PROGRAM OF POLICY STUDIES IN SCIENCE AND TECHNOLOGY

Seven-Year Review • 1966-1973

(NASA-CR-137374) PROGRAM OF POLICY STUDIES IN SCIENCE AND TECHNOLOGY Seven Year Review, 1966 - 1973 (George Washington Univ.)

N74-20625

Unclas

CSCL 05A G3/34 35029

The George Washington University, Washington, D.C.

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The Program of Policy Studies in Science and Technology was established in 1966 with the assistance of a generous institutional grant from the National Aeronautics and Space Administration for the specified purpose of developing a "University policy analysis capability." In the 1968-69 Report the Director of the Program described the interim activities and presented a tentative assessment of the performance of the Program for the first three years. This Statement reviews briefly the activities and operations of the Program with respect to its stated objectives for the seven-year period ending August 31, 1973.

A basic operational assumption of the Program has been that complex social problems usually cannot be properly managed by partial or specialized treatment or by "one-factor fixes." Such problems need to be considered within a context sufficiently comprehensive to identify significant relationships among variables, yet limited enough for adequate analysis. Hence, a major focus of the program was to be on the application of an interdisciplinary, problem-oriented capability to the performance of total social impact evaluations of the consequences of introducing new configurations, technological or otherwise, into future social environments. In turn, it was anticipated that the knowledge and analytical proficiency gained from studies, seminars, proceedings and publications would be converted into instructional materials, teaching techniques, and new curricular designs which could contribute to the strengthening of the University's academic programs.

The primary characteristics of the Program can thus be summarized as follows:

- Emphasis on interdisciplinary, problem-oriented analysis.
- Development of intra- and inter-institutional arrangements for the purpose of analyzing social problems, evaluating existing programs, and assessing the social impacts of prospective policies, programs, and other public actions.
- Focus on methodological approaches to the projection of alternative future social environments, the identification of the effects of the introduction of new policies, programs, or other actions into the social system, and the evaluation of the social impacts of such effects.
- Availability of analytical resources for advisory and research tasks, and provision for use of Program facilities as a neutral forum for the discussion of public issues involving the impact of advancing technology on social value-institutional processes.

A crucial element in the concept of the Program of Policy Studies was and is that its research and analytical efforts be directed to the actual on-going public policy process with special reference to the impact of advancing technology on participants, values, and institutions. The staff, of course, recognizes the need to develop conceptual schemes to serve as the organizing rationales for policy analysis tasks. But the essential mission of
the Program has been to address existing or emerging social problem contexts (whether at the Federal, state, regional, or local levels and whether relating to a particular phase or phases or to all phases of the Policy Formulation/Program Implementation process). In sum, it was not the original objective of the Program, nor has it been our practice, to assume intellectual/analytical tasks which have customarily been carried on by the established departments and professional schools of the University. It has rather been to devise means of assembling the skills representing all relevant disciplines and professions and integrating such skills into an articulated effort for a complete analysis of a particular problem (posited or presented).

Program Activities 1966-1973

The effort of the staff of the Program (PPS) to implement the objectives—characteristics of the Program is reflected in the following recital of activities:

- A problem-oriented, policy analysis capability has been developed and the Program's professional staff has accrued considerable experience in social impact assessments as represented by numerous study reports, seminar proceedings, and professional papers.
- The PPS has maintained a basic core staff of 10-15 professionals which has at times reached a level of 35-40 professionals, including the participation of over 75 GWU faculty members.
- The PPS has usefully applied the talents of over 200 graduate and undergraduate students in the University.
- The PPS has presented over 85 professional seminars, including 16 separate series and 5 special seminars. Participation in these seminars has involved a wide range of representatives of the governmental, industrial, university and R&D communities.
- The PPS has published over 100 monographs, study reports, and books which have been widely distributed by the PPS and through the National Technical Information Service to interested scholars, policy analysis groups, Federal, state and local governmental entities, and governmental offices and private policy analysis organizations throughout the world.
- Members of the PPS staff have been invited as principal speakers for numerous Congressional hearings, professional association meetings, and various international conferences on topics involving science, technology, and public policy.
- The PPS provided a substantial part of the initial funding and has co-sponsored with the School of Public and International Affairs the Master's Degree Program in Science, Technology, and Public Policy. Over 60 students have participated in this academic, research and colloquia program in the past three years.
- The publications of the PPS have been used by numerous universities in their courses in the area of science and public policy and the Program regularly receives requests for assistance in the development of new courses or for the arrangement of meetings or for advice on policy analysis studies from individuals and groups in the U.S. and various foreign countries.
- The PPS has received in excess of 60 specific grants and contracts over the past 7 years.

Program Operations

An interdisciplinary, problem-oriented approach to the analysis of public programs, projects, or other actions need not be considered to exist or not exist. There are various degrees of interaction which might be associated with given analytical efforts as well as varying combinations of skills and experience which might be utilized in a given effort. Policy analyses, including anticipatory project assessments, are not ordinarily performed or not performed; they are performed with varying degrees of adequacy or inadequacy. Within any given policy analysis group, some efforts will invariably be performed with a higher degree of proficiency than others for a variety of reasons, i.e., internal or external conditions and constraints.

Our experience over the past seven years has demonstrated that an interdisciplinary, problem-oriented approach to policy analysis may assume innumerable dimensions and forms. While a viable policy analysis program should have a basic core professional group of 12 to 15 for purposes of consulting on new proposals and reviewing projects in progress, it does appear that a readily available professional staff of approximately 20 would be optimum for a university-based policy analysis group such as we have attempted to develop. An extremely cooperative attitude by many members of the University faculty, who are not regularly associated with the Program, has served to provide a reservoir of professional knowledge and advice upon which the staff
has frequently drawn to extend its analytical resources.

One obvious outcome of our experience has been recognition of the need to tailor carefully the interdisciplinary group effort to the specific project. Those skills relevant to the project objective must be assembled. Our various projects have required a wide range of professional skill combinations. Certain projects have been broadly conceived and have required a full spectrum of skills, as, for example, the study on the Social Impacts of Future Civil Aviation Systems, an effort involving over 30 professionals and graduate students from a wide variety of disciplines and professions. The study staff on Laws and Regulatory Schemes for Environmental Noise Regulation was constituted primarily of lawyers, law students, and political scientists. But a follow-on study on Aircraft/Airport Noise Abatement Alternatives required a much broader professional representation including lawyers, land use managers, regional developers, community relations specialists, economists, aeronautical engineers, and those experienced in aircraft/airport operations. In brief, every policy analysis effort does not require the full staff of professionals who might be associated with a policy analysis group.

One of the disappointments of our experience has been the lack of success in gaining funding for several ambitious proposals which involved broad participation by faculty members in the University and, in certain instances, intensive efforts by professionals from other policy research organizations. In this sense, much of our interdisciplinary effort has come to naught. But even this experience has produced some benefits in gaining cooperative action and new insights from representatives of the various disciplines.

The program staff has found most of its work to be intellectually demanding, some exceedingly so. While good quality work usually requires time for in-depth research, analysis and reflection, we have also found that in most instances of "quick response" tasks, we have been able to perform a satisfactory analysis. Clearly, however, there is a limit to what can be done adequately under severe time constraints.

**Changing Conditions Affecting Program Activities**

The original concept of the Program envisaged the assembly of a broad range of disciplines and professions to address problems relating to the impact of advancing technology on social processes. But as noted above, the operational context of social problem analysis requires a particular mix of skills for each specific project. This factor poses difficulties for keeping all members of a broad interdisciplinary staff continuously and usefully engaged. A resulting tendency is for those temporarily unoccupied with a program project to pursue special interests of their own. This potential distraction from a total problem analysis orientation toward particular areas of social problem interest, and specialized treatment of even these particular areas, becomes difficult to counteract unless there is either a continuing flow of problems to the organization which require the participation of the full staff or provision for continuity of funding for the staff to posit its own inquiries is otherwise provided. Indeed, full or essentially full dependence on grant and contract funding for new projects almost inevitably results in the development of specialized interests by staff members in order to take advantage of opportunities to match interests with available funding. Hence, organizational sub-groups having specialized analytical capabilities evolve. This centrifugal force can present a difficult problem of containment if the basic structure of a total social impact analytical capability is to be maintained.

As a result of constantly increasing and now substantially full reliance on grant and contract funds for operational support, the Program has found it necessary to accommodate to this integration v. fragmentation tension.

The structure of the Program has changed in recent years to take advantage of new research and analysis opportunities. The consequence has been the establishment of a variety of identifiable sub-groups within the Program, as for example:

- **The Technology Assessment Group**, devoted primarily to studies in the area of science, technology, and public policy (Coates)
- **The Educational Policy Group**, devoted to both domestic and foreign country educational policy issues (Margolin)
- **The National Advisory Council on Supplementary Centers and Services**, devoted to reviewing and evaluating Title III of the Elementary and Secondary Education Act of 1965 and reporting its findings to the President and the Congress (Kluempke)
- **The Innovation, Information and Analysis Project supported by NSF**, devoted to developing a comprehensive body of literature on technological innovation and pro-
viding related analytical support services
(Tennant)

- The Master’s Degree Program in Science,
  Technology, and Public Policy having
  academic association with the School of
  Public and International Affairs and re-
  search and colloquia association with the
  PPS (Logsdon)

The fragmentation of an interdisciplinary
program staff into specialized sub-groups has
not meant that continuing interaction of the
full Program staff is no longer feasible. A
useful level of control can still be maintained
in terms of ability to assemble a relevant
group of skills for purposes of proposal prep-
arration or of project performance. It might be
emphasized that the level of capability of a
policy analysis group should be judged not
only by an ability to perform certain types of
policy analysis adequately but by the capabil-
ity to assemble relevant skills for special
projects or other purposes. The Program of
Policy Studies has relied almost entirely on
unsolicited proposals rather than upon re-
sponses to Requests for Proposals.

It is evident from previous comments that the
Program has necessarily made an organiza-
tional response to external conditions includ-
ing shifting subject matter interest of Federal
agencies and sources and types of funding
available to university-based policy analysis
groups. Our Program organization has
changed through time from a staff supported
almost entirely from an institutional grant to a
staff of sub-groups organized to deal with
particular patterns of policy analysis tasks.
Under this arrangement it is now incumbent
upon each “group” to select its areas of prime
interest, to prepare proposals and pursue
funding efforts to support its activities, to
assume responsibility for administrative tasks
associated with its efforts, to arrange for nec-
essary staff appointments, and to perform
adequately the projects undertaken.

As noted, there are certain difficulties in this
arrangement for the maintenance of intensive
interaction within an interdisciplinary profes-
sional staff which is essential as a resource
base for problem-oriented research. But there
are also advantages in this arrangement. First,
since the various “groups” share the same
physical space, consultation and discussion
are facilitated and various combinations of
professionals can be assembled to consider
new proposals or other policy analysis actions
with trifling inconvenience. Second, the de-
centralization of effort with the sub-group
structure assists with the determination of
analysis missions, distributes, yet locates,
responsibility for particular actions, encour-
ages initiative by a larger segment of the
Program staff, and tends to generate quality
control mechanisms within each “group.”

One of the major difficulties confronting a
program which must rely heavily upon grant
and contract support is the limited ability to
plan ahead. This in turn means that the in-
volve ment of desired faculty members is
sometimes difficult to arrange since depart-
mental or school commitments have frequently
been made prior to the date a project be-
comes effective. Most faculty members of The
George Washington University have been quite
cooperative in assisting the Program staff in
proposal preparation and project performance
when their availability has permitted. An in-
creasing number of faculty members tend to
be interested in problem-oriented and action
research. While the interdisciplinary approach
remains to some extent at odds with the tradi-
tional university organizational structure, it is
clearly consistent with a social problem focus.
If a core group of capable and interested
professionals can gain a limited degree of
momentum, then the policy analysis function
has a good chance of maintaining an effective
level of effort even when adjusting to the
constraints necessarily imposed by the univer-
sity administrative/operational structure.

The Evolving Policy Analysis Function

Assembling professional skills to perform
social problem analysis for purposes of intro-
ducing the resulting outcomes into the public
policy process is a very different task from
that of the conventional academic function of
producing and disseminating knowledge. Pol-
icy analysis involves the production of out-
comes which are designed to clarify policy
options and intended to have some impact
upon socio-political decision making. One
implication of this observation is that those
involved in the policy analysis function should
properly be judged by a somewhat different
set of professional performance criteria than
those customarily applied to the university
faculty member. A combination of organiza-
tional skills and intellectual talents which dif-
fers appreciably from the normal demands
made of either university faculty members or
administrators is required of policy analysis
principals. Hence, the question persists as to
whether universities are appropriate loci for
such efforts, or if some universities may be
but most are not, or what other types of exist-
ing non-university or new institutional arrange-
ments can better serve the objective of con-
verting available knowledge and analytical
resources into useful inputs to the public
decision process. Assuming the availability
of the basic resources for a policy analysis effort, it is likely that each particular institution, university or other, will necessarily need to tailor its effort to the special conditions (opportunities and constraints) of its socio/institutional context.

It is certainly not our contention that all policy analysis should have a university base nor that every university should have a social problem-oriented research group. It is a matter of the perceived mission and resource availability of the particular university. We have found the Program's work both to be intellectually challenging and to require the development of organizational/analytical skills which are not often taught or utilized in the normal educational process. The critical difference is that the policy analysis function is ordinarily related to existing or projected social problem contexts requiring the assessment of alternative project configurations for the solution or alleviation of an unsatisfactory social condition. This task is a stimulating experience; it is also hard work. It should be recognized that there is a good deal of "cost" (professional effort as well as financial) attached to the operations of a policy analysis program. Such costs must be weighed against the prospective benefits to students, faculty, professional groups, and public service needs in evaluating the net benefit of such an activity to the particular university.

At The George Washington University we perceive a definite, if gradual, recognition of the need for activities in some manner related to the policy analysis function. New stimulus has been given to interdepartmental and interdisciplinary efforts through the Division of Experimental Programs. The various continuing professional activities in the educational and health policy fields carried on by the Institute for Educational Leadership seem a reliable index of the need for more systematic attention to the public policy process by universities in position to perform such functions. The location of the new American Bar Association Center for Administrative Justice at the University is still another component of a growing institutional development at The George Washington University which, along with the Program of Policy Studies and the Master's Degree Program in Science, Technology and Public Policy, could evolve into a substantial University effort in research and continuing professional education having a direct relationship to the public policy process.

It is perhaps apposite also to comment that the establishment and maintenance of a policy analysis capability concerns and depends upon an effective interaction among all the participants and entities involved in the public decision process. However much the Congress or the Federal departments and agencies might need analytical support with such tasks as the preparation of NEPA §102(2) (C) statements or with special proposed projects, if the responsible officials in such agencies do not perceive the need or do not have the resources to engage the services of policy analysis groups, then the latter surely cannot develop a continuously improving analytical capability. The universities can be expected to develop useful policy analysis capabilities only to the extent that they are encouraged to do so. On the other hand, the sponsor-consumer has both the right and duty to demand adequate performance.

Many indices point to a definite trend in interest and activity which may reasonably be categorized as "policy analysis." Academic interest is manifested in the rapid growth of professional periodicals and association meetings devoted to the general area of social problem-oriented analysis over the past few years. Much recent Federal and State legislation gives heavy emphasis to a wide range of environmental factors which pertain to "human" as well as to "natural" environmental quality. This means that the public sector agencies now have statutory mandates to consider new proposals for programs, projects, and actions in far broader terms than heretofore required. Further, many Federal departments and agencies now have offices of policy or of planning which provide added stimulation to the policy analysis function. And the Office of Technology Assessment, now established as a future-oriented analytical arm of the Congress, should provide a major focus for a growing policy analysis interest.

Future Directions

It is anticipated that the continued focus of the Program's activities will be directed to analytical tasks involving the impact of advancing technology on societal institutional-processes. Attention will continue to be given to the basic Program objective of assembling interdisciplinary groups to perform future-oriented studies of the social impact of proposed programs, projects, and other public actions.

The Program staff has developed a number of different methodological approaches to the projection of alternative future social environments, the identification of the effects of new technological interventions into future social environments, and the evaluation of the social impacts of such effects. The competence of the staff in the application of these method-
ologies has reached a relatively high level and it is expected to continuously improve. Further, the experience gained by the professional staff in the numerous studies performed has equipped us to deal with a wide variety of topical areas, including: environmental impacts of major social-functional systems such as transportation, housing, solid waste management, etc.; legal/policy/economic conditions affecting the R&D and technological innovation processes; application of communications media to community services in both industrialized and developing nations; urban/regional land use planning including the application of Earth Resources Satellite data for such purposes; development and appraisal of regulatory schemes and mechanisms for the control of environmental noise; educational technology policy; Federal/State/Local governmental interactions in the regulation of new technological interventions; citizen participation in the evaluation of proposed technological projects, and so forth. The Program staff intends to continue its strong involvement in the technology assessment function.

It is also the intent of the Program staff to continue its seminar series on matters relating to technology assessment and other methodologies and activities involving the interaction of advancing technology and social process. Our publications series will also be continued but probably on a more limited level. We do plan to hold a continuing series of seminars on the evolving functions of the Office of Technology Assessment and to publish a series of papers on this activity.

The Program's activities over the past seven years have clearly served to identify and maintain a loose community of professionals in both public and private sector organizations who share common interests in the impact of science and technology on public policy. The Program's activities have supported new academic innovations in the University and have provided an opportunity for numerous faculty members and students to engage in analytical activities which have contributed to their professional interests and competence.

As noted, the continuing activities of the Program will depend largely upon the opportunities offered by sponsoring agencies for funded research, seminars, conferences and other events. In this regard, we continue to be optimistic. One further comment seems quite appropriate in this brief report, namely, the critical importance of the NASA "institutional support" funding which enabled the Program to generate the momentum for a sustained effort. Having observed the rise and frequent demise of many other university-based, problem-oriented groups over the past several years, it is difficult to see how such programs could reasonably have been expected to become viable, on-going operations without substantial initial funding—in addition to other requisite conditions such as an interested professional capability and a favorable university environment. The NASA grant not only provided this Program with the ability to establish a fairly broad interdisciplinary policy analysis capability but supported our publication series and professional seminars which have been effective means for establishing Program visibility and recognition. For this funding support and the continuing interest of both past and present members of the NASA staff we are indeed grateful.
Advisory Committee

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President, The George Washington University

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Dwight Waldo
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Syracuse University

Reuben E. Wood
Professor of Chemistry,
The George Washington University
Policy analysis is one essential means of coping with the needs of a complex, dynamic, and demanding society. Policy analysis is indispensable both for the effective treatment of existing social problem areas and the performance of future-oriented studies of alternative means of achieving select or provisional social goals. Complex social problems cannot be properly managed by partial, specialized, or arbitrary means. One-factor fixes seldom work. Social problems must be considered within a context sufficiently comprehensive to identify significant relationships, yet limited enough for adequate analysis. Analyses in turn, to be useful to policy makers and affected public participants, must include precise, realistic presentations of options, strategies for implementation, and probable outcomes in terms of effects on participants, social values, and institutions.

Policy Analysis at the George Washington University

It is from this perspective that the Program of Policy Studies in Science and Technology has developed a special capability for policy analysis. The focus of the Program on science and technology has resulted in the creation of various methodologies for conducting total social impact evaluations of technological applications. These concepts and skills are generally applicable to the policy formulation and program evaluation phases of the ongoing public decision process. The knowledge and analytical proficiency gained from research projects are converted into teaching materials and new curricular designs which contribute to the strengthening of the University’s academic programs. These mutually supporting functions are achieved through studies, seminars, and publications distributed as a public service.

Program Resources

Essential resources for effective policy analysis include location, institutional setting, facilities, and professional skills. The location of The George Washington University places it in easily accessible reach of the Congress and most Executive Departments and Agencies of the Federal Establishment. The Program of Policy Studies is a University-level entity responsible directly to the President of the University. The Program has close working relationships with all major Professional Schools and other components of the University including the library and data processing services. The Program draws upon a broad range of professions and disciplines:

- Public Administration
- Public Law
- Political Science
- International Affairs
- Sociology
- Economics
- Educational Psychology
- Business Administration
- Urban & Regional Development
- Land Use Management
- Operations Research
- Cybernetic Systems
- Medical & Biological Sciences
- Engineering and Applied Science

Organization

As the Program evolved in recent years, the structure has changed to take advantage of new research and analysis opportunities. Thus the following sub-groups within the Program have been established:
EDUCATIONAL POLICY GROUP

In 1966, a special group within the Program was established for the study and development of programs in formal and non-formal education. This center, the Educational Policy Group, is engaged in a multiple approach to education in the United States and in the technologically developing nations of the world, including:

a) the process of policy development in education;
b) the assessment of the effects of new educational technologies and their potential for society and the individual;
c) the development of new strategies for the application of communication technology to education in many nations;
d) educational program development;
e) the study of improved methods of educational innovation, as well as techniques for dissemination and utilization of educational methods and materials;
f) study of the effects of learning settings, materials and their interaction on the process of education;
g) the development of method and practice for facilitating the cooperation of educational problem solvers from various disciplines and cultures in cooperative endeavors.

The foci of educational activities are diverse. They include approaches both within and out of schools; the particularized demands of rural, as well as urban education; the special areas of basic education, preschool programs and learning by the physically, emotionally or mentally handicapped; adult and adolescent vocational training.

From its inception, the Educational Policy Group has been intensively involved in the applications of the communication technologies not only to formal education, but also to education in related fields (e.g. nutrition, family planning, public health), and in devising strategies for the organizations and systems involved in their delivery. Studies include applications of various communication media from computers to satellites, CATV to the tape recorder, as well as filmstrips and picture-dominated printed materials.

Critical communication technology issues that have been confronted include: which media to select for what purpose; which media for what audience; how broadcast media can be utilized while tailoring programs to local and individual learning needs; how to develop modules to allow for optimal program mix; how to develop modules for broad use while allowing cultural adaptations; how to shift content over time to keep abreast of changing conditions and audiences. Legal, sociological, economic and behavioral-motivational issues are confronted, as well as those directly associated with the educational process.

The EPG is a multidisciplinary organization with capabilities in education, economics, political science, international affairs, management, several areas of engineering, linguistics and system design. Its R&D activity has been directed by a combination of defining sound objectives and creative conceptualization. This approach tailors research and program design to the real needs of the problem and its solution, rather than being geared to disciplinary principles or boundaries. The several disciplinary areas are integrated in the pursuit of sound and holistic solutions and alternatives.

