of information, evaluated from a user perspective.	43
	Stronger public interest group (and association) capability and effort in dissemination and coordination, education, training, etc., relative to State and local use of S & T.	47
	States should employ, on an institutionalized basis, S & T capability.	44
	Improvements in State policies for coordination of S & T matters, including improvements in capabilities and arrangements for external communications.	43
	Improved local organization and support for technology analysis and evaluation, and for better local use of S & T information in basic decision-making (e.g., budgeting).	48
	Increased Federal support/assistance/funds for State and local S & T training, capacity-building, etc.	51
	Better coordination and further development of intergovernmental S & T networks, both formal and informal (as a Federal responsibility).	40
	Strengthened Federal technical advice and assistance, and personnel sharing, through the Intergovernmental Personnel Act, the Federal Laboratory Consortium, and other such activities.	40

* out of 132 responses

The general visibility of S & T, at all levels, needs to be increased; publicity made more effective.	18
A centralized, Federally-operated S & T information and data system.	13
Federal provision of funds for operational implementation of SSET.	8
States should provide direct S & T services and programs for local governments, including assistance in the evaluation, adoption and use of technology, and support of interlocal transfer activities.	42
States should support/fund State and local S & T training, capacity-building, etc.	36
States should provide (centrally) S & T clearinghouses.	21
Local governments should employ, with their own funds, technology agents, analysts, or facilitators.	34
Local government employment of technology agents, analysts, or facilitators with Federal or State support.	9
Greater local government participation in networks, seminars, and other information sharing activities.	23
Local governments should use greater initiative to seek out and use available financial and technical assistance.	13
Federal agency and State promotion of interlocal experiments and information sharing.	12
Greater initiative by professional associations to communicate innovative approaches to State and local constituencies.	10

Technology Development, Adaptation, Adoption:

Increased Federal support/assistance/funds for the development of new technology to meet State and local needs.	25
Increased Federal support/assistance/funds for the adaptation and demonstration of technology and research to meet State and local needs.	42
Better coordination and further development of intergovernmental S & T networks, both formal and informal (as a Federal responsibility).	40
Strengthened Federal technical advice and assistance, and personnel sharing, through the Intergovernmental Personnel Act, the Federal Laboratory Consortium, and other such activities.	40
States should provide direct S & T services and programs for local governments, including assistance in the evaluation, adoption and use of technology, and support of interlocal transfer activities.	42
States should support/fund the adaptation and demonstration of technology and research to meet State and local needs.	30
Local governments need to increase their recognition of the importance of S & T, their willingness to use it, and to take the risks involved.	38
Local governments should employ, with their own funds, technology agents, analysts, or facilitators.	34
Local government employment of technology agents, analysts, or facilitators with Federal or State support.	9
Greater local participation is needed in cooperative regional efforts to develop or adapt S & T approaches or solutions.	31

Local investments (stake money) in local S & T activities.	19
Relatively long-term commitments behind Federal assistance to states and localities to develop their science and technology capacities, demonstrate new technologies, etc., (at least 2 years for any activity; up to 10 to 15 years for some programs).	11
Federal regulatory barriers to innovation should be reduced.	14
Reduced State regulatory barriers to innovation.	12
Local governments should use greater initiative to seek out and use available financial and technical assistance.	13
Federal agency and State promotion of interlocal experiments and information sharing.	12
Greater initiative by professional associations to communicate innovative approaches to State and local constituencies.	10
State promotion and pressure, including publicity, use of regulations and the funding process, to increase local innovation.	9

Needs Definition and Aggregation/Agenda-Setting:

Stronger participation by State and local governments in national R & D decisions, agendas, program design, etc., for S & T that is intended to benefit or expected to impact State and local government.	52
Improvements in State policies for coordination of S & T matters, including improvements in capabilities and arrangements for external communications.	43
Improved local organization and support for technology analysis and evaluation, and for better local use of S & T information in basic decision-making (e.g., budgeting).	48
Better coordination and further development of intergovernmental S & T networks, both formal and informal (as a Federal responsibility).	40
States should provide direct S & T services and programs for local governments, including assistance in the evaluation, adoption and use of technology, and support of interlocal transfer activities.	42
Local governments should employ, with their own funds, technology agents, analysts, or facilitators.	34
Local government employment of technology agents, analysts, or facilitators with Federal or State support.	9
Greater local government participation in networks, seminars, and other information sharing activities.	23
State involvement of local officials and agencies at the State level; provision for more state-local contacts along functional and departmental lines; aggregation of local needs; use of regional approaches.	18

