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DIFFUSION AND UTILIZATION OF SCIENTIFIC AND TECHNOLOGICAL  
KNOWLEDGE WITHIN STATE AND LOCAL GOVERNMENTS

Executive Summary

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The Pennsylvania State University

Report to the National Aeronautics and Space Administration under  
Contract NAS5-24329.

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## Section I--Introduction

This report (1) describes the state-of-the-art concerning current knowledge of the processes by which technological innovations and scientific information are disseminated and diffused among state and local governments and (2) assesses the effectiveness of various mechanisms, strategies and approaches by which federal agencies have sought to transfer technological innovations and scientific and technological (S&T) information to branches of state, regional, and city governments.

The assessment is based upon a comparison between the theories and institutional arrangements subsumed beneath existing transfer mechanisms and the findings from recently conducted research on the processes and institutional characteristics which condition the acceptance and implementation by state and local governments of externally generated technologies or information. The assessment also draws upon formal evaluations of specific technology transfer projects, although little of the current activity in the fields of technology transfer or information dissemination to state and local government has been subject to formal evaluation, and, indeed, there are major questions as to the form that such evaluations should take.

## Section II--Policy Objectives Reviewed

Concern with state and local governments' use of new technologies and with their access to scientific and technological information is derived from three basic sources: the "public technology" view, the "technology transfer" view, and the "S&T capacity building" view. In

this report the key distinction between capacity building, technology transfer and public technology is that the intent of capacity building is to upgrade the internal decision-making capabilities of the users, while technology transfer and public technology focus primarily on dissemination of S&T information supplied by a federal agency.

In the "public technology" view the institutional characteristics and structure of incentives in state and local governments constitute barriers to the adoption of new technologies. Confronted by these barriers, private industry is held to lack an adequate economic incentive to attempt to develop or to market new products destined for the public sector. The combination of a general aversion to new technologies and a slow response to those technologies which are accepted means that state and local governments operate with outdated and inefficient technologies. This resistance to new technologies is thought to be one of the causes of the low levels of productivity generally found in public sector operations.

The "technology transfer" view, frequently expressed in Presidential and Congressional statements, is that the national investment in research and development will be more fully utilized by encouraging additional uses of the knowledge gained through federal R&D activities, and that specific domestic objectives (energy, health, housing, transportation) can more readily be attained if there is a systematic application of new technology to these fields.

The capacity building view refers to federal policies and programs designed to strengthen the capabilities of state and local governments in the range of activities--policy management, program management, resource management--which are required for improved public management. The capacity-building approach implies that an objective of federal

assistance programs should be the strengthening of the capabilities of state and local governments to make decisions on their own rather than simply to adopt or utilize technologies or information developed under federal sponsorship.

### Section III--Delivery Systems

This section describes (1) combinations of techniques for transferring technology and disseminating S&T information and (2) channels for delivering S&T knowledge to state and local governments. Two broad approaches--block grants and project grants--and four specific delivery approaches--field agents, information systems, technology promotion, and need-pull--are considered. Allowing for considerable variation in the specific design and implementation of each technique and for numerous possible combinations among them, e.g., networks which combine technology agents, back-up sites, and training programs, these techniques describe the bulk of federal activities in the fields of technology transfer, S&T dissemination and utilization, and intergovernmental science relationships.

Along with these techniques, six channels are considered for the federal delivery of technology and/or scientific and technological advice to state and local governments. One direct channel is that of a federal agency itself or a grouping of federal agencies, such as the Federal Laboratory Consortium for Technology Transfer. A second direct channel is that of the performer itself, that is, a state or local unit conducting an S&T-related activity under a federal grant. The other four channels--universities, professional organizations, networks,



and consortia--are classified as third parties or intermediaries in that their involvement in transfer and dissemination activities is underwritten or otherwise induced by federal stimuli.

The matrix of combinations between techniques and channels of assistance is depicted in Table 1.