Over the years, members of various disciplines have learned to cooperate in the application of effective methods for solving problems. Instead of remaining specialists in a conventional discipline, staff members have become expert in need assessment, the diffusion of innovation, facilitation of utilization, and evaluation and policy development. These have been applied to the development of communication systems, to many areas of education including basic and informal education, to family planning, to new town and urban program development, etc. The EPG approach has been innovative and is generally based on the development of new methodology as well as on advanced system design. Through this system design, a wedding is being undertaken of the capabilities of the communication media (hardware and software) with the now broadening field of educational research. Fundamental to this marriage is a more complete understanding of applications of the behavioral and social sciences to individual and social development and the many aspects of learning.

During the past five years, the following major projects have been completed:

- "Education in the '70's—a study in educational technology"
- "The Dissemination of Audio-visual Materials in American Education."
- "Strategies for the Use of Mass Communications Media in the Technologically Developing Nations."

Strategies were developed for utilizing communications media to bring family planning, basic education, and nutrition education programs to the rural and urban poor. General principles and programs were developed in
the fields of family planning, nutrition, and basic education and were then applied more specifically to Colombia, the Republic of Zaire, and Indonesia. The product includes consultation strategies designed for the process of cooperative work between nations, as well as programs, training and evaluation strategies.

- “Social and Behavioral Science Development in Higher Education” (Consultation to the American Institute for Research and to the Universidad Nacional Pedro Enriques, Dominican Republic).
- “CATV—Systems and Audiences”
- A Market Analysis of American Education.
- “Survey and Evaluation of the Usefulness of Picture Booklets for Family Planning Education Among the Poor in Rural and Urban Colombia.”
- “Implementation Plan for a Colombian Rural Family Planning Training Center and Field Network: Information, Motivation, Communication and Distribution.”
- “A Plan for Extending Family Planning Capabilities in El Salvador through the Application of Strategies for Utilizing Communications Media to Improve the Training of Personnel.”
- “The Decentralized and Continuous On-the-job Training of Field Workers in Indonesia—a Near-Peer Teaching and Small Communications Technology Approach.”
- “Primary Prevention in Health Care Assisted by Communications Media: A Program for the El Salvador Social Security Institute.”
- “Improving Family Planning Communications through Strategies for Using Educational Technology”—a plan for the University of Costa Rica Latin American Training Program.
- “Computers in the Classroom” was published in September 1970.
- A second volume, devoted to educational technology systems and the dissemination and utilization of educational technology materials is in preparation under the auspices of the Ford Foundation.

Joseph B. Margolin, Ph.D., is Group Director
Marion R. Misch is Deputy Director.
INNOVATION INFORMATION AND ANALYSIS PROJECT

The Project began in early 1973 with the receipt of the first grant of the National Science Foundation's National Research and Development Assessment Program (RDA), which was created in August 1972 largely because of the increasingly urgent need to examine Federal support of civilian research and development efforts and to assess policies and programs designed to stimulate the rate and direction of technological innovation. The major objective of the Project (IIAP) is to build a coherent system for collecting, analyzing, and disseminating information on innovation. This includes looking into such Government policy areas as tax incentives, subsidies, trade, pertinent laws, patents, and regulation as well as the social and economic implications of innovation and the nature of the innovation process. In addition, the Project plans to provide special analytical, communicative, and educational services to its clients.

With no broad-gauged management of innovation information in existence, the need for IIAP is clear. The aim is to search and synthesize information from present sources by utilizing their services and complementing their efforts. During this operation an analytical capability will be developed which can assist in numerous ways including identification of the most relevant and significant existing literature and gaps to be filled.

Since its formation the Project has directed all of its activities toward the needs of RDA. In the near future, IIAP will begin to expand its information and analytical services to meet the needs of other people and organizations for the cost of the service.

The Project is currently able to identify and abstract articles, research reports, books, conference reports, and related materials on technological innovation. The field, its literature, and attendant management problems have never before been brought together in a concerted, comprehensive manner. Initial efforts included determining:

- those journals, periodicals, indexing/abstracting services, bibliographies, conference proceedings, books, and report literature containing relevant information;

- the optimal way of extracting information from these sources;

- the types of abstracting methods to be used; and

- how information about articles not abstracted should be disseminated.

Although many of the end products will continue to be oriented toward meeting the direct needs of RDA, a major purpose of the Project, strongly supported by the National Science Foundation, is to ensure that IIAP and its products will be of maximum use to other clients.

Acquisition lists and abstracts are being supplied to the Foundation on a regular basis. Other interested parties may receive copies of these and other products and services, on a cost-reimbursement basis according to the provisions of the initiating grant from the Foundation. It is anticipated that the IIAP Newsletter will be available free of charge for the immediate future.

As IIAP establishes and demonstrates the effectiveness of its information services, it will begin to expand its scope and magnitude of effort. Some of the activities may include:

- distributing information products (bibliographies, abstracts, etc.) tailored to the individual needs of the clients;

- achieving the capability to work with government agencies and the private sector to assist in the evaluation of a particular policy or program directed to stimulate innovation;

- providing a periodic journal or monograph series on evaluations of policy assessment, special reports and studies on assessments and annual reports on trend analysis;

- documenting legislation, executive orders, and regulatory actions that have created and modified major governmental policies and programs to stimulate or control the nature and rate of technological innovation;

- sponsoring and cosponsoring seminars, special meetings, conferences and short term instructional courses and workshops; and

- collecting a manpower or biographical file of those who are professionally involved with many of the problems associated with the innovation process.

Wesley L. Tennant, Senior Staff Scientist, is Project Manager.

Judith C. Russell is Chief Information Specialist.
The graduate program in science, technology, and public policy was established in September, 1970 to provide a focused educational complement to the other activities of the Program. The graduate program, which is co-sponsored by the university's School of Public and International Affairs, is one of the few in the nation to offer a master's degree specifically in science, technology, and public policy. It is currently the largest such program (in terms of students seeking a degree) in existence. Fifty-three students have enrolled in the program to date, and in addition a number of doctoral candidates have made science policy a particular focus of their course work and dissertation research. Eight students had received their master's degree as of September 1, 1973.

The primary objective of the graduate program is the training of individuals able to understand the public policy issues posed by science and technology and to act upon that understanding. To that end, the program draws upon the total resources of the university, both in terms of faculty and courses and in terms of research capabilities, in permitting its students to develop multidisciplinary programs of study tailored to their interests and needs.

Students who complete the degree program are qualified for research and administrative positions related to science and technology policy, particularly with government agencies. Students from the program now hold positions with the National Science Foundation, the Environmental Protection Agency, the Science Policy Research Division of the Library of Congress, the Department of State and the United Nations. Also, many of the students in the program already hold jobs in related policy areas with such agencies as NASA, the military services, congressional offices, and COMSAT; these students bring a practitioner's viewpoint to the program as they carry on their own studies.

As part of the program's activities, several courses have been added to the university's offerings on topics such as "Government, Science, and Technology," "Technology Assessment and Public Policy," "Science, Technology and World Order," and "The Economics of Technological Change." These courses are taken by a wide variety of graduate students other than the program's degree candidates. The program's faculty is also involved in undergraduate teaching related to science and technology policy.
The Winter, 1973, issue is on "Title III in the Arts."

In addition to the newsletter and the Quarterly, the Council prepares occasional background research papers, prepares and presents testimony relative to Title III in Congressional hearings, and represents Title III in various national, regional, and state meetings of educational groups.

The staff is as follows:

Gerald J. Kluempke, Executive Director
Virginia Robinson, Research Associate
Gail Gross, Secretary

As of January 1974 the Council's new location is 425 Thirteenth St., N.W., Suite 529, Washington, D.C. 20004 (Tel. 963-3813).
TECHNOLOGY ASSESSMENT GROUP

Technology Assessment has been a major focus of The Program of Policy Studies since its inception in 1966. Much of the Program's work during the first years under the NASA Institutional Grant consisted of theoretical, methodological, institutional, and historical studies of Technology Assessment.

Dr. Mayo and other members of the staff provided analysis and advice to Congressional Committee staffs planning for what has become the Congressional Office of Technology Assessment, testified at Congressional Hearings, and participated in and made presentations before numerous academic and professional meetings concerned with Technology Assessment. The Program has held some 80 seminars on the subject, attended by several hundred government officials, academic personnel, and members of the research and policy analysis community. A large number of Program publications dealing with technology assessment have contributed to the technology assessment literature widely used in the U.S. and abroad.

One of the earliest major technology assessments, performed by the Program, was a study of Social Impacts of Civil Aviation, a part of the DOT-NASA Civil Aviation Research and Development Policy Project (CARD) in 1969. More recently Technology Assessment efforts have been given organizational focus in the Technology Assessment Group. The objectives of the Group are:

—To assist Federal agencies, State and local governments, and the private sector in planning, organizing, and carrying out technology assessment by providing an interdisciplinary university-based capability experienced in assessment and policy analysis;

—to contribute to the further development of technology assessment methodology, to understanding of the institutional and legal aspects of technology assessment, and to knowledge of the results and impacts of technology assessment;

—to make such contributions available to policymakers, to the academic and professional community, and to the public through presentations, articles, and sponsorship or participation in conferences and workshops on technology assessment;

—to involve students in performance of technology assessment, and to contribute to their professional training and to curriculum development in the university and elsewhere; and

—to develop useful Program publications in the area of technology assessment.

The Technology Assessment Group has undertaken a range of assessments of which the following are examples:

- "Technology Assessment of Solid Waste Management Practices." An assessment of solid waste management and its institutional problems in the City of Baltimore, Maryland. (NSF)
- "Quick-Response Survey of Technology Assessment Candidates and Priorities." A survey by questionnaires and interviews of Federal officials to determine candidate technologies for future assessment. (NSF)
- "Implications of Soviet Marine Expansion." Assessment of recent developments in sea-power of the U.S.S.R. (ONR)
- "Plan for Local Community Participation in Measurement of Environmental Noise." A sub-contract to Bolt, Beranek, and Newman, Inc., to participate in developing plans for a National survey of environmental noise. (EPA)
- "Alternative Future Life-Styles: Their Implications for Future Energy Demand." (Ford Foundation Energy Policy Project)
- Revitalization of Small Communities: Transportation Options." (DOT)
- "Normative Systems Analysis." An assessment of the potential of normative analysis with regard to rationale and technical conduct of comprehensive approaches to urban studies (HEW/NIMH)
"Federal, State, and Local Mechanisms for Control of Environmental Noise." A survey and analysis of existing laws, policies, and institutional arrangements for abatement and control of noise at all levels of government (EPA).

The Technology Assessment Group includes specialists in Political Science, Law, Public Policy, Urban and Regional Planning, Economics, Community Development, and Transportation Regulation. It works closely with other Groups within the Program on a wide variety of research areas and projects.

Emphasis in Technology Assessment Group projects is on futures research, social impact analysis, and analysis of public policy options. Vary T. Coates, Ph.D., is Head of the Technology Assessment Group.
Completed and Ongoing Studies

These studies are listed in chronological order of starting date. Funding source is shown in brackets after title of each project.

<table>
<thead>
<tr>
<th>Title/Sponsor</th>
<th>Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>1966 September (36 months)</td>
<td>Student Researchers: Richard Kempaner, Jesse Laskin, William C. Wolfe</td>
</tr>
<tr>
<td>Aug. 1969</td>
<td></td>
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<tr>
<td>A report containing an analysis and evaluation of the facts developed in the study and conclusions on (a) the effectiveness of the policy and regulations under which NASA operates and the application thereof, and (b) the desirability to effect changes, modifications or implementation to any policy, rule, or regulation dealing with organizational conflicts of interest in government contracting, together with recommendations as to remedial action to be taken.</td>
<td></td>
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</table>

2. Program in Law, Science and Technology in the Graduate School of Law (NASA) | Principal Investigator: Harold P. Green |
| 1966 September (36 months) | Student Researcher: Michael J. Wollan |
| Aug. 1969 | Lecturers: Jack Oppenheimer, Herbert Tenzer, Peter Wyckoff |
| To establish a Law, Science and Technology Institute at The George Washington University, to include: | |
| • Establishment of a selected LL.M. program in Law, Science and Technology; | |
| • Development of several new courses including: | |
| a. The impact of scientific concepts on legal-policy decision process; | |
| b. Inter-governmental aspects of technological progress; | |
| c. Legal protection against technological risk; | |
| d. International institutional arrangements devoted to the peaceful uses of science and technology | |
| • Conduct of public conferences and professional seminars; | |
| • A graduate fellowship program. |
3. **Education in the Seventies—A Study of Educational Technology (HEW/OE)**

A study and description of model school systems of the next decade, utilizing computer-assisted instruction (CAI). To bring to bear the experience, thought, and creativity of a wide range of educators, scientists, and administrators in the service of developing model educational systems in the 1970s in which CAI and related technology play a significant role, the participants were conducted on a traveling seminar designed to expose them to the state-of-the-art in CAI. They then prepared reports on their reactions, developing their impressions of education in the 70s.

**Staff**

**Principal Investigator**
Joseph B. Margolin

**Research and Support Staff**
Barbara V. Higgins
Christine McLean
Marion Misch
Mary Moxness
Susanne Thevenet

**Consultants**
Ray C. Carpenter
Don A. Cook
Frederick Duft
Russell Kropp
Gary Larsen
Judith Leitner
Hylian Lewis
Eugene McDonald
Phyllis McDonald
Eugene P. McIlraine
Wesley C. Meierhenny
Alexander Schure
Charles B. Thomsen
Elizabeth C. Wilson

4. **Technological Innovation Policy**

(National Bureau of Standards & US Arms Control and Disarmament Agency)

This project is devoted to enhancing understanding of the processes of technological innovation in society as an aid to policy makers. The first phase produced a conceptual systems model. The second phase applies the systems model as an aid in appraising existing and proposed public policy regarding technological innovation. The emphasis is on policies, designed to foster technological innovation in the civilian sector of the economy, which are responsive to the needs of society. Within this framework the project focuses on the problems of converting scientific and technical resources from defense-related research, development, and engineering to civilian, socially-oriented programs and projects.

**Staff**

**Principal Investigator**
Ellis Mottur

**Research and Support Staff**
Roxanna Johnson
Pamela Lucas
Carolyn Vetter

5. **Preparation and Evaluation of a Series of Papers for Presentation to the Commission on Marine Science Engineering and Resources (COMSER)**

This project includes three separate but concurrent tasks. Task A consisted of a review of published studies on the organization of Federal programs in science and technology. Task B consisted of a review of civil and military interests in and responsibilities for advancing new technologies, with particular reference to the development of a national marine science program. Task C consisted of a review of the interests of the public and private sector in advancing new technologies, and of the means for bridging these interests and for facilitating the transfer of technology.

**Staff**

**Principal Investigator**
Clarence Danhof

**Research and Support Staff**
Pamela Rugg

**Consultants**
Fred Brown
Stephen Chitwood
Enid Schoettle
6. Evaluative Mechanisms for the Public Experimental Program of the National Endowment for the Humanities (National Endowment for the Humanities)

To explore alternative evaluation models to be developed for and tested within the Experimental Regional Grants Program of the National Endowment for the Humanities.

The Experimental Regional Grants Program provides small experimental grants to various types of institutions in different parts of the country to conduct a variety of humanities-related activities on a regional and local level. To provide policy guidance for future programs, each experimental activity must be documented and assessed. The alternative evaluation models approach will utilize varying measurement techniques and should enhance understanding of each experimental project. More importantly, the results should provide insights to the complex questions of the evaluation and measurement of public supported social action programs in the humanities.


The basic objectives of this project are: (a) to develop methods for improving the dissemination of, and the effectiveness of information about, the availability of government-sponsored, non-written materials; (b) to develop alternative methods for increasing the effective distribution of government-sponsored nonprint materials.


The current operations of our urban institutional complex composed of schools, police, courts and corrections, utilize procedures that amplify conditions of deviant and criminal behavior. In relating public institutional actions associated with the processing of juveniles through the juvenile control system, an analytic model was utilized, guided by a general systems approach. The District of Columbia institutional network was studied for this purpose. The Juvenile Control System (schools, police, courts, juvenile correctional institutions) was described consistent with the theoretical approach developed. Administrative data was employed to demonstrate the nature of breakdown of social control within the general system. Manifestations of this breakdown occurred at fairly early points (grades 3-6) and it was during this same period that the use of drugs was found to be employed in controlling certain youths.

To delineate the major policy threads of the 1945-1968 period, focusing on the outlook from Western Europe, taking into account the peripheral interests and influences of the Soviet Union and the United States.

Staff
Principal Investigator
John Hanessian
Research and Support Staff
Clarence Danhof
Stuart Greenberg
Barbara Higgins
Robert Jordan
Margo von Kaenel
John Logsdon
Susan Papadopoulos

Student Researchers
Thomas Bolle
William Kallon
Norma Kattelvero
Jeffery Leonard
Diane Moore
Leluta Naugle
Neil Seldman
Meredith Spencer
Janice Udell
Christine Young

Consultant
Katherine Warden

10. Study of Private-Federal Research and Development Relationships (NSF)

To complete the analysis of data collected in 1965-7 from industrial research and development laboratories in three industries, for the purpose of determining the impact on the performance of research and development by those laboratories from involvement with the federal government.

Staff
Principal Investigator
Guy Black
Research and Support Staff
Betty Amin-Arsala
Susan Doscher
Eileen Sussman

11. A National Criminal Justice Reference System (Justice/LEAA)

A two-phase research effort, (i) to identify appropriate user groups, isolate their most critical reference needs, and develop an outline-type design of a dissemination system which will fill some of the most immediate needs; and

(ii) assuming the development of an active dissemination program by the Law Enforcement Assistance Administration, assessment mechanisms were developed to measure utility of the services as they expanded. More detailed user needs studies were performed using the in-depth techniques of information flow and decisional analysis. In addition, exploration was made of ways to educate potential users in the benefits to be derived from using information.

The model for an information reference system recommended in the final report of this study was the basis for a system now being used and national in scope, and which is broadening into international application.
**Title/Sponsor**

**Social Impacts of Civil Aviation and Implications for R&D Policy (NASA/DOT)**

This study was to identify social impacts, both beneficial and detrimental, which would or could flow from introduction of advanced civil aviation systems. This future-oriented technology assessment was performed by an inter-disciplinary team of social scientists, natural scientists, and engineers, and a broad range of social impact areas was investigated which included economic, environmental, political, sociological, psychological, legal, and urban/regional developmental factors. In keeping with the fundamentally inter-disciplinary nature of such a study, the results are presented primarily in their finally integrated form rather than as a compilation of separate disciplinary inputs.

**Staff**

*Principal Investigator*
Louis H. Mayo

*Research and Support Staff*
Betsey Amin-Arals
Martine Beaconsfield
Karen Bell
Penny Blum
James N. Brown
Vicky T. Coates
Clarence H. Danhof
Susan Doscher
Richard F. Ericson
Joseph Foa
Karen Bell
Brigitte Hensley
Mary Holman
Jacquelyn Howard
Raphael Kasper
Susan Klaus
Eva Maestas
James E. Mehehey
Joseph B. Margolin
Phyllis McDonald
Marie R. Misch
Jean Ruffin
Henry Solomon
Theodore Suranyi-Unger
Linda Taylor
Mary Helen Whalen
Geraldine Wooldridge

*Student Researchers*
Margaret Chan
Ruth Cooperman
Kirk Dublin
William Fischer
Phillip Graham
Stuart Greenberg
Dee Ann Houston
Stephen Lingenfelter
Michael Smith
Mary Sterling
Edward Stucholme
Frederick Wood

*Consultants*
Joseph D. Blatt
George Brankey
Richard Myrick
Mazen Olson, Jr.
Howard Reese
Robert C. Richardson
Stephen G. Saltzman
Richard E. Tiller

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**Dissemination and Utilization of Educational Technology Materials (Ford Foundation)**

To prepare for publication data collected for a report to the U.S. Office of Education on the "Analysis of the Need for and Feasibility of More Effective Distribution of Government Supported Non-Written Material." Since the data collected far exceeded the objectives of the contract, and the findings are of value to education, this book will provide an understanding and some clarification of 1) the dynamics of the dissemination process in education, 2) the role of non-book media in education, and 3) educational technology systems management.

**Staff**

*Principal Investigator*
Joseph B. Margolin

*Research and Support Staff*
Karen Bell
Kathryn L. Hensley
Phyllis McDonald
Marion R. Misch
Title/Sponsor
Homeowner's Title Registration Corporation:
A Program to Reduce the Land-Related Costs of Housing (HUD)

To present a system of land acquisition and use which is designed to significantly reduce the cost of land in residential building costs; to make the real property transfer from one owner to another easier, quicker and less costly; to attract mortgage funds from contract thrift institutions regardless of the fluctuations of the general financing market; and to permit those government subsidies that are involved to be made in the form of investments, carrying at least a sound potential for eventual recoupment of the subsidies.

Finally, while the system incorporates as a basic concept the leasing of land for residential purposes rather than the traditional ownership of land, it is designed to keep the fee ownership in the private hands of a neighborhood or community, with individual parcel occupants acquiring a stockholder-type participation in the land asset as a component element in their purchase of a use of the land. For all practical considerations, the purchased use will provide the same functions now available to the individual through acquisition of a fee title, while eliminating some of the detrimental aspects of a fee holding.

Technology Assessment Implementation Project
(1970 NSF)

A study to place some effort on the understanding of the implementation process as opposed to the performance of technology assessment, since the value to society of any technology assessment depends upon the ways in which its results are used. The objective of the project was to describe the process of assessment implementation as it now exists and to develop new and potentially valuable concepts and proposals for future research. In order to initiate discussion among academic, industrial, and governmental personnel about the technology implementation process, a professional seminar series of eight seminars gathered individuals from a wide range of disciplinary and institutional backgrounds to explore various aspects of the subject.

The purpose of the study, to be made in accordance with section 11 (p) (4) of the Water Quality Improvement Act of 1970, was to determine the need for measures to provide for financial responsibility and limitation of liability, other than those measures contained in 11 (f) (1), (2), and (3), and of 11 (p) (1) of the Act, to pay for the costs of removing discharged oil and paying all damages resulting from the discharge of oil into the navigable waters of the United States or the contiguous zone, by vessels, offshore facilities and onshore facilities.

Research and Support Staff

- Erling Rosholdt
- Anne Brundage
- Audrey Hassanin
- Jacquelyn Howard
- Irene Martinez
- Susan Myers
- Alice Nance
- LeAnn Painter
- Carla Patterson
- Helen Thomas

Student Researchers

- Steven M. Anastasion
- Robert Brady
- Bennett Brown
- Dora deGreiff
- Michael Dworkin
- Susan Papadopoulos
- Alexander Pires, Jr.
- David Sayre
- Richard M. Tettelbaum
- Donald J. Tobias
- Hartojo Wignjowijoto

17. Communications Technology and the Developing Nations (U.S. AID/AED)

Strategies were developed for utilizing communications media to bring family planning, basic education, and nutrition education programs to the rural and urban poor. General principles and programs were developed in the fields of family planning, nutrition, and basic education and were then applied more specifically to Colombia, the Republic of Zaire, and Indonesia. Thus application across a broad spectrum of nations can be achieved. The product includes consultation strategies designed for the process of cooperative work between nations, as well as programs, training and evaluation strategies.