More extensive local efforts to define, develop, and evaluate S & T needs.	20
Public interest groups should play a stronger role in the aggregation and definition of State and local needs.	15

Organizational/Program Relationships:

Stronger participation by State and local governments in national R & D decisions, agendas, program design, etc., for S & T that is intended to benefit or expected to impact State and local governments.	52
Increased Federal support/assistance/funds for State and local S & T training, capacity-building, etc.	51
States should support/fund State and local S & T training, capacity-building, etc.	36
States should provide direct S & T services and programs for local governments, including assistance in the evaluation, adoption and use of technology, and support of interlocal transfer activities.	42
Greater local participation is needed in cooperative regional efforts to develop or adapt S & T approaches or solutions.	31
Greater local government participation in networks, seminars, and other information sharing activities.	23
State involvement of local officials and agencies at the State level; provision for more State-local contacts along functional and departmental lines; aggregation of local needs; use of regional approaches.	18
Intergovernmental S & T efforts generally should be cooperative among all "levels" of government.	15
Federal agency and State promotion of interlocal experiments and information sharing.	12
State promotion and pressure, including publicity, use of regulations and the funding process, to increase local innovation.	9

Better coordination and further development of intergovernmental S & T networks, both formal and informal (as a Federal responsibility).	40
Strengthened Federal technical advice and assistance, and personnel sharing, through the Intergovernmental Personnel Act, the Federal Laboratory Consortium, and other such activities.	40
States should provide (centrally) S & T clearinghouses.	21
Better Federal integration of transfer programs.	15
A clear, central locus of Federal responsibility for intergovernmental S & T.	14
A centralized, Federally-operated S & T information and data system.	13
Federal provision of funds for operational implementation of SSET.	8
Public interest groups should play a stronger role in the aggregation and definition of State and local needs.	15
Greater involvement of associations of functional, operational, and professional officials -- e.g., health, public utilities, special districts, etc. -- in S & T processes for State and local needs.	11
Public interest groups as catalysts and initiators of action, and as policy coordinators.	10
Coordination of public interest groups and association efforts, and avoidance of competition.	10
Better coupling -- by Federal, State, and local agencies -- of industry and universities to State and local needs.	10

Greater initiative by professional associations to communicate innovative approaches to State and local constituencies.	10
Universities need to be made more responsive to specific State and local needs.	31
Built-in structural relationships between universities and State and local governments.	12
Stronger State ties to universities.	9
State action to foster and use existing resources (e.g., public interest groups, national networks).	10
No new institutions, merely improvements in present ones.	7

APPENDIX B

THE MOST WIDELY SHARED RECOMMENDATIONS RANKED ACCORDING TO FREQUENCY OF OCCURRENCE

Recommendation	Times Mentioned*
OVER 50%:	
Improvements in the system for dissemination of/access to S & T information.	68
BETWEEN 40 and 50%:	
(None)	--
BETWEEN 30 and 40%:	
Stronger participation by state and local governments in national R & D decisions, agendas, program design, etc., for S & T that is intended to benefit or expected to impact state and local government.	52
Increased Federal support/assistance/funds for state and local S & T training, capacity-building, etc.	51
ISETAP should function as an initiator, advocate, and promoter of proper Federal action.	49
Improved local organization and support for technology analysis and evaluation, and for better local use of S & T information in basic decision-making (e.g., budgeting).	48
Stronger public interest group (and association) capability and effort in dissemination and coordination, education, training, etc., relative to state and local use of S & T.	47
States should employ, on an institutionalized basis, S & T capability.	44
More adequate documentation and translation into a user frame of reference of information, evaluated from a user perspective.	43

* out of 132 responses

Improvements in State policies for coordination of S & T matters, including improvements in capabilities and arrangements for external communications.	43
Increased Federal support/assistance/funds for the adaptation and demonstration of technology and research to meet State and local needs.	42
States should provide direct S & T services and programs for local governments, including assistance in the evaluation, adoption and use of technology, and support of interlocal transfer activities.	42
Better coordination and further development of intergovernmental S & T networks, both formal and informal (as a Federal responsibility).	40
Strengthened Federal technical advice and assistance, and personnel sharing, through the Intergovernmental Personnel Act, the Federal Laboratory Consortium, and other such activities.	40