TABLE 1

Delivery Systems for Transferring Scientific and Technological Knowledge to State and Local Governments

Channel		Direct Supplier		Intermediaries			
		Federal Agency	Performer	University	Professional Organization	Network	Consortium
Funding Mechanism	Technique						
	Block Grant						
	Project						
Delivery Mechanism	S&T Agent						
	Information System						
	Technology Transfer						
	Need-Pull						

### Block Grants

Although most often discussed either in the context of the broad design of financial relationships among federal, state, and local governments or in the context of specific program areas (e.g., education or human resources), block grants can also be considered a technique for promoting the transfer of technology and the dissemination

of scientific and technological information. Underlying a general revenue sharing approach is the contention that the principal limitations on the capability of state and local governments to search for, acquire, and effectively use new technologies or S&T information are their lack of funds and their limited access to S&T personnel. Direct provision of additional funds would remove the financial barrier to the acquisition of new technologies and permit the employment of technical personnel, if the funds were so allocated.

Block grants represent what might be called the "market" approach to intergovernmental relationships. If federal technical assistance programs do in fact provide a needed service, the users, now supplied with the requisite financial resources, will be willing to purchase external assistance, and to support federal technology assistance programs through a system of user charges.

### Project Grants

Project grants denote the set of activities in which a federal agency funds a nonfederal group to accomplish specific objectives. This is a "catch-all" category in that it may cover any of many different delivery strategies, may be channeled to any of a set of users or intermediary channels, may reflect a one-time, ad hoc response to a given situation, and may be a means by which a federal agency systematically tests alternative approaches before committing itself to a general course of action.

The central appeal of the project approach from the federal perspective is its flexibility. It permits a federal agency to determine

the type of activity, level of support, and type of performer, without making long-term commitments. For example, projects may be used to promote the implementation of a given technology by contracting with professional organizations to develop seminars for users; to channel agency funds along specific lines; to arrange for users to screen an agency's research output with a view towards determining which products have the highest probability for broad-scale transfer; to "demonstrate" the workings of a given technology, with a view towards promoting its widespread adoption; or to "test" the feasibility of new arrangements for linking sources of scientific and technological information, such as universities, to state and local governments. Federal agency use of project grants tends to be geared primarily towards the promotion of specific technologies. Thus, projects seek to "test" or "demonstrate" products rather than processes for linking suppliers and users.

The long-term impact of project-based activities within the user communities, remains unclear. There is an increasing body of evidence which indicates that even when a federal technology transfer or demonstration project is successful in promoting the adoption of given techniques by state and local governments, the viability of the innovations engendered via federal sponsorship becomes questionable once federal funding lapses. Adoption, transfer, and diffusion may occur, but not implementation or institutionalization.

### Technology Transfer

Technology transfer as used in this report denotes the set of activities (e.g., demonstrations, market or user surveys, seminars,

newsletters, abstracts, field agents) which federal agencies employ to promote the use by state and local governments of technologies, broadly defined, that are developed either by the agency itself or under agency support.

According to a study by Roessner, 20 to 25 agencies surveyed had formal R&D budgets.<sup>14</sup> These 20 agencies spent \$231 million in 1975 on technology transfer and research utilization activities, or 4.4 percent of their total R&D budgets. Twenty-four agencies indicated that they were engaged in technological transfer activities, which included a variety of approaches, the most important being the use of demonstrations.

Descriptions of the specific transfer activities of federal agencies are contained in the Directory of Federal Technology Transfer. Further descriptive material on these programs is therefore not included in this report.

### Information Systems

Information systems relate to activities which seek to promote the spread of information concerning new technologies or the use of S&T information among the user communities. Three principal variants of this approach are considered. First, there is the agency-based approach in which an agency seeks to foster the dissemination of research findings arising from its activities to an external set of users. This information service may be provided directly by the agency or through an intermediary. The second approach is the establishment of a multi-agency consortium, e.g., the Federal Laboratory Consortium for Technology Transfer. The third approach is the development within user

communities of information systems such as the Model Interstate Science and Technology Information Clearinghouse (MISTIC) for state legislators. Under such an approach, a federal agency contracts with an intermediary to establish an information system which will be used by state or local governments to search for and provide access to scientific and technological information. The basic difference between the first approach described above and this approach is that the former tends to be agency- and activity-specific, whereas the latter tends to be more of a "capacity-building" endeavor which permits the user communities to reach out to a large number of external sources of scientific and technological information, of which federal agencies (in general) and the agencies providing the funds (in specific) represent only a fraction of the sources potentially available.