Research and Support Staff

- Lesley Alter
- Kathryn Hsley
- Joset N. Munro

Student Researchers

- Karen Bell
- Shei Wolff

Consultants

- Maman Abdurrahman
- George Aoloyanis
- Robert R. Blake
- Lilly de Buchelli
- C. Ray Carpenter
- Bert Cowan
- Henry P. David
- Joseph Fisher
- Alvaro Garcia-Pena
- Derrick Jelliffe
- Kendall W. King
- Kela Ladenheim
- Leonard Libresco
- Lee Love
- Lahullah Mahjudin
- Djoni Marsinth
- E. Lakin Phillips
- Roger Revelle
- Roberto Rueda-Williamson
- Charles T. Stewart, Jr.
- Max H. Wanjay
- Hartojo Wignjowijoto
- Elizabeth Wilson
- Winar Witoelar

Staff

- Principal Investigator
  - Joseph Margolin
18. April 1971 (6 months) Sep. 1971

Title/Sponsor
Technology Assessment Applied to Urban Solid Waste Disposal (NSF)

Staff
Principal Investigators
Louise H. Mayo
Betsy Amin-Arsala
Henry E. Brady

Research and Support Staff
Margo von Kaenel

Student Researchers
William Fisher
Audrey Hassanein
Jacquelyn Howard
Corazon Siddayao

This study applies the methods of technology assessment to solid waste management in the Baltimore city area. In this case, technology assessment considers the technological, economic, political and social factors that are related to the problem of solid waste management. These factors are assessed in a comprehensive and integrated manner so that optimal solutions to this problem can be proposed.


Title/Sponsor
Facilities and Support Services for 1971 Summer Employment Program: A Seminar-Lecture Series (EPA)

Staff
Principal Investigator
John M. Logsdon

Research and Support Staff
Henry Brady
Benita Fineman

A new course on the Environmental Crisis in the Washington metropolitan area investigating selected problems in air and water pollution, waste disposal and land use. It included a series of presentations by representatives of regulatory agencies of the various political jurisdictions in the metropolitan area. Leaders of local ecological organizations participated in planning the workshop course.


Title/Sponsor
Laws and Regulatory Schemes for Noise Abatement (EPA/ONA)

Staff
Principal Investigator
Louis H. Mayo

Research and Support Staff
Judith Bowen
Vary T. Coates
Margo von Kaenel

Student Researchers
Marianne Bolgar
Steffen Grae
Audrey Hassanein
Christina Olson
Edward Shay
Corazon Siddayao
Stephan Somerstien
Robert Ware
John Zimmerman

To undertake a survey of existing Federal, State, and local laws, ordinances, and regulations governing the abatement and control of environmental noise, and to assess the effectiveness of the administration and enforcement of such provisions. The completed report provides data and analysis on governmental noise regulation for the report to be made by the Administrator of the Environmental Protection Agency to the President and the Congress pursuant to Section 402(b) of the Noise Pollution and Abatement Act of 1970.


Title/Sponsor
Regional Seminars on Education Problems (HEW/OE)

Staff
Principal Investigator
Joseph B. Margolin

Research and Support Staff
Marion R. Misch
Joset Munro

To assist in the implementation of a series of four regional seminars composed of practitioners in educational research and development with the Commissioner's Planning Unit for the National Institute of Education (NIE). The regional seminars are intended to provide a critical review of NIE planning to date so that any elements which are not well understood can be clarified; and to involve practitioners in development of plans, thus promoting both creative contribution and final acceptance.
22. The Space Program During the 1970's: An Analysis of Policy Making (NASA)

To complete an ongoing study requested by NASA. The two major portions of the study are:

- A narrative section, based on interviews with participants in the policy-making process and documents from NASA and other files, containing a detailed reconstruction of the process under examination; and
- An analytic section discussing the forces influencing the outcome of the policy-making process and evaluating the NASA planning and policy analysis activities of the period in terms of those forces and that outcome.

23. Development of International Educational Communications and Technology (State Dept)

The conceptualization and study of the nature and alternative characteristics of an organization which would facilitate development of international educational communications and technology. A charter and a provisional board of directors will be developed, as well as the schema for EdComTech's relationship with existing institutions. Methods for funding will also be postulated and proposed.

24. Evaluation Case Studies (Russell Sage Foundation)

To bring together ten to twelve evaluations, and to preface each with some background on the reason the evaluation was undertaken by the sponsoring agency, some facts about the procurement as perceived by the sponsoring agency and as seen by the contractor, and some discussion of difficulties encountered in doing the study both in regard to relations with the sponsoring agency and with the field activity or activities being analyzed. Following this discussion will be an abstract of the study including methodology and results. A final section will cover the reception of the evaluation by the sponsor and the impact on policy inasmuch as the latter can be determined.

25. Highway Interchange Effects on Churches (DOT/Federal Highway Administration)

This project researched the effects of 'close-by' highways on several churches in the Washington, D.C. area. The general relationship between churches and highway interchanges had already been considered in a pilot study ("Highway Interchange Locations for Churches—A Pilot Study on Washington, D.C."). Our project relied on that survey to provide a context in which these case studies became more meaningful. The trend of the findings of this study confirmed the pilot study's finding that areal orientations (membership and concern) of the churches are strongly related to unfavorable and favorable evaluations of the effects of closeby limited-access highways.

Assessment of ESEA Title III Projects (HEW/OE)

Although $700 million was spent on the Title III program of the Elementary and Secondary Education Act (ESEA) between 1965 and 1971, no concentrated effort had been made on the national level to determine what was working. The National Advisory Council on Supplementary Centers and Services, in cooperation with the 54 state and territorial advisory councils, proposed this study to identify successful Title III educational programs supported with Title III funds. The study identifies ten to twenty programs which have been recommended by their state educational agencies, field-assessed, and subjected to rigorous evaluation. In addition to a monthly newsletter designed to inform the Title III community of national developments affecting education and of the activities of Title III projects and state administrators (distribution 3000 copies), the Council prepares and publishes a Quarterly magazine, each reviewing and listing Title III projects in a specific curriculum area. Beginning with a Spring, 1972 issue, these have been:

"Title III in Environmental Education"
"Title III in Preschool Education"—Summer 1972
"Title III and the World of Work"—Fall 1972
"Title III in Guidance and Counseling"—Winter 1972
"Title III and Changing Educational Designs"—Spring 1973
"Title III and Cultural Diversity"—Summer 1973
(reviewing projects in bilingual education and ethnic studies.)

The Fall 1973 Quarterly is devoted to Title III projects in educational administration and management. The Winter 1973 issue is on "Title III in the Arts."

27. 1971 July (30 months)  Dec. 1973

Effect of Changing Patterns and Levels of Federal Research and Development Funding on Research and Development Funding by Industry (NSF)

The relationship between changes in private and government R&D funding in industry can be expressed by a multiplier. This study collected data and estimate multipliers for different types of industries, laboratories, business firms and technologies. Because of different multipliers, changes in the level of federal funding in any one category, or shifts in spending from one category to another affect differentially the national total of R&D funding. Multiplier analysis can be used to refine analysis of demand for scientific manpower resources, or to show the effects of proposed shifts in the allocation of federal R&D funds. Estimated values of multipliers were obtained through econometric analysis of data collected during a three phased field survey conducted during July-August 1971, January 1972, and July-August 1972.

A survey of all federal agencies and their major components, followed by in-depth interviews with approximately 70 officials, to identify loci within federal agencies where technology assessments are performed, and to evaluate the process as a technique for directing and controlling technological development. The study provides a base of information for improvement of the process and for development of new technology assessment mechanisms where the study indicates that they are needed.

29. Plan for Local Cooperation and Participation in Measurement of Environmental Noise (Bolt-Baranek & Newman)

To develop a program for the measurement of environmental noise in the community and its associated human response.

30. Implications of Soviet Marine Expansion (DOT/ONR)

To collect all relevant data concerning all facets of the increasing strength of Soviet marine expansions: naval vessels, oceanographic research vessels, merchant marine and fishing fleet. All available sources, including Russian materials, were utilized. Following a normative approach, an analysis was made in order to identify and discuss the implications of Soviet marine expansion.

31. The Interrelationship of Urban Governmental Functions to Those at the State, Regional, and Federal Level (Urban Studies, Inc.)

To support a series of ‘professional seminars’ involving university, government, industry and R&D firm representatives to devote their attention to matters such as: (1) The need for and the character of the analytical capability required for a ‘quick response’ mechanism to serve urban governmental needs; (2) Opportunities for the decentralization of public services and governmental functions through the use of developing telecommunications technology: CATV, Closed-circuit TV, etc.; (3) Application of new technologies which might enable local governments to more effectively and economically comply with recent court decisions requiring ‘equality of public services’ to all residents within the municipality; and (4) Most effective allocation of activities (and responsibilities) among the Federal-local levels of government, including activities and operations requiring cooperative, integrated efforts.
32. **Effectiveness of Illustrated Print Media (Non-Verbal) on Family Planning Attitudes Among Colombians (State Dept/AID)**

An evaluation study to assess the effects of two illustrated, largely nonverbal, booklets designed to improve attitudes toward the acceptance of family planning among illiterate and semi-literate populations in Colombia.

In addition to the effects of the booklets on target audience knowledge and attitudes toward family planning, further results assessed are:

- The impact of the delivery systems for booklet on target audience family planning attitudes;
- The effects of the booklets and their delivery on the family planning agencies involved;
- The process by which booklets spread through communities after delivery to initial target audience members, and the pattern of this informal dissemination;
- Recommendations for new policy dealing with the dissemination and utilization of materials.

33. **Normative Systems Analysis (HEW/NIMH Fellowship)**

An assessment of the potential of normative analysis with regard to rationale and technical conduct of a more comprehensive approach to urban studies.

34. **Citizen Group Uses of Scientific and Technological Information in Nuclear Power Cases (NSF)**

An analysis of the mechanisms by which citizen groups obtain and utilize scientific and technological information in making cases involving technological projects with environmental implications.


To examine a representative sample of environmental impact statements to determine the extent to which noise has been treated as a potential environmental effect, and the extent to which such treatment has been adequate to assure protection of communities and citizens.

36. **Issues and Concerns in Career Education**

A special pilot program of seven seminars to expose the interns to the views of a variety of executives from both the public and private sectors about the needs and adequacy of educational systems in preparing the nation’s youth for lifetime careers. The study analyzed the successes and failures of traditional educational systems and special nonpublic school manpower training programs in preparing people for employment, and evaluated the impact of such programs in career selection.
37. Graduate Program in Science, Technology, and Public Policy (NSF)

Support for a program of research and instruction in science, technology and public policy at GWU. This program will be built upon the existing research efforts of the PPSST and the master's degree program in science, technology and public policy of the School of Public and International Affairs. Program activities would be focused on a broad central theme: "Alternative Strategies for U.S. Science and Technology Policy." There would be four elements in the proposed program: (1) a research project, "Changing National Priorities and Public Policy for Science and Technology: An Examination of Decision-Making Institutions and Processes;" (2) a professional colloquia series initially focused on "U.S. National Goals and Technological Strategy;" (3) a continuing faculty seminar on science, technology, and public policy; and (4) development of new curricular offerings in relevant topics.

Title/Sponsor

Staff

Principal Investigator
John M. Logsdon

Research and Support Staff
Mark S. Frankel
Audrey Hassanen
Marcia Smith
Shelly Wax
Linda Yelton

Student Researchers
Michael Bass
Jennifer Bond
Rosemary Chalk
Deborah Cotlin
Robert Ehrhardt
Benita Fineman
Joanne Gorman
J. Michael Hobert
Rodney Huff
Mary Mogee
Marc Schieber
David Wald

Lecturers
Michael Boretsky
Edward David
George Eads
Philip Handler
J. Herbert Hollomon
Roger Leven
John Mock

38. Personnel Mobility Assignment (NSF/OIP)

To assist the NSF Office of International Programs in seeking to develop closer coordination between OIP and the Foundation's research directorates, and to introduce into OIP new ideas, approaches, and management techniques from the university sector.

Principal Investigator
Deborah Cobin

39. Personnel Mobility Assignment (NSF/RANN)

As a program manager within the Office of Exploratory Research and Problem Assessment, to focus particular attention on the interrelationships between national needs and international consequences with regard to research and development. Within the established program plan of ERPA, to concentrate on innovation in the private sector, competitiveness in the international market, education for a continually changing society, and long-range planning in the public and private sector.

Principal Investigator
John Hanessian

40. Analytical Services Relating Communications Technology to Development (State Dept/AID)

To develop alternative strategies for the use of communication media to improve the quality of life in selected less developed countries (LDC). These strategies led to country-specific project plans worked out in collaboration with the USAID Mission and LDC personnel. The Educational Policy Group developed alternative strategies for utilizing communication media (TV, radio, etc.) for the improvement of nonformal education. The program was devoted generally to rural populations. This study is a follow-on to one done in 1971 on Communications Technology and the Developing Nations.

Principal Investigator
Joseph B. Margalin

Research and Support Staff
Karen Bell
Gail A. Kelser
Mark R. Misch
Judith Naiman
Barbara Shickman
Martha Traini
Sherri Wolff

Consultants
Evelyn Anisfeld
Jack Barkenbus
Philip H. Coombs
Alvaco Garcia-Pena
Katanga Heitman
Marilyn Lichtman

To perform a "quick-response" survey of Federal Executive Agencies for the purpose of generating a comprehensive list of current and potential technological inventions, innovations, and applications for which technology assessment is needed; and to categorize such developments and innovations in terms of a number of relevant criteria (such as imminency, potential significance of impact, policy relevance, and the estimated level of effort needed) in order to assist in the selection, scheduling, and design of appropriate assessment efforts in the near future and others to be developed over time.

42. Interpretation of Energy Demand Scenarios into Life-Style Scenarios (Ford Foundation Energy Policy Project)

To formulate alternative life-style scenarios for the future, to relate these to energy consumption, and to derive from them corresponding alternative energy demand scenarios.

The alternative future energy demand scenarios can then be compared to the alternative future energy supply scenarios to be developed by RFF. The future life-style scenarios are intended to provide graphic and plausible interpretations of the implications of national energy policy options in a form which is meaningful and useful for the public and for public decision-makers.

43. Innovation Information and Analysis Project (NSF/RDA)

To build a coherent system for collecting, analyzing, and disseminating information on innovation, including looking into such Government policy areas as tax incentives, subsidies, trade, pertinent laws, patents, and regulation as well as social and economic implications of innovation and the nature of the innovation process. The aim is to search and synthesize information from present sources by utilizing their services and complementing their efforts.
44. An Integrated Strategy for Aircraft/Airport Noise Abatement (EPA/ONA)

The study project will provide the legal-institutional analysis required for the implementation of EPA's responsibilities pursuant to § 7 of the Noise Control Act of 1972 (Aircraft Noise Standards). The approach will be to identify the "noise control" choices available at critical decision points in the developmental process of airport-aircraft planning, implementation and operations. The study will also examine the aircraft noise prevention or abatement strategies available at each such decision point, the availability or unavailability of legal-institutional instruments to implement such strategies, the extent to which existing authority has been effectively applied to noise abatement programs, the more serious deficiencies in existing authority (or other constraints) which have precluded effective noise abatement at the Federal, State and local levels, and recommendations for the modification or enlargement of existing authority so as to abate aircraft noise intrusions to a level consistent with the "public health and welfare."

Staff
Principal Investigator
Louis H. Mayo

Research and Support Staff
Betsy Amin-Arani
James M. Brown
Gertrude Delfnan
DORN McGrath
Carol Nelson
Edward Robbins
Edward Studholme
Ernest Weiss

Student Researchers
Paul Aiken
Edward F. Alitubes
James Bruce
Paul Gaskin
Joan Gerber
Daniel Gutman
Swadesh Kalsi
Alan Kastlner
Jay Kivits
Athanasios Paroutsas
Richard E. Price
Jared Scharff
Omkar Sharma
Michael Vollmer
Margaret Weekes
Alan Wiener
Blaine Yamagata

Consultants
Allison Dunham
Alvin Greenwald
Jan Krasnowiecki
Stephen I. Lingenfelter
James B. Minor
Sheldon Flager
Robert D. Rudich
Raymond A. Shepanek
David Standley
Joseph Vittek, Jr.
Nicholas C. Yost

45. Revitalization of Small Communities Through Transportation (DOT/OS)

The research is based on a two-part hypothesis: that small towns in America represent a valuable resource in solving some of our pressing urban problems, and that new transportation policies and technologies will enable the exploitation of this resource. The purpose of this research is to explore the broad factors which have led to the decline of small towns and how the trends of decline may be reversed through transportation related actions.

The study will be broad in scope, focusing upon social, political, and economic aspects of the problem, as well as the purely technological. All transportation modes will be treated with special attention given to new technologies such as TACV and VTOL. Methodology employed will include, as necessary, the range of engineering and economic analysis, as well as legal, institutional, and social impact analyses.

The results of this research will be a better understanding of the role of the small town in America and in turn, of the role of transportation in small town utilization. Policies for application of transportation technology to small towns will be recommended.

Staff
Principal Investigator
Vany T. Caldes

Research and Support Staff
Joseph Margolin
Roy L. Marx
Charles Steward
Edward Studholme
Ernest Weiss

Student Researchers
Rodney Frame
Mona Jaffe
Shelley Mastran
Judy Naimon
Wendy Schact

Consultant
Robert Anthony
Urban Transportation Research and Training Project (DOT/UMTA)

To develop recommendations for the Urban Mass Transportation Authority (UMTA) for possible revisions to the UMTA University Program. Broadly this would include detailed study, design, and development work to determine how research and training centers based at institutions of higher learning could best be organized, what they could do, and how their activities could be interfaced with urban transportation policy and program requirements.
Seminar Series and Participants 1966-1973

SUMMARY

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<td>20. Fellowship Program on Issues and Concerns in Career Education</td>
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Seminar Series on
THE IMPACT OF TECHNOLOGY ON HUMAN VALUES
Chairman: Harold P. Green

Papers were presented as follows:

1. The Supersonic Transport and the Sonic Boom
   April 3, 1967—Herbert Tenzer (D., NY)
   Member of Congress

2. Medical Experimentation on Human Beings
   May 8, 1967—Professor David J. Sharpe
   George Washington University
   and A. E. Parrish, M.D.
   George Washington University

3. Weather Modification—a) Legal and Social Aspects
   June 5, 1967
   Jack C. Oppenheimer, Assistant Counsel
   National Science Foundation
   b) Scientific Prospects
   Peter Wyckoff
   National Science Foundation

4. Computer Technology and Social Imagination
   October 2, 1967—Robert L. Chartrand
   Science Policy Research Division
   Legislative Reference Service
   Library of Congress

5. Public Understanding of Radiation Protection
   December 4, 1967—Lauriston S. Taylor, President
   National Council on Radiation Protection and Measurements

Participants:
Frank B. Allan
Professor of Anatomy;
Coordinator of Teaching Aids
GWU Medical School

Murray D. Ashton
United Kingdom Scientific Mission
The Embassy of Great Britain

Werner Baum
Deputy Administrator
Environmental Science Services Administration

Irwin H. Billick
Legislative Reference Service
Library of Congress

Guy Black
Senior Staff Scientist
GWU Program of Policy Studies

W. H. Boone
Committee on Science and Astronautics
U.S. House of Representatives

William D. Carey
Assistant Director
Bureau of the Budget

William G. Colman
Executive Director
Advisory Commission on Intergovernmental Relations

Joseph Cooper
School of Government and Public Affairs, American University
School of Government, Howard University
Francis P. Cotter  
Vice President  
Westinghouse Electric Corporation

Clarence H. Danhof  
Senior Staff Scientist  
GWU Program of Policy Studies

Leo Goodman  
Industrial Union Department, AFL-CIO;  
Secretary, Atomic Energy Technical Committee

Irving Gray  
Professor of Biology, Georgetown University;  
Director, Washington Colloquium on Science and Society

Harold P. Green  
GWU Professor of Law

Norman Kaplan  
Senior Staff Scientist  
GWU Program of Policy Studies

James E. Mahoney  
Senior Staff Scientist  
GWU Program of Policy Studies

Joseph B. Margolin  
Senior Staff Scientist  
GWU Program of Policy Studies

Louis H. Mayo  
Vice President for Advanced Policy Studies;  
Director, GWU Program of Policy Studies

Michael Michaelis  
Manager, D.C. Branch  
Arthur D. Little, Inc.