BETWEEN 20 and 30%:

Local governments need to increase their recognition of the importance of S & T, their willingness to use it, and to take the risks involved.	38
States should support/fund State and local S & T training, capacity-building, etc.	36
ISETAP should function as a synthesizer and broker of State and local needs with the Federal government.	36
Local governments should employ, with their own funds, technology agents, analysts or facilitators.	34
Greater local participation is needed in cooperative regional efforts to develop or adapt S & T approaches or solutions.	31

Universities need to be made more responsive to specific State and local needs.	31
States should support/fund the adaptation and demonstration of technology and research to meet State and local needs.	30

BETWEEN 15 and 20%:

Increased Federal support/assistance/funds for the development of new technology to meet State and local needs.	25
Greater local government participation in networks, seminars, and other information sharing activities.	23
States should provide (centrally) S & T clearinghouses.	21
ISETAP should function as an initiator, advocate, and promoter of proper State and local action.	20
ISETAP should function as an element in S & T transfer networks.	20
ISETAP should function as an overall review, evaluation, and coordination body for Federal involvement in intergovernmental S & T.	20
More extensive local efforts to define, develop, and evaluate S & T needs.	20

BETWEEN 10 and 15%:

Local investments (stake money) in local S & T activities.	19
The general visibility of S & T, at all levels, needs to be increased; publicity made more effective.	18
State involvement of local officials and agencies at the State level; provision for more state-local contacts along functional and departmental lines; aggregation of local needs; use of regional approaches.	18

Better Federal integration of transfer programs.	15
Public interest groups should play a stronger role in the aggregation and definition of State and local needs.	15
Intergovernmental S & T efforts generally should be cooperative among all "levels" of government.	15
A clear, central locus of Federal responsibility for intergovernmental S & T.	14
Federal regulatory barriers to innovation should be reduced.	14

BETWEEN 5 and 10%:

ISETAP should function as the source of general leadership in the field of intergovernmental S & T.	13
Local governments should use greater initiative to seek out and use available financial and technical assistance.	13
A centralized, Federally-operated S & T information and data system.	13
Federal agency and State promotion of interlocal experiments and information sharing.	12
Reduced State regulatory barriers to innovation.	12
Built-in structural relationships between universities and State and local governments.	12
Relatively long-term commitments behind Federal assistance to states and localities to develop their science and technology capacities, demonstrate new technologies, etc., (at least 2 years for any activity; up to 10 to 15 years for some programs).	11

Greater involvement of associations of functional, operational, and professional officials -- e.g., health, public utilities, special districts, etc. -- in S & T processes for State and local needs.	11
State action to foster and use existing resources (e.g., public interest groups, national networks).	10
Public interest groups as catalysts and initiators of action, and as policy coordinators.	10
Greater initiative by professional associations to communicate innovative approaches to State and local constituencies.	10
Coordination of public interest groups and association efforts, and avoidance of competition.	10
Better coupling -- by Federal, state, and local agencies -- of industry and universities to State and local needs.	10
State promotion and pressure, including publicity, use of regulations and the funding process, to increase local innovation.	9
Stronger State ties to universities.	9
Local government employment of technology agents, analysts, or facilitators with Federal or State support.	9
ISETAP should function as a general communication link to State and local governments for the Federal government.	8
Federal provision of funds for operational implementation of SSET.	8
No new institutions; merely improvements in present ones.	7

APPENDIX C

RECOMMENDATIONS GROUPED BY INSTITUTIONS WHOSE ROLES/ACTIONS WOULD BE AFFECTED

Recommendation	Times Mentioned*
Federal Roles/Actions:	
Improvements in the system for dissemination of/access to S & T information.	68
Stronger participation by state and local governments in national R & D decisions, agendas, program design, etc., for S & T that is intended to benefit or expected to impact state and local government.	52
Increased Federal support/assistance/funds for state and local S & T training, capacity-building, etc.	51
More adequate documentation and translation into a user frame of reference of information, evaluated from a user perspective.	43
Increased Federal support/assistance/funds for the adaptation and demonstration of technology and research to meet State and local needs.	42
Better coordination and further development of intergovernmental S & T networks, both formal and informal (as a Federal responsibility).	40
Strengthened Federal technical advice and assistance, and personnel sharing, through the Intergovernmental Personnel Act, the Federal Laboratory Consortium, and other such activities.	40
Universities need to be made more responsive to specific State and local needs. **	31
Increased Federal support/assistance/funds for the development of new technology to meet State and local needs.	25