There are a number of important differences between these approaches. Most important, perhaps, is the difference between what federal agencies and user agencies perceive as "useful" information. The information dissemination programs of federal agencies tend to center around "tech briefs"--short statements of the principal findings from research studies or projects. Much of what is disseminated tends to be directed at assisting the users in their selection of the techniques required to meet federal mandates.

Branches of state and local governments other than the mission agencies have information needs different from those of the line agencies, and are likely to perceive the utility of federally generated information quite differently. The predominant type of information sought by the executive and legislative branches is not "technological" information as such, but what has been termed policy information. The information dissemination programs of federal agencies are not designed to provide

this information. The inevitable intermingling of "technical" and "political" issues in many specific public policy issues (for example, energy conservation or environmental protection), raises questions concerning the utility of "tech briefs" or related workshops. Moreover, much of the technical information offered by federal agencies relates to policy areas in which the states are being compelled to act under federal legislative mandate. Implementation of these mandates in the form of specific state legislation remains a point of controversy between the federal and state governments. Therefore, federal agencies are not perceived by state officials as "neutral," or "disinterested" transmitters of "objective" information, but as advocates for the federal perception of what can or cannot be done in the setting of technically complex and politically volatile issues.

#### Need-Pull

Need-pull relates to those federally funded activities which are designed to augment the capabilities of the user communities to formulate and articulate their needs for technology and/or S&T information. Need-pull is here differentiated from "user input" to denote its separate status as a deliberate strategy of federal agencies. This strategy entails the funding of discrete need-pull projects in contrast to the more continuous if somewhat less formal processes by which federal agencies seek to secure advice and feedback from user communities on their technology transfer activities through a variety of means.

The need-pull approach has emerged in two specific settings: market aggregation and R&D agendas. The first approach is nominally directed at the private sector, but has strong overlap with the technology

transfer activities of federal agencies. It involves an effort at developing detailed technical specifications for technologies which spokesmen for the users assert to be needed by their jurisdictions. This combination of grass-roots endorsement coupled with specifications concerning the characteristics of the required technologies is seen as a means of overcoming the fragmentation of the municipal government markets, which, in turn, is seen as a major barrier to private sector investment in research and development programs.

The R&D agenda approach rests upon the view that the limited utility of technology transfer or information dissemination programs stems from the fact that these programs occur too late in the research-development-diffusion (transfer, dissemination) cycle. The charge has been made that federal agencies seek to solve "national" problems in their "R&D" agendas, whereas, in fact, these problems consist of a great number of highly localized, specific variants of these problems. The consequence of this disparity between the general and the specific is that the solutions generated via a federal agency's activities are of little relevance to the user communities. Given this mismatch, it makes little difference how well-intentioned or sophisticated the technology transfer or information dissemination program of a federal agency is because it is attempting to promote an unsuitable output.

The perceived remedy for this mismatch is to have the user communities enter into this cycle early by having them state and rank their problems. User-oriented "R&D" agendas would then become part of the internal federal agency R&D agenda setting process, and presumably would lead to an output which could be transferred and disseminated more readily because it met the users' previously stated needs. There has been no assessment to date of the impact of either type of need-pull activity.

### S&T Agent

An S&T agent is an individual or organizational unit located within the user institution which is specifically assigned to procure S&T information relevant to the needs of the user. While the tasks performed by such an agent closely parallel those typically described for field agents or otherwise performed during the transfer dissemination activities of a federal agency, the key element of this approach is that the agent is part of the user institution. As such, the agent is accountable to the user and generally can be expected, in the case of S&T information, to "interpret" the information in a manner which is comprehensible and accessible to the user, and, in the case of technology transfer, to have a fuller understanding than is typical of a federal agency or other supplier of the complex set of factors which enters into the user's decision to adopt an innovation.

Several other characteristics of this approach have made it increasingly attractive to the user communities. First, it permits the user to select the individual(s) who will serve as a link to the external S&T communities. Second, an internal capability permits the user to reach out broadly to the external scientific and technical communities and does not make it dependent upon the expertise of a single agency with whom the user is possibly in conflict. Third, the internal capability gives the user a "pro-active capability" to search out improvements in existing practices without having to wait until issues reach a "critical stage." Fourth, the internal capability meshes more closely with the complex, often iterative sequence of rounds often encountered in the technology transfer-information utilization process. The agent is available to the user through the several



rounds of deliberation, negotiation, last-minute adjustments, and implementation decisions that are likely to be coured in making decisions on complex issues.