Clarence Mondale  
GWU Professor of American Civilization

Ellis Mottur  
Senior Staff Scientist  
GWU Program of Policy Studies

Robert P. Multhauf  
Director, Museum of History and Technology  
The Smithsonian Institution

Brice O'Brien  
National Coal Association

Harold Orlans  
Senior Staff Member  
The Brookings Institution

Walter A. Radius  
Office of Assistant Administrator for DOD and  
Interagency Affairs  
NASA

Leo Schubert  
Professor of Chemistry  
American University

Chaimers Sherwin  
Office of Science and Technology  
Executive Office of the President

Stephen Strickland  
Associate Director  
President's Commission on White House Fellows

William J. Trainor  
Special Assistant to the Director  
Office of External Research  
Department of State

F. Joachim Weyl  
Special Assistant to the President  
National Academy of Sciences
2. Seminar on
SOCIAL CHANGE IN THE AMERICAN VALUE SYSTEM
Moderator: Clarence Mondale
Professor of American Civilization
George Washington University

Change, Social Problems, and Political Tensions
November 18, 1967—Seymour M. Lipset
Professor of Government and Social Relations
Center for International Affairs
Harvard University

Critique and Commentary by John P. Roche
Special Assistant to President Johnson
The White House

Participants:
David Z. Beckler
Office of Science and Technology
Executive Office of the President
Guy Black
GWU Program of Policy Studies
Robert G. Brown
GWU Professor of Sociology
William Carey
Bureau of the Budget
Clarence Danhof
GWU Program of Policy Studies
Henry David
Division of Behavioral Sciences
National Academy of Sciences
Lloyd H. Elliott
President, GWU
Nathan Glick
United States Information Agency
Irwin P. Halpern
Policy Analysis Staff, NASA
John Hanessian
GWU Program of Policy Studies
Barbara H. Kaplan
GWU Department of Sociology
Robert H. Land
General Reference and Bibliography Division
Library of Congress
Hugh LeBlanc
GWU Professor of Political Science
Joseph B. Margolin
GWU Program of Policy Studies
Louis H. Mayo
GWU Vice President for Advanced Policy Studies;
Director, Program of Policy Studies
Ellis Mottur
GWU Program of Policy Studies
Mancur Olson
Deputy Assistant Secretary for Social Indicators
Department of Health, Education, and Welfare
Harold Orlans
The Brookings Institution
Harvey S. Perloff
Regional and Urban Studies
Resources for the Future
Henry W. Riecken
Social Science Research Council
R. H. Schlagel
GWU Professor of Philosophy
Duane Scribner
Administrative Assistant to Senator Walter Mondale
Willis H. Shapley
Associate Deputy Administrator, NASA
Robert G. Smith
GWU Program of Policy Studies
Wilcomb E. Washburn
Department of American Studies
The Smithsonian Institution
Charles R. Wright
Department of Sociology and Social Psychology
National Science Foundation
Michael Young
Social Science Research Council of Great Britain
3. Seminar Series on
SYSTEMS AND CYBERNETICS CONCEPTS IN UNIVERSITY CURRICULA

Chairman: Richard F. Ericson
Professor of Business Administration
George Washington University

1. Systems Concepts and Interdisciplinary Curricula
   February 28, 1968—Karl Deutsch
   Professor of Government, Harvard University

2. Systems Concepts and Management Curricula
   March 22, 1968—George Kozmetsky
   Dean, School of Business Administration
   University of Texas

3. General Systems Research and Interdisciplinary Studies
   April 28, 1968—Kenneth Boulding
   Director, Institute of Behavioral Sciences
   University of Colorado

4. Interdisciplinary Synthesis: The Academic Role in Institutional Adaptation
   December 19, 1968—Milton Marney
   Advanced Research Department
   Research Analysis Corporation

5. Interdisciplinary Research and Study Groups: The RAND Experience
   February 14, 1969—Roger Levien
   Social Sciences Division, The RAND Corporation

   April 11, 1969—Professor John Ford
   Scientific Intelligence Specialist
   The American University

7. Problems in Developing Effective Interdisciplinary Teams in the Contemporary University
   May 9, 1969—John H. Milsum
   Social Sciences Division, The RAND Corporation

8. The University's Role in Implementing Social Cybernetics
   May 22, 1969—Panel Discussion
   Milton Marney (see 4. above);
   John Ford (see 6. above);
   Charles Williams
   Office of Planning and Policy Studies
   National Science Foundation

The following GWU Faculty or Staff members participated in one or all of the seminars:

David Abell
Commission on Undergraduate Education in the Biological Sciences

George R. Allen
Department of Business Administration

Richard C. Allen
Law, Psychiatry and Criminology

Don Allensworth
Department of Political Science

Robert E. Baker
School of Education

Stanley Baker
Department of Biology
Arthur S. Banks
Department of Political Science

Ruth Bari
Department of Mathematics

Richard A. Barrett
Department of Business Administration

Gus Black
Program of Policy Studies (Economics)

Charles Bradley
Department of Economics

Harold F. Bright
Vice President for Academic Affairs

Ira H. Cisin
Director, Social Research Group

Raymond Cloutier
Department of Public Administration

Victor H. Cohn
Department of Pharmacology

Roy M. Coleman
Department of Psychiatry

George F. Conner
Department of Business Administration

Paul A. Crafton
Department of Engineering Administration

John T. Dailey
Education Research Project

Clarence H. Danhof
Program of Policy Studies (Economics)

Harold C. DeMoody
School of Engineering

James C. Dockery
Dean, School of Government and Business Administration

Donald S. Douglas
Department of Biology

Marvin Eisenberg
School of Engineering and Applied Science

Richard F. Fowler
Rehabilitation Center

Frederick H. Gibbs
Health Care Administration

Samuel Gibson
Public Health Service

Leon Gintzig
Health Care Administration

John R. Glennie
Department of Business Administration

Harold P. Green
Law, Science and Technology

William Griffith
Department of Philosophy

Phillip Grub
Department of Business Administration

Andrew Gyorgy
Institute for Sino-Soviet Studies

Ira B. Hansen
Department of Biology

Dagmar Henney
Department of Mathematics

Clifford Ireland
Department of Statistics

Joe L. Jessup
Department of Business Administration

Robert S. Jordan
Department of Political Science

Norman Kaplan
Program of Policy Studies (Sociology)

L. William Katz
Health Care Administration

Irving Kayton
Computer-in-Law Institute

Stephen G. Kent
Department of Pathology

Arthur D. Kirsch
Department of Statistics

Jack L. Knetsch
Natural Resources Policy Center

Felix Kopstein
HumRRO

Robert Kramer
National Law Center
Dean of the Law School

Sar A. Levitan
Department of Economics

Kurt London
Institute for Sino-Soviet Studies

John D. Lyons
HumRRO

Eugene R. Magruder
College of General Studies

James E. Mahoney
Program of Policy Studies

Henry G. Manne
National Law Center

William H. Marlow
Navy Logistics Center

Martin A. Mason
School of Engineering and Applied Science

Louis H. Mayo
Vice President for Advanced Policy Studies; Director, Program of Policy Studies

William A. McClelland
HumRRO

Arnold C. Meltzer
School of Engineering and Applied Science

Jean Montgomery
Natural Resources Policy Center

James Mosel
Department of Psychology

Ellis Mottur
Program of Policy Studies

Ralph C. Nash
National Law Center

Benjamin Nimer
Department of Political Science

Henry R. Page
Department of Business Administration

Ewing L. Phillips
Department of Psychology; Psychological Clinic

Charles E. Pinkus
Department of Engineering Administration

Charles E. Rice
Department of Psychology
Papers were presented as follows:

1. **Integration and Systematization of Planning, Programming, and Budgeting**
   April 18, 1968—Harry R. Page
   Associate Professor of Business Administration, GWU

2. **Evolution of the Management Audit as a Means of Appraisal**
   April 25, 1968—Cecil E. Goode
   Professorial Lecturer in Public Administration, GWU

3. **Involving Clients and the Public in Federal Administration**
   May 2, 1968—Manes Specter
   Member, Administrator’s Advisory Council
   Veterans Administration

4. **Communications and Federal Management: Some Current Highlights**
   May 8, 1968—Fred R. Brown
   Adjunct Professor of Public Administration
   American University

5. **Federal Experience with Productivity Measurement**
   May 16, 1968—John W. Kendrick
   Professor of Economics, GWU

6. **Value Engineering: Its Development and Application**
   May 22, 1968—George R. Allen
   Associate Professor of Business Administration, GWU

7. **The Uses of Simulation in Management**
   May 29, 1968—Stephen Chitwood
   Industrial College of the Armed Forces

8. **Economics and Its Uses in Government**
   June 6, 1968—Guy Black
   Associate Research Professor of Business Economics, GWU

9. **Federal Contributions to Procurement Management**
   June 13, 1968—Daniel D. Roman
   Professor of Management, GWU

10. **Federal Contributions to the Improvement of Management in Private Enterprise**
    November 25, 1968—Edwin Timbers
    Professor of Public Administration, and Director,
    Navy Graduate Financial Management Program, GWU

11. **Federal Contributions to Operations Research**
    December 5, 1968—John Coughlan
    Certified Public Accountant, Washington, D.C.

12. **Federal Contributions to the Management of Records**
    December 19, 1968—Chester Guthrie
    Acting Special Assistant for Research and Planning
    National Archives and Records Service
13. **Federal Development and Application of Electronic Computers**
   January 9, 1969—Lowell H. Hattery
   Professor of Management and Public Administration
   The American University

   January 16, 1969—Marvin M. Wofsey
   Associate Professor of Management, GWU

**Participants:**

- **Herbert E. Angel**
  Deputy Archivist of the United States
  National Archives and Records Service

- **Lloyd Bartholomew**
  Associate Professor of Health Care Administration, GWU

- **Don L. Bowen**
  Executive Director
  American Society for Public Administration

- **Harold F. Bright**
  Vice President for Academic Affairs, GWU

- **Albert W. Brisbin**
  Assistant Commissioner for Planning and Research
  Internal Revenue Service

- **Fred R. Brown**
  Adjunct Professor of Public Administration
  American University;
  Professor of Management
  Industrial College of the Armed Forces

- **Richard G. Cheek**
  Branch Manager
  Manpower, Inc.
  Washington, D.C.

- **Carl W. Clewlow**
  Deputy Assistant Secretary for Civilian Personnel Policy
  Office of Assistant Secretary of Defense (Manpower)

- **Daniel R. Cloutier**
  Associate Professor of Public Administration, GWU

- **Seymour I. Colman**
  Manager of Planning, Programming and Budgeting Systems
  Stanford Research Institute

- **Robert B. Curry**
  Vice President for Management Systems
  Association of American Railroads

- **Warren Dahlstrom**
  Chief, Division of Organization and Management Studies
  Office of Management Research
  U.S. Department of the Interior

- **Clarence H. Danhof**
  Senior Staff Scientist
  Program of Policy Studies, GWU;
  Professor of Economics; and Lecturer
  Johns Hopkins School of Advanced International Studies

- **Ruth M. Davis**
  Director
  Lister Hill National Center for Bio-Medical Communications
  National Library of Medicine

- **Paul M. Dickie**
  Assistant Professor of Business Administration, GWU

- **Commander Michael M. Dietch, Jr.**
  Assistant Comptroller
  Financial Management Systems
  Bureau of Medicine and Surgery
  Department of the Navy

- **J. C. Dockeray**
  Dean, School of Government and Business Administration, GWU

- **Edmund D. Dwyer**
  Director of Audits and Compliance
  General Services Administration

- **John P. Eberle**
  Director, Office of Administration
  Equal Employment Opportunity Commission

- **Edward Eschbach**
  Consulting Economist
  Chevah and Company, Washington, D.C.

- **Harold B. Finger**
  Associate Administrator for Organization and Management
  National Aeronautics and Space Administration

- **Harry H. Fite**
  Chief, Data Systems Division
  Office of Management Systems
  Department of Transportation

- **Charles Fotis**
  Director of Employee Training and Career Development
  Office of Assistant Secretary of Defense (Manpower)

- **Thomas Francis**
  Director, Office of Development Districts
  Economic Development Administration
  Department of Commerce

- **Howard Gammon**
  Assistant to the Director, Center for Computer Sciences
  National Bureau of Standards, U.S. Department of Commerce

- **Leon Gintzig**
  Chairman and Professor of Health Care Administration, GWU

- **Barry M. Goldstone**
  Management Analyst, Office of Education
  U.S. Department of Health, Education, and Welfare

- **H. E. Green**
  Assistant Research Professor of Health Care Administration, GWU

- **Robert L. Holland**
  Associate Professor of Business Administration, GWU

- **Grace Hopper**
  Director, Navy Planning Languages Group
  Office of the Special Assistant to the Secretary of the Navy

- **Arthur Jebens**
  Director of Management Research
  Office of the Assistant Secretary for Administration
  U.S. Department of the Interior

- **Clement Jeck**
  Chief of Records Management
  Management Research Division
  Office of the Assistant Secretary for Administration
  U.S. Department of the Interior
Walter J. Kennevan  
Supervisory Systems Accountant  
Data Processing Systems Division  
Office of the Comptroller  
Department of the Navy  
E. J. B. Lewis  
Assistant Dean for Special Projects  
School of Government and Business Administration, GWU  
John F. McCarthy, Jr.  
Associate Professor of Business Administration, GWU  
Chei-Min Paik  
Assistant Professor of Accounting, GWU  
Ralph Purcell  
Professor of Political Science, GWU  
Daniel E. Roman  
Professor of Management;  
Chairman, Committee on Doctoral Studies  
School of Government and Business Administration, GWU  
McKee Rosen  
Visiting Professor of Public Administration, GWU  
Richard Ross  
Director of Conferences, Seminars and Institutes  
College of General Studies, GWU  
Leo A. Schmidt, Jr.  
Program Analysis Division  
Institute for Defense Analysis  
Harold Seidman  
Scholar-in-Residence  
National Academy of Public Administration  
Presson S. Shane  
Professor of Engineering Administration, GWU  
Harold Silverstein  
Special Assistant to the Chief of Communications-Electronics  
Department of the Army  
Colonel O. L. Smiley  
Staff Assistant  
Office of Assistant Secretary of Defense (Installations and Logistics)  
Lowell C. Smith  
Assistant to the Dean  
School of Government and Business Administration;  
Assistant Professor of Business and Public Administration, GWU  
Waldo Sommers  
Professor of Public Administration, GWU  
Robert F. Steadman  
Director, Committee for the Improvement of Management in Government  
Committee for Economic Development  
Ward Stewart  
Advisor on Business and Public Administration  
Office of Education  
Department of Health, Education, and Welfare  
Karl E. Stromsem  
Chairman and Professor of Public Administration, GWU  
R. Thelwell  
Program Analyst  
Office of the Director  
Bureau of the Budget  
Ernest Weiss  
Executive Director  
National Transportation Safety Board  
Department of Transportation  
Wilford White  
Director, Small Business Guidance and Development Center  
Howard University  
Rupert C. Woodward  
Director of Libraries, GWU
5. Workshop Conference on
THE URBAN CHALLENGE: THE MANAGEMENT AND INSTITUTIONAL RESPONSE
Airlie House, Warrenton, Va.
June 19-21, 1968
A Workshop co-sponsored by the Program of Policy Studies with
HUD Office of Business Participation
and Institute for Politics and Planning,
and System Development Corporation

Conference Chairmen: Bernard A. Schriever
Arthur W. Barber
Michael M. Feuers
Robert F. McAuliffe

Conference Coordinator: Robert G. Smith

Participants:

Roy C. Amara
Executive Director
Systems Sciences
Stanford Research Institute

Charles A. Anderson
President
Stanford Research Institute

Philip Arnow
Director
Office of Planning and Research
Department of Labor

Arthur W. Barber
President
Institute for Politics and Planning

John Bebout
Director
Urban Studies Center
Rutgers University

W. C. Beckwith
Aerojet-General Corporation

Harold K. Bell
Director
Urban Action and Experimentation Program
Columbia University

Robert Bell
Office of Technology Utilization, NASA

David Bendaniel
Advanced Programs in Research and Development
General Electric Company

John C. Beresford
Bureau of the Census
Department of Commerce

William Besuden
Assistant Director
International City Managers Association

Alfred Blumstein
Office of Urban Research
Institute for Defense Analyses

Lucille Branton
Wiley Branton
Executive Director
United Planning Organization

Leonard S. Breen
Head, Department of Sociology
Purdue University

Ben J. Brown
Junior Associate
B. A. Schriever Associates, Inc.

C. Harold Brown
Acting Director
Division of Urban Planning
University of Delaware

James M. Brown
GWU Professor of Law

Frederick S. Burrell
Manager
Housing and Ocean Systems
General Electric Company

John Caffrey
Director
Commission on Administrative Affairs
American Council on Education

Patrick Callan
Manager
Urban Technology Program
General Electric Company

Richard Canavan
Staff Vice President
National Association of Home Builders

David Carlisle
Management Consultant

Launor Carter
Senior Vice President
System Development Corporation

Robert L. Chartrand
Information Sciences Specialist
Library of Congress

Alexander N. Christakis
Doxiadis System Development Center

B. F. Coggan
Vice President for Marketing
North American Rockwell Corporation

Albert M. Cole
Director
Reynolds Metals Development Corporation

Robert P. Crago
Director of Civil Programs
International Business Machines

Paul Danaceau
U.S. Senate Committee on Government Operations

Arsen Darney
Mid-West Research Institute

James F. Dineen
Senior Counsel
Raytheon Company
John Dixon
Manager
Corporate Communications
Xerox Corporation

Hugh P. Donaghue
Assistant to the President
Control Data Corporation

Herbert Dordick
The System Development Corporation

Russell Dorr
Washington Representative
The Chase Manhattan Bank

Harold J. Downes
Vice President for Special Marketing Development
North American Rockwell Corporation

Constantinos Doxiadis
President
Doxiadis Associates

Lloyd E. Dyer
Vice President for Personnel
Chesapeake and Potomac Telephone Companies

William Eaton
General Manager
Information Service Department
General Electric Company

Lloyd H. Elliott
President, GWU

John Field
Director of Community Relations Service
U.S. Conference of Mayors

Michael M. Feuers
Research and Special Projects Directorate
The System Development Corporation

Sidney I. Firstman
Inter-Corporate Director
Urban Programs Planning Research Corporation

Thomas R. Fitzgerald
Vice President for Academic Affairs
Georgetown University

Herbert Franklin
National Urban Coalition

Marvin Friedman
Assistant Director of Research, AFL-CIO

Harvey A. Garn
Senior Project Officer
The Urban Institute

O. James Gibson
Secretary for Planning and Research
Office of the Governor of California

James P. Gilliland
District Manager
H. H. Robertson Company

John Golden
Director
Washington Office
Stanford Research Institute

Lawrence P. Greene
Assistant to the President
North American Rockwell Corporation

William Gregory
Managing Editor
Aviation Week and Space Technology

Alex Gritz
Office of Emergency Planning
Executive Office of the President

Clarence A. Grubb
Director
Public Works and Housing
Stanford Research Institute

Irwin Halpern
Director
Policy Analysis Staff, NASA

John Hanessian
GWU Program of Policy Studies, and
Department of Political Science

Phillip Hargraves
General Electric Company

John Harris
The System Development Corporation

Edward Hearle
Vice President
Booz-Allen and Hamilton, Inc.

William Hines
Vice President and Manager
Washington Office
Rocketdyne Division
North American Rockwell Corporation

Frances P. Hoeber
RAND Corporation

Robert Howes
Chairman
City and Regional Planning
Catholic University of America

Edmond Hutchinson
Chairman
Exploration Development Group
Research Analysis Corporation

Joseph L. Intermaggio
GWU Adjunct Professor of Urban Planning

Elden Jacobson
Washington Center for Metropolitan Studies

David Jeffrey
Editor
GW Magazine, GWU

Robert G. Jones
GWU Professor of Religion

Fred Jordan
Model Cities Administration, HUD

Mark E. Keane
Executive Director
International City Managers’ Association

Eamon Kelley
Economic Development Administration
Department of Commerce

Robert L. Kirby
Technical Director
The MITRE Corporation

Donald Kummerfeld
Assistant to the President
The Urban Institute

James L. Kunen
Executive Vice President
The Eugene and Agnes Mayer Foundation

Marjorie Lawson (Judge)
General Counsel
Model Inner City Community Organization

Stanley Lawwill
President
Analytic Services, Inc.

Helen Leavitt
Author

William Leavitt
Senior Editor
Air Force and Space Digest
Bernard A. Schriever
Vice Chairman
Advisory Committee
GWU Program of Policy Studies

James Singleton
Vice President and Assistant Manager
Public Systems Division
System Development Corporation

Robert G. Smith
GWU Program of Policy Studies

Herbert A. Swenson
Department of Interior Technical Staff

H. F. Sykes
Matrix Corporation

Peter Szanton
Director
New York Office
RAND Corporation

Richard Taft
President
J. R. Taft Associates

H. Ralph Taylor
Assistant Secretary for Model Cities and Governmental Relations, HUD

Michael Teitz
Vice Chairman
Department of City and Regional Planning
University of California (Berkeley)

Shirley Thomas
Chairman
Mayor's Space Advisory Committee
Office of the Mayor of Los Angeles

R. J. Thompson
Vice President and Director
Rocketdyne Division Research Group
North American Rockwell Corporation

Bart Tuffly
Research Chief
Environmental Systems
Rocketdyne Division
North American Rockwell Corporation

Edward Uhl
President
Fairchild Hiller Corporation

Carl H. Walther
Assistant Vice President for Academic Affairs, GWU

James G. Watt
Community and Regional Resources Division
U.S. Chamber of Commerce

Douglas Whitlock
Director
Producer's Council

Richard D. Williams
Washington Representative
Rocketdyne Division
North American Rockwell Corporation

Robert C. Wood
Under Secretary, HUD

Kenneth Yarnold
Director
Research and Special Projects
System Development Corporation

Charles Zraket
Vice President
Washington Operations
The MITRE Corporation

45
Participants:

A. Wesley Barthelmes
Administrative Assistant to The Honorable Richard Bolting
United States House of Representatives

Guy Black
Senior Staff Scientist, Program of Policy Studies; Associate Research Professor of Business Economics, GWU

William D. Carey
Assistant Director
Bureau of the Budget

Clarence H. Danhof
Senior Staff Scientist, Program of Policy Studies; Professor of Economics; and Lecturer
Johns Hopkins School of Advanced International Studies

Henry David
Executive Secretary
Division of Behavioral Sciences
National Academy of Sciences

Steven Ebbing
Staff Director
Subcommittee on Government Research
United States Senate

Alfred J. Eggers
Assistant Administrator
Office of Policy Planning
National Aeronautics and Space Administration

Charles Falk
Director of Planning
National Science Foundation

Harold P. Green
Director of Law, Science and Technology Program; Professor of Law
National Law Center, GWU

Sydney Grebeal
Deputy Assistant Director
Science and Technology Bureau
Arms Control and Disarmament Agency

Andrew Gyorgy
Professor of International Affairs
Sino-Soviet Institute, GWU

John Hanessian
Senior Staff Scientist, Program of Policy Studies; Associate Professorial Lecturer in Political Science, GWU

H. Theodore Heintz
Budget Analyst
Bureau of the Budget

Robert S. Jordan
Associate Professor of International Affairs, GWU

Norman Kaplan
Senior Staff Scientist, Program of Policy Studies; Professor of Sociology, GWU

Wolfgang Kraus
Professor of Political Science, GWU

James E. Mahoney
Senior Staff Scientist, Program of Policy Studies, GWU

Ray Mayhew
International Science Administrator
Office of International Science Activities
National Science Foundation

Louis H. Mayo
Director
Program of Policy Studies in Science and Technology; Vice President for Advanced Policy Studies; and Professor of Law, GWU

E. Gene Marr
Research Officer
Office of University Affairs, NASA

Michael Michaelis
D.C. Manager
Arthur D. Little, Inc.