* out of 132 responses

** Including use of provisions in Federal grants and contracts.

The general visibility of S & T, at all levels, needs to be increased; publicity made more effective.	18
Better Federal integration of transfer programs.	15
Intergovernmental S & T efforts generally should be cooperative among all "levels" of government.	15
A clear, central locus of Federal responsibility for intergovernmental S & T.	14
Federal regulatory barriers to innovation should be reduced.	14
A centralized, Federally-operated S & T information and data system.	13
Federal agency and State promotion of interlocal experiments and information sharing.	12
Built-in structural relationships between universities and State and local governments. **	12
Relatively long-term commitments behind Federal assistance to states and localities to develop their science and technology capacities, demonstrate new technologies, etc., (at least 2 years for any activity; up to 10 to 15 years for some programs).	11
Better coupling -- by Federal, state, and local agencies -- of industry and universities to State and local needs.	10
Local government employment of technology agents, analysts, or facilitators with Federal or State support.	9
Federal provision of funds for operational implementation of SSET.	8
No new institutions; merely improvements in present ones.	7

State Roles/Actions:

Improvements in the system for dissemination of/access to S & T information.	68
Stronger participation by state and local governments in national R & D decisions, agendas, program design, etc., for S & T that is intended to benefit or expected to impact state and local government.	52
States should employ, on an institutionalized basis, S & T capability.	44
More adequate documentation and translation into a user frame of reference of information, evaluated from a user perspective.	43
Improvements in State policies for coordination of S & T matters, including improvements in capabilities and arrangements for external communications.	43
States should provide direct S & T services and programs for local governments, including assistance in the evaluation, adoption and use of technology, and support of interlocal transfer activities.	42
States should support/fund State and local S & T training, capacity-building, etc.	36
Universities need to be made more responsive to specific State and local needs.	31
States should support/fund the adaptation and demonstration of technology and research to meet State and local needs.	30
States should provide (centrally) S & T clearinghouses.	21
The general visibility of S & T, at all levels, needs to be increased; publicity made more effective.	18

State involvement of local officials and agencies at the State level; provision for more state-local contacts along functional and departmental lines; aggregation of local needs; use of regional approaches.	18
Intergovernmental S & T efforts generally should be cooperative among all "levels" of government.	15
Federal agency and State promotion of interlocal experiments and information sharing.	12
Reduced State regulatory barriers to innovation.	12
Built-in structural relationships between universities and State and local governments.	12
State action to foster and use existing resources (e.g., public interest groups, national networks).	10
Better coupling -- by Federal, state, and local agencies -- of industry and universities to State and local needs.	10
State promotion and pressure, including publicity, use of regulations and the funding process, to increase local innovation.	9
Stronger State ties to universities.	9
Local government employment of technology agents, analysts, or facilitators with Federal or State support.	9
No new institutions; merely improvements in present ones.	7

Local Roles/Actions:

Improvements in the system for dissemination of/access to S & T information.	68
Stronger participation by state and local governments in national R & D decisions, agendas, program design, etc., for S & T that is intended to benefit or expected to impact state and local government.	52
Improved local organization and support for technology analysis and evaluation, and for better local use of S & T information in basic decision-making (e.g., budgeting).	48
More adequate documentation and translation into a user frame of reference of information, evaluated from a user perspective.	43
Local governments needs to increase their recognition of the importance of S & T, their willingness to use it, and to take the risks involved.	38
Local governments should employ, with their own funds, technology agents, analysts or facilitators.	34
Greater local participation is needed in cooperative regional efforts to develop or adapt S & T approaches or solutions.	31
Greater local government participation in networks, seminars, and other information sharing activities.	23
More extensive local efforts to define, develop, and evaluate S & T needs.	20
Local investments (stake money) in local S & T activities.	19
The general visibility of S & T, at all levels, needs to be increased; publicity made more effective.	18

State involvement of local officials and agencies at the State level; provision for more state-local contacts along functional and departmental lines; aggregation of local needs; use of regional approaches.	18
Intergovernmental S & T efforts generally should be cooperative among all "levels" of government.	15
Local governments should use greater initiative to seek out and use available financial and technical assistance.	13
Built-in structural relationships between universities and State and local governments.	12
Better coupling -- by Federal, state, and local agencies -- of industry and universities to State and local needs.	10
Local government employment of technology agents, analysts, or facilitators with Federal or State support.	9
No new institutions; merely improvements in present ones.	7