There are, however, several problems associated with the use of S&T agents, including cost, organizational placement, and recruitment. Most important of all is the recognition on the part of the user that such a capability is needed.

### Delivery Channels

This report also considers six channels through which the four techniques can be delivered: federal agencies, the user agency itself, and four intermediaries--universities, professional associations, consortia, and networks. The basic characteristic of the intermediation process is that the federal government provides financial support to an organizational entity which, in turn, provides a service to the user communities.

Three elements appear to enhance the appeal of the intermediation approach. (1) It has the potential for being cost-effective in that it fixes federal outlays to the amount of a specific grant, substitutes lower cost state and local personnel for federal personnel in the delivery of a service, and in some cases capitalizes on already existing delivery channels. (2) It provides an economical, single point for the translation of federally-generated information into language and formats more compatible with the needs of the users. (3) It introduces an organizational entity allied with the user communities into an environment possibly characterized by lack of confidence or credibility in federal-user relationships, or indeed one of open adversarial relationships.

## Section IV--State Executive

The design of programs to promote the increased use of scientific and technological knowledge by the executive branch of state government entails the greatest degree of complexity of any of the three levels of government considered in this report. This complexity derives from three sources. (1) The state executive branch is involved more deeply in the separate elements of the intergovernmental science system (e.g., R&D priority setting, technology transfer) than are the other two branches and is involved with issues which are not major concerns of the other branches (e.g., R&D funding). (2) The number and size of the different organizations which are involved in the generation and utilization of scientific and technological knowledge is larger in the executive branch than it is in the other two branches, so that issues of coordination and control, as for example, among a line agency, the budget office, and the governor's office, become relatively more important as elements in the implementation of successful projects. (3) The executive branch has a more complex history of previous efforts to utilize scientific and technological knowledge; this may now constitute a barrier to eliciting renewed executive interest in federal programs.

Three separate activities are described in this report: state R&D activities; technological adoption and implementation; and scientific and technical information.

### R&D Funding

In terms of summary descriptors, state R&D expenditures can be characterized as follows: approximately one-half of the total state

R&D expenditures are derived from federal funds. Two states account for approximately one-third of total state outlays (New York--23%; California--13%), while 15 states account for three-fourths of the total. These states tend heavily to be the larger, industrialized states. Expenditures for health and natural resources account for 35 percent and 22 percent of state R&D expenditures. Slightly over two-thirds of total R&D expenditures are allocated for intramural work. Universities (12%) and other performers (20%) such as industry, nonprofit institutions and local governments account for the balance. About one-third of the state R&D efforts are directed at applied research.

#### Technology Transfer

Technology transfer, from the perspective of state governments--the users--is a process of adoption and incorporation. Surprisingly, although technology transfer has been the subject of extensive conceptual and descriptive study, far less attention has been directed at examining the processes within state governments that lead them to accept, modify or reject technologies.

The adoption of new technologies in state governments has been found generally to involve a small number of career officials and technical staff within the mission agencies. Indeed, most federal technology transfer programs are predicated on this agency autonomy; for the most part they represent a form of vertical networking between federal and state agency personnel. The extent to which federal agencies are able to influence the rate and selection of specific technologies has been found to involve more than the characteristics of any given technology transfer program. State acceptance

of federal guidance is affected by a broader set of intergovernmental relationships involving legislatively defined mandates for action, intergovernmental assignments of jurisdictions and responsibility for specific courses of action, funding arrangements, and mobility of personnel among levels of government. These variables are in turn greatly affected by the evolution of channels of communication between federal and state agencies, which themselves are a function of clearly defined spheres of responsibility and demonstrated reciprocal credibility and usefulness.

#### Scientific and Technical Information

The emergence of executive requirements as a discrete category for scientific and technical information occurred in the early 1960s. This development reflected, in part, the replication by states of the process then under way at the federal level, which included the designation of a presidential science advisor and the establishment of a President's Science Advisory Council.