Rex Minckler
Senior Economist, Battelle Memorial Institute

Ellis Mottur
Senior Staff Scientist, Program of Policy Studies, GWU

Harland B. Moulton
International Relations Bureau
U.S. Arms Control and Disarmament Agency

Harold Orlans
Senior Fellow
The Brookings Institution

Sydney Passman
Chief, Weapons Systems Division
Science and Technology Bureau
U.S. Arms Control and Disarmament Agency

J. D. Perkins
Director
Department of Scientific Affairs
Organization of American States

Marvin Robinson
Assistant to the Executive Director
United Nations

William Trainor
Executive Secretary
National Council on Marine Resources and Engineering Development
U.S. Department of State

Edward Wenk, Jr.
Executive Secretary
American Association for the Advancement of Science

Herbert B. Quinn
Chief, Research Branch
Office of University Affairs, NASA
Papers were presented as follows:

1. **Assessment Information Systems**
   - January 23, 1969—Clarence H. Danhof
     Senior Staff Scientist
     Program of Policy Studies, GWU

2. **Technology Assessment and the Congress**
   - February 19, 1969—Richard A. Carpenter
     Senior Specialist in Science and Technology
     Science Policy Division
     Legislative Reference Service, Library of Congress

3. **The Adversary Process in Technology Assessment**
   - March 19, 1969—Harold P. Green
     Professor of Law, and Director of Law, Science and Technology Program
     National Law Center, GWU

4. **The Management of Technology Assessment**
   - April 23, 1969—Louis H. Mayo, Director of Series
     Vice President for Advanced Policy Studies
     Director, Program of Policy Studies
     Professor of Law
     National Law Center, GWU

5. **Technology Assessment in the Executive Office of the President**
   - December 11, 1969—Charles V. Kidd
     Director, Council on Federal Relations
     The Association of American Universities

6. **The Social Function of Technology Assessment**
   - January 22, 1970—Franklin P. Huddle
     Specialist in Science and Technology
     Science Policy Research Division
     Legislative Reference Service, Library of Congress

7. **The Process of Technology Assessment in the Food and Drug Administration**
   - March 5, 1970—Alan Kaplan and Robert H. Becker
     Kleinfeld and Kaplan Law Offices

8. **Technology Assessment or Technology Harassment?**
   - March 26, 1970—Leon Green, Jr.
     Director of Planning (Washington)
     Lockheed Aircraft Corporation

9. **Processes of Technology Assessment: Telling It Like It Is—The National Transportation Safety Board**
   - April 23, 1970—Ernest Weiss
     Executive Director, National Transportation Safety Board
     Department of Transportation

10. **Technology Assessment and Citizen Action**
    - May 26, 1970—Ellis Mottur
        Senior Staff Scientist
        Director, Technology Assessment Implementation Project
        Program of Policy Studies, GWU
SEMINAR SERIES 7

Participants:

Thomas W. Adams
Senior Policy Analyst
Office of Policy, NASA

Bodo Bartocha
Deputy Head
Office of Planning and Policy Studies
National Science Foundation

Robert H. Becker
Associate
Kleinfeld & Kaplan Law Offices
Washington, D.C.

Everett H. Bellows
Vice President
Olin Corporation
Washington, D.C.

Charles F. Bingman
Deputy Director
Organization and Management Planning Division, NASA

James M. Brown
Professor of Law, GWU

Carl W. Bruch
Chief
Bacteriological Branch, Microbiology Division
Bureau of Science
Food and Drug Administration

John L. Buckley
Technical Assistant
Office of Science and Technology
Executive Office of the President

William Carey
Senior Consultant
Arthur D. Little, Incorporated

Richard A. Carpenter
Head
Environmental Policy Division
Legislative Reference Service
Library of Congress

Ira H. Cisin
Director
Social Research Group; and
Professor of Sociology, GWU

Joseph F. Coates
Staff Associate
Office of Interdisciplinary Research
National Science Foundation

Vary T. Coates
Research Scientist
Program of Policy Studies, GWU

Joseph Cooper
Professor of Government
Howard University

Joseph D. Crumlish
Manager
Innovation Studies
National Bureau of Standards
U.S. Department of Commerce

Clarence H. Danhof
Senior Staff Scientist
Program of Policy Studies, GWU

Charles L. Dunham
Chairman
Division of Medical Sciences
National Academy of Sciences

Alfred J. Eggers, Jr.
Assistant Administrator for Policy, NASA

Joseph V. Foa
Professor of Engineering, GWU

James Gehrig
Staff Director
Committee on Aeronautical and Space Sciences
U.S. Senate

Leo Goodman
Consultant on Energy and Natural Resources
United Auto Workers

Philip Gould
Staff Member
Systems Evaluation Division
Institute for Defense Analyses

Irving Gray
Professor of Biology
Georgetown University

Harold P. Green
Professor of Law;
Director of Law, Science and Technology Program
National Law Center, GWU

Leon Green, Jr.
Executive Secretary
Defense Science Board
Office of Director of Defense Research and Engineering
U.S. Department of Defense

Wayne R. Gruner
Deputy Director
Division of Mathematical and Physical Sciences
National Science Foundation

Walter A. Hahn
Deputy Assistant Secretary for Scientific and Technical Planning
U.S. Department of Commerce

Irwin Halpern
Director
Policy Analysis Staff, NASA;
National Goals Research Staff
The White House

John Hanessian, Jr.
Senior Staff Scientist, Program of Policy Studies;
Associate Professor of International Affairs, GWU

Robert B. Heller
Professor of Engineering and Applied Science, GWU

Laurence Hewes
Vice President
J. Richard Taft Associates
Washington, D.C.

Guenther Hintze
Research Professor of Electrical Engineering, GWU

Isaac Hoover
Head
Office of Noise Abatement
Federal Aviation Administration
Department of Transportation

Robert Howard
Budget Examiner
U.S. Bureau of the Budget

Franklin P. Huddle
Specialist in Science and Technology
Science Policy Research Division
Legislative Reference Service
Library of Congress

Alan Kaplan
Partner
Kleinfeld & Kaplan Law Offices
Washington, D.C.
Norman Kaplan  
Senior Staff Scientist, Program of Policy Studies;  
Professor of Sociology, GWU  

Raphael G. Kasper  
Research Scientist  
Program of Policy Studies, GWU  

Frances O. Kelsey, M.D.  
Director  
Division of Scientific Investigations  
Food and Drug Administration  

Charles V. Kidd  
Director  
Council on Federal Relations  
Association of American Universities  

David Kleffer  
Senior Editor  
Chemical and Engineering News  

William M. Kitzmiller  
Legislative Assistant to U.S. Representative  
Richard L. Ottinger (D-N.Y.)  

Vincent Kleinfeld  
Partner  
Kleinfeld & Kaplan Law Offices  
Washington, D.C.  

Ezra Kohn  
Director for Research  
President's Commission on Consumer Interests  

James L. Kunen  
Executive Vice President  
The Eugene and Agnes Meyer Foundation  

W. Henry Lambright  
Professor of Political Science, Syracuse University;  
Special Assistant  
Sustaining University Affairs Program  
Office of University Affairs, NASA  

Robert Lamson  
Office of Planning and Policy Studies  
National Science Foundation  

Leonard Lederman  
Fellow and Senior Research Advisor  
Battelle Memorial Institute  

Joseph Lumen  
Defense Analyst  
Subcommittee on Military Operations  
Committee on Government Operations  
U.S. House of Representatives  

James E. Mahoney  
Senior Staff Scientist  
Program of Policy Studies, GWU  

M. S. Malkin  
President  
NUS Corporation (Consultants to nuclear power industry)  

Harold G. Mandel  
Professor of Pharmacology  
GWU Medical School  

Joseph B. Margolin  
Senior Staff Scientist and Director  
Educational Policy Group  
Program of Policy Studies, GWU  

Rodney Markley  
Vice President  
Ford Motor Company  

William H. Marlow  
Director  
Institute for Management Science and Engineering;  
Professor of Applied Science, GWU  

Frank Marriott  
Assistant to the Vice President for Public Systems Marketing  
Westinghouse Electric Corporation  

Louis H. Mayo  
Vice President for Policy Studies and Special Projects;  
Director  
Program of Policy Studies in Science and Technology;  
Professor of Law  
National Law Center, GWU  

Emmanuel G. Mesthene  
Executive Director  
Program on Technology and Society  
Harvard University  

Michael Michaelis  
Manager  
Arthur D. Little, Inc.  
Washington, D.C. Office  

Arthur S. Miller  
Professor of Law, GWU  

Clarence C. Mondale  
Associate Professor of American Civilization;  
Director  
Washington Project, GWU  

Laurence I. Moss  
Executive Secretary  
Committee on Public Engineering Policy  
National Academy of Engineering  

Ellis Mottur  
Senior Staff Scientist  
Program of Policy Studies, GWU  

Robert Multhauf  
Director  
Museum of History and Technology  
The Smithsonian Institution  

Arnold S. Nash  
Consultant on the Humanities  
National Goals Research Staff  
The White House  

Harold Orlans  
Senior Fellow  
The Brookings Institution  

John B. Phelps  
Washington Editor  
Physics Today  
American Institute of Physics  

Walter A. Radius  
Special Assistant to the Assistant Administrator  
Office of Defense Department and Interagency Affairs, NASA  

John Rasmussen  
Professor of Chemistry  
Yale University  

Thomas Ratcliff  
Science Consultant  
Committee on Science and Astronautics  
U.S. House of Representatives  

Leonard Rodberg  
Resident Fellow  
Institute for Policy Studies  
Washington, D.C.  

S. McKee Rosen  
Visiting Professor of Public Administration, GWU  

Jean-Jacques Salomon  
Visiting Social Scientist  
MIT Center for International Studies; and  
Chief  
Science Policy Division, OECD  
Paris, France  

Leo Shubert  
Professor of Chemistry  
The American University  

Richard L. Ottinger (D-N.Y.)  

Harvey B. Silverstein
Research Assistant
Program of Policy Studies, GWU

Daniel Singer
Partner
Strasser, Spiegelberg, Fried, Frank & Kampelman
Washington, D.C.

Clotaire Wood
Deputy Director
DOT/NASA Civil Aviation R&D Policy Study
Department of Transportation

Nozer Singpurwalla
Professor of Engineering Administration, GWU

Reuben E. Wood
Professor of Chemistry, GWU

Francis B. Smith
Assistant Administrator for University Affairs, NASA

James R. Wright
Secretary
Advisory Committee on Transportation Noise
Highway Research Board
National Academy of Sciences
Counsel

Joel A. Snow
Acting Head
Office of Interdisciplinary Research on Problems of our Society
National Science Foundation

Philip Yeager
Committee on Science and Astronautics
U.S. House of Representatives

Henry Solomon
Professor of Economics, GWU

Gabor Strasser
Technical Assistant
Office of Science and Technology
Executive Office of the President

Richard E. Stephens
Chief
Management Administration Branch
Office of University Affairs, NASA

Charles S. Tidball
Henry D. Fry Professor of Physiology
GWU School of Medicine

Robert L. Stern
Manager
Advanced Technology Services
Assistant to the Senior Vice President for Research and Development
The Xerox Corporation

Duke C. Trexler
Executive Secretary
Drug Research Board
National Academy of Sciences

Joseph L. Tropea
Director
Behavioral Systems Policy Research Group;
Program of Policy Studies, GWU

Laurence H. Tribe
Executive Director
Technology Assessment Panel
Committees on Science and Public Policy
National Academy of Sciences

E. Winslow Turner
General Counsel
Subcommittee on Intergovernmental Relations
Committee on Government Operations
U.S. Senate

David H. West
General Aviation Liaison Officer
Federal Aviation Administration

Ernest Weiss
Executive Director
National Transportation Safety Board
Department of Transportation

Charles W. Williams, Jr.
Staff Director
National Goals Research Staff
The White House;
Staff Associate
Office of Planning and Policy Studies
National Science Foundation

Philip Yeager
Committee on Science and Astronautics
U.S. House of Representatives

Glen P. Wilson
Professional Staff
Committee on Aeronautical and Space Sciences
U.S. Senate
Professor Brown presented discussion papers for the first two seminars of this series as indicated below:

1. **Homesteading in the 70's**
   May 27, 1969

2. **The Influence of Modern Technology on Population Distribution**
   July 15, 1969

The seminars continued in the winter of 1969-70 as follows:

3. **Toward a More Balanced and Better Urban Government: An Agenda for Intergovernmental Action**
   September 16, 1969—James H. Pickford
   Senior Analyst
   Advisory Committee on Intergovernmental Relations

4. **Industrialization in Housing Construction**
   November 18, 1969—John P. Eberhard
   Dean, School of Architecture and Environmental Design
   State University of New York at Buffalo

5. **The Role of Construction Labor in an Era of Industrialized Housing**
   Housing Industry Consultant, Washington, D.C.

**Participants:**

- **Carlos Campbell**
  Special Assistant to Assistant Secretary for Metropolitan Development, HUD

- **John L. Cameron**
  Director
  Division of Facilities Development
  Office of Construction Service
  U.S. Office of Education

- **Lawrence Biekka**
  National Goals Research Staff
  The White House

- **L. J. Bibri**
  Director of Employee Relations
  Armstrong Cork Company

- **Roy Bivins**
  Coordinator for Intergency Programs
  Office of Technology Utilization, NASA

- **George T. Bogard**
  Manager
  Corporate Market Development
  General Electric Company
  Louisville, Kentucky

- **John K. Bowersox**
  Executive Director
  Producer's Council, Inc.
  Washington, D.C.

- **Paul Brace**
  Director
  Application Review Division
  Office of New Communities Development, HUD

- **James M. Brown**
  Professor of Law, GWU;
  Coordinator
  Urban Problems Seminar Series,
  Program of Policy Studies, GWU

- **John Carver**
  Commissioner
  Federal Power Commission

- **Martin Chase**
  President
  Chase, Rosen & Wallace (Operations Research)
  Alexandria, Va.

- **Vary T. Coates**
  Research Scientist
  Program of Policy Studies, GWU

- **Clarence H. Danhof**
  Senior Staff Scientist
  Program of Policy Studies, GWU

- **L. P. Daspit**
  Rear Admiral, USN (Ret.)
  Executive Director
  NAS/NAE Advisory Committee to HUD

- **John M. Dickerman, Esq.**
  Housing Industry Consultant
  Washington, D.C.
Robert M. Dillon, A.I.A.
Executive Director
Building Research Advisory Board
National Research Council, NAS

William Dodge, Jr.
Program Planning Specialist
Model Cities Program for District of Columbia

Loren F. Dorman
Executive Vice President
National Lumber and Building Material Dealers Association

John P. Eberhard
Dean and Director
College of Architecture and Environmental Design
State University of New York at Buffalo

Ben Evans
Executive Secretary
Building Research Institute
Building Research Advisory Board
National Academy of Sciences

Harold Finger
Assistant Secretary for Research and Technology, HUD

Harold Forsyth
Executive Secretary
Producers Advisory Committee (PAC)
Producers Council, Inc.
Washington, D.C.

Marvin Friedman
Vice President
S. Rutenberg & Associates
Washington, D.C.

Seymour Gardner
Manager
Land Sales
The Rouse Company

R. S. Garrett
President
Urban Systems Development Corp.
Arlington, Virginia

Christopher Goebelein
Urban Affairs Research Committee
National Science Foundation

Sigmund Gerber
Director
Family Housing Standards and Design
Office of the Secretary of Defense (I&L)
Washington, D.C.

Richard G. Geyser
Manager
Public Buildings Section
Portland Cement Association

David Glick
Counsel
Subcommittee on Housing
Committee on Banking and Currency
U.S. House of Representatives

Kingdon Gould, Esq.
Vice President
Parking Management, Inc.
Washington, D.C.

Harvey Hallenbeck, Jr.
Manager
Construction Affairs
Chamber of Commerce of the United States
Washington, D.C.

Irwin Halpern
Director
Policy Analysis Staff, NASA; and National Goals Research Staff
The White House

Reese Hammond
Special Representative
International Union of Operating Engineers

Richard T. Hanna
U.S. House of Representatives (D-Calif.)

Joseph F. Hennessey
General Counsel
U.S. Atomic Energy Commission

Homer Hoyt
President
Homer Hoyt Associates
(Consultants in Real Estate Economics)

Page Ingraham
Director
State-Local Administration
Appalachian Regional Commission

Raphael G. Kasper
Research Scientist
Program of Policy Studies, GWU

Jack Knetsch
Director
Center for Natural Resources Policy Studies, GWU

Charles LeCraw
General Manager
Construction Marketing
U.S. Steel Corporation

Dorn McGrath
Professor and Chairman
Department of Urban and Regional Planning, GWU

William J. McSorley
Assistant to the President
Building and Construction Trades Department, AFL-CIO

James L. MacPherson
Executive Director
Construction Industry Collective Bargaining Commission
Office of the Secretary
U.S. Department of Labor

Charles Mahaffey
Deputy Chief
Codes and Standards Section
Building Research Division
National Bureau of Standards

James E. Mahoney
Senior Staff Scientist
Program of Policy Studies, GWU

Allan Manville
Assistant Director for Special Studies
Advisory Commission on Intergovernmental Relations

Louis H. Mayo
Vice President for Policy Studies and Special Projects;
Director
Program of Policy Studies in Science and Technology;
Professor of Law, GWU

H. W. Merritt
Assistant Administrator for Research
Urban Mass Transit Administration
Department of Transportation

D. Quinn Mills
Professor of Industrial Relations
Sloan School of Management, MIT

Herbert Millstein
Marketing Sciences Inc.
Washington, D.C.

David Moore
Program Manager
In-Cities Program
Office of the Assistant Secretary for Research and Technology, HUD

Jerome C. Muys
Assistant General Counsel and Chief
Legal Group
Public Land Law Review Commission
Washington, D.C.
Arthur S. Newburg
Director
Buildings Systems and Technology
Operation Breakthrough, HUD

Wilfred Owen
Senior Fellow
Economics Department
The Brookings Institution

Ronald Phillips
Director
Technology Utilization Division, NASA

Floyd Peterson
Consultant
National Association of Electronic Companies
Washington, D.C.

James Pickard
Director
Program Analysis and Evaluation Staff, HUD

James H. Pickford
Senior Analyst
Advisory Commission on Intergovernmental Relations

Nicholas A. Pollack
Vice President and General Manager
Building Systems Division
Urban Systems Development Corporation

J. K. Pollard
Policy Analyst
Office of Policy, NASA

Herbert B. Quinn
Chief
Research Branch
Sustaining University Program
Office of University Affairs, NASA

James W. Roach
Special Assistant to the Vice President
The MITRE Corporation Westgate Research Lab
McLean, Va.

Thomas F. Rogers
Vice President for Urban Affairs
The MITRE Corporation
McLean, Va.

J. L. Russell
Director
Research and Analysis
Construction Industry Collective Bargaining Commission
U.S. Department of Labor

Robert Schmitt
Robert Schmitt Homes
Cleveland, Ohio

B. A. Schriever
Vice-Chairman
PPS Advisory Committee;
Chairman of the Board
Schriever & McKee Associates, Inc.

John Sexton
Arent, Fox, Kintner, Plotkin, and Kahn
Washington, D.C.

Joseph Sherman
Housing Technology Advisor, HUD

Malcolm Sherman
Vice President (Residential Land Sales)
The Rouse Company
Columbia, Md.

Henry M. Shine, Jr.
Executive Director
President's Council on Youth Opportunity

William Shinnick
Director
NASA Technology Application Center
University of New Mexico

Howard Shuman
Administrative Assistant to Senator William Proxmire (D-Wisc.)

David Siskind
Construction Starts Branch Chief
Construction Statistics Division
Bureau of the Census

Richard E. Stephens
Chief
Management and Administration Branch
Sustaining University Program
Office of University Affairs, NASA

Ralph Taylor
Executive Vice President
Mid-City Developers, Inc.
Washington, D.C.

Kent Watkins
Vice President for Corporate Affairs
Urban Systems Development Corporation
Arlington, Va.

J. A. Weinberg
Chairman of the Board
The Carey-Winston Company

Albert Weinstein
Assistant Director for Research Planning
Office of the Assistant Secretary for Research and Technology, HUD

Douglas Whitlock, Esq.
Reed, Smith, Shaw & McClay
Washington, D.C.

Merrill Whitman
Assistant Director
Office of Program Analysis
Division of Reactor Development, AEC

William Woodward
Director
Space Power and Electric Propulsion Division
Office of Advanced Science and Technology, NASA

Gene Wunderlich
Chief
Resource Institutions Branch
Natural Resource Economics Division
U.S. Department of Agriculture

Irving B. Yochelson, Esq.
Crossberg, Yochelson, Brilli and Fox
Washington, D.C.

Arthur Zeizel
Vice President (Residential Land Sales)
The Rouse Company
Columbia, Md.

Observers from National Law Center, GWU:

David Hendricks
Assistant Professor of Law
University of Arkansas

Ed Ketchen
LL.M. Candidate
(Land Development Law Class)

J. McGurren
LL.M. Candidate
(Land Development Law Class)

Brian Ospery
J.D. Candidate
(Land Development Law Class)

Barbara Wolitz
Special Student
Sociology Department

Raymond Wolitz
LL.M. Candidate
(Land Development Law Class)
9. Seminar Series on

THE SOCIAL RELEVANCE OF SCIENCE AND TECHNOLOGY

Co-Chairmen: John Moeser
Department of Political Science
and Vary Coates
Research Scientist
Program of Policy Studies, GWU

This series of three seminars for graduate students and faculty attempted to provide an interdisciplinary setting for discussion of the opportunities that science/public policy offers to students in the social sciences and humanities for graduate research and for future careers. Discussions were as follows:

1. Social Relevance of Science and Technology—An Overview
   February 27, 1970—Louis H. Mayo
   Vice President for Advanced Policy Studies
   Director, Program of Policy Studies, GWU
   and Guy Black
   Senior Staff Scientist
   Program of Policy Studies, GWU
   and John Logsdon
   Research Scientist
   Program of Policy Studies, GWU

2. The Moral Implications in Technological Development
   April 3, 1970—Victor Ferkiss
   Professor of Government
   Georgetown University

3. The Positive Attributes of Technology
   April 24, 1970—Group discussion to wind up series

Participants:
David Aaronson
Ph.D. Candidate in Economics
Ann Benfield
M.A. Candidate in Religion
Virginia Benson
Ph.D. Candidate in Economics
Dennis Brezina
Ph.D. Candidate in American Studies
Robert Brown
Ph.D. Candidate in Political Science
Tae Dong Chung
Ph.D. Candidate in Political Science
Vary T. Coates
Ph.D. Candidate in Political Science
Stanley Cohen
Ph.D. Candidate in Psychology
Bruce Dunning
M.A. Candidate in Sociology
Gene M. Griffith
M.A. Candidate in Philosophy
Robert Griggs
M.A. Candidate in Sociology
Charles S. Harris
Assistant Professor of Sociology, GWU
Jean Intermaggio
Ph.D. Candidate in Psychology
Thelma Levine
Elton Professor of Philosophy, GWU
Donald Leith
M.A. Candidate in Philosophy, GWU

Ilona Melstrads
M.A. Candidate in Economics

Warren F. Morriss
M.A. Candidate in Philosophy

James N. Mosel
Professor of Psychology, GWU

Lorin P. Nielson
M.A. Candidate in Philosophy

Benjamin Nimer
Professor of Political Science, GWU

Richard Ostling
M.A. Candidate in Religion

Howard Rees
University Chaplain, GWU

Gordon Rocca
Ph.D. Candidate in Political Science

Alex Rode
Ph.D. Candidate in Psychology

Margaret Schafer
Ph.D. Candidate in Psychology

Frank Segel
Ph.D. Candidate in Economics

Neil Seldman
Ph.D. Candidate in Political Science

Jeff Silver
Undergraduate—Religion

Dwight Steussy
Ph.D. Candidate in Economics

Joseph Tropea
Assistant Professor of Sociology, GWU; Director Behavioral Systems Research Project

Paul Vernier
M.A. Candidate in Philosophy

Evelyn Viehman
Ph.D. Candidate in Psychology

Rabbi Samuel Volkman
M.A. Candidate in Religion

Harry E. Yeide
Associate Professor of Religion
Assistant Dean of Columbian College of Arts and Sciences, GWU

Eileen Zeitz
M.A. Candidate in Sociology
Papers were presented as follows:

1. Urban Development Modeling
   March 19, 1970—Professor George C. Hemmens
   Director, Urban Systems Program
   Department of City and Regional Planning
   University of North Carolina at Chapel Hill

2. Simulations in the Consolidation and Utilization of Knowledge about International Relations
   February 18, 1971—Dr. Harold Guetzkow
   Visiting Research Scholar
   Carnegie Endowment for International Peace, New York;
   Professor and Co-Director
   International Relations Program, Northwestern University;
   Adjunct Professor of International Relations, GWU

Participants:

Guy Black
Senior Staff Scientist, Program of Policy Studies;
Associate Professor of Business Economics, GWU

Robert M. Behr
Senior Staff Member
National Security Council
Executive Office of the President

Frank Bernheisel
Vice President
Ecosystems, Inc.

Robert Best
Staff
Force Structure Department
Research Analysis Corporation

Paul Brace
Director
Application Review Division
Office of New Communities Development, HUD

Henry Brady
Research Associate
Program of Policy Studies, GWU

Glenn Bryan
Director
Psychological Sciences Division
Office of Naval Research
Department of the Navy

Alexander N. Christakis
Director of Research
Doxiadis System Development Corporation
Washington, D.C.

Tae Dong Chung
Research Associate
Program of Policy Studies, GWU
(Ph.D. Candidate in Political Science)

Joseph F. Coates
Staff Associate
Office of Interdisciplinary Research
National Science Foundation

Vary T. Coates
Research Scientist
Program of Policy Studies, GWU

Kent Curtis
Head
Computer Science and Engineering Section
Computing Activities Division
National Science Foundation

Ed Cushen
Chief
Technical Analysis Division
National Bureau of Standards

Joseph V. Foa
Professor of Engineering
School of Engineering and Applied Science, GWU

Rex S. Garrett
President
Urban Systems Development Corporation

James Gehrig
Staff Director
Senate Committee on Aeronautical and Space Sciences

John Gerba
Regional Planner
Northeast Corridor Transportation Project, DOT

Harold Guetzkow
Visiting Research Scholar
Carnegie Endowment for International Peace, New York;
Professor and Co-Director
International Relations Program, Northwestern University;
Adjunct Professor of International Relations, GWU

John Hanessian, Jr.
Senior Staff Scientist
(Delos Studies Group)
Program of Policy Studies in Science and Technology;
Associate Professor of Political Science, GWU

George C. Hemmens
Professor and Director
Urban Systems Program
Department of City and Regional Planning
University of North Carolina
Chapel Hill

Marc Henderson
Senior Consultant
Marketing Sciences Corporation
Washington, D.C.
Guenther Hintze
Research Professor of Electrical Engineering, GWU

Dan Horowitz
Special Assistant to the Director for Academic Relations and Program Development
Foreign Service Institute
U.S. Department of State

Thomas L. Hughes
President
Carnegie Endowment for International Peace

Charles F. Hutchinson
Deputy Director
Life Sciences
Air Force Office of Scientific Research
Arlington, Virginia

Les Janka
Dean
School of Advanced International Studies
The Johns Hopkins University

Warren R. Johnston
Assistant Chief
Foreign Affairs Division
Congressional Research Service
Library of Congress

William B. Jones
Deputy Assistant Secretary
Bureau of Education and Cultural Affairs
U.S. Department of State

Murray Kamrass
Technical Staff
Institute for Defense Analyses;
President-elect
Washington Operations Research Council

Paul L. Laase
Advisor
Department of International Trade
U.S. Department of State

Robert W. Lamson
Staff
Office of Planning and Policy Studies, NSF

George H. Lawrence
Deputy Director of Behavioral Science
Advanced Research Projects Agency
U.S. Department of Defense
Arlington, Virginia

John M. Logsdon
Research Scientist
Program of Policy Studies in Science and Technology;
Assistant Professor of Public Affairs and Political Science, GWU

William Lucas
Program Director for Political Science
Division of Social Sciences
National Science Foundation

Joseph B. Margolin
Senior Staff Scientist
Program of Policy Studies in Science and Technology, GWU

James C. Martin, Jr. (USAF)
Chief
Politic Division
Studies Analysis and Gaming Division
Joint Chiefs of Staff

Louis H. Mayo
Vice President for Policy Studies and Special Projects;
Director of the Program of Policy Studies in Science and Technology;
Professor of Law, GWU

Joseph A. Navarro
Senior Staff
Urban Mass Transportation Project
(Science and Technology)

Benjamin Nimer
Professor of Political Science and International Affairs, GWU

William A. Niskanen
Assistant Director for Evaluation
Office of Management and Budget

Patrick O'Day
Vice President for Education
Applied Simulations International, Inc.

Kent Parrot (USAF)
Ph.D. Candidate (International Affairs), GWU

Robert Pickett
Physicist
Envirometrics Corporation
Washington, D.C.

Raymond Platig
Director
Office of External Research
U.S. Department of State

Henry Polmer
Student
National Law Center;
Research Assistant
Program of Policy Studies, GWU

Robert E. Pugh
Technical Staff
Advanced Research Department
Research Analysis Corporation

Herbert B. Quinn
Research Branch Chief
Sustaining University Program
Office of University Affairs, NASA

Burton M. Sapin
Dean
School of Public and International Affairs, GWU

Richard Smolka
Professor of Government
The American University

Harold Snyder
Director
International Affairs Seminars
American Friends Service Committee
Washington, D.C.

Louis B. Sohn
Counselor on International Law
Office of Legal Advisor
U.S. Department of State

Richard E. Stephens
Chief
Administrative and Management Research Branch
Sustaining University Affairs Division
Office of University Affairs, NASA

Richard L. Van Wagenen
Training Officer
Office of the Director of Projects
International Bank for Reconstruction and Development

Stephen J. Wayne
Assistant Professor of Political Science, GWU

Arthur L. "Pat" Webster
Deputy Director
Office of Systems Requirements, Plans and Information
Office of the Secretary, DOT

Ernest Weiss
Executive Director
National Transportation Safety Board

Arthur Zachai
Graduate Research Assistant
School of Engineering and Applied Science, GWU
11. Seminar Series on
INTERNATIONAL ASPECTS OF OUTER SPACE
Coordinator: John Hanessian

Papers were presented as follows:

1. The United Nations' Role in Outer Space
   May 8, 1970—A. Abdel-Ghani
   United Nations Secretariat

2. The Consortium as Model for Future International Cooperation in Space
   June 22, 1970—Richard Mizrack
   Assistant to Director
   International Agreements Division
   COMSAT

3. Prospects for International Participation in Post-Apollo Programs
   August 6, 1970—Arnold Frutkin
   Assistant Administrator for International Affairs
   NASA

   September 29, 1970—Russell Drew
   Office of Science and Technology
   Executive Office of the President

Participants:

Abdul-Hamid Abdel-Ghani
Chief, Division of Outer Space Affairs
UN Secretariat

Lt. Col. James A. Abrahamson, USAF
National Aeronautics and Space Council
Executive Office of the President

Ward Allen
Deputy Assistant Secretary for International Organization Affairs
U.S. Department of State

Walter Bailey
Assistant Executive Secretary
Director of Earth Sciences
National Academy of Sciences

Richard Barnes
Office of International Affairs, NASA

Col. Robert M. Behr, USAF
Senior Staff Member, National Security Council Staff

Dr. Clifford Bloch
Education and Human Resources
Technological Assistance Bureau
Agency for International Development

Donald Bowie
Office of Space and Environmental Science Affairs
U.S. Department of State

Professor John W. Brewer
Department of Political Science, GWU

Richard Brown
Office of U.N. Political Affairs
U.S. Department of State

Richard Campbell
Office of Space and Environmental Affairs
U.S. Department of State

Nathaniel B. Cohen
Special Assistant to the Assistant Administrator for Policy
Office of Policy, NASA

William Cohen
Director, International Plans and Programs
Office of International Affairs, NASA

Bert Cowlen
Institute for Public Administration

Paul Dembling
General Counsel
General Accounting Office

Thomas E. Donahue, Jr.
Director
International Agreements Division, COMSAT

Aldon Doud
Department of State

Stephen Doyle
Special Assistant to the Director
Office of Telecommunications Policy
Executive Office of the President

Dr. Russell Drew
Office of Science and Technology
Executive Office of the President

Lester Fero
National Aeronautics and Space Council
Executive Office of the President

Dr. Franco Emilio Fiorio
Scientific Counselor
Embassy of Italy

William Fischer
Research Coordinator
EROS Program
U.S. Geological Survey

Arnold Frutkin
Assistant Administrator for International Affairs, NASA

Eilene Galloway
Specialist
International Relations
Legislative Reference Service
Library of Congress

James J. Gehrig
Staff Director
Senate Committee on Aeronautical and Space Science

William Gevarter
Office of Policy, NASA

Professor Harold Green
National Law Center, GWU

Professor Harold Guetzkow
(Northwestern University)
c/o Carnegie Endowment for International Peace
Frank Hammill
Counsel
House Committee on Science and Astronautics
U.S. Congress

Professor John Hanessian, Jr.
Director
International Studies Group
Program of Policy Studies, GWU

Theodore Heintz
Earth Satellite Corporation

Grant Hilliker
Office of External Research
U.S. Department of State

Professor Robert Jordan
Department of Political Science, GWU

Dr. David W. Keller
Manager
Earth Resources Program
General Electric Company
Valley Forge Space Technology Center

Clarence Kramer
Assistant to the Vice President—International, COMSAT

Dr. Robert W. Lamson
Staff Associate
Office of Planning and Policy Studies
National Science Foundation

Leonard Lederman
Deputy Head
Office of Economic and Manpower Studies
National Science Foundation

S. Benedict Levin
Earth Satellite Corporation

Dr. Talbot Lindstrom
Acting Executive Officer
ISA/Policy Plans and NSC Affairs
Department of Defense

Dr. John Logsdon
Research Scientist
Program of Policy Studies, GWU

William Long
Science and Technology Office
Technical Assistance Bureau
Agency for International Development

Dr. Joseph Margolin
Director
Educational Policy Group
Program of Policy Studies, GWU

Dr. Louis H. Mayo
Vice President for Advanced Policy Studies
Program of Policy Studies, GWU

Stuart H. McIntyre
Officer in Charge of International Security Affairs
Office of U.N. Political Affairs
U.S. Department of State

Richard Mizrack
Assistant to the Director
International Agreements Division, COMSAT

James R. Morrison
Office of International Affairs, NASA

Harland B. Moulton
Research Group
National War College

Dr. Maurice Mountain
Director
Strategic Trade and Disclosure/ISA
U.S. Department of Defense

Henry Myer
Science and Technology Office
Technical Assistance Bureau
Agency for International Development

Professor Benjamin Nimer
Political Science Department, GWU

Robert Packard
Director
Office of Space and Environmental Science Affairs
Bureau of International Scientific and Technological Affairs
U.S. Department of State

Jacques Palgen
Allied Research Corporation, Inc.

Dr. Sidney Passman
Chief
Weapons System Division
Science and Technology Bureau
Arms Control and Disarmament Agency

Joe Pelton
COMSAT

Dr. J. D. Perkinson
Director
Department of Scientific Affairs
Organization of American States

Robert Porter
President
Earth Satellite Corporation

Herb Reis
Assistant Legal Adviser
U.S. Department of State

Dr. Humberto Ricciardi
Specialist for Space Applications
Department of Political and Security Council Affairs
U.N. Secretariat

Edward Risely
Technical Advisor
General Advisory Committee on Arms Control and Disarmament
Arms Control and Disarmament Agency

D. R. Rodgers
Manager
Missile and Space Field Operations
Defense Programs Division
General Electric Company

Dr. Burton Sapin
Deputy Assistant Secretary for Scientific Programs
U.S. Department of the Interior

Martin Stoller
Director
International Operations
Earth Satellite Corporation

David Strother
Office of International Affairs, NASA

Murray Todd
Executive Secretary
Office of the Foreign Secretary
National Academy of Sciences

Dr. Robert Webber
Deputy Director
Office of Space and Environmental Affairs
U.S. Department of State

Robert I. Widder
Battelle Memorial Institute
12. Seminar Series on
TECHNOLOGY ASSESSMENT IMPLEMENTATION

Co-Chairmen: Ellis Mottur
Senior Staff Scientist
Program of Policy Studies
and Raphael Kasper
Research Scientist
Program of Policy Studies

1. The Use of Drugs to Control Hyperactivity in Grade School Children
   November 5, 1970—Panelists included:
   - Charles R. Halpern
     Director
     Center for Law and Social Policy
   and Ellis R. Mottur (Moderator)
     Director
     Technology Assessment Implementation Project
   and Mark N. Ozer
     Associate Neurologist and Director
     Learning Research Unit
     Children’s Hospital
   and Joseph L. Tropea
     Professor
     Sociology Department, GWU
   and Paul H. Wender
     Child Psychiatrist
     Laboratory of Psychology
     Division of Clinical Behavior Research
     National Institute of Mental Health

2. Problems of Implementing Technology Assessments: The Congressional Context
   Member of Congress

3. Aircraft Noise Abatement as a Case Study in the Implementation of Technology Assessment
   December 17, 1970—James R. Wright
   National Research Council
   National Academy of Sciences

4. Automotive Air Pollution and Problems of Implementation of Technology Assessment
   January 14, 1971—John C. Esposito
   Center for the Study of Responsive Law

5. Policy Alternatives for Environmental Management
   March 23, 1971—Robert U. Ayres
   Vice President
   International Research and Technology Corporation

6. Limitations on Implementation of Technology Assessment
   April 22, 1971—Professor Harold P. Green
   Director of Law, Science and Technology Program, GWU

7. The Role of the Legal System in Society’s Implementation of Technology Assessment
   May 6, 1971—Professor Milton Katz
   Director of International Legal Studies
   Harvard University Law School

8. The Role of Citizen Action in the Implementation of Technology Assessment
   May 25, 1971—William Michael Kitzmiller
   Executive Director, Grassroots
Drucilla Ramey  
Stern Community Law Firm

Glenda Reed  
Legislative Assistant to Congressman John W. Davis

Arnold W. Reitze, Jr.  
Director  
Environmental Law Program, GWU

Bob Richard  
Administrative Assistant to Congressman John W. Davis

Philip C. Ritterbush  
Chairman

Joseph W. Stickle  
National Aeronautics and Space Council

William Simons  
President

District of Columbia Teachers' Union

Daniel Singer  
Attorney at Law

Strasser, Spiegelberg, Friel, Frank and Kimpelman

Joel A. Snow  
Deputy Assistant Director for Research Applications

National Science Foundation

Charles W. T. Stephenson  
Deputy Assistant General Counsel

Bureau of East Asia

Agency for International Development

Department of State

Bruce J. Terris  
Senior Attorney

Center for Law and Social Policy

Joseph L. Tropea  
Assistant Professor

Department of Sociology, GWU

Terrry A. Trumbull  
Institute of Public Administration

E. Winslow Turner  
General Counsel

Subcommittee on Intergovernmental Relations

Committee on Government Operations

U.S. Senate

Franklin Wallick  
Editor  
Washington Report

United Auto Workers

J. Frederick Weinhold  
Office of Science and Technology

Executive Office of the President
Paul H. Wender
Child Psychiatrist
Laboratory of Psychology
Division of Clinical Behavior Research
National Institute of Mental Health

John S. Winder
Executive Director
Metropolitan Washington Coalition for Clean Air

Robert Witherspoon
Senior Staff
Institute of Public Administration

Charles Witter
Assistant to Congressman Cornelius E. Gallagher

James R. Wright
Secretary
Advisory Committee on Transportation Noise
National Research Council
National Academy of Sciences

Edward F. Zigler
Director
Office of Child Development
Department of Health, Education, and Welfare
13. Seminar on

**OPTIMUM POPULATION**

December 2, 1970

Speaker: Honorable S. Fred Singer
Deputy Assistant Secretary for Scientific Programs
U.S. Department of the Interior

**Participants:**
Raymond L. Bisplinghof
Deputy Director
National Science Foundation

Henry E. Brady
Research Assistant
Program of Policy Studies, GWU

Jack M. Carlson
Assistant to the Deputy Director
Office of Management and Budget

Vary T. Coates
Research Scientist
Program of Policy Studies, GWU

Carol Crawford
Legislative Assistant
Office of Senator Bob Packwood (R-Ore.)

Jerry W. Combs
Chief
Behavioral Sciences Branch
Center for Population Research
National Institute of Child Health and Human Development

Carol T. Foreman
Chief Information Liaison
Center for Family Planning Program Development
Planned Parenthood—World Population

David L. Gamon
Deputy Special Assistant to the Secretary for Population Matters
U.S. Department of State

Alvaro Garcia-Pena
Vice President
Population Reference Bureau

Louis M. Hellman
Deputy Assistant Secretary for Population Affairs
Department of Health, Education, and Welfare

Hendrik S. Houthakker
Member
President’s Council of Economic Advisers

Phineas Indritz
Chief Counsel
Subcommittee on Conservation and Natural Resources
U.S. House of Representatives

Robert W. Lamson
Staff Associate
Office of Planning and Policy Studies
National Science Foundation

Hans Landsberg
Director
Appraisal Program
Resources for the Future, Inc.

Congressman Paul N. McCloskey
(R-Calif.)

Louis H. Mayo
Vice President for Policy Studies and Special Projects;
Director
Program of Policy Studies in Science and Technology, GWU

Arthur S. Miller
Professor of Law, GWU

Mary Mogee
Graduate Research Assistant
International Studies Group
Program of Policy Studies in Science and Technology, GWU

Congressman Charles A. Mosher
(R-Ohio)

Ellis Mottur
Director
Technology Assessment Implementation Project
Program of Policy Studies in Science and Technology, GWU

Keir Nash
Senior Political Scientist
President’s Commission on Population Growth and the American Future

Robert Park, Jr.
Deputy Director
President’s Commission on Population Growth and the American Future

Robert C. Richardson
Senior Associate
Schriever & McKee Associates
Arlington, Va.

Robert Ridker
Director
Population Studies Program
Resources for the Future, Inc.

James A. Rose, Jr.
Consultant
Westinghouse Learning Corporation
Bladensburg, Md.

Douglas Ross
Legislative Assistant
Office of Senator Joseph D. Tydings (D-Md.)

Jean Ruffin
Research Scientist
Program of Policy Studies, GWU

Richard Schisler
Special Assistant to Senator-elect Robert Taft (R-Ohio)

S. Fred Singer
Deputy Assistant Secretary for Scientific Programs
U.S. Department of the Interior

Senator Joseph D. Tydings
(D-Md.)

Walter N. Walmsley
Consultant
Population Crisis Committee

Quentin M. West
Administrator
Foreign Economic Development Service
U.S. Department of Agriculture

Charles F. Westoff
Executive Director
President’s Commission on Population Growth and the American Future

Gooloo Wunderlich
Demographer
Office of Population Affairs
Department of Health, Education, and Welfare
Seminar on
REGAINING THE POLICY INITIATIVE IN THE MODERN UNIVERSITY
December 16, 1971
Speaker: Philip C. Ritterbush
Chairman
Organization: Response

Participants:
Guy Black
Senior Staff Scientist
Program of Policy Studies;
Associate Professor of Business Economics, GWU

Robert A. Brooks
Deputy Under Secretary
The Smithsonian Institution

John J. Corson
Chairman
Fry Consultants, Inc.

Richard W. C. Falknor
Special Assistant to Congressman Thomas Foley (D-Wash.)

Hendrik Gideonse
Subcommittee on Executive Reorganization and
Government Research
Senate Committee on Government Operations

Martin A. Kramer
Director
Higher Education Planning
Office of the Assistant Secretary for Planning and Evaluation
Department of Health, Education, and Welfare

Louis H. Mayo
Vice President for Policy Studies;
Director
Program of Policy Studies;
Professor of Law, GWU

Harold Orlans
Senior Fellow
The Brookings Institution

David E. Ryer
Special Assistant to the Director
National Science Foundation

Philip Scribner
Assistant Professor
Philosophy and Religion
American University

Ralph Widner
Director
Center for the Study of Contemporary Issues
Ohio State University

Douglas Trout
President
Douglas Trout Associates
15. Seminar Series on
TECHNOLOGY ASSESSMENT METHODOLOGY

Papers were presented as follows:

1. Generating Social Impact Scenarios, A Key Step in Making Technology Assessment Studies
   January 20, 1972—Martin V. Jones
   The MITRE Corporation

2. Design Evaluation in Technology Assessment Illustrated by Auditory Impedance and Sound Distribution Problems
   March 9, 1972—John F. Halldane
   Environmental Systems Consultant
   Derwood, Md.

3. Planning and Programing in the Soil Conservation Service
   May 18, 1972—Roy M. Gray
   Program Planning Division
   Soil Conservation Service
   U.S. Department of Agriculture

Participants:
Betsy Amin-Arsala
Research Associate
Program of Policy Studies, GWU

James R. Balsley
Assistant Director for Research
U.S. Geological Survey

Terry Barnett
Legislative Assistant
Office of Senator Charles Mathias

Stanley Berman
Budget Examiner
Natural Resources Division
Office of Management and Budget

Clifford Berg
Management Analyst
Office of Management and Budget
Executive Office of the President

Guy Black
Senior Staff Scientist
Program of Policy Studies, GWU

Clark Blake
Staff Geologist
U.S. Geological Survey

Bruce Blanchard
Director
Office of Environmental Project Review
U.S. Department of the Interior

John E. Blodgett
Analyst
Environmental Policy Division
Congressional Research Service
Library of Congress

James M. Brown
National Law Center, GWU

Harold Bullis
Research Analyst
Science Policy Research Division
Congressional Research Service
Library of Congress

Joseph M. Carlson
Chief
Dissemination and Program Evaluation Division, NASA Hqts.

Rosemary Chalk
Research Assistant in Science and Technology
Congressional Reference Service
Library of Congress

Vary T. Coates
Research Scientist
Program of Policy Studies, GWU

Edward Comish
President
The World Future Society

Elizabeth Cuadra
Deputy for Program Development
Office of Noise Abatement and Control
U.S. Environmental Protection Agency

Lawrence F. Cunningham
Strategic Planner
Office of Systems Analysis and Information
U.S. Department of Transportation

Harold F. Davidson
Physical Scientist
Office of Chief of Research and Development
U.S. Department of the Army

William A. Drevo, A.I.A.
Planning Consultant

Steven Ebbin
Senior Staff Scientist
Program of Policy Studies, GWU

Nancy Ebersole
Program Analyst
Office of Systems Analysis and Information
U.S. Department of Transportation

Jack Ebetino
Program Analyst
Office of Planning and Analysis
U.S. Atomic Energy Commission
Seminar on

INFLUENCE OF 'SCIENTIFIC' DATA ON DECISIONAL BEHAVIOR IN CONTEXTS REQUIRING THE EVALUATION OF THE SOCIAL COSTS OF ENVIRONMENTAL NOISE INTRUSION

April 2, 1972

Speaker: Louis H. Mayo

Participants:

Tod Anuszkiewicz
Biological Sciences Communication Project, GWU

James M. Brown
Professor of Law
National Law Center, GWU

Herbert N. Cantor
Project Director
Public Technology, Inc.

Richard L. Chapman
National Academy of Public Administration

Vary T. Coates
Program of Policy Studies, GWU

Elizabeth Cuadra
Deputy for Program Development
Office of Noise Abatement and Control
Environmental Protection Agency

Susan Doscher
Intergovernmental Science and Technology Program
Science Policy Research Division
Library of Congress

Bill Goldbeck
Special Assistant to the Assistant Secretary for Research and Technology
Department of Housing and Urban Development

M. Frank Hersman
Intergovernmental Science Programs
National Science Foundation

John D. Holmfeld
House Committee on Science and Astronautics
U.S. Congress

Louis H. Mayo
Vice President for Policy Studies and Special Projects;
Professor of Law;
Director
Program of Policy Studies, GWU

Alfred A. Perry
Director
Urban Management Systems
President’s Advisory Council on Management Improvement
Office of Management and Budget

Peter W. Powell
Legislative Counsel
Senate Commerce Committee
U.S. Congress

John O. Powers
Chief Environmental Scientist
Office of Environmental Quality
Federal Aviation Agency

Howard C. Reese
Program of Policy Studies, GWU

Arnold W. Reitze
Director
Environmental Law Program, GWU

Clark Sessions
Industrial Engineer
Headquarters Defense Supply Agency
Department of Defense

Cora Siddayao
Program of Policy Studies, GWU

Alan R. Siegel
Director
Environmental Factors and Public Utilities Division
Research and Technology Office
Department of Housing and Urban Development

John J. Zimmerman
Program of Policy Studies, GWU
JOINT SYMPOSIUM ON
TECHNOLOGY ASSESSMENT: A FUTURE ORIENTED POLICY TOOL

June 5, 1972

Co-sponsored by the Program of Policy Studies with
The Institute of Management Sciences,
and The World Future Society

Symposium Coordinator: Vary T. Coates

Symposium Committee Co-Chairmen:

WFS  Joseph Coates, National Science Foundation
TIMS  Kenneth Gordon, Resource Management Corporation
PPSST  Raphael Kasper

Speakers:

Perspectives on Technology Assessment: What it is and Why it is Important

Professor Edward Wenk
University of Washington, Seattle
(formerly Chief of Science Policy Research Division
Congressional Research Service)

Institutional Arrangements for Technology Assessment

- Survey of Government Experience
  Vary T. Coates
  Program of Policy Studies, GWU

- The Business Point of View
  Carl Madden
  Chief Economist
  U.S. Chamber of Commerce

- Congressional Actions
  Walter Hahn
  Science Policy Research Division
  Library of Congress

- Environmental Impact Statements
  David Aggerhold
  U.S. Army Corps of Engineers

The Lawyer's Interface with Expanding Technology

Professor Harold Green
National Law Center, GWU

Methodology for Technology Assessment—Two Views

Selwyn Enzer  James Balsley
Institute for the Future; and  U.S. Geological Survey

Recent Exemplary Assessments:

- Violence on TV
  George Comstock
  RAND Corporation
  (formerly with the Surgeon General's Scientific Advisory Committee)

- Alternatives to the Internal Combustion Engine
  Douglas Harvey
  Hittman Associates

- Expansion of Kennedy Airport
  Steven Ebbin
  Program of Policy Studies, GWU

An Exercise in Technology Assessment: A Workshop

participation under direction of Joseph Coates

National Science Foundation
Papers were presented as follows:

1. **Current U.S. Policy for Science and Technology**
   - September 26, 1972—Edward David
     Science Adviser to the President

2. **U.S. Technological Strategy: Alternatives for the 1970's**
   - November 2, 1972—J. Herbert Hollomon
     Director
     Center for Policy Alternatives
     Massachusetts Institute of Technology

3. **Science Policy in an Era of Technological Strategy**
   - December 7, 1972—Philip Handler
     President
     National Academy of Sciences

4. **Public Technology: Promise and Problems**
   - January 15, 1973—John Mock
     Science Adviser to the Governor of Georgia

5. **Federal Support of Civilian Technology: Theory versus Practice**
   - February 22, 1973—George Eads
     Department of Economics, GWU

   - March 28, 1973—Michael Boretsky
     Senior Policy Analyst
     Department of Commerce

7. **The Federal Government and Social Research and Development**
   - April 26, 1973—Roger Levien
     Director
     Washington Domestic Programs
     The RAND Corporation

**Seminar Participants:**

Edward Allen
Deputy Assistant Secretary for International
Economic Research
Department of Commerce

Frederick Anderson
Editor-in-Chief
Environmental Law Reporter

Kathryn Arnow
Science Resources Studies
National Science Foundation

Peter Bankson
Graduate Student, GWU

Claude Barfield
National Journal

James Barry
Graduate Student, GWU

Michael Bass
Graduate Student, GWU

Miriam Bazelon
Graduate Student, GWU

David Beckler
Assistant to the Director
Office of Science and Technology

Johan Benson
American Institute of Aeronautics and Astronautics

Helen Berkowitz
School of Public and International Affairs, GWU

Guy Black
Program of Policy Studies in Science and Technology, GWU

William Bossmann
Science Policy Research Division
Library of Congress

Ihor Bohachevsky
Bell Labs

Michael Boretsky
Senior Policy Analyst
U.S. Department of Commerce

Carroll Brickenkamp
Office of Programs
National Bureau of Standards
Edward Burger  
Office of Science and Technology  
Executive Office of the President  

Steve Burks  
Department of Political Science, GWU  

Barbara Burns  
National R&D Assessment Program  
National Science Foundation  

Billy Caldwell  
Office of Science and Technology  
Executive Office of the President  

Steven Carhart  
Energy Policy Research Project  
Ford Foundation  

Marshall Carter  
Graduate Student, GWU  

Rosemary Chalk  
Science Policy Research Division  
Library of Congress  

Richard Chapman  
Senior Research Assistant  
National Academy of Public Administration  

Sue Coady  
Science Resource Studies  
National Science Foundation  

Joseph Coates  
RANN Program  
National Science Foundation  

Vary Coates  
Program of Policy Studies in Science and Technology, GWU  

Deborah Cobin  
Office of International Programs  
National Science Foundation  

Nathaniel Cohen  
Office of Policy Analysis, NASA  

Lynda Connor  
Management Analysis Office  
National Science Foundation  

Ruth Craig  
Graduate Student, GWU  

John Cummins  
Graduate Student, GWU  

W. Edward Cushen  
Office of Intergovernmental Science Programs  
National Science Foundation  

Lawrence Dash  
Science Resource Studies  
National Science Foundation  

Diane Davenny  
National R&D Assessment Program  
National Science Foundation  

Stanley Dolins  
Science Resource Studies  
National Science Foundation  

Susan Doscher  
Science Policy Research Division  
Library of Congress  

George Eads  
Department of Economics, GWU  

Steven Ebbin  
Program of Policy Studies in Science and Technology, GWU  

Helene Ebenfield  
Science Resources Studies  
National Science Foundation  

David Elliott  
National Security Council  

Lloyd Elliott  
President, GWU  

Robert Ehrhardt  
Graduate Student, GWU  

Lawrence Fabian  
Brookings Institution  

James Falk  
Department of Operations Research, GWU  

Mark Frankel  
Program of Policy Studies in Science and Technology, GWU  

Ozmund Fundingsland  
Technology Advancement  
General Accounting Office  

Kenneth Gayer  
RANN Program  
National Science Foundation  

Peter Goldschmidt  
University of California  
Washington Office  

Joanne Gorman  
Graduate Student, GWU  

Harold Glaser  
Deputy Director for Science and Technology  
Office of National R&D Assessment  
National Science Foundation  

Harold Green  
Director  
Law, Science and Technology Program, GWU  

Daniel Greenburg  
Science and Government Report  

Donald Gross  
School of Engineering and Applied Science, GWU  

Walter Hahn  
Senior Specialist in Science and Technology  
Library of Congress  

John Hanessian  
RANN Program  
National Science Foundation  

John H. Hawes  
Graduate Student, GWU  

M. Frank Hersman  
Head  
Office of Intergovernmental Science Programs  
National Science Foundation  

Ellen Hoff  
Communications Satellite Corporation  

John Holmfield  
Science Policy Consultant  
Committee on Science and Aeronautics  

Phillip Johnson  
RANN Program  
National Science Foundation  

Raphael Kasper  
Program of Policy Studies in Science and Technology, GWU  

Erasmus Kloman  
National Academy of Public Administration  

Genevieve Knezo  
Science Policy Research Division  
Library of Congress  

Donald J. Krysakowski  
Graduate Student, GWU  

David Lakamp  
Science Information Exchange  

Robert Lamson  
RANN Program  
National Science Foundation
Guyford Stever  
Director  
National Science Foundation

Charles Stewart  
Department of Economics, GWU

Jeremy J. Stone  
Director  
Federation of American Scientists

Ted Suranyi-Unger  
Department of Economics, GWU

Albert Teich  
Policy Institute  
Syracuse University Research Corporation

Wesley Tennant  
Program of Policy Studies in Science and Technology, GWU

Michael Terpak  
Voice of America  
United States Information Agency

Terrance Troy  
Experimental Technology Incentives Program  
National Bureau of Standards

Mark Tucker  
R&D System Task Force  
National Institute of Education

Thomas Ubois  
National R&D Assessment Program  
National Science Foundation

David Wald  
Graduate Student, GWU

Raymond J. Waldmann  
Staff Assistant to the President  
Domestic Council

June Wing  
Graduate Student, GWU

Linda Yelton  
Program of Policy Studies and Technology, GWU

James Zwolenik  
Science Resource Studies  
National Science Foundation
Papers were presented as follows:

1. **Technology and Public Policy: Highlights of the Report**  
   November 29, 1972—Vary T. Coates  
   Senior Staff Scientist  
   Program of Policy Studies, GWU  
   Reply to remarks: Jerry D. Ward  
   Director  
   Office of R&D Policy  
   Systems Development and Technology  
   Department of Transportation

2. **Technology Assessment in Transportation**  
   January 18, 1973—Joseph Coates  
   Program Manager  
   Office of Exploratory Research and Problem Assessment  
   National Science Foundation  
   and Steven Maimon  
   Technical Planner  
   Office of Technical Planning and Financial Analysis  
   U.S. Post Office Department

3. **Toward a National Energy Policy**  
   February 27, 1973—Monte Canfield  
   Deputy Director  
   Ford Foundation Energy Policy Project

**Participants:**

- **James Akin**  
  Director  
  Office of Fuels and Energy  
  U.S. Department of State
- **Betsy Amin-Arsala**  
  Research Associate  
  Program of Policy Studies, GWU
- **Robert Anthony**  
  Science Liaison  
  Bendix Aerospace Division
- **Holt Ashley**  
  Director  
  Office of Exploratory Research and Problem Assessment  
  National Science Foundation
- **Richard Baker**  
  Advanced Material Concepts Agency  
  U.S. Department of Defense
- **Arthur J. Balek**  
  Community Effects Staff  
  Office of Program and Policy Planning  
  Federal Highway Administration  
  U.S. Department of Transportation
- **Gerald O. Barney**  
  Staff Member  
  Council on Environmental Quality
- **Bodo Bartocha**  
  Office of National and International Programs  
  National Science Foundation
- **Douglas C. Bauer**  
  White House Fellow  
  Special Assistant to Secretary of Transportation Volpe
- **David Beckler**  
  Executive Assistant to the Director of Science and Technology  
  Executive Office of the President
- **James M. Beggs**  
  Under Secretary of Transportation  
  U.S. Department of Transportation
- **Charles M. Billingsley**  
  Program Analysis and Control  
  Office of Research and Development  
  Federal Highway Administration
- **Guy Black**  
  Senior Staff Scientist, Program of Policy Studies, GWU
- **Fred Bowen**  
  Executive Assistant to Deputy Associate Administrator, A.S.T.  
  NASA
- **Steven Carhart**  
  Ford Foundation Energy Policy Project
- **John Carrell**  
  Office of Environmental Review  
  U.S. Department of the Interior
- **Robert J. Catlin**  
  Division of Environmental Affairs  
  Atomic Energy Commission
- **Hang-Sheng Cheng**  
  International Economist  
  U.S. Department of the Treasury
George Cherry  
Deputy Associate Administrator, A.S.T.  
NASA

Joseph F. Coates  
Program Manager  
Exploratory Research and Problem Assessment  
National Science Foundation

Vary T. Coates  
Research Scientist  
Program of Policy Studies, GWU

Harry I. Cohen  
Program Evaluation Division  
U.S. Coast Guard  
U.S. Department of Transportation

Ernest L. Corley  
Program Analysis and Coordination  
U.S. Department of Agriculture

Henry Coulter  
Geological Survey  
U.S. Department of the Interior

Fred Cutler  
National Economist  
U.S. Department of the Treasury

Beatrice Dane  
Consumer Affairs and Public Information  
National Highway Traffic Safety Administration

Diane D. Davenny  
Science and Technical Adviser  
Office of Congressman Brock Adams

Velmar Davis  
Assistant to Administrator for Environmental Coordination  
Economics Research Service  
U.S. Department of Agriculture

Paul Dembling  
General Counsel  
General Accounting Office

Harold Denton  
Assistant to the Director for Site Safety  
Atomic Energy Commission

Stanley Dolins  
Division of Science Resources Studies  
National Science Foundation

Steven Ebbin  
Senior Staff Scientist  
Program of Policy Studies, GWU

Alfred J. Eggers, Jr.  
Assistant Director for Research Applications  
National Science Foundation

John Farrell  
Office of Environmental Review  
U.S. Department of the Interior

John Fedwik  
Deputy Director  
Office of Planning and Evaluation  
U.S. Department of Agriculture

Scott Fleming  
Office of Assistant Secretary for Health  
U.S. Department of Health, Education, and Welfare

Leroy Furlong  
New Energy Technologies  
Office of Science Advisor  
U.S. Department of the Interior

Kenneth Gayer  
Deputy Director  
Office of Exploratory Research and Environmental Assessment  
National Science Foundation

David Gendell  
Office of Highway Planning  
Federal Highway Administration

Jack Goldberg  
Associate Administrator for Policy and Programming  
U.S. Department of Transportation

William I. Goodman  
Director  
Urban Transportation Systems  
Office of Assistant Secretary for Environment and Urban Systems  
U.S. Department of Transportation

Winifred Griffin  
Congressional Research Service  
Library of Congress

James Gross  
Office of Research and Ship Development  
Maritime Administration  
U.S. Department of Commerce

Wilford Grover  
Water Resources Council

James A. Hagen  
Associate Administrator for Policy and Plans  
U.S. Department of Transportation

Walter Hahn  
Science Policy Division  
Congressional Research Service  
Library of Congress

Harry H. Hersey  
Assistant Program Officer for Research and Development  
Federal Highway Administration  
U.S. Department of Transportation

Frank Hersman  
Office of Intergovernmental Science Utilization  
Research Applied to National Needs Program  
National Science Foundation

Lloyd O. Herwig  
Advanced Technology Applications Division  
Research Applications  
National Science Foundation

William Iulo  
Ford Foundation Energy Policy Project

Roy Jackson  
Associate Administrator, A.S.T.  
NASA

Paul Jaffe  
Office of Safety and Consumer Affairs  
U.S. Department of Transportation

James R. Janis  
Office of Planning and Evaluation  
Environmental Protection Agency

Philip Johnson  
Environmental Systems Division  
National Science Foundation

Thomas J. Joyce  
Bureau of Natural Gas  
Federal Power Commission

Raphael Kasper  
Research Scientist  
Program of Policy Studies, GWU

Jean Knezo  
Analyst in Science and Technology  
Congressional Research Service  
Library of Congress

James H. Krieger  
Chemical and Engineering News

Eugene Lehr  
Coordination and Research Division  
U.S. Department of Transportation
William Upholt
Senior Science Advisor to Assistant Administrator for Categorical Programs
Environmental Protection Agency

Jack Vanderryn
Division of Applied Technology
Atomic Energy Commission

William Van Ness
Senate Committee on Insular and Interior Affairs

Edward J. Ward
Office of Research Development and Demonstration
Federal Railroad Administration
U.S. Department of Transportation

Jerry D. Ward
Director
Research and Development Policy
U.S. Department of Transportation

Russell Wayland
Conservation Division
U.S. Geologic Survey
U.S. Department of the Interior

Arden Weiss
National Programs and Assessment Division
Water Resources Council

Ernest Weiss
Formerly Executive Director
National Transportation Safety Board

Merril Whitman
Assistant Director for Program Analysis
Reactor Development and Technology Division
Atomic Energy Commission

Thomas Wilson
International Institute for Environmental Affairs

James R. Wright
Environmental Coordinator
Highway Research Board
National Academy of Sciences

Raymond Wright
American Petroleum Institute

Robert Wolf
Environmental Policy Division
Congressional Research Service
Library of Congress

Dale Zimmerman
Leasing Branch
Bureau of Land Management
U.S. Department of the Interior

Dan Zwick
Office of the Assistant Secretary for Health
U.S. Department of Health, Education, and Welfare
Papers were presented as follows:

1. **Career Education and Minority Groups**
   a) February 8, 1973—Rhody McCoy (Speaker)
      Director
      Center for the Study of Educational Innovations
      University of Massachusetts
      Rudolph Bryant (Fellow)
      Assistant Director
      Pratt Institute Center for Community and Environmental Development
   b) March 8, 1973—Rudolph Bryant (Speaker)
      Assistant Director
      Pratt Institute Center for Community and Environmental Development
      Fellow in "Issues and Concerns in Career Education"

2. **Career Education and Employers**
   a) March 19, 1973—Charles Bowen (Speaker)
      Chairman of the National Committee for Support of Public Schools
   b) April 19, 1973—Ron Hicks (Speaker)
      Staff Assistant
      Urban Affairs Department
      Dallas Chamber of Commerce
      Fellow in "Issues and Concerns in Career Education"

3. **Career Education and Labor Unions**
   a) April 30, 1973—Gus Tyler (Speaker)
      Assistant President
      International Ladies Garment Workers Union
      Albert Lorente (Fellow)
      United Automobile Workers of America
   b) May 30, 1973—Albert Lorente (Speaker)
      Administrative Coordinator of Project Outreach
      United Automobile Workers of America
      Fellow in "Issues and Concerns in Career Education"

4. **Career Education and Higher Education**
   June 21, 1973—Panelists:
   Stephen Bailey
   Vice President
   American Council on Education
   David Bushnell
   Human Resources Research Organization
   Stephen Plumer
   Dean of Developing Programs
   Antioch College

**Participants:**
Sheppie Abramowitz
Director
Washington Office
University of Cincinnati

Delbert Allen
Business Manager
Local 77
International Union of Operating Engineers

George Arnstein
The Brookings Institution

Sherri Arnstein
A. D. Little, Inc.

Helen S. Astin
Director of Research
University Research Corporation
Donald Barnes  
Vice President  
Institute for Educational Development  

Mary Bigley  
Federal Relations Desk  
American Association of State Colleges and Universities  

Alvah Berman  
Assistant Dean for Cooperative Education  
Northeastern University  

Charles Bowen  
Chairman  
National Committee for Support of the Public Schools  

Jacqueline Brophy  
Acting Director  
Labor Program Service  
School of Labor and Industrial Relations  
Michigan State University  

Jonathan Brown  
Institute for Educational Leadership, GWU  

Dave Bushnell  
Human Resources Research Organization  

Dale Bussis  
Vice President  
Institute for Educational Development  

Paul Cawein  
Assistant Superintendent  
Career Development Program  
District of Columbia  

Tory Cawnes  
Research Assistant  
National Institute of Education  

James Cesnik  
Editorial Guild Reporter;  
Director  
American Newspaper Guild  

Michael Collins  
Director  
Dual Enrollment Program  
International Union of Operating Engineers  

Paul Collins  
American Personnel and Guidance Association  

Lloyd Cooke  
Director  
Urban Affairs  
Union Carbide Corporation  

Martin Cooley  
Program Executive for Education  
National Association of Manufacturers  

Olga Corey  
Director  
State of Illinois Washington Office  

Kathryn Crockett  
GWU  

Ruth Day  
National Office Training Branch  
Internal Revenue Service  

William Douglas  
Director of Education  
American Institute for Free Labor Development  

John Egermeier  
Director  
Researcher Training  
National Institute of Education  

Clinton Fair  
AFL-CIO  

James Fellows  
Director  
Professional Services  
National Association of Educational Broadcasters  

Ann Finkelstein  
Assistant Director  
Career Education Fellowship Program  
Program of Policy Studies, GWU  

Patricia Fleming  
Legislative Assistant to Congressman Augustus Hawkins  

Brady Fletcher  
Counselor  
Kensington Junior High School  

Delyte Frost  
Communication Workers of America  

Dennis Gallagher  
The Manpower Institute  

Iris Garfield  
Project Manager  
National Assessment Project  
Office of Education  

Ira Gibbons  
School of Social Work  
Howard University  

Carol Gibson  
Associate Director  
Educational Policy Information Center  
National Urban League  

Robert Gilkey  
Author  
formerly Director of Office of Environmental Education  
Office of Education  
U.S. Department of Health, Education, and Welfare  

Larry Givens  
Manager  
Job Orientation and Training  
Chrysler Corporation  

Helmut Golatz  
Head  
Department of Labor Studies  
Pennsylvania State University  

Thomas Golatz  
Social and Rehabilitation Service  
U.S. Department of Health, Education, and Welfare  

Harold Goldstein  
The Manpower Institute  

Margaret Gover  
Americans for Indian Opportunity, Inc.  

Nancy Graham  
The National Urban Coalition  

Richard A. Graham  
Format Director  
Education Programs  
ACTION  

Glendis Hambrick  
Chairman  
Committee on School and Work  
American Federation of Teachers  

Martin Hamburger  
Dean  
New York University  

Reese Hammond  
Director of Education  
International Union of Operating Engineers  

David Hampson  
Career Education Task Force  
National Institute of Education  

LaDonna Harris  
President  
Americans for Indian Opportunity, Inc.  

William Harrison  
Center for the Study of Social Problems  
Battelle Memorial Institute
Lucinda Haynes
Staff Associate
American Assembly of Collegiate Schools of Business

Addison Hobbes
Washington Technical Institute

Owen Hoey
Director
"On the Job" Training Program
International Unions of Electrical, Radio and Machine Workers

Charles Holt
Senior Research Economist
The Urban Institute

Donald M. Honicky
Supervisor
Educational Relations, AT&T

Kenneth Hoyt
Director of the Specialty Oriented Student Research Program
University of Maryland

Jack Hruska
Department of Education
University of Massachusetts

Art Humphrey
Career Education Task Force
National Institute of Education

Fred Humphrey
Vice President
Institute of Services to Education

Charles Hurst
President
Malcolm X College

Alan Jackson
Assistant Division Chief Education
Office of Management and Budget

Ronald Johnson
Educational Relations Division, AT&T

Ella M. Johnston
Career Education Task Force
National Institute of Education

Arthur Kane
Labor Studies Center
Federal City College

Raphael Kasper
Assistant Director
Career Education Fellowship Program
Program of Policy Studies, GWU

Clement P. Kerley
Manager
Manpower Planning and Development
Pitney-Bowes

Bruce Kingery
Division of Education
United Auto Workers of America

Kristin Larson
GWU

Sar Levitan
Director
Center for Manpower Studies, GWU

James Lyons
Equal Opportunity Specialist
Office of Program and Policy Review
U.S. Civil Rights Commission

Sam Marks
Humanics Design Corporation

Sidney Marland
Assistant Secretary for Education
U.S. Department of Health, Education, and Welfare

Eugene Martin
National Advisory Council on Vocational Education

Louis Mayo
Vice President for Policy Studies and Special Projects;
Director
Program of Policy Studies in Science and Technology, GWU

Rhody McCoy
Director
Center for the Study of Educational Innovations
University of Massachusetts

Helen McKenzie
League of Women Voters

John R. McKenzie
Director
Labor Studies Center
Federal City College

Louis G. Mendez, Jr.
Federal Coordinator for Industry, Education and Labor
U.S. Office of Education

Constantine Mengers
Deputy to the Assistant Secretary for Education
U.S. Department of Health, Education, and Welfare

Frank Mensel
Vice President
Governmental Affairs
American Association of Junior Colleges

Clarence Mondale
Director
Office of Program Development, GWU

Richard C. Mottu
Vice President
Youth Programs
National Alliance of Businessmen

Selma Mushkin
Director
Public Service Laboratories
Georgetown University

Arlene Neal
Human Resources Development Institute

Jettie Newkirk
Director
Urban Careers Education Center

Fern Nicholas
Counsel
Bladensburg High School

Harold Orlans
The Brookings Institution

Barry Passett
Systems for Change, Inc.

Stan Patterson
Community College Education
U.S. Office of Education

Reginald Petty
Director of Research
National Advisory Council on Vocational Education

Steven Plumer
Dean
Antioch College Washington Campus

Roman Pucinski
Former Congressman from Chicago, Ill.

John Quackenbush
Washington Building Trades Council

George Quarles
Director
Career Education Program
New York City
Publications, Reports, Books

Program Publications

The publications listed herein have grown out of the Program's research from the Fall of 1966 through October 1973. The Program publishes four groups of documents: Monographs (Mon), Occasional Papers (OP), Reprints (R), and Staff Discussion Papers (SDP). Staff Discussion Papers fall in four series:

100 series—Urban
200 series—Technology Assessment
300 series—Economic Aspects of R&D
400 series—Institutional Responses to Advancing Technology

HOW TO ORDER

A few complimentary copies of the most recent publications are available from the Program upon request. These items are starred. Xerox copies of Reprints and other out-of-print, otherwise unavailable Program papers may be ordered from Mrs. Annette Steiner, Special Collections Section, The George Washington University Library, Washington, D. C. 20052 (10¢/page + about 50¢ postage and handling). Such requests to Mrs. Steiner must be accompanied by your check in the required amount, payable to The George Washington University.

Program Series papers (except Reprints which may only be ordered from Mrs. Steiner) may be ordered from the National Technical Information Service, 5285 Port Royal Road, Springfield, Va. 22151 (microfiche—$1.45, paper copies—$3.00 or as listed) stating title, author and PB or N number of the document requested. All orders should be sent to NTIS accompanied by payment in the form of a check, money order or NTIS coupon.

Advocacy in Technology Assessment.
Ernest M. Jones. (Nov. 70) GWPS-SDP 209; 80 pp.
PB 196-635.

Apollo Decision and Its Lessons for Policy Makers.
John M. LOGSDON. (Jan. 70) GWPS-OP 7; 38 pp.
N70-23324.

Broadcast Satellites: Their Potential Use for Educational Purposes, and their Relationship to International Understanding and Cooperation.
John HANESSIAN, Jr. and Joseph B. MARGOLIN (July 69) 21 pp.
GWPS-OP 3;
PB 192-549.

“Business Gigantism and ‘Technological Imperatives,’”

Congressional Debate on the Social Sciences.
Dennis W. BREZINA. (Dec. 68) GWPS-SDP 400; 22 pp.
PB 192-556.

*Consideration of Environmental Noise Effects in Transportation Planning by Governmental Entities.
N73-72515.
(Revision of remarks prepared for TRANSPO '72 International Conference on Transportation and the Environment, Session #7 on "Noise as a National Problem" held 5/31/72, Wash. D. C.)
Contextual Approach to Technology Assessment: Implications for “One Factor Fix” Solutions to Complex Social Problems.
Louis H. MAYO. (April 71) GWPS-MON 9; PB 199-162.

Control of Incinerator-Caused Air Pollution in New York City: 1946-1985.
Richard MYRICK and Barbara S. MARX. (March 68) 65 pp. $6.00 GWPS-SDP 202; PB 182-874.


Ellis R. MOTTUR. (March 71) GWPS-MON 8; COM 71-00005. 209 pp.

Guy BLACK. (Aug. 68) 32 pp. $6.00 GWPS-SDP 102; PB 182-870.

"Design Evaluation in Technology Assessment.
John F. HALLDANE. (May 72) GWPS-MON 12; N72-28970. 50 pp. $4.75

Early Experiences with the Hazards of Medical Use of X-Rays: 1896-1906—A Technology Assessment Case Study.
Barbara S. MARX. (Fall 68) GWPS-SDP 205; PB 182-877. 75 pp. $6.00

"Earth Resource Surveys: An International Framework Begins to Develop."


"Effect of Government Funding on Commercial R & D."

Guy BLACK. (July 70) 93 pp. GWPS-SDP 104; PB 195-797.

Louis H. MAYO. (Oct. 73) GWPS-MON 16; 30 pp. N74-_______ (Prepared for presentation at the Second International Conference on Unity of the Sciences, Tokyo, Japan, Nov. 18-21, 1973 under sponsorship of the International Cultural Foundation.)

Examples of Technology Assessments for the Federal Government.
Vary T. COATES. (Jan. 70) GWPS-SDP 208; 48 pp. PB 192-555.

Expanding Roles of Non-Profit Organizations as Contractors with Government: Some Research Needs.
Clarence H. DANHOF. (Mar. 68) GWPS-SDP 301; 19 pp. PB 182-879.

Federal Government and the Current Development of Technology Assessment.
Vary T. COATES. (June 71) GWPS-OP 11; 12 pp. PB 201-470.

George EADS. (March 73) GWPS-OP 16; 24 pp. N73-72514.

Financial Variables Associated with R & D Expenditures by Industry.

Forecasting in International Relations.

Guy BLACK. (Aug. 68) 32 pp. GWPS-SDP 102; PB 182-870.

*Generating Social Impact Scenarios: A Key Step in Making Technology Assessment Studies.

*Genetic Engineering.
Dan S. MURRELL. (61 pp.) and Selected student papers from a course, "Science and the Legal Process" at the National Law Center of The George Washington University, Spring Term 1970. Available only from the Program of Policy Studies.

*Genetic Technology: Promises and Problems.
Mark S. FRANKEL. (March 73) GWPS-MON 15; 104 pp. N73-72427.

Highlights from the Literature on Organization for Federal Programs in Science and Technology.
Fred R. BROWN and Stephen R. CHITWOOD. (July 68) 140 pp. $6.00 GWPS-MON 2; PB 182-603.

Historical Aspects of Technology Assessment.

"Impact of Cybernetic Information Technology on Management Value Systems."

Influence of Insurance on Technological Development.
Gordon B. FIELDS (Nov. 69) GWPS-SDP 405; 38 pp. PB 192-561.

*International Aspects of Earth Resources Survey Satellite Programs.
"Law's Interface with Expanding Technology.

"National Economic Conversion: Congressional Proposals and Prospective Action."

Harold P. GREEN. (Jan. 68) GWPS-MON 1; 9 pp.

"On the Cost of Engineering Education.
Guy BLACK. (Nov. 70) 174 pp. GWPS-MON 7; PB 196-539.

Organizational Cybernetics and Human Values.
Richard F. ERICSON. (Sept. 69) GWPS-MON 4; 31 pp. PB 192-545.

"Planning and Programming in the Soil Conservation Service.
Roy M. GRAY. (June 72) GWPS-MON 13; 27 pp. $3.50 N72-28347.

"Policy Analysis Role of the Contemporary University."

Probing the Law and Beyond: A Quest for Public Protection from Hazardous Product Catastrophes.
James M. BROWN. (July 69) GWPS-SDP 402; 64 pp. PB 192-558 [Became Reprint #7]

"Probing the Law and Beyond: A Quest for Public Protection from Hazardous Product Catastrophes."

Process of Setting Safety Standards in the Courts, Congress and Administrative Agencies.
Michael J. WOLLAN. (Feb. 68) GWPS-SDP 204; 126 pp. $6.00 PB 182-876.

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James E. MAHONEY. (Dec. 67) GWPS-SDP 201; 10 pp. PB 182-873.

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Harold P. GREEN. (March 69) GWPS-OP 1; 16 pp. PB 192-547.

"Relationship of Technology Assessment to 'Balanced Social Growth'."

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Louis H. MAYO. (Nov. 72) GWPS-OP 14; 56 pp. $4.75 N73-14968.

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Guy BLACK. (July 68) GWPS-SDP 302; 70 pp. $6.00 PB 182-880.
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Robert G. SMITH. (July 68) GWPS-SDP 101; 49 pp. $6.00 PB 182-869.


"Systems Approaches to Socio-Economic Problems Confronting Governments: An Appraisal."

Technology Assessment and Citizen Action.
Ellis R. MOTTUR. (March 71) GWPS-OP 10; 26 pp. PB 199-181.

Technology Assessment and Environmental Engineering.
Ellis R. MOTTUR. (Jan. 71) GWPS-OP 9; 19 pp. PB 197-687.

Technology Assessment of Space Stations.
Vary T. COATES. (May 71) GWPS-SDP 212; 65 pp. PB 201-073.

Technology Assessment: What Should It Be?
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Technology Transfer by People Transfer.
Clarence H. DANHOF. (Aug. 69) GWPS-SDP 403; 20 pp. PB 192-559.

"Toward the 'Techno-Corporate' State: An Essay in American Constitutionalism."

*Toward a New Federal Policy for Technology: The Outline Emerges.
John M. LOGSDON. (Aug. 72) GWPS-SDP 408; 30 pp. $3.75 N73-13987.

Michael BORETSKY. (Oct. 73) GWPS-MON 17; 175 pp. N73-

Urban Development Modeling.
George C. HEMMENS. GWPS-MON 6; (April 70) 38 pp. PB 192-546.

What's Happening to Small Business Research and Development?
Guy BLACK. (May 71) 17 pp. GWPS-SDP 303; PB 201-074.
Since 1972 the Council has prepared and published a Quarterly in magazine format. While still available, a complimentary copy of these publications, listed below, may be requested from the National Advisory Council on Supplementary Centers and Services, 425 Thirteenth St. N.W., Suite 529, Washington, D.C. 20004. Copies are accessible for reading or for ordering xerox copies (10¢/page + 50¢ postage and handling) at the Special Collections Section, George Washington University Library, Washington, D.C. 20006. Such requests must be accompanied by your check in the required amount payable to The George Washington University.

1972 January
Title III in Special Education
This publication describes Title III's contribution to special education and includes a listing of Title III special education projects. (35 pp.)

April
“Title III in Environmental Education”
This publication reviewed a number of Title III projects in this curriculum area and listed all projects operating throughout the country. In this new curriculum field, the publication is one of the first to describe how environmental education may actually be implemented at the elementary and secondary levels, and it has had wide circulation among educators and environmentalists. (34 pp.)

July
“Title III in Preschool Education”
This issue of the Quarterly described in detail and in summary a number of projects in this field and listed all programs currently in existence under Title III. (34 pp.)

October
“Title III and the World of Work”
This Quarterly reviewed and listed Title III projects in vocational and career education. (34 pp.)

1973 January
“Title III in Guidance and Counseling”
This publication brought together information about Title III guidance projects. It also represents one of the first efforts in the field to describe the operation of guidance and counseling programs actually operating in schools. (44 pp.)

April
“Title III and Changing Educational Designs”
This issue of the Quarterly describes Title III projects which have implications for long-term and comprehensive changes in educational practices. (51 pp.)

July
Title III and Cultural Diversity
This issue deals with projects in bilingual education, cultural awareness, and ethnic studies. (36 pp.)

The Fall, 1973 issue reviews Title III projects in educational administration and management. The Winter, 1973 issue reviews Title III in the Arts.

Also distributed by the Council is a monthly newsletter designed to inform the Title III community of national developments affecting education and of the activities of Title III projects and state administrators.
Books and Project Reports

Listed here are Books written by staff members and published, and Project Reports (published and unpublished). At least one copy of the Final Report of each project is accessible for reading in the library of the Program, as well as in the Special Collections Section of the main University library. However, no copies are available for distribution. Sometimes copies of these reports are available from the sponsoring agency, and when possible, reference numbers for them are cited.


A National Criminal Justice Reference Service.
James E. MAHONEY and David WEEKS. A report. January 1971, 36 pages. Prepared for the Law Enforcement Assistance Administration, Department of Justice, Washington, D. C. The model for an information reference system recommended in this report was the basis for a system which is now national in scope and which is broadening into international application.

A Work Book on Alternative Future Life Styles Related to Energy Demand.

An Integrated Strategy for Aircraft/Airport Noise Abatement.

Analysis of the Need For and Feasibility of More Effective Distribution of Government-Supported Non-Written Material.

Application of Systems Analysis to Government Operations.


Citizen Group Uses of Scientific and Technological Information in Nuclear Power Cases.

Computers in the Classroom: An Interdisciplinary View of Trends and Alternatives.

Decision to Go to the Moon: Project APOLLO and the National Interest.

Joseph B. MARGOLIN and the Educational Policy Group. A book to be published in 1974, the writing of which is supported by a grant from the Ford Foundation. It is based on a report prepared for the U.S. Office of Education in April 1970 entitled "Analysis of the Need For and Feasibility of More Effective Distribution of Government-Supported Non-Written Material."

Education in the 70's.

Effect of Changing Patterns and Levels of Federal Research and Development Funding on Industry.
Prepared for the National Science Foundation, Industry Studies Group.

Effects of Limited-Access Highways on Nearby Churches.

Evaluative Jurisprudence: The Role of Legal System in the Maintenance of Control over the Direction and Rate of Value-Institutional Change in Modern Technological Society.

Evaluative Mechanisms for the Public Experimental Program of the National Endowment for the Humanities.


Homeowner's Title Registration Corporation: A Program to Reduce the Land-Related Costs of Housing.

Innovation Information and Analysis Project.

International Participation in an Experimental Earth Resources Survey Satellite Program.

Inventory and Appraisal of George Washington University Activities in Urban Social/Minority Group Problem Areas.

Laws and Regulatory Schemes for Noise Abatement.


Political Economy of the Space Program.


Revitalization of Small Communities: Transportation Options.

Social Impacts of Civil Aviation and Implications for R&D Policy.

Strategies for the Use of Mass Communications Media in the Technologically Developing Nations.

Vary T. COATES. A report. July 1972, 650 pages. Available from NTIS as follows:

- Summary Report (50 pp.) PB-211455 $3.75
- Vol. 1, Final Report (350 pp.) PB-211453 $9.00
- Vol. 2, Appendices (250 pp.) PB-211454 $6.75

Prepared and supported in part by the National Science Foundation's program of Research Applied to National Needs (RANN).

Technology Assessment Applied to Urban Solid Waste Management.

Technology Assessment Implementation Project.
the National Science Foundation (RANN/ERPA) to develop detailed plans for further, in-depth, interdisciplinary research projects on Society's Acceptance and Implementation of Technology Assessments.

**Technology Assessment: The Proceedings of a Seminar Series.**

**Technology Assessment: Understanding the Social Consequences of Technological Applications.**

**Technological Innovation for Civilian, Social Purposes.**

**Toward Increasing the Social Relevance of the Contemporary University.**

**Trends in Western European Political and Economic Policies, 1969-1985.**
Program Staff

Staff listing includes those who have contributed all or a substantial part of their effort to Program activities during the period September 1970 through December 1973. Former members of the Staff are listed with Projects commenced prior to January 1971.

Louis H. Mayo
Director; Vice President for Policy Studies and Special Projects; Professor of Business Economics

Vary T. Coates
Associate Director; Senior Staff Scientist, and Head of Technology Assessment Group (Political Science)

Guy Black
Senior Staff Scientist; Professor of Business Economics

Dennis W. Brezina
Senior Staff Scientist (Political Science)

James M. Brown
Senior Staff Scientist; Professor of Law

Steven Ebbin
Senior Staff Scientist (Environmental Policy)

Richard F. Ericson
Senior Staff Scientist Professor of Management

Joseph V. Foa
Professor of Engineering and Applied Science

John Hanessian
Senior Staff Scientist (Political Science)

Guenther Hintze
Research Professor of Electrical Engineering

Mary A. Holman
Associate Professor of Economics

Martin V. Jones
Special Consultant on Technology Assessment
Raphael A. Kasper  
Senior Staff Scientist  
(Nuclear Engineering)

Gerald J. Kluempke  
Executive Secretary, National  
Advisory Council on Supplementary  
Centers and Services

John M. Logsdon  
Senior Staff Scientist;  
Director, Graduate Program in  
Science, Technology and Public Policy;  
Associate Professor of Public Affairs  
and Political Science

Joseph B. Margolin  
Senior Staff Scientist;  
Director, Educational Policy Group

Milton C. Marney  
Senior Research Fellow  
(Normative Systems Research)

Roy L. Marx  
Research Scientist (Economics)

Arthur S. Miller  
Professor of Law

Marion R. Misch  
Research Scientist;  
Deputy Director, Educational Policy Group

Henry R. Nau  
Deputy Director, Graduate Program in  
Science, Technology and Public Policy;  
Assistant Professor of Political Science  
and Public Affairs

Charlton R. Price  
Senior Staff Scientist

Howard C. Reese  
Senior Staff Scientist

Nozer D. Singpurwalla  
Associate Professor of Operations  
Research

Charles T. Stewart, Jr.  
Professor of Economics

Theodore Suranyi-Unger  
Senior Staff Scientist;  
Research Professor of Economics

Wesley L. Tennant  
Senior Staff Scientist  
(R&D Innovation Information)

Ernest Weiss  
Senior Staff Scientist  
(Transportation Programs Specialist)
Betsy Amin-Arsala
Research Associate (Community Development)

Thomas Carter
Research Assistant
(Biomedical Ethics)

Mark S. Frankel
Assistant to the Director, Graduate Program in Science, Technology and Public Policy; Instructor of Political Science

Rodney Frame
Research Associate (Economics)

Daniel J. Guttman
Research Associate (Law)

Charles E. Hansen
Research Associate
(R&D Innovation Information)

Audrey D. Hassanein
Research Information Specialist

Charles Lamb
Research Associate, NASA ERTS—Land Use Project (Political Science)

Judith Naiman
Research Assistant (International Relations/Economics)

Richard Rice
Research Associate (Law)

Virginia Robinson
Research Assistant (Education)

Judith Russell
Chief Information Specialist, NSF R&D Innovation Information Center

Edward D. Studholme
Research Associate
(Urban and Regional Planning)

S. Ann Vlachos
Senior Document Research Assistant, Innovation Information Center

Margaret Ware
Senior Document Research Assistant, Innovation Information Center

Robert Ware
Research Associate
(Environmental Law)

Frederick B. Wood
Research Associate; Assistant Professorial Lecturer of Management Science

John J. Zimmerman
Research Associate
(Environmental Law)
Susanne Bachtel  
Assistant to the Director

Gertrude Delman  
Secretary for Noise Studies

Dorothy Dier  
Secretary to Associate Director

P. Gail Gross  
Secretary to National Advisory Council on Supplementary Centers & Services

Claudia Howard  
Secretary to Mr. Tennant

Bebita D. Reasoner  
Coordinator for Program Publications and Administration

Michele Sendow  
Executive Assistant to R&D Innovation Information Project

Margo von Kaenel  
Executive Assistant to Dr. Ebbin

Linda Yelton  
Secretary to Graduate Program in Science, Technology and Public Policy

Ian Bowen (Undergraduate)  
Periodicals Scanner

Pamela Brown (Undergraduate)  
Technical Information Assistant

M. Elizabeth Burns (Undergraduate)  
Library Aide

Robert Curley (Undergraduate)  
Periodicals Scanner

Debra Dretar  
Periodicals Scanner

Terome Frazier  
Technical Support Staff (Duplication Center)

Jesse Gibbs  
Technical Support Staff (Duplication Center)