Public Interest Group and Professional Association Roles/Actions:

Improvements in the system for dissemination of/access to S & T information.	68
Stronger public interest group (and association) capability and effort in dissemination and coordination, education, training, etc., relative to state and local use of S & T.	47
More adequate documentation and translation into a user frame of reference of information, evaluated from a user perspective.	43
Public interest groups should play a stronger role in the aggregation and definition of State and local needs.	15
Greater involvement of associations of functional, operational, and professional officials -- e.g., health, public utilities, special districts, etc. -- in S & T processes for State and local needs.	11
Public interest groups as catalysts and initiators of action, and as policy coordinators.	10
Greater initiative by professional associations to communicate innovative approaches to State and local constituencies.	10
Coordination of public interest groups and association efforts, and avoidance of competition.	10

University Roles/Actions:

Improvements in the system for dissemination of/access to S & T information.	68
More adequate documentation and translation into a user frame of reference of information, evaluated from a user perspective.	43
Universities need to be made more responsive to specific State and local needs.	31
Local governments should use greater initiative to seek out and use available financial and technical assistance.	13
Built-in structural relationships between universities and State and local governments.	12
Better coupling -- by Federal, state, and local agencies -- of industry and universities to State and local needs.	10
Stronger State ties to universities.	9
No new institutions; merely improvements in present ones.	7

Industry Roles/Actions:

Improvements in the system for dissemination of/access to S & T information.	68
More adequate documentation and translation into a user frame of reference of information, evaluated from a user perspective.	43
Local governments should use greater initiative to seek out and use available financial and technical assistance.	13
Better coupling -- by Federal, state, and local agencies -- of industry and universities to State and local needs.	10
No new institutions; merely improvements in present ones.	7

ISETAP Roles/Actions:

ISETAP should function as an initiator, advocate, and promoter of proper Federal action.	49
ISETAP should function as a synthesizer and broker of State and local needs with the Federal government.	36
ISETAP should function as an initiator, advocate, and promoter of proper State and local action.	20
ISETAP should function as an element in S & T transfer networks.	20
ISETAP should function as an overall review, evaluation, and coordination body for Federal involvement in intergovernmental S & T.	20
ISETAP should function as the source of general leadership in the field of inter-governmental S & T.	13
ISETAP should function as a general communication link to State and local governments for the Federal government.	8

APPENDIX D

TECHNICAL NOTES ON SURVEY DESIGN, ADMINISTRATION, AND SUMMARIZATION

1. Survey Design and Administration

This survey was structured around a relatively open-ended questionnaire (Appendix E) prepared by Louis Blair and Joseph Miller of the staff of the Intergovernmental Science, Engineering and Technology Advisory Panel (ISETAP) in the Executive Office of the President.

The questionnaire was mailed to 326 persons known to be involved, from the State and local perspectives, in intergovernmental science and technology efforts. These were mailed in late October and November, 1978, and 132 responses had been received by December 14. The present analysis covers these responses, which are representative for the groups surveyed (see Table D-1). As will be noted from this Table, the groups surveyed hold key positions in intergovernmental science and technology activities. Most can be expected to have both experiential and institutional biases favorable to intergovernmental S & T, as a field of worthwhile endeavor, as well as specific institutional loyalties within the present system.

However, approximately one-fourth of those surveyed hold significant responsibilities that go beyond intergovernmental S & T.

2. Summarization of Responses

Since this is an open-ended, essay-response survey, preliminary analysis has been limited to the summarization and categorization of responses. At a minimum, these reflect the concerns of those involved in intergovernmental S & T for the challenges they now face. The various suggestions for improvements, therefore, have reason to be seen as guidelines for successful responses to those challenges.

In correlating the essay responses, judgements have been made that similar concepts, expressed in differing words, could be counted together -- often expressed in yet another set of words. In doing so, the attempt has been made to remain sensitive to the connotations and nuances of each respondent. Even so, several people may well say, "You don't report what I meant to be saying, which is that. . . ." Any respondents who feel that way should, by all means, say

so. Any summary of this type can, at best, distill only the essence of what is widely shared. In doing so, it is necessarily constrained to a consensual context within or against which respondents may more efficiently outline or define any particular viewpoints that are not adequately represented by the consensus statement.