For present purposes, a precise estimate of the magnitude of the needs of state executives for S&T information is not required. The more important aspects of these considerations are: (1) that there is a need for information, (2) that the information is likely to be needed to address issues not already on the state's policy agenda, so that when the need arises it is likely to be in those areas in which the state does not have in-house capability to which it can readily turn, and (3) that the information be accessible and comprehensible to the policymaker. In most cases, this means that the technical material be

translated from the finer technical aspects of an issue to discussions of the benefits and costs of alternative courses of action that the executive might propose and the distributional impact of these actions. This approach to the use of scientific and technical information is in keeping with the way the executive branch defines and confronts issues; it is not necessarily compatible with the view of the scientific and technical community as to how their information should be sought or utilized.

A consensus, at least among those who are responsible for shaping state executive policy, seems to emerge about two, not necessarily consistent, conclusions. (1) S&T information systems within the state executive branch may be more effective and usable if they are organized as part of an ongoing policy apparatus, and not, as in the past, as part of the science advisor or science advisory approach. (2) The organization and placement of scientific and technical information in the executive branch will vary from state to state, with the "best" solution depending heavily on local institutional arrangements and the style of the particular governor being considered.

#### Section V--State Legislatures

Few developments have been as significant as the changes occurring in state legislatures as a result of (1) the increased scientific and technical complexity of issues which legislatures must treat and (2) the recognition by many legislators that new and different types of information (and information sources) are needed within the legislative setting to make informed decisions on these issues. With the possible exception

of computerized information and management systems, legislatures themselves are not the end users or intended targets of technology transfer programs. Their involvement in technology transfer activities occurs primarily through their powers of appropriation, specifically in those instances in which they are called upon to appropriate matching funds or to support technology transfer projects initiated between a federal agency and a state mission agency. The endeavors by federal agencies to involve legislators in the activities surrounding a technology transfer project thus represent an effort on the part of these agencies to build a "coalition" within the user community which will support the project after the federal program has expired.

Analysis of the extent to which state legislatures have to treat scientific and technologically complex issues has led to three major findings. First, the percentage of bills introduced into a state legislature which contain a discernible scientific and technical component is estimated in the 17-20 percent range.

Second, a substantial portion of the scientific and technically complex agendas now confronted by state legislatures has been created by the passage of federal legislation which has required the states to enact implementing legislation.

Third, state legislatures are concerned with policy issues--energy, environment, health--not with science and technology issues as such. Concepts such as technology transfer, research utilization, R&D agendas, and the issues surrounding the design of programs related to these concepts which are the lingua franca of federal agencies and the scientific and technology communities have little currency within the state legislative agenda.

Finally, permeating any discussion or assessment of which federal strategies have worked or are likely to work for state legislatures, must be a recognition of the great variations which exist among the institutional environments of state legislatures. The range between the "part-time citizen" and the "full-time, professional career legislator" is enormous. The differences between the biennial compensation received by legislators in New Hampshire and Rhode Island, \$200 and \$600 respectively, and legislators in California and New York, \$60,569 and \$47,000, symbolize the disparities which exist in all aspects of legislative performance. Perhaps the single most important disparity for this study is the difference in the size and quality of the staff support system. The range is from a small number of individuals, usually comprising a central research staff whose primary function is bill drafting and budget preparation and whose training tends to be in the fields of law, public administration, and accounting, to full-time committee staffs for both the majority and minority parties, augmented by large centralized staffs consisting of specialists in several disciplinary or functional areas.

#### S&T Agent

The S&T agent approach in state legislatures is more simply defined as a staff approach. Of the various approaches considered, the addition of a staff person or an S&T unit within the legislature is the approach most favored by legislators, and of the various approaches attempted (e.g., S&T advisory council, university-based clearinghouse), the one which has proven most viable over time. S&T staff fulfill

a legislature's need for brokers who can adapt information supplied by the external S&T communities to formats which are readily accessible and presumably more comprehensible to them. Staff personnel are more readily available and accountable to the legislature than are external resources. Staff can be relied upon more than other sources to synthesize, and summarize, and, if necessary, to produce information in a manner tailored to the context of the legislative debate. Staff can also be asked to verify the professional credentials of outside experts, to identify their public positions on issues, and to arrange panels or hearings involving legislators and these expert communities.

S&T staff are not, however, an unmixed blessing. Although it has been customary in analyses of the shortcomings of the performance of state legislatures to note the paucity of staff available to assist legislators, and conversely, to treat staff augmentation as inherently beneficial, cautionary comments have been sounded by legislators themselves about their growing dependency on such staff.

The augmentation of legislative staff capabilities through the employment of S&T agents has been the single most important aspect of legislative involvement in the S&T field during the past decade. Whereas 10 years ago, it would have been difficult to identify any specialized unit within any state legislature specifically charged with responsibility for scientific and technical issues or any employees in state legislatures with advanced degrees in the physical or biological sciences, such units and individuals exist today in several states.



## Section VI--Local Government

Local government is the immediate provider of the public sector services with which citizens most directly and most frequently have contact. Thus, the demarcations among the classifications employed in this report to group approaches, i.e., technology transfer, S&T agents, and information systems, may be blurred in the case of local governments since many of the projects currently operating combine all three functions. Moreover, in the case of local governments, there is a danger of misplaced emphasis on the importance of discrete projects, even those projects deemed effective, because this focus tends to obscure the presence of a larger, more institutionalized set of "technical assistance" programs operated by other branches of state government or by other organizations. A recent survey by the General Accounting Office identified 31 states which had such technical assistance programs. The scope and impact of these programs are not described in detail in the GAO report, but they appear to involve elements of technology transfer and technical information.

### Need-Pull

The fragmented nature of the local sector is one of the reasons most frequently cited as a barrier to private sector investment in urban technology. Two projects, the Urban Consortium for Technology Initiatives and the Community Technology Incentives Program, represent attempts at aggregating these markets through the compilation of "user need" statements. These statements, which are derived from the experiences of a cross-section of municipal officials, are intended to

reflect the "real-world" technological requirements for operating agencies. The assumption behind the approach is that the statements, backed by the aggregate purchasing power of the members of the consortia, will serve as an inducement to private industry to invest in development of the technological solutions being sought. Another use of such statements lies in the potential leverage that they provide to local governments in their efforts to induce federal agencies to orient federal R&D along specific lines.

Efforts at market aggregation to influence either private sector or federal R&D are of too recent a vintage to permit conclusions. Although there is a surface appeal to this approach, which is buttressed by citations in the pertinent literature of the idiosyncratic purchasing specifications of municipal governments and observations about the job shop atmosphere of any fire truck manufacturer, it is still an open question whether the effectiveness of user needs statements is a sufficient incentive for causing either private industry or the federal government to change its practices.

#### Section VII--Summary

Since the mid-1960s an acceleration in the rate of utilization of publicly developed technologies and scientific and technical innovation by state and local governments has remained a consistent objective of the federal government. However, the specific reasons cited for these objectives have changed. In the mid-1960s, increased utilization of advanced technologies and scientific and technical personnel was tied to the goal of economic conversion and was intended to pick up the slack

in the product market for aerospace firms and the labor market for scientists and engineers. In the mid-1970s, the emphasis shifted to the need to increase productivity in the service delivery systems of state and local governments. Pursuit of the above objectives continues today.

Despite the mixed record of success, state and local government efforts to bring about the greater utilization of technical innovations has continued. Within state legislatures, no formal or discrete S&T-related activity existed in 1970; today, several viable institutions are operating. The number of local governments involved in various technology transfer programs is far greater today than in the early 1970s. Similarly, state governments continue to apply new technologies and to develop their internal staff capabilities to handle the growing complexity of their policy agendas.

The state-of-the-art assessments provided in this report are derived from two sources: evaluation of existing projects and research findings. The two do not easily fit together. Projects and activities reflect efforts at manipulating levers or relationships that were identified in an earlier body of research. Recent research has tended to question many of these relationships. The newer research findings point to new sets of relationships, but do not themselves provide specific programmatic guides. Moreover, these recent research findings cannot be interpreted as evaluations of existing projects. Thus, probably less is known about what comprises successful technology transfer and information dissemination programs than is reflected in the analytical framework which has produced the existing programs.

The newer findings also point to the considerable difficulty which federal agencies will have in operating in the push-mode,

for technologies or for information. They also suggest the potential utility of the alternative approach to securing greater utilization of technology and information, namely, strengthening the internal capabilities of user communities to make more informed decisions. Capacity building is a high-risk strategy for federal agencies; by strengthening the capabilities of state and local governments, the federal agencies increase the likelihood that they will be dealing with assertive, independent entities that may become increasingly reluctant to accept federal technical assistance. The policy dilemma here, if it may be called a dilemma, is that the current set of intergovernmental relationships does not seem to be producing the desired flow of information and expertise.