To the extent feasible, within the overall context of the recommendations, significant viewpoints not adequately reflected in the tabulated recommendations (Appendices A, B, and C) have been incorporated in the textual summarization. With this in mind, the reader should focus on the tabulated recommendations, using the text as a means of placing the various recommendations clearly in perspective.

Table D-1

Distribution of ISETAP Questionnaire and Responses as of December 14, 1978

	Sent	Returned
Innovation Networks (Regional/State)	12	9
PTI-based Networks:		
Urban Consortium	35	13
UTS	26	13
CTIP	33	7
Public Interest Groups, Associations	26	16
State Municipal Leagues	49	8
Executive Roster, NSF's SSET Program	50	25
ISETAP Members and Staff	33	17
State Legislative Contacts	33	10
Others	29	14
TOTALS	326	132

APPENDIX E

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF SCIENCE AND TECHNOLOGY POLICY
WASHINGTON, D.C. 20500

SUGGESTIONS FOR MAKING SCIENTIFIC AND TECHNOLOGICAL RESOURCES MORE USEFUL TO STATE AND LOCAL GOVERNMENTS

ISETAP, a committee of 19 State and local government officials, the President's Science Advisor, and the Director of the National Science Foundation, has been established to provide advice to the Federal government on ways to make scientific and technological resources more useful to State and local governments in their service delivery, policy development, and planning functions. S&T resources include research findings, evaluation findings, modern technology products, scientific and technical personnel, software processes, policy analyses, and so forth.

In preparing a major report for the Administration, ISETAP needs to know what persons with experience in applying S&T in State or local government feel are the most important actions that need to be taken or most important institutional arrangements that need to be established to increase the use of S&T in State and local governments. Actions probably need to be taken by the Federal government, by State and local governments, by public interest groups and other organizations concerned with technology transfer, and possibly by the scientific community.

Judging from preliminary responses, a wide range of suggestions will likely be made covering such aspects as: identifying research needs ; information dissemination ; screening existing information ; marketing efforts to "sell" S&T ; information on successful State and local S&T applications and innovations ; training, capacity building, and consciousness raising ; employment of certain types of persons ; various mechanisms linking State and local users and research producers such as universities ; and long-term commitments to certain mechanisms. Other aspects will probably also be identified by respondents as being important and we look forward to receiving them.

ISETAP would like to have your suggestions on the most important actions that need to be taken or linking mechanisms that need to be established. Don't be concerned about duplicating responses from others or repeating some of the topics listed above. We want to know what you feel is most needed. Please be as specific as possible in your suggestions. Attach additional sheets if you need more space. If you have any questions, call ISETAP staff members Louis Blair, Bob Goldman, or Joe Miller (202/395-4596).

PLEASE RESPOND BY NOVEMBER 13, 1978.

10/20/78

Questionnaire

I. FEDERAL GOVERNMENT:

What do you feel are the two or three most important actions the Federal government needs to take to increase the usefulness of S&T to State and local governments?

1. _____

2. _____

3. _____

II. STATE GOVERNMENT:

What do you feel are the two or three most important actions State governments need to take to increase their use of S&T or the use of S&T by local governments?

1. _____

2. _____

3. _____

III. LOCAL GOVERNMENT:

What do you feel are the two or three most important actions local governments need to take to increase their use of S&T?

1. _____

2. _____

3. _____

IV. OTHER ORGANIZATIONS:

A number of other organizations are active or could be active in technology transfer. These include public interest groups, professional associations, and technology transfer and technical assistance units (Public Technology, Inc., National Training and Development Service, etc.). What, if any, actions should they take to increase the use of S&T by State and local governments?

_____

V. OTHER ACTIONS OR INSTITUTIONAL ARRAGEMENTS / OTHER COMMENTS:

Are there any other important actions that need to be taken or institutional arrangements that need to be established to increase the use of S&T?

VI. ISETAP ROLE:

How could ISETAP be most helpful to State and local governments?

Phone Number

Respondent's name, title, and address

☐ **Check box if you would like to receive a copy of the report.**

RETURN ENVELOPE ENCLOSED

Return by November 13, 1978 to:

ISETAP
Executive Office of the President
Office of Science and Technology Policy
NEOB Room 3011
Washington, D.C. 